Annual Monitoring Report
for the
Land and Resource Management Plan

Arkansas and Oklahoma
Fiscal Year 2015
October 1, 2014 - September 30, 2015

United States
Department of
Agriculture

Forest
Service

Annual Monitoring 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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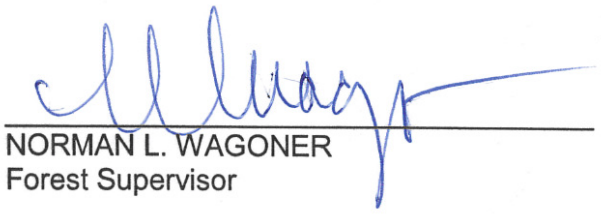
Forest Supervisor's Certification

This is the ninth review of the Forest Land and Resource Management Plan (Forest Plan), which became effective December 2005. This review took into consideration all of the findings from previous reports (2006 – 2014) as well as information for 2015. I have evaluated and endorsed the monitoring results and findings presented in this report.

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



NORMAN L. WAGONER
Forest Supervisor

Date

Summary Including Priorities, Recommendations, and Focus Areas

As monitoring results are analyzed, trends are identified. Some trends reveal resource management concerns. Additionally, some focus areas are identified due to new research results. In the following discussions, there is a mix of both monitoring result-driven focus areas and emerging science-driven focus areas. Summaries of the topics are presented in the order they appear in the Monitoring and Evaluation Report. Data are presented by fiscal year, unless noted within the report as being for a calendar year. The fiscal year for the Federal Government (including the Forest Service) is from October 1 of one year to September 30 of the next year.

Implementation of the Forest Plan – Project Decisions

In 2015, 32 project decisions were signed compared to 27 project decisions in 2014. Of the 32 project decisions, 7 were Decision Notices and the rest were Decision Memos. The projects addressed every facet of forest management. A list of each of the project decisions is presented in Appendix B of this report.

Land Ownership and Land Administration

The boundary management accomplishment totaled approximately 62 miles in 2015. From 2006 through 2015, approximately 867 miles of National Forest System boundary have been maintained as existing survey boundaries, marked as previously unsurveyed boundaries, or obliterated as past boundaries now moot because of land adjustments. To protect land ownership title, 8 encroachments were resolved in 2015. From 2006 through 2015, 78 land-related issues (encroachment, trespass, or unauthorized occupation) have been resolved.

Land Ownership Pattern and Land Exchanges

Overall, the total of National Forest System lands constituting the Ouachita NF has remained stable, increasing by only 4,710 acres from 2005 to 2015. There were no lands purchased, sold, or exchanged during 2015. There is likely to be a continued flat or stable trend in National Forest System acreage dependent upon funding levels; however, if there is a need to exchange or purchase additional lands, the Forest will continue to apply the Land Ownership Strategy.

Transportation System and Access Management

During 2015, 1,259 miles of road were operated and maintained to meet objective maintenance levels and classes. Declining road maintenance funding is contributing to difficulties in meeting objective maintenance levels and classes. In addition to maintenance, 1.49 miles of arterial/collector roads were reconstructed (2 roads), but no new arterial/collector roads were constructed. Plus, 8.72 miles of local roads were reconstructed and 40.65 miles of roads were removed from the system (decommissioned) during 2015. Road Maintenance funding for 2015 was $1,751,664 in regular appropriated funds and $2,616,905 in Emergency Relief for Federally Owned (ERFO) roads funds.

Access/Travel Management

The Forest met the requirements of Subpart A of the Travel Management Rule and submitted required products to the Regional Office in September, 2015. The Forest meets the requirements of Subpart B of the Travel Management Rule on an annual basis resulting in 5 Motor Vehicle Use Maps (MVUMs), one for each set of combined Ranger Districts, which are updated annually and posted to the Forest's website.

Bridge Inspections

There are 130 bridges on 73 roads under Ouachita National Forest management. Approximately half of these bridges are inspected annually. For 2015, 54 bridges were inspected, and over 88% were found to be free of any structural deficiency. Those requiring maintenance will be addressed as funding is available or closed if a deficiency becomes a safety hazard. When bridges with deficiencies are included in timber sales the cost to repair such bridges may make associated timber sales economically infeasible.

Facility Operation and Maintenance

The Forest has met its objective of eliminating 3 leased facilities by 2015 with lease terminations for the Tiak (2009), Kiamichi (2015) and Fourche (2015) offices. Land has been purchased for the Cold Springs-Poteau Ranger District; however design and construction have not occurred. Some progress has been made to reduce the footprint of the 5 Ranger Districts, but there is a need to consolidate administrative facilities remnant from the administration of the 12 formerly separate Districts.

Special Uses

Many recreational uses of National Forest System (NFS) lands are unrestricted. All other uses of NFS lands, though, are subject to application State and Federal laws and must be authorized by Special Use permit, easement or lease. There were 538 special authorizations of various types in 2015. The total number of authorizations issued was relatively consistent between years 2012 and 2013 and increased 7.5% in 2014. In 2015, the total number of uses returned to 2012 and 2013 levels. The majority of authorizations were for road access.

Commodity and Commercial Uses

Minerals and Energy Development

The minerals program manages hardrock mines, as well as operations for sand, gravel and stone; non-energy minerals such as quartz and wavellite; and other energy resources such as coalbed methane and coal. At the end of 2015, there were 19 quartz contracts, 4 quartz leases, 2 wavellite leases, 5 coal-bed methane wells, 1 coal lease-by-application (pending) and 33 common variety mineral materials pits/quarries on the Ouachita NF. BLM issued no new leases on the Ouachita NF from 2011 to 2015, and no new gas leases were nominated in 2015. No new quartz contracts have been nominated or issued since 2008, though interest remains high. Several proposed expansions of current operations were proposed near the end of 2015; however, no decisions were issued. In addition to the active mineral operations, the minerals program also oversees an abandoned mine program which deals with about 70 abandoned mine entrances and shafts across the Ouachita NF.

Livestock Grazing/Range Activities

Over the last 10 years, interest in grazing on the Ouachita NF has generally declined and is not expected to increase in the future. All grazing on the National Forest is in forest and/or woodlands. Number of cattle being grazed is steady; therefore, resource damage from grazing is minimal. The current condition of the range allotments are in line with the desired condition and plan objectives. There were 600 acres of rangeland vegetation improvements in grazing season 2015. Number of livestock was up from 116 in 2014 to 130 in 2015. The number of active allotments and permittees is 3.

Timber Sale Program

Firewood: Demand for firewood remains high and doubled the amount sold in 2014. Cords of firewood sold in 2015 equaled 1,242, higher than the previous 3 years.

Commercial Timber Sales: The ASQ for the Ouachita NF is 27 million cubic feet per year (270,000 CCF). Volume sold that was chargeable towards the ASQ was 180,875 CCF in 2015 and the total volume sold was 181,039 CCF, higher than the previous 3 years and nearing the 10-year average.

Air Quality

Within the Ouachita National Forest, air pollutants such as ozone, fine particulate matter, and acidic deposition can cause negative impacts to visibility, as well as water quality and aquatic and terrestrial habitats. Ambient monitoring of fine particulate matter, ozone, 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. All data are presented in calendar years.

Particulate Matter

No data were available for 2015 at the time of this report.

Ozone

Ozone is a pollutant formed by emissions of nitrogen oxides and volatile organic compounds in the presence of sunlight. At the 2 monitoring sites closest to the Forest (Polk County, AR and Sequoyah County, OK), both monitors have fallen below the National Ambient Air Quality Standard in the last 3 years.

Acidic Deposition

Total sulfur and total nitrogen deposition trends for the Cherokee Nation (Adair County, OK) and Caddo Valley (Clark County, AR) monitoring locations are reported in the Clean Air Status and Trends Network database. No data were available for 2015 at the time of this report.

Terrestrial Ecosystems

Desired conditions for each terrestrial ecosystem type are described on pages 6-18 of the Forest Plan. Data regarding these ecological systems were presented in the first 5-Year Review (2010) of the current Forest Plan. The next evaluation will occur as part of the 5-year review for 2011–2015 to be conducted in 2017. Many elements of terrestrial ecosystems, including habitat conditions, ecological restoration, management indicator species, and endangered species, are addressed in other sections.

Collaborative Forest Landscape Restoration Program (CFLRP)

Through the third year of implementation, direct CFLRP funding totaled $4,528,328. Through 2015, 168,476 acres had been treated with prescribed fire and 21,044 acres had been thinned non-commercially.

Chiefs' Joint Landscape Restoration Partnership

The Western Arkansas Woodland Restoration Project joint venture is a partnership between the US Forest Service (USFS), Natural Resources Conservation Services (NRCS), and Arkansas Forestry Commission (AFC). This Project is paving the way for private forest landowners to better manage their forested lands, with overwhelming interests from landowners joining this effort. The Western Arkansas Woodland Restoration Project was undertaken in 2014 with joint funding from the Natural Resources Conservation Service (NRCS) and the FS (NRCS - $2,180,000; FS $800,000 on the Ouachita). Work under this authority continued into 2015.

Good Neighbor Authority

The Good Neighbor Authority allows the Forest Service to enter into cooperative agreements or contracts with States to perform watershed restoration and forest management services on National Forest System (NFS) lands. In 2014, Congress passed two laws expanding Good Neighbor Authority (GNA): the FY 2014 Appropriations Act and the 2014 Farm Bill. The GNA authority was not used in 2014: however under funding requested in 2015, work is expected to begin under this authority in 2016.

Soils

Over 304 acres of soil restoration was accomplished in 2015. Soil and water resource assessments were conducted on 960 acres in 2015.

In 2015, a total of 6 resource areas on 5 ranger districts were monitored, which included recreation management, vegetation management, roads management, fire management and minerals management.

Fire Influences and Fuels

For 2015, 76,304 acres were credited to the prescribed fire program.

Under the Watershed Restoration and Enhancement Agreement Authority, popularly known as the Wyden Amendment, 2,828 acres were cooperatively treated with fire in 2014. No report was received for 2015.

Terrestrial Non-native Invasive Species (NNIS)

The Ouachita NF collects data on invasive species infestations and enters that data into the Natural Resource Information System (NRIS) database. The NNIS inventories have been completed on 35,466 acres of wilderness inventory on 4 of the 6 wilderness areas within the Forest: Dry Creek, Poteau Mountain, Blackfork, and Flatside. In 2015 there were a total of 420 acres of non-native invasive plants treated and a total of 377 acres of new infestations were reported.

Insects and Disease

The ONF continues to participate in annual southern pine beetle (SPB) trapping that attracts and forecasts SPB activity and participates in the SPB prevention program that targets pine stands in need of thinning to keep them below the volume and spacing requirements known to contribute to SPB spot growth (timber loss).

The ONF is also dealing with the invasive “emerald ash borer” (EAB). As of the end of 2015, 6 counties in south central Arkansas had positive trap catches and those counties plus other buffer counties are now quarantined for the movement of hardwood timber products, including firewood.

Vegetation Management

The ONF primarily uses natural regeneration to propagate stands of native species and provide early seral stage vegetation. Seedtree and shelterwood cuts in Shortleaf Pine/Shortleaf Pine-Oak planned and contracted through commercial timber sales from 2006 - 2014 resulted in 21,138 acres of regeneration.

Terrestrial Habitats (Seral Stages)

Early Seral Stage

The Forest Plan objective is to create 5,500 acres of early seral stage (grass/forb) habitat per year using even-aged methods. Forest-wide, less than 24,000 acres of early seral habitat have been created since 2005 (when the Plan was revised), averaging less than 3,000 acres per year. No report was received in 2015.

Mid-Seral Stage

Mid-seral vegetation 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. This structural condition is prime for pole timber production and is a precursor to sawtimber production.

Late Seral Stage

The late seral vertical structure condition 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. From 2005 to 2014, the Forest increased in the late seral stage by over 160,000 acres. No report was received in 2015.

Other Terrestrial Wildlife Habitat Components

Cave and Mine Habitat

During mine surveys in 2015, 4 northern long-eared bats (a newly listed federal species) were identified in a single location. Most mines have been gated with bat-friendly gates.

Mast Production

There were 421,072 acres of hardwoods greater than 50 years old in 2014 compared to a slightly larger number of acres (423,961) in 2012-2013. No report was received in 2015.

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. Generally, this habitat capability modeling takes place each year; however, due to lack of personnel with knowledge to run the model, the Forest was unable to complete habitat capability modeling for 2015. Provided that personnel are in place next year, the Forest will resume this modeling and even try to recreate the modeling for 2015.

Terrestrial Management Indicator Species and Wildlife Habitat Management

The Forest Plan identified 7 terrestrial MIS—all are bird species with the exception of white-tailed deer: usually the Forest runs a model called the habitat capability model that uses several variables to estimate habitat capability available in the Forest to support various species. These reports were not prepared for 2015 and data were not available for Eastern Wild Turkey, Northern Bobwhite, Pileated Woodpecker, Prairie Warbler, Red-cockaded Woodpecker Scarlet Tanager, and White-tailed Deer.

R8 Sensitive Species and Terrestrial Species of Viability Concern

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 that would raise concern about long-term viability. The following species listed on the Regional Forester's Sensitive Species list are regularly monitored:

Bald Eagle

Surveys in 2014 on the Ouachita NF showed known nest sites at Irons Fork Lake, Lake Ouachita and North Fork Lake and confirmed nest successes at the North Fork Lake and at a new site, Hatchery Lake near High Point Mountain. No new nest sites were reported for 2015.

Caddo, Rich, and Fourche Mountain Salamanders

No recent surveys for the Caddo and Fourche Mountain salamander species have been conducted; however, the Oklahoma RD surveyed a project area, and results should be available soon.

Rich Mountain Slit-mouth Snail

Three Rich Mountain slit-mouth snails were found during 30-minute searches of 5 sites in 2015.

Eastern Small-footed Bat and Southeastern Myotis

The Ouachita NF initiated a bat acoustic survey protocol in 2009 to monitor bat population trends and assess the impacts of White Nose Syndrome (WNS) on the summer distribution of bats. See the "Bats and White-Nosed Syndrome (WNS)" section under "R8 Sensitive Species and Terrestrial Species of Viability Concern." Twenty-two Southeastern Myotis were found to occur in Chalk Mine during the 2014 mine monitoring efforts. Several mines and caves will be surveyed in 2016 for comparison.

Terrestrial Proposed, Endangered, and Threatened Species Habitat

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 ONF, and 6 are terrestrial species:

American Burying Beetle

In 2014, 36 transects were monitored using the current USFWS protocol for a total of 155 trap nights. No ABBs were captured on either Oklahoma or Poteau/Cold Springs Ranger Districts in 2014. Surveys will again be conducted in 2016, but no reports were received for 2015.

Indiana Bat

No surveys were conducted at Bear Den Cave in 2015. Data from the Indiana Bat Recovery Team and other sources in the scientific literature show there are no records of this species reproducing within the Ouachita Mountain Regions of Arkansas or Oklahoma. Indiana bats typically travel north from Ozark Mountain summer maternity sites and winter hibernacula.

Bats and White-Nosed Syndrome (WNS)

Arkansas became the 23rd state to confirm WNS in bats in May 2014. The fungus is transmitted primarily from bat to bat. Currently, WNS is found in 26 US states including northwest Arkansas within the caves on the Ozark NF, and 5 Canadian provinces. The Ouachita NF has gated most known mines or caves with bat-friendly gates to allow access for the bats and to prevent other disturbances and continues to gate and perform maintenance work on existing gates as needed. Maintenance of mine gates continues.

Least Tern and Piping Plover

During 2015, Least Tern numbers at Red Slough were slightly higher than the 10-year average, with 47 being documented. As 2014 was a 10-year high for Least Tern, the 47 documented Least Terns in 2015 represent only about ½ of the number recorded in 2014 (82). During 2015, 2 Piping Plovers were documented and that is the first sighting of this species since 2006.

Northern Long-eared Bat

In 2015, surveys were conducted for bats, and 2 Northern Long-eared bats were found in a single location.

Red-cockaded Woodpecker

The Red-cockaded Woodpecker (RCW) is both a federally listed endangered species and an MIS for the Ouachita NF. RCW active territories increased from a low of 11 territories in 1996 to 70 active territories in 2014. No data were submitted for 2015.

American Alligator

Surveys of the American alligator on the Oklahoma Ranger District in 2015 located 3 alligator nests, which is the most recorded during a single nesting season. One nest was raided by raccoons, but 27 young were still produced.

Missouri Bladderpod

Missouri Bladderpod was monitored in 2013 and in 2015. During the 2015 review, 2 new populations were discovered. Neither monitoring review found indications of disease or damage.

Other Wildlife Management Considerations

In addition to managing for species viability and health, the Ouachita NF actively coordinates with the Arkansas Game and Fish Commission (AGFC) and the Oklahoma Department of Wildlife Conservation (ODWC) on all matters related to wildlife management.

Hunting

Hunting is permitted anywhere on the Ouachita NF 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 FS System lands within Wildlife Management Areas (WMAs) managed by either the AGFC or ODWC. Hunting with dogs is still allowed on the general forest area of the Ouachita NF in Arkansas.

Wildlife Management Areas

In Arkansas, 3 WMAs are managed by the AGFC cooperatively with the Ouachita NF by Memorandum of Understanding (1968) between the land managing parties for the benefit of the hunting public.

Caney Creek WMA (85,000 acres) occupies portions of Howard, Montgomery, Pike, and Polk Counties. Maintainance for 2015 included mowing 125 acres of plots and planting 75 acres of plots. Most plots are maintained on a 2-year rotation with the exception of plots within the Walk-In Turkey Area.

Muddy Creek WMA (150,000 acres) is located in Montgomery, Scott, and Yell Counties. Maintainance for 2015 included mowing and planting 187 acres of plots. Also, AGFC purchased and installed 8 new gates and 6 other gates were repaired utilizing a grant from the National Wildlife Turkey Federation. A 2-year rotation is maintained with a few exceptions due to heavy rains washing out accesses in the Rockhouse Watershed area.

Winona WMA (160,000 acres) is located on lands in Garland, Perry, and Saline Counties. Maintainance for 2015 included mowing and planting 160 acres of plots. Food plot maintenance in the Winona WMA is on a 2-year rotation. For 2015, AGFC removed 5 feral hogs from Winona WMA in approximately 12 nights of baiting and 3 trap nights.

In Oklahoma there are 3 WMAs on the Ouachita NF, jointly managed in cooperation with the ODWC. Oklahoma is unique for the Ouachita NF in that all National Forest System lands within the 2 counties in Oklahama are contained within WMAs. All of the National Forest System lands within LeFlore County are contained within the Ouachita LeFlore Unit WMA (which includes acreage formerly called the Cucumber WMA). All of the National Forest System lands within McCurtain County are contained within either the McCurtain Unit WMA or the Red Slough WMA.

All of the National Forest System lands within LeFlore County are contained within the **Ouachita LeFlore Unit WMA** (212,836 acres) including the former **Cucumber Creek WMA** (12,627 acres, with 3,514 owned by The Nature Conservancy). In the Ouachita LeFlore WMA, 130 food plots are maintained in cooperation with the ODWC and National Wild Turkey Federation (NWTF). For 2015, 45-50 acres of food plots were maintained.

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). The NWTF contributes to treatments with prescribed fire, which is on a 3-year rotation allowing for almost continual new growth. The Red Slough WMA is cooperatively managed by the Ouachita NF, Natural Resources Conservation Service (NRCS), and ODWC. The Red Slough WMA bird surveys through 2015 revealed a total of 317 bird species. Activities accomplished during 2015 include providing 54 tours, removal of 57 feral hogs, treatment of 481 acres with prescribed fire, and disking of 123 acres.

Walk-In Turkey Areas

There are 9 Walk-In Turkey Areas on the Ouachita NF, 7 in Arkansas and 2 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 who desired opportunities to hunt on public lands free of disturbance from motor vehicles.

In OK, 5 food plots each (or 10 acres/Area) are annually maintained in Well Hollow Walk-In Turkey Area and Blue Mountain Walk-In Turkey Area both within the Ouachita WMA, managed in cooperation with the ODWC.

Riparian and Aquatic Ecosystems and Habitat

Riparian and aquatic associated ecosystems comprise approximately 16% 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.

Aquatic Management Indicator Species (MIS)

Aquatic species are divided into Pond, Lake and Waterhole MIS and Stream and River MIS.

Pond, Lake, and Waterhole MIS

There are 3 pond, lake, and waterhole management indicator species (MIS) and these species are reported on a calendar year basis rather than a fiscal year basis: Bluegill, Largemouth Bass, and Redear Sunfish. Gizzard Shad and Threadfin Shad are not designated MIS species, but they are discussed because they are helpful to determine catch and harvestability rates of other game fish or to assess potential hazards to sustainable sport fisheries.

Bluegill

As sampled in all years through 2015, Bluegill populations across the Ouachita NF are at suitable and sustainable levels and their viability is not in question. No management changes are indicated by monitoring results.

Largemouth Bass

As sampled in 2015, Largemouth Bass populations across the Ouachita NF are at suitable and sustainable levels and their viability is not in question. No management changes are indicated by monitoring results.

Redear Sunfish

The spring electrofishing seasons in the past several years have been characterized as wet springs with temperatures cooler than normal with the result that sunfish spawns have been missed. As sampled in 2015, the Redear Sunfish populations across the Ouachita NF are at suitable and sustainable levels and their viability is not in question. No management changes are indicated from monitoring results.

Gizzard Shad

There is concern that the Gizzard Shad population might be expanding in Cedar Lake to the detriment of the sport fishing species. After review of 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 encourage more reproduction/recruitment of smaller sizes of Gizzard Shad and reduce the number of individuals in the population that are too large to serve as forage for the Largemouth Bass and crappie in the lake. Trends in the Gizzard Shad population will continue to be monitored by gill netting and electrofishing in order to detect changes in abundance and length frequencies within the Gizzard Shad population.

Threadfin Shad

Threadfin Shad first appeared in samples in 2006; however, they disappeared by 2009. Therefore, it appears the Threadfin Shad have likely died out. Monitoring protocols will be changed so that additional gill net sampling will not be conducted unless Threadfin Shad should appear in electrofishing or seining samples again.

Stream and River MIS

There are 14 species of fish associated with stream and river habitat. Monitoring for these MIS is to determine how well the stream and river aquatic habitat conditions are being maintained or enhanced.

Data indicate that the following populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question:

- Smallmouth Bass
- Green Sunfish
- Longear Sunfish
- Yellow Bullhead
- Northern Hog Sucker
- Highland Stoneroller
- Creek Chubsucker
- Striped Shiner
- Northern Studfish
- Orangebelly Darter
- Redfin Darter
- Pirate Perch

Johnny Darter

Johnny Darters are more typically found over fine gravel and sand substrates. Johnny Darter counts were generally quite low in 2012 with some improvement in 2013; then a large drop in 2014; and a slight further drop in 2015. Most of the 2014 drop is from not being able to sample in a number of the Mountain Fork River sites. In 2015 all sites but one were sampled. Both 2012 and 2013 surveys were c during extremely dry conditions and 2014 was the same in some places and flooded in others. The last 4 years each had numerous high water events during the winter through the spring. In 2015 flooding was again experienced in the spring; and then, low water conditions not present in the last several years existed from the summer into fall.

Channel Darter

For Channel Darters in 2014, the counts plummeted for the same reason as the numbers did for the Johnny Darter because many sites were too flooded or too muddy to be able to snorkel or see underwater. However, conditions were much better in 2015, and all sites but one were surveyed with Channel Darter numbers showing a slight rebound.

R8 Sensitive and Other Aquatic Species of Viability Concern

Ouachita Darter

A Forest Service snorkel survey for Ouachita Darters was not conducted in 2015 due to the short turnaround time for required training and reporting in the Watershed Interactive Tool (WIT) data base of record. In addition, flow levels were too high to conduct surveys safely.

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

Listed Freshwater Mussels

There were no specific freshwater mussel surveys conducted on the Ouachita NF during 2014; however, a few mussel surveys were conducted in 2015.

Leopard Darter

Leopard Darters have undergone a 5-year Status Review by the US Fish and Wildlife Service and results have been released, with no recommendation to upgrade or downgrade the listing classification. Leopard Darters in 2015 resulted in snorkel counts with the same median count as the summer of 2011 but had a lower pooled count/total time and the variance in the count (box size and length of whiskers) was much smaller than that of 2011. For 2015, all but one West Fork Glover River site was sampled and while significant spring flooding occurred, conditions were suitable to low for surveying in 2015. The trend line for the annual pooled counts of Leopard Darters is not statistically significant. Data indicate that the populations are experiencing natural variations. There is a newly perceived threat to Leopard Darter survival of inadequate genetic variation between and within populations, which is under further scrutiny.

Harperella

During 2015, 11 known sites of harperella were monitored by the Forest Botanist. The populations continue to fluctuate from year to year due to drought and flooding events. The habitats were in good shape and no known threats to the habitat were observed.

Other Aquatic Habitat Considerations

Game Fish Habitat

For 2015, annual Channel Catfish stocking continued in most managed recreational fishing waters in close coordination with the fish and game agencies of each state. In 2015, additional fish sampling was continued to monitor the Gizzard Shad population at Cedar Lake, and control measures were again undertaken as it appears the Gizzard Shad population continues to keep game fish populations in Cedar Lake from obtaining their optimal growth. The control measures, with limited sampling, appear to be helping to shift some of the Gizzard Shad biomass to smaller-sized shad that are more optimal for game fish consumption.

Aquatic Habitat Enhancement Activities

In FY 2015, 30.2 miles of fish passage and sediment reduction/control was accomplished, mostly funded with Federal Highway's flood restoration dollars and with Joint Chief's Woodland Restoration funding in the Wolf Pen Gap OHV Area. In 2015, 9 projects opened up aquatic organism passage to approximately 21.9 miles of streams with the remainder contributing to sediment reduction and control. The number of waterholes created in 2015 was 63 with an additional 15 rehabilitated for continued use.

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.

Herbicide Monitoring

Although sampling was accomplished, lab results were not available to report for 2015.

Recreation

Abundant opportunities exist for the public to use and enjoy the Ouachita NF. Areas or facilities reported in this section include those MAs having special emphasis on recreation and/or scenery and include developed recreation sites, semi-primitive and wilderness areas, and trails.

Fee Sites

During 2015, $172,613 was collected at 14 fee sites.

Trails

Demand for OHV riding opportunities is 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. 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 newly named Epic Lake Ouachita Vista Trail. Mountain biking is fast becoming one of the most important niches that the Forest can support. Currently, the Forest provides over 200 miles of single-track trail for the mountain bike enthusiast.

Recreation Participation

A preliminary forest-level visit estimate obtained from the National Visitor Use Monitoring for 2015 is 1.189 million visits to the Ouachita NF per year. This is an increase from the 2010 estimated 1.067 million visits to the ONF annually. Based on the 2015 National Visitor Use Monitoring program, overall satisfaction ratings were very high – over 80% of visitors to the Ouachita NF were very satisfied with their overall experience.

Public and Agency Safety

The Ouachita NF is staffed by 7 full-time and 2 “reserve” Law Enforcement Officers (LEO). In 2015, the Law Enforcement and Investigation (LE&I) unit for the Ouachita NF administered 6 Cooperative Law Enforcement Agreements that support local county law enforcement assistance in Arkansas and Oklahoma. LEOs responded to or assisted with 43 accidents within/adjacent to the Ouachita NF including 21 motor vehicle accidents, 12 ATV accidents, 2 motorcycle accidents and 8 personal injury/other accidents; 21 separate search and rescue operations for lost hikers and hunters; and 10 assault cases. Ninety-two separate ATV violations were recorded for 2015. During 2015, a total of 541 Federal and State Violation Notices, 290 Warning Notices, and 353 Incident Reports were issued.

Heritage Resources and Tribal Relationships

Heritage Stewardship

The Heritage Overview is complete and consultation with tribal and state consulting partners is concluded. The document is available in electronic format (OBJ20). A Heritage Resources Management Plan, based on the Heritage Overview and forest-wide land type associations is in production (OBJ21). Priority Heritage Assets (PHAs) are monitored on a 5-year rotation, in which 20 percent of PHAs are monitored each year; for 2015, the Ouachita had 183 archeological and historic sites on the PHA list. Thirty-two PHAs were actively monitored and 22 PHAs were managed to standard. Archeological collections are Priority Heritage Assets. In 2015, collections were prepared for curation. Curation activities are on-going with volunteers greatly assisting in this effort.

Tribal and Native American Interests

In 2014, the Caddo Nation of Oklahoma and the Choctaw Nation of Oklahoma signed comprehensive agreements with the USDA Forest Service (Ouachita and Ozark-St. Francis National Forests) concerning protocols to implement the Native American Graves Protection and Repatriation Act of 1990 and the Archaeological Resources Protection Act of 1979. Protocols were implemented during 2015. These represent positive steps toward stronger Government-to-Government relationships with these Tribes. To date, all archeological collections maintained by the Ouachita NF have been examined. Tribal burial requests will be addressed.

The annual To Bridge a Gap meeting between Tribes and the Forest Service was held in Wyandotte, Oklahoma in 2015. The 2015 event was hosted by the Eastern Shawnee Tribe.

Additionally, in 2015, heritage staff conducted public outreach at 5 venues, including 2 flint knapping demonstrations, and history and archeology programs for the Ouachita Chapter of the Arkansas Archeological Society.

Contribution to Social & Economic Sustainability

The Ouachita NF is important to many local economies in terms of providing employment, ecosystem services, products, services, recreation visits, contracting, and other sources of revenue that then multiply economically within local communities. The economic influence of the Ouachita NF has remained fairly stable over time. In addition to contributions to the social fabric and economic bases of local communities from timber activities, and to a lesser extent mineral activities, the ONF contributes directly to counties under the Secure Rural Schools Act (Payments to Counties) and from payroll and projects undertaken with the FS budget.

Payments to Counties

Allocations in 2015 (Titles 1 & 3) ranged from a high of $957,404 to Scott County (where nearly 65% of the county is in NFS ownership) to a low of $399 in Hot Spring County (where less than 1% of the County is in NFS ownership).

Budget

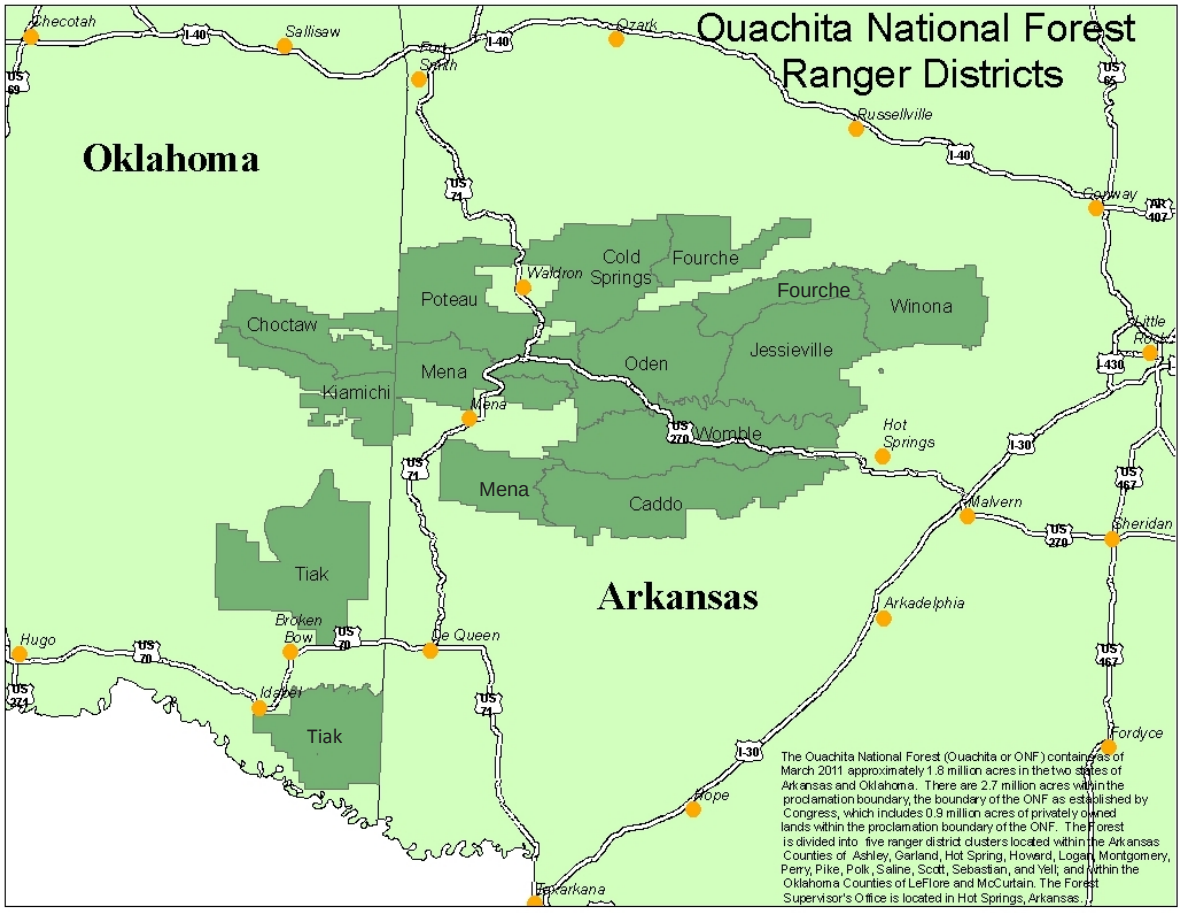
The Forest Plan management areas and standards represent statements of long-term management direction. Such direction and the rate of implementation are largely influenced by and dependent on the annual budgeting process. The NFS budget for 2015 was $9.2 million (without earmarks or returns on receipts of timber sales under the Knutson-Vandenberg Act).

The Ouachita National Forest

The Ouachita National Forest (Ouachita NF, Forest, or ONF) is located in western Arkansas and southeastern Oklahoma and contains approximately 1.8 million acres. There are approximately 2.7 million acres within the boundary of the Forest established by Congress, known as the "proclamation boundary." Privately-owned or State lands within the proclamation boundary total nearly 1,000,000 acres.

The Ouachita NF is divided into 5 ranger district units 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 following map. For administrative purposes, the Ranger Districts are grouped into the following administrative units: Oklahoma; Poteau-Cold Springs; Mena-Oden; Caddo-Womble; and Jessieville-Winona-Fourche.

Ouachita NF Vicinity Map



Monitoring of the Forest Plan

The 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. 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 Forest Plan was completed under the 1982 36 CFR Part 219 regulations (developed under the National Forest Management Act) that guide Forest Service planning at the Forest and national levels. 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 recommends 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 the Forest Plan. 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 in the Environmental Impact Statement prepared for the Forest Plan. Monitoring indicates whether, or to what extent, 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 should be made to improve resource management.

Organization of the Monitoring and Evaluation Report

For Monitoring Reports completed for years 2006–2009, 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 2011 M&E Report and continuing with successive reports, the format changed to a summary of monitoring and evaluation by subject, and topics are not repeated in various places throughout the report. Also, beginning with the 2012 and 2013 M&E report, in compliance with the 2012 Plan Rule, a biennial monitoring report was prepared. However, specialists felt it was more accurate to produce an annual monitoring report; therefore, both the 2014 and the 2015 Monitoring and Evaluation Reports cover a single year. In the future depending on staffing and funding, some topics may be reported on a biennial basis.

Implementation of the Forest Plan

While the Forest Plan for the Ouachita NF provides broad or strategic direction for managing the Forest, site-specific project decisions are more defined and must be consistent with Forest Plan direction. Project level decisions must also be in compliance with all applicable Federal and State laws, rules and regulations, such as 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 2015

For additional information, contact Lisa Cline at lcline@fs.fed.us

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

Appendix B to this report contains a list of 32 projects involving every Ranger District on the Ouachita NF for which National Environmental Policy Act (NEPA) decision documents were signed from 10/01/2014 through 09/30/2015. Of the 32 decisions, 7 were accomplished with decision notices and 25 were accomplished with decision memos. Decision notices are prepared for project analyses that are documented in environmental assessments, for example, large timber sales. Decision memos are prepared for projects that are categorically excluded from documentation in an environmental assessment like 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.

General Forest

Land Ownership and Land Administration

Land Line Location, Maintenance, or Management

For additional information, contact Charlie Storey at cstorey@fs.fed.us

Forest Plan Objective 17 addresses the need for boundary management. Approximately 862 total miles of National Forest System boundary have been maintained, marked, or obliterated from 2006 through 2015 which is an average of about 86 miles per year. Boundary management was accomplished on a total of 62 miles in 2015. Due to funding and human resource constraints, accomplishing marked boundary lines is more difficult on the Forest. Following is a summary of miles of boundary located or maintained by year since 2006:

Miles of Boundary Located or Maintained, by FY, ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Miles	52.58	65.00	135.40	136.50	114.02	105.00	99.75	40.00	56.58	62.00

To protect land ownership title, during 2015, 8 encroachments were resolved (for comparison, 11, 12, and 9 encroachments were resolved during 2012, 2013, and 2014 respectively). From 2006 through 2015, 78 encroachments, trespass, or unauthorized occupations have been resolved.

Land Ownership Pattern and Land Exchanges

For additional information, contact Jessica Soroka at jasoroka@fs.fed.us

Land purchases, exchanges and conveyances are used to consolidate and simplify National Forest Lands ownership. Consolidation reduces administrative costs and management challenges. The trend in the lands program is to use exchanges to meet Forest Plan goals. There have been no lands purchased for the past 5 years.

Land Program, Acres Purchased by FY, ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Acres Purchased	120.00*	120.00	0.00	0.00	27.80	0.00	0.00	0.00	0.00	0.00

*Previous Monitoring Reports included 2,257 acres for 2006 because acres acquired through tripartite exchanges were counted as purchases when they were actually exchanges. The totals for the rest of the years also have tripartite acres in the exchange portion so now it is consistent.

During 2015, there were no acres were exchanged by the Forest Service. The following data displays acres exchanged since the Forest began implementing the Forest Plan and is highly variable by year.

Land Program, Acres Exchanged by FY, ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Acres Exchanged	72.95	3,978.00	0.00	260.00	160.00	260.80	4.00	0.00	161.35	0.00

The first time that the Forest Service sold National Forest System lands other than by the Small Tracts Act was during 2006. Sales in 2006 were accomplished under PL 108-350 which gave the Forest authority to sell several administrative sites and 3 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.

Land Program, Acres Sold by FY, ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Acres Sold	162.45	9.89	0.00	4.57	0.41	0.00	0.00	0.45	350*	0.00

*During 2014, 350 acres were transferred to the US fish and Wildlife Service without consideration.

Overall, the total of National Forest System lands has remained stable, increasing only 4,710 acres during the span of 2005–2015. The stable trend in National Forest System acreage illustrated in the following is likely to continue. If there is a need to exchange or purchase additional lands, the Forest will continue to apply the Land Ownership Strategy set out in Part 2 of the Forest Plan.

Land Totals by FY, ONF

Year	2005	2006	2007/ 2008	2009	2010	2011/ 2012	2013	2014	2015
Total NFS Acres	1,784,610	1,786,714	1,789,690	1,789,666	1,789,853	1,789,672	1,789,671	1,789,320	1,789,320
Yearly Change	+1,945	+2,104	+2,976	-24	+187	-181/0	-0.65	-351.35	0.00

Transportation System and Access Management

Transportation System

For additional information, contact Lea Moore at lvmoore@fs.fed.us

There are Forest Plan 4 objectives stated for the ONF transportation system:

- *OBJ36: Complete a transportation plan for the Ouachita NF 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% 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 following table displays the road miles in the database of record for each of the maintenance level categories for 2015.

Road Miles by District and Maintenance Level (ML) 2015, ONF

District	ML 1	ML 2	ML 3	ML 4	ML 5	Total All ML
Oklahoma	474.89	447.79	107.03	0.85	7.19	1,037.75
Caddo/Womble	298.21	279.91	120.05	20.15	4.82	723.14
Cold Springs/Poteau	477.70	454.64	258.82	9.47	2.24	1,202.87
Jessieville/Winona/Fourche	861.06	571.32	435.87	6.06	1.59	1,875.90
Mena/Oden	397.12	247.56	215.52	19.08	2.81	882.09
Forest Totals	2,508.98	2,001.23	1137.28	55.61	18.64	5,721.75

Source: Infra

During 2015, 1,259 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 2015, 1.49 miles of arterial/collector roads were reconstructed on separate sections of 2 roads. During 2015, no miles of new arterial/ collector roads were constructed. The following shows arterial/collector roads reconstructed for the period 2006 - 2015.

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

Arterial/Collector Roads Reconstructed	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Miles	15.56	6.44	6.44	1.94	7.96	11.35	37.6	0.99	11.8	1.49
Number of Roads	7	4	4	4	3	3	8	3	15	2

Work has been accomplished to reconstruct local roads. During 2015, 8.72 miles of local roads were reconstructed. The following displays local road reconstruction. There is no clear trend related to miles of road reconstructed. Usually available budgets and repairs needed for safety concerns drive road reconstruction accomplishments.

Road (Local) Reconstruction by FY, ONF

Local Roads Reconstructed	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Miles	55.40	34.20	28.17	1.94	13.62	14.71	28.50	13.95	13.77	8.72

In addition to the 8.72 miles of local road reconstruction during 2015, a small amount of local road construction was accomplished. For 2015, 0.85 miles of local roads were constructed and added to the system. The following 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	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Miles	15.99	4.28	8.54	21.00	3.29	11.13	5.1	2.21	0.72	0.85
Number of Roads	22	NR	NR	8	5	11	2	4	2	1

There were 40.65 miles of roads removed from the system (decommissioned) during 2015. Each year, there are far more miles of road removed from the system than are added. The following displays the miles of roads removed from the system by fiscal year.

Miles of Road Removed from the NF System by FY, ONF

Roads Removed from the System	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Miles	204.35*	12.30	2.70	2.04	0.00	20.70	28.3	28.0	84.33*	40.65

* The seemingly large number of road closures in 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. Similarly, another records review during 2014 found additional roads that were not actual forest service jurisdiction and needed to be removed from the database of record.

Road Maintenance funding by Year, ONF

Road Maintenance Funding by Yr	Regular Appropriated Funds ($)	Emergency Relief ($) for Federal Roads	Funding by year ($)
2012-2013	776,000	0	776,000
2014	285,000	485,000	770,000
2015	1,751,664	2,616,905	4,368,569

Tracking road maintenance funding was initiated in the 2012-2013 M&E Report and will be included in successive reports.

Bridge Inspections

For additional information, contact Gary Griffin at gwgriffin@fs.fed.us

Another facet of maintenance of the transportation system is robust monitoring of bridge condition through inspections. There are 130 bridges on 73 roads within National Forest System management. Bridge inspection is a continuous process, and each year about half of those bridges are inspected. For 2015, 54 bridges were inspected, and over 88% were found to be free of any structural deficiency. Those requiring maintenance have been entered into a maintenance inventory and will be addressed as funding is available or closed if a deficiency becomes a safety hazard. Deterioration of bridges due to advanced age is occurring and has the potential to increase timber sale costs if purchasers are forced to use longer haul routes to avoid bridges not rated for heavy loads. In some cases, where alternative haul routes are not an option, the cost of bridge repairs could make some timber sales economically infeasible.

Access/Travel Management

For additional information, contact Alett Little at alittle@fs.fed.us

The Forest Plan objective specific to travel management follows:
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 2011 with publication of a series of Motor Vehicle Use Maps (MVUMs) that are updated and posted to the web annually. Five Motor Vehicle Use Maps (MVUMs), one for each set of combined Ranger Districts display the routes and, in some cases, seasons designated for motor vehicle use.

Subpart A of the Travel Management Rule that identified the minimum road system was completed and submitted to the Regional Office in September of 2015. This process helps to initiate or fulfill the process to address OBJECTIVE 38: *Obliterate 25 percent of roads identified under the previous objective by 2015…*

Facility Operation and Maintenance

For additional information, contact Garry Findley at gfindley@fs.fed.us

Objective 31 of the Forest Plan is to *"Eliminate three leased facilities by 2015."* The leased office for the Tiak Ranger District was eliminated in 2009 after completing and moving into the new Leadership in Energy and Environmental Design (LEED) certified District Office in Hochatown. The leases for the Kiamichi and Fourche unit offices were not renewed in 2015, allowing the Forest to attain Objective 31. 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; however, the Forest has no known date for anticipated design or construction of this proposed new office.

Forest Plan Objective 32 is to *"Eliminate 30% of other nonessential administrative facilities by 2015."* Presently, there are 5 Ranger District units, and there is a need to consolidate administrative facilities remnant from the administration of 12 once-separate units. District consolidation plans have not been completed, although they have been considered for 10-plus years. Two administrative facilities were decommissioned and sold during 2009: the Caddo Trailer and the Fourche Ranger Residence. During 2010, 2 additional facilities were decommissioned and were sold. During 2013, the Kiamichi Ranger Dwelling and shed were decommissioned. During 2014, the Caddo District office and work center were closed, appraised, and the process for selling these and the Caddo residence is still underway. During 2015, recreation facilities at the Kulli recreation area were decommissioned and the leases for the Fourche Ranger office in Danville, AR and the Kiamichi Ranger office in Talimena, OK were terminated. As leases for office space expire, reviews will determine if there is a need to renew them or if it is more advantageous to taxpayers not to renew those leases.

Objective 33 calls for *"public facilities to [be upgraded to] Architectural Barriers Act standard by 2015."* Facility inspections are undertaken each year. The building inventory has been updated to show which buildings are accessible and which are not, and the work to bring the facilities will be programmed as funding allows. Twenty-four percent of public facilities are now accessible.

Executive Order 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% of administrative buildings needing upgrades by 2015."* The Forest upgraded 3 heating ventilation and air-conditioning (HVAC) systems in offices during 2012 and 2013 to increase efficiency and installed insulation in one office. The Forest contracted an inventory of all HVAC systems and their condition in 2013. Progress toward achievement of Objective 34 is undetermined at this time. Additional focus on becoming more energy efficient at all facilities is now a priority under the Forest Service Sustainable Operations initiative.

Annually, buildings are inspected for compliance with health and safety standards in accordance with Forest Plan Objective 35. Since 2005, buildings inspected by FS Engineering personnel either met or were corrected to meet standard. Each year, at least 33% of the fire, administration and other buildings and some recreation buildings are inspected by the Engineering Section. For 2015, the facility inventory included 345 (4 less than last year) buildings that were categorized as follows: Existing – Active, Existing – Inactive, or Existing – Excess. Of those 345 buildings, 335 (97%) had a Facility Condition Rating (FCR) rating of "Good" or "Fair." Ten buildings were rated "Poor".

Special Uses

For additional information, contact Elaine Sharp at esharp01@fs.fed.us

Many recreational uses of National Forest System (NFS) lands are allowed without a special permission but are subject to State and Federal laws. Other uses of NFS lands, though, may be authorized by Special Use permits, easements and leases. There were 538 special authorizations of various types in 2015. The total number of authorizations issued was relatively consistent between years 2012 and 2013 and increased 7.5% in 2014. In 2015, the total number of uses returned to 2012 and 2013 levels. The majority of authorizations were for road access.

Communication and utility corridor uses comprise the next highest categories of use requests. The amount of NFS land occupied by utilities continues to increase as existing permits are amended to include additional NFS land for utility service.

In 2015, 29 permits expired and were reissued. In reauthorizing the permits, some permits that covered multiple locations were reissued individually while other permits were consolidated under one permit to conform to Forest Service policy and allow for better administration of the use.

A measure of success in assuring that uses of NFS land comply with the terms and conditions of the authorizations is the number of permits administered to standard. In 2015, 381 permits were administered to standard while in 2014, 399 authorizations were administered to standard. The Forest has decreased the number of permits administered to standard from 80% in 2014 to 71% in 2015. The decrease in the number of permits administered to standard is due to the increased work load to reissue expired authorizations.

General Trends:

- The number of road authorizations continues to rise as unauthorized occupancies are addressed and private landowners develop their properties.
- Utility permit amendments are increasing as inholders request utility service to their properties.

- Permits issued for research and heritage resource surveys are relatively stable. The number of requests for wildlife research permits increased steadily through 2014 and then declined for 2015. The Monitoring Report may not correctly reflect this activity because most research projects have been granted waivers from the permitting requirement.
- Dams/Reservoirs, agricultural uses and community uses remain unchanged from 2014 and increases are not anticipated.
- Communication uses continue to increase as carriers expand their infrastructure and funding becomes available to local governments to expand communications.
- Recreation uses are mostly short-term, recurring permits. The amount of use has remained stable.

Special Use Permits by type use are shown in the following:

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

Type of Authorization	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Roads	318	317	330	298	278	262	285	280	290	281
Water Lines, Electric, Telephone Utilities, & Oil and Gas Pipelines	58	58	58	60	60	57	63	64	75	70
Research or Resource Surveys	13	11	12	7	11	12	16	17	16	10
Dams and Reservoirs	24	24	24	24	24	24	22	22	22	22
Communication Uses*	74	60	72	61	59	49	55	56	62	64
Recreation Uses	10	7	11	10	10	11	65	66	69	60
Agricultural Uses	--	--	7	4	4	4	6	6	6	6
Community Uses	7	7	7	7	7	8	6	6	13	13
Misc. Uses	21	15	42	7	10	8	20	12	16	9
Total	532	506	563	478	463	435	538	529	569	538

***A list of the approved communication sites and those pending approval as of September 2015, is included in Appendix C.**

The Forest continues to acquire road rights-of-way based on need determined through roads analyses and projects. Three permanent easements were acquired in 2015.

Commodity/Commercial Uses

Three types of commodity or commercial uses are discussed:

- Mineral and Energy Development
- Livestock Grazing or Range Activities
- Timber

Minerals and Energy Development

For additional information, contact Andrew McCormick at andrewtmccormick@fs.fed.us

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

> 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.*

The minerals program manages hardrock mines, as well as operations for sand, gravel and stone; non-energy minerals such as quartz and wavellite; and other energy resources such as coalbed methane and coal. At the end of 2015, there were 19 quartz contracts, 4 quartz leases, 2 wavellite leases, 5 coal-bed methane wells, 1 coal lease-by-application (pending), and 33 common variety mineral materials pits/quarries on the Ouachita National Forest. In addition to the active mineral operations, the Minerals Program also oversees an Abandoned Mine program which deals with about 70 abandoned mine adits (openings) and shafts across the Ouachita National Forest.

Each year, the number of gas leases and mineral cases are reported. Since 2006, financial investment involving natural resources has remained low on the Ouachita NF in both Arkansas and Oklahoma. Of the mineral operations, 12 of the quartz contracts, 3 of the quartz leases, 1 of the wavellite leases, and 25 of the common variety mineral material sites were actively being used, though some have only very minimal production. One locatable operation was proposed, and several site visits were conducted. However, the locator did not submit a Notice of Intent and did not begin any operations. The amount of mineral material removed from the Ouachita NF in 2015 was low; however, there has been an increase in the past 2 years over previous years. Interest in nominating new gas leases has gone down significantly in the last couple of years. While the number of gas leases was increasing several years ago, it has since decreased and held steady for the past few years. In 2011, the Bureau of Land Management retracted all of the gas lease consents from Arkansas; however, this was rescinded in 2014. During the period 2011 to 2015, the BLM issued no new leases on the Ouachita National Forest, and no new gas leases were nominated in 2015. No new quartz contracts have been nominated or issued since 2008, though interest remains high. Several proposed expansions of current operations were proposed near the end of 2015; however, analysis of the proposed expansions was not completed by the end of the fiscal year resulting in no decisions. A proposal for a coal lease was applied for, but has not moved forward in 2015. The proposal has not been withdrawn, and there is interest in continuing with the proposal.

Gas Leases and Mineral Cases by FY, ONF

(This tabular format represents a change from previous year's reporting and includes additional information not previously reported.)

Year	Gas Leases	Minerals Cases						
		Salable Operations Managed	Locatable Operations Managed	Non-Energy Leasable Operations Managed	Energy Leasable Operations Managed	Reserved/ Outstanding Mineral Operations Managed	Geological Hazards and Resources Managed	Totals
2006	403	--	--	--	--	--	--	--
2007	565	--	--	--	--	--	--	75
2008	827	--	--	--	--	--	--	67
2009	837	--	--	--	--	--	--	57
2010	800	--	--	--	--	--	--	39
2011	0*	--	--	--	--	--	--	0
2012	215	--	--	--	--	--	--	20
2013	215	--	--	--	--	--	--	20
2014	215	98	0	7	11	0	26	142
2015	215	167	2	6	5	0	24	204

*Bureau of Land Management retracted all of the gas lease consents from Arkansas in 2011.

Livestock Grazing/Range Activities

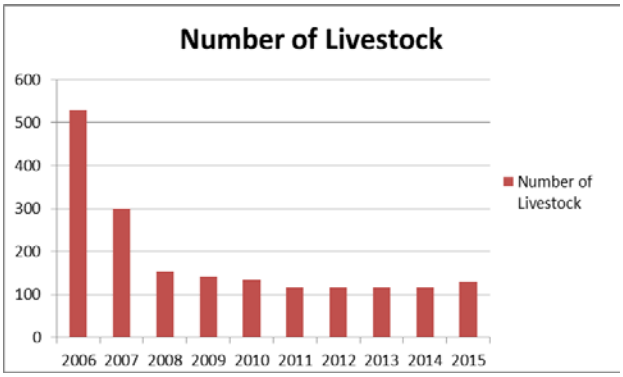
For additional information, contact Susan Hooks at shooks@fs.fed.us

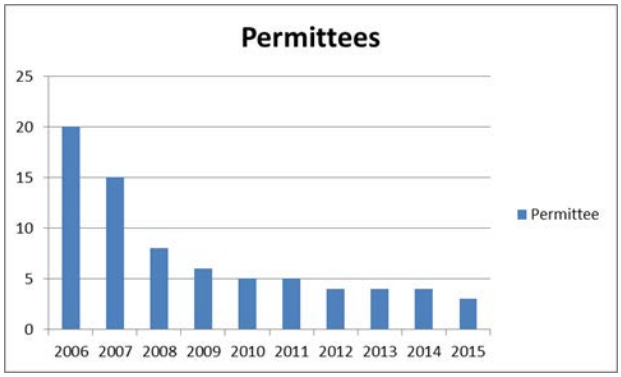
Desired Condition: *Livestock grazing opportunities are maintained consistent with other resource values in designated livestock grazing areas (allotments).*

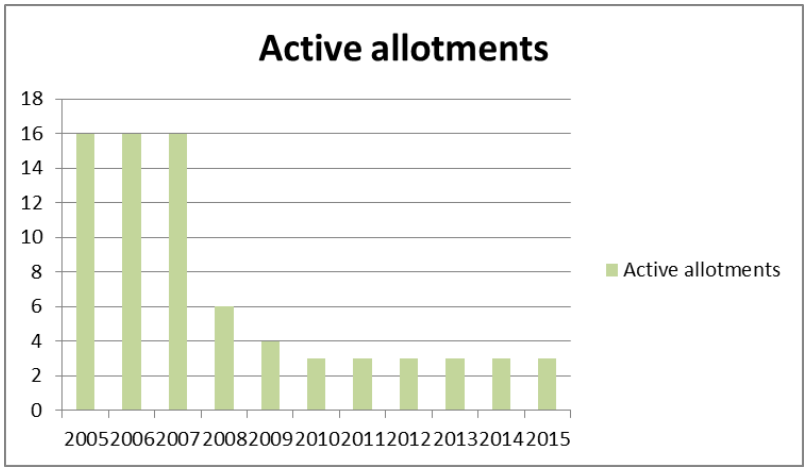
The current condition of the range allotments are in line with the desired condition and plan objectives. Overall, the interest in grazing on the Ouachita NF has declined since 2005 and is not expected to increase in the future. All grazing on the National Forest is in forest and/or woodlands. Number of cattle being grazed has been relatively stable since 2010, and resource damage from grazing is minimal. There were 600 acres of rangeland vegetation improvements in grazing season 2015.

Trends revealed through monitoring: The range program had been in decline through 2008, but has been relatively stable for the past 8 years after a large drop between 2007 and 2008. Permittees have declined slightly, but active allotments have been relatively stable since 2009.

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Number of Livestock	715	530	300	154	142	133	116	116	116	116	130
Permittees	24	20	15	8	6	5	5	4	4	4	3
Active Allotments	16	16	16	6	4	3	3	3	3	3	3







Timber Sale Program

Firewood

For additional information, contact Ray Yelverton at ryelverton@fs.fed.us

Firewood permit volume increased by 50% in 2015 compared to 2014. Forest Plan standards specifically for firewood follow:

> 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 decision establishing designated routes, access routes should be noted on firewood permits. The cords of firewood sold by year are shown in the following.

Cords of Firewood Sold (Cords = CCF x 1.54) by FY, ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Cords Sold	1,364	1,299	1,686	1,650	2,107	1,609	1,145	936	828	1,242

Source: Timber Cut and Sold Report as reported at the end of the fiscal year.

Timber – Allowable Sale Quantity (ASQ)

A priority of the timber sale program is to contribute to the economic base of local communities by providing a sustained yield of high-quality wood products at a level consistent with sound economic principles, local market demands, and desired ecological conditions. The ASQ for the Ouachita NF is 27 million cubic feet per year (270,000 CCF). To this end, the Ouachita NF has sold an average of 68.04% of ASQ since 2006. Timber volumes sold by FY are shown in the following.

Chargeable (CV) and Non-Chargeable (Non-CV) Volume Sold (CCF) by FY, ONF

Year	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
2012	174,797	75	3554	0	178,351	75
2013	139,198	908	12,160	1,477	151,358	2,385
2014	154,396	629	14,247	0	168,643	629
2015	173,228	164	7,647	0	180,875	164
Average	174,144	1,358	9,554	193	183,698	1,551
Average Total	175,502		9,747		185,249	

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 2006, the Ouachita NF has sold an average of almost 93% of the objective of 200,000 CCF. The objective of at least 200,000 CCF per year was exceeded in 2007, 2008, and 2011. The timber volumes offered and sold by year are shown in the following table:

Timber Volume Offered & Sold (CCF) Compared to Net Budget Allocation for All Timber ($ by FY), ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Volume Offered	75,699	198,606	215,206	161,741	204,688	198,790	161,287	181,873	133,428	207,345
Volume Sold	197,119	206,306	201,858	175,388	189,283	200,053	178,426	153,743	169,272	181,039
Timber Budget ($)	6,722,677	7,182,961	7,216,888	7,093,596	7,960,905	8,439,629	7,966,274	6,135,978	7,051,133	6,458,528
$/CCF Offered	88.81	36.17	33.53	43.86	38.89	42.45	49.39	33.74	52.85	31.15
$/CCF Sold	34.10	34.82	35.75	40.45	42.06	42.19	44.65	39.91	41.66	35.67

Annual Averages,* (2006-2015) Timber Offered and Sold, ONF

Volume Offered	Volume Sold	Timber Budget ($)	$/CCF Offered	$/CCF Sold
173,866	185,249	7,222,857	41.54	38.99

***During 2006, the Ouachita NF reverted to Sold Volume as the Target vs. Volume Offered. Volume Offered in 2005 but not sold until 2006 was credited towards the Sold Target in 2006 and the offered target in 2005. If 2006 is not considered, the average $/CCF Sold for 2007 through 2015 is $39.57.**

Following is a comparison of actual acres sold to proposed and probable activities as presented in the Forest Plan:

	Actual Acres Sold Compared to Proposed and Probable Activities											
Activity By Acres or Acres Sold	Range of Proposed / Probable Annual Activity	Actual Annual Activity 2006	Actual Annual Activity 2007	Actual Annual Activity 2008	Actual Annual Activity 2009	Actual Annual Activity 2010	Actual Annual Activity 2011	Actual Annual Activity 2012	Actual Annual Activity 2013	Actual Annual Activity 2014	Actual Annual Activity 2015	*Annual Average
Regeneration harvest (by modified seedtree/ shelterwood methods)	5,000-6,000	2,658	4,363	3,186	1,848	2,270	1,837	2,322	1,151	1,503	1,982	2,274
MA 14	4,000-4,700	1,374	3,981	2,968	1,685	2,033	1,274	2,195	745	1,225	1,784	1,988
MA 15	140	0	0	179	0	0	0	0	179	0	0	40
MA 16	--	401	97	39	0	21	33	0	0	141	0	37
MA 17	250	52	0	0	78	0	297	87	83	0	0	61
MA 21	160	232	0	0	0	0	0	0	0	0	0	0

	Actual Acres Sold Compared to Proposed and Probable Activities											
Activity By Acres or Acres Sold	**Range of Proposed / Probable Annual Activity**	**Actual Annual Activity 2006**	**Actual Annual Activity 2007**	**Actual Annual Activity 2008**	**Actual Annual Activity 2009**	**Actual Annual Activity 2010**	**Actual Annual Activity 2011**	**Actual Annual Activity 2012**	**Actual Annual Activity 2013**	**Actual Annual Activity 2014**	**Actual Annual Activity 2015**	***Annual Average**
MA 22	1,000-1,200	599	285	0	85	216	233	40	144	137	193	148
Other MAs	250	0	0	0	0	0	0	0	0	0	0	0
Uneven-aged management	9,000-12,500	3,216	3,065	1,246	1,291	715	444	0	0	0	0	751
MA 14	7,200-7,850	1,307	1,972	1,031	508	378	0	0	0	0	0	432
MA 16	1,000-1,300	1,841	676	114	0	0	375	0	0	0	0	129
MA 17	--	19	0	0	636	0	0	0	0	0	0	71
MA 19	800-850	0	417	101	147	337	0	0	0	0	0	113
Other MAs	--	49	0	0	0	0	69	0	0	0	0	8
Commercial Thinning	20,000-28,500	13,060	9,922	10,981	12,407	10,864	10,978	10,517	8,058	10,316	9,515	10,395
MA 14	10,000-13,700	5,946	7,368	9,070	7,722	5,700	5,512	6,190	3,512	4,782	5,247	6,123
MA 15	1,000	0	0	288	0	0	0	0	288	0	177	84
MA 16	--	845	608	0	0	764	1,493	0	175	839	805	520
MA 17	400-500	60	0	67	415	0	1,462	160	299	0	190	288
MA 21	1,500-1,600	493	0	615	1,099	1,000	0	272	145	460	0	399
MA 22	7,000-8,200	5,571	1,946	534	3,171	2,294	1,780	3,895	3,639	4,235	3,046	2,667
Other MAs	--	145	0	0	0	1,106	731	0	0	0	0	131

Source for Actual Acres: TIM *Average is for 2007-2015

Air Quality

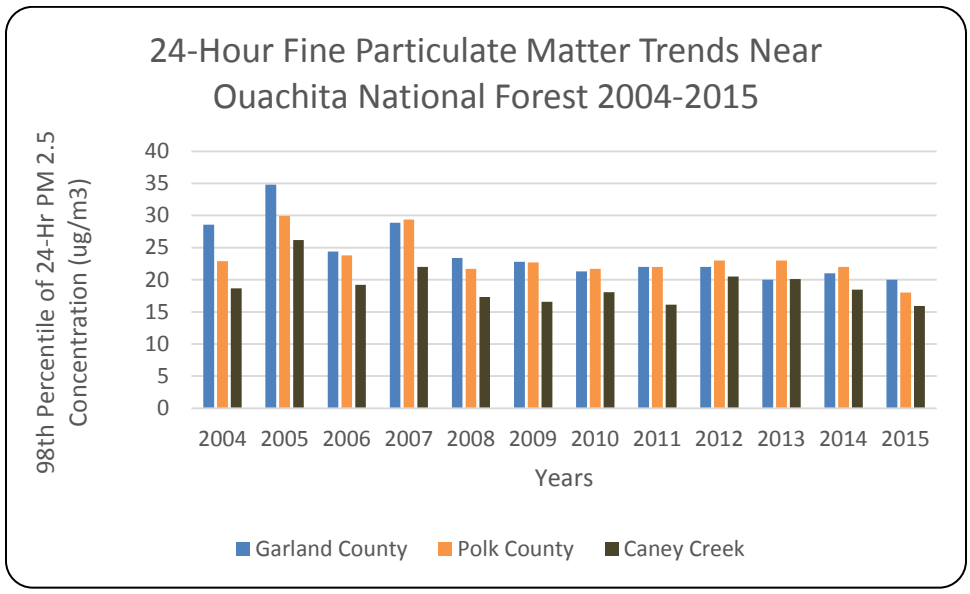
For additional information, contact Judith Logan at jlogan@fs.fed.us

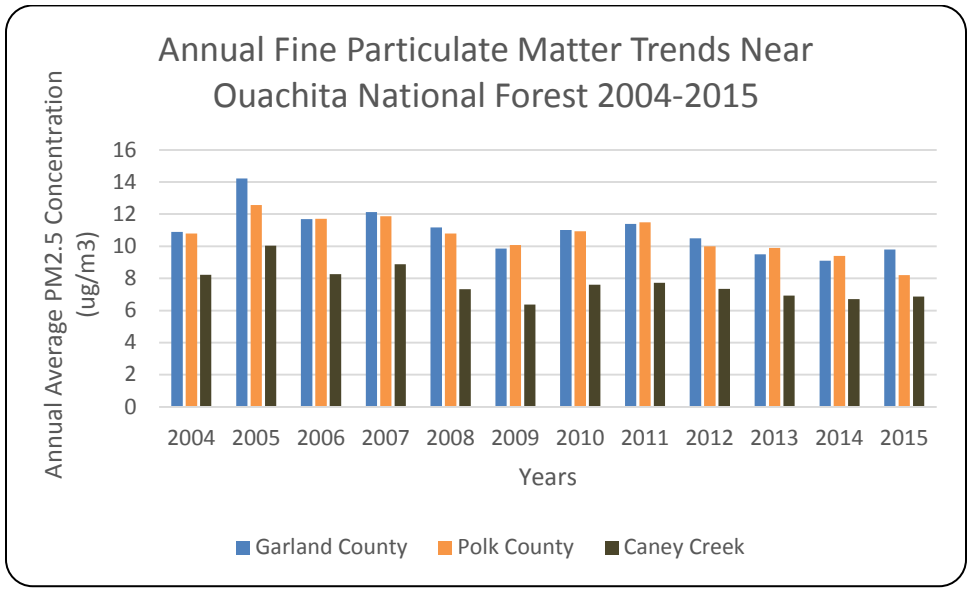
Air pollution often has a subtle but critical impact on ecosystems and vistas, and can alter ecosystems by harming plants and animals or changing soil or water chemistry. Ecosystems then become more vulnerable to damage from insects and diseases, drought, or invasive species. Additionally, since many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

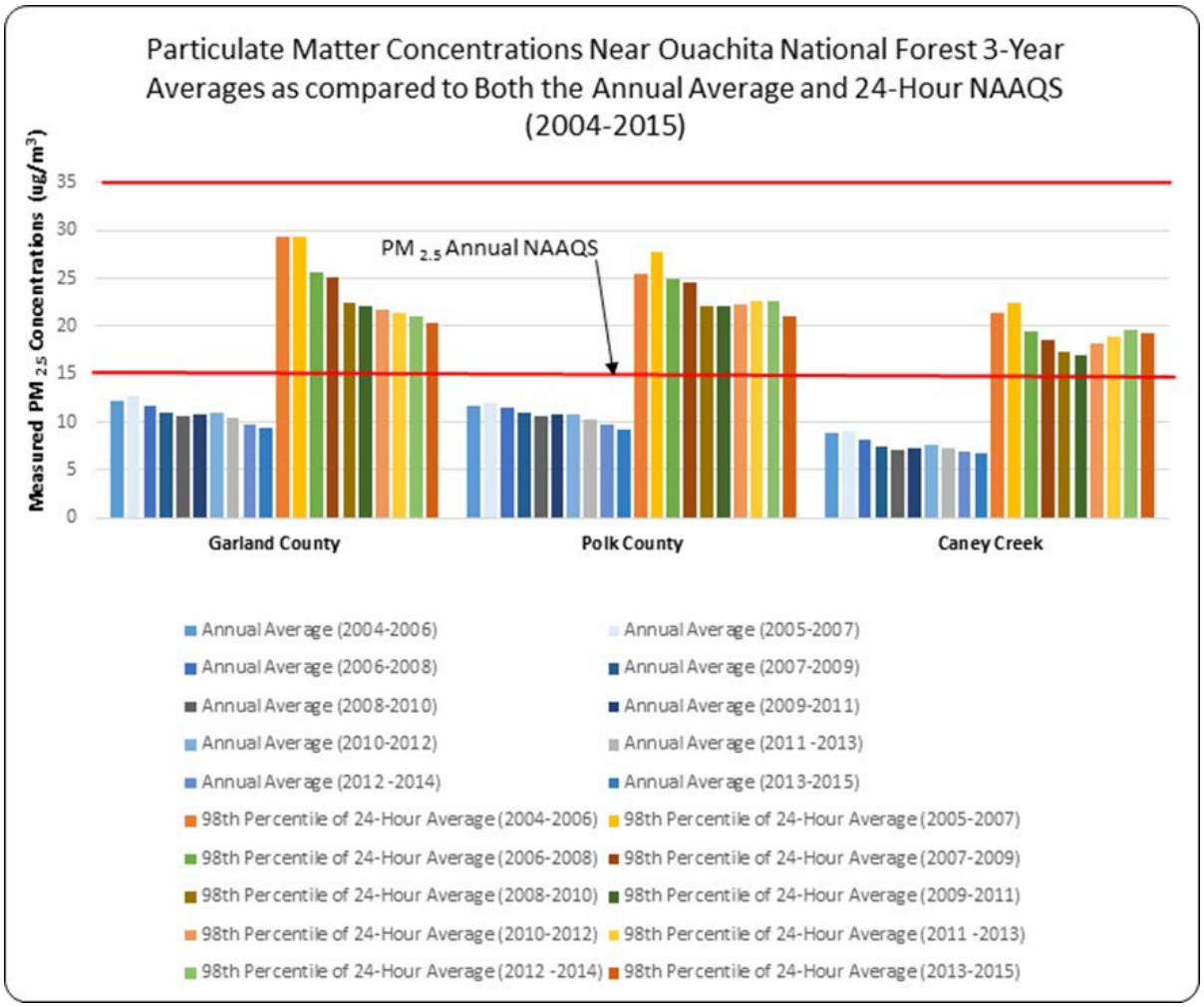
Particulate Matter

Particulate matter is a mixture of extremely small particles made up of soil, dust, organic chemicals, metals, and sulfate and nitrate acids. The size of the particles is directly linked to health effects, with smaller particles causing the worst impacts to human health. As a result, the Environmental Protection Agency (EPA) has set a primary National Ambient Air Quality Standard (NAAQS) for ultra-small (less than 2.5 microns in diameter) particulate matter on both a short-term (24-hour) and annual basis. The 24-hour fine particulate matter ($PM_{2.5}$) NAAQS is currently set at 35 µg/m^3, while the annual $PM_{2.5}$ NAAQS is 12 µg/m^3. The

EPA may set more stringent standards in the future if scientific research suggests that the current standards are not protective enough of sensitive populations. The following graphic shows the measured $PM_{2.5}$ levels at the 3 fine particulate matter monitoring sites located near the Ouachita NF. All concentrations levels are below the 24-hour and annual air quality standards. The averages for the past 3 years are also presented.

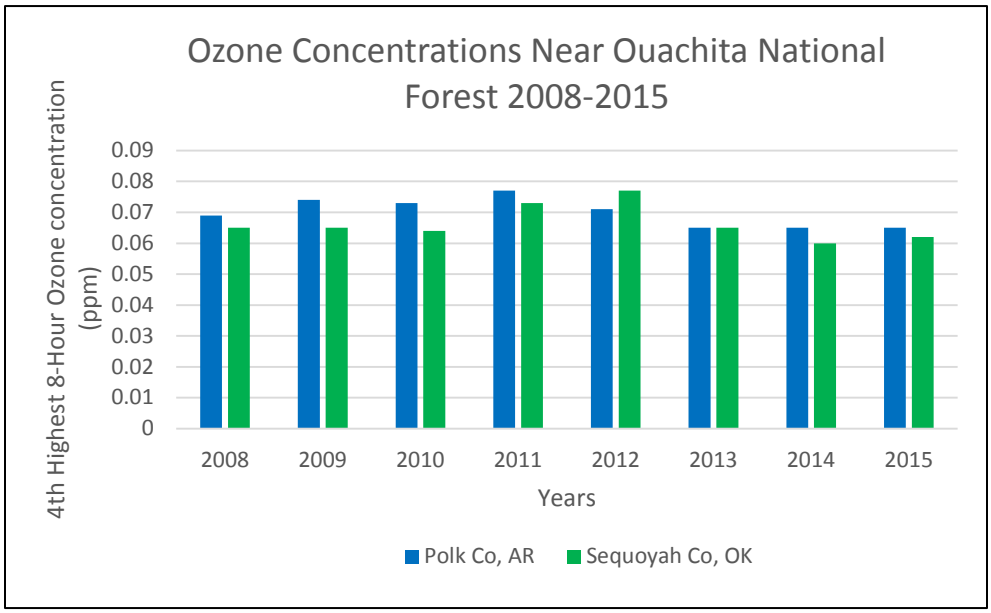






Ozone

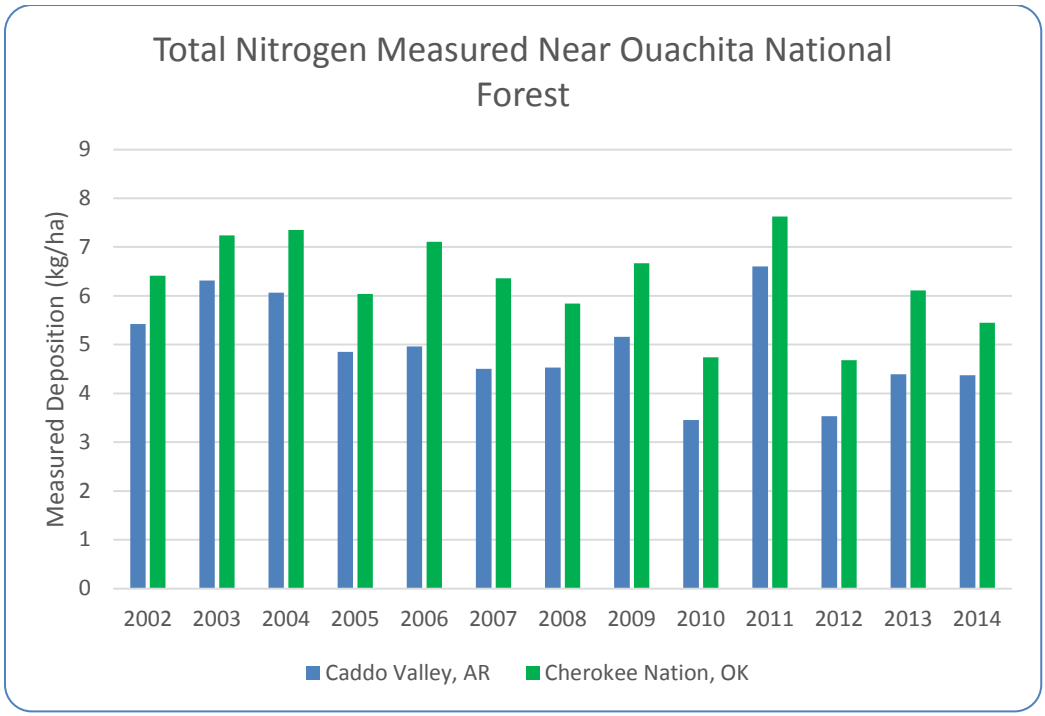
Ozone is a pollutant formed by emissions of nitrogen oxides and volatile organic compounds in the presence of sunlight. At elevated concentrations, it causes human health concerns as well as negative impacts to vegetation. The EPA, as directed by Congress, has set a national ambient air quality standard (NAAQS) of 0.075 parts per million (ppm) to protect both human health and the environment. However, EPA is required to reassess the standards every 5 years based on most recent scientific research, and as a result, more stringent standards may be proposed in the future. The following graphic depicts the measured concentrations of ozone at the 2 monitoring sites closest to the Forest. As shown, most values are below the NAAQS. The Polk County ozone monitor reached 0.077 ppm in 2011 and the Sequoyah County monitor also averaged 0.077 ppm in 2012. Since then, in each of the following years, both monitors have recorded values below the NAAQS.



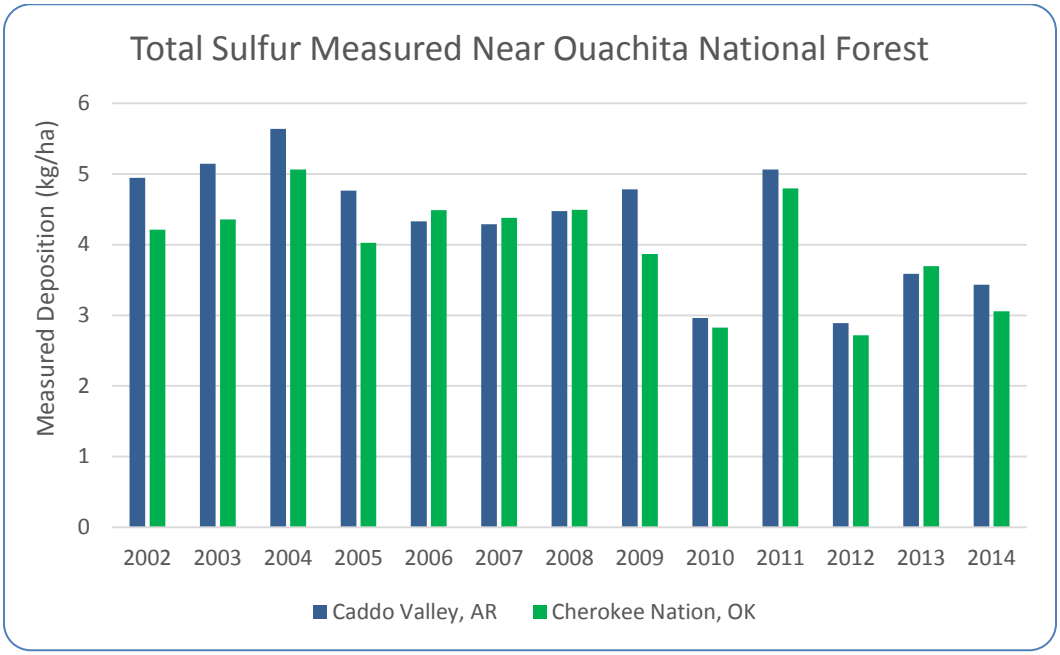
Acidic Deposition

Deposition of acidic compounds onto the Forest can cause harmful effects to both aquatic and terrestrial ecosystems. Such deposition can occur in 3 forms: dry, wet, and cloud. Dry deposition is the direct fallout of fine particulates and gases from the atmosphere. Wet deposition occurs when acidic pollutants combine with water in the atmosphere, which is then deposited in the form of rain, snow or hail. Both sulfur and nitrogen deposition can impact the water on the Forest by decreasing the acid neutralizing capacity (ANC) and decreasing the pH in perennial streams.

From 2004 through 2014, nitrogen and sulfur deposition rates indicate a steady decrease in acidic deposition, although, in 2011, both nitrogen and sulfur rates increased sharply for the year. By 2012, both deposition rates decreased over 30% followed by a slight increase in 2013. Deposition rates for 2014 were similar to 2013, and no data are available for 2015. The following graphs show the total sulfur and total nitrogen deposition trends for Caddo Valley (Clark County, AR) and the Cherokee Nation (Adair County, OK) monitoring locations as reported in the CASTNET database.



Source: CASTNET



Source: CASTNET

The National Atmospheric Deposition Program (NADP; http://nadp.sws.uiuc.edu) and Clean Air Status and Trends Network (CASTNET; http://epa.gov/castnet/javaweb/index.html) operate 2 sites near the Ouachita NF. Neither of these locations is on the Forest, but the data collected represent a range of sites and are generally representative of conditions occurring on the Forest. Because small fluctuations do occur from year to year, trends over longer periods of time are more reliable.

Terrestrial Ecosystems

Terrestrial communities include all non-aquatic Ouachita Mountain and West Gulf Coastal Plain Ecological Community Systems listed by NatureServe (2003). There are 10 terrestrial ecosystems (and 3 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

Desired conditions for each terrestrial ecosystem type are described on pages 6-18 of the Forest Plan. Data regarding these ecological systems were presented in the first 5-Year Review (2010) of the current Forest Plan. The next evaluation will occur as part of the 5-year review for 2011–2015 currently proposed for 2017.

Collaborative Forest Landscape Restoration Program

Congress established the Collaborative Forest Landscape Restoration Program (CFLRP) with Title IV of the Omnibus Public Land Management Act of 2009 (PDF, 40 KB). The purpose of the CFLRP is to encourage the collaborative, science-based ecosystem restoration of priority forest landscapes. The CFLRP funding for the Ouachita project began in 2012 and provided accelerated landscape restoration for the Pine Bluestem ecosystem on the Ouachita NF primarily through increased collaborative accomplishments in prescribed burning, commercial timber harvests/thinnings, wildlife stand improvement (WSI), timber stand improvement (TSI), and monitoring. Collaborating partners include: Arkansas Forestry Commission, The Nature Conservancy, Oklahoma Department of Wildlife Conservation, Arkansas Game & Fish Commission, Natural Resources Conservation Service, Arkansas Natural Heritage Commission, National Wild Turkey Federation, Arkansas Wildlife Federation, Audubon Arkansas, Arkansas State University, Oklahoma State University, University of Arkansas-Monticello, Buffalo River National Park, Monarch Joint Venture, the Monarch Watch, 12 local schools and others. This project is designed to advance the 20-year ongoing and extensive efforts to restore large blocks of contiguous public lands into shortleaf pine-bluestem habitat.

The dense second-growth forests long protected from fire need to be thinned and burned periodically to restore open, species-rich woodlands. Restored shortleaf pine-bluestem woodlands provide habitat for a suite of rare, endangered, and/or sensitive species that thrive only or primarily under such conditions. Fire-influenced (pine-grass) old growth forests and woodlands are rare on the landscape and represent a significant restoration need. Maintenance of shortleaf pine-bluestem systems requires periodic thinning, frequent prescribed burns, and occasional regeneration treatments.

The Ouachita NF is the only participant in the National CFLR program that incorporates conservation education into its CFLRP plan of work. In the past 3 years conservation education has been given at 28 schools (sometimes requiring multiple visits to the same school) plus to a home school network for Garland Co., AR. As well, educational visits have been made to the Boys and Girls Club of Hot Springs and the North Garland Co Boys and

Girls Club at Hot Springs Village/Jessieville. These efforts include the hiring of high school students to teach students in younger grades and give educational programs at local events, nursing homes, etc. Products generated by students include a video documenting the tools used for restoration and the partners involved, as well as posters and brochures navigating a drive-through tour of the shortleaf bluestem project area. These products inform participants on the "how to" and "why," as well as the benefits of restoration work: for the federally endangered Red-cockaded Woodpecker; the management of our natural resources, including timber management; the need for prescribed fire; and how restored habitats provide for a richer diversity of animals and plants. To provide an on-the-ground restoration connection, students from these area schools have planted 1,000 milkweed plants for 2 years on public and school property with Monarch Watch and local community partners. Understanding how and why restoration of large landscapes is important helps to create future conservation leaders. The following shows overall matching amounts and direct CFLR funding associated with the CFLRP Project since its inception in 2012:

Year	Matching Contribution ($)	Direct CFLR Funding ($)
2012	720,474	316,319
2013	2,600,223	2,099,632
2014	2,143,051	2,112,377
2015	1,944,928	2,322,994
Totals	**7,408,676**	**6,851,322**

Accomplishments associated with key treatments for Pine-Bluestem restoration for the Ouachita NF are presented in the following.

Key Treatments for Pine-Bluestem Restoration	**Acres Accomplished, FY**				**Cumulative Total Acres**
	2012	**2013**	**2014**	**2015**	
Prescribed Burning	44,805	54,461	43,532	19,441	162,239
Non-commercial thinning (WSI, TSI)	3,660	7,021	5,416	4,947	21,044
Volume of timber sales sold (CCF)	69,206	71,700	79,828	55,237	275,971
Timber harvest acres:					
Accomplished (sold)	4,966	4,673	7,033	3,925	20,597
Completed (closed sales)	160	2,465	4,195	3,137	9,957

Acres treated by various methods in 2015 include the following:
-Thinning: 3,962 acres
-Seedtree: 127 acres
-Clearcut: 46 acres
-Shelterwood: 193 acres
-Salvage: 107 acres
-Clearings (road r-o-w/ponds): 21 acres

Data is being analyzing to predict abundance of focal species in relation to key habitat parameters such as tree density, pine basal area, and fire history. A final report will be available in 2016 that explains results of this first phase of the bird monitoring for the cooperative forest landscape restoration project.

Abundance of CFLR Focal Species			
Species	Number of Detections		
	2013	2014	2015
Acadian Flycatcher	1	5	0
Bachman's Sparrow	2	1	1
Black-and-White Warbler	3	8	8
Brown-headed Nuthatch	17	4	5
Eastern Towhee	5	10	10
Eastern Wood-Pewee	23	29	21
Kentucky Warbler	10	21	17
Northern Bobwhite	2	11	12
Ovenbird	6	7	7
Pine Warbler	121	185	153
Prairie Warbler	48	40	32
Red-cockaded Woodpecker	0	1	0
Red-headed Woodpecker	6	4	2
Summer Tanager	78	70	111
White-eyed Vireo	21	13	13
Worm-eating Warbler	7	3	5
Wood Thrush	0	1	0
Yellow-breasted Chat	52	82	54

Chiefs' Joint Landscape Restoration Partnership

An initiative, formed in 2014 between the US Forest Service (USFS) and the Natural Resources Conservation Service (NRCS), to improve the health and resiliency of forest ecosystems specifically targets needed management in areas where public and private lands meet. The partnership, which extends for several years, has the following objectives:

- restore landscapes regardless of land ownership,
- reduce wildfire threats to communities and landowners,
- protect water quality and supply, and
- improve habitat for at-risk species

The initiative is a part of a Climate Action Plan to responsibly cut carbon pollution, slow the effects of climate change and put America on track to a cleaner environment. To accomplish this, USFS and NRCS are launching a coordinated effort on priority forested watersheds to deliver on-the-ground accomplishments by leveraging technical and financial resources, and coordinating activities on adjacent public and private lands. The Ouachita National Forest in collaboration with the Ozark-St. Francis National Forests has initiated one large project under the Joint Chief's Initiative. During 2015, meetings to discuss collaboration opportunities were held with Arkansas and Oklahoma State Foresters. A joint proposal called the "Arkansas, Western Arkansas Woodland Restoration Project" (WAWRP) 2016 – 2018 was submitted in the fall of 2015 for a 3-year grant under the Chiefs' Joint Landscape Restoration Partnership. The WAWRP joint venture is a partnership between the USDS, NRCS, and the Arkansas Forestry Commission (AFC) to promote good land management.

The Western Arkansas Woodland Restoration Project

The forests and woodlands in the Project area provide significant ecosystem service benefits for society. However, the effects of land-use conversion and fragmentation, development pressures, changes in species emphasis and stand structure, invasive species, as well as exclusion of the historical fire regime, are reducing those services significantly. The project aims to increase the conservation activity on private lands in the project area over the next 3 years. Watershed restoration activities on the Ouachita National Forest, including improvement, obliteration, closure, or relocation of roads and off- highway vehicle trails, will reduce sedimentation and improve water quality for 3 federally listed species of mussels. Improvements to water quality and increases to water quantity will help protect the 464 active public water sources in the project area. The ONF received funding in 2015 of $800,000 which was paired with $2,180,000 from the Natural Resources Conservation Service. One completed sediment reduction project on the South Fork of the Ouachita River on Road 903 provided fish passage and a substantial reduction of sedimentation into a watercourse leading directly into the water supply reservoir for the cities of Mt. Ida, Pencil Bluff, and Oden, AR.

The measures of success for this project will be woodland ecosystems restoration, reduction of fuel load and risk of catastrophic wild fire, enhanced wildlife habitat and help for endangered species, and employment opportunities created in chronically impoverished counties. Benefits will also include reduced risk of catastrophic wild fire, improved water quality (especially in watersheds with drinking water supply), and recovery of at risk wildlife and plant species with an estimated 700 new conservation practices implemented on approximately 22,000 acres. Complementary habitat and watershed restoration efforts are also proposed on the Federal lands within the project area. The Ouachita National Forest will implement a series of activities that will improve water quality for federally listed species, including the Arkansas Fatmucket (T), Rabbitsfoot (T) and Spectaclecase (E) mussels by reducing sedimentation. This work will also help restore pine-bluestem forest communities and reduce wildfire threats in the process. Activities will include improvement, obliteration, closure, or relocation of roads and off-highway vehicle trails. Restoration activities also include non-native invasive species control, prescribed burns, native warm season grass seeding, native cane planting, and woody species control. This project will also serve to strengthen collaboration with local conservation partners and demonstrate the effectiveness of an All Lands approach to improving forest health and resilience as supported by sister USDA agencies.

Other project goals accomplished include 350 acres of glade restoration, installation of a cave gate, 24,000 acres of feral hog control, control of 859 acres of non-native invasive species, and 36,735 acres of terrestrial habitat restored. Other accomplishments on private land or with private landowners include 83 contracts on 11,280 acres for implementation of conservation practices, 85 plans on 7,600 acres for technical assistance and 4 plans on 809 acres for forest management from the AFC, and 134 landowners with over 7,778 acres assisted with implementation of WAWRP project practices.

Good Neighbor Authority

The Good Neighbor Authority (GNA) allows the Forest Service to enter into cooperative agreements or contracts with States to perform watershed restoration and forest management

services on National Forest System (NFS) lands. In 2014, Congress passed 2 laws expanding Good Neighbor Authority: the FY 2014 Appropriations Act and the 2014 Farm Bill. Each law contains slightly different versions.

- The Farm Bill permanently authorizes the Good Neighbor Authority for both the Forest Service and the Bureau of Land Management (BLM) extending it to all 50 States and Puerto Rico. It excludes construction, reconstruction, repair, or restoration of paved or permanent roads or parking areas and construction, alteration, repair, or replacement of public buildings or works; as well as projects in wilderness areas, wilderness study areas, and lands where removal of vegetation is prohibited or restricted.
- The FY 2014 Appropriations Act included a 5-year authorization for the use of GNA in all states with NFS lands to perform watershed restoration and protection services on NFS and BLM lands when similar and complementary services are performed by the state on adjacent state or private lands. Other than the adjacency requirement, there were no exclusions as to type or location of work.

The USFS/NRCS submitted a request in 2015 for funding of Wildland Urban Interface protection measures in Hochatown (eastern OK), to be carried out under a GNA agreement with Oklahoma Forestry Services in future years.

Terrestrial Habitat and Health

Soils

For additional information, contact Steve Cole at sncole@fs.fed.us

Objective 15 of the 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 are accomplished. In each of the fiscal years since adoption of the Forest Plan, including 2015, this objective was exceeded.

Soil Restoration and Maintenance Activities are implemented on both small and large projects as a part of watershed improvement on the ONF. These projects include such activities as rehabilitating abandoned mines and user-created trails, obliterating roads and trails, gully stabilization, stream channel and riparian restoration, and restoration of the hydrologic and soil functions of watersheds impacted by all aspects of Forest management activities. Acres of soil restoration and maintenance accomplished by year follow:

Soil Restoration and Maintenance by FY, ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Acres of Soil Restoration and Maintenance	87	45	41	75	64	118	505	1,003	515	304

Burned Area Emergency Response (BAER) is a part of soil and water resource assessment and rehabilitation and monitoring work on the Ouachita National Forest. BAER focuses on short-term restoration of natural resource damage occurring as a result of wildfire. All wildfires are reviewed to confirm whether or not they qualify for BAER evaluation and funding. The threshold for requiring a BAER review is 500 acres unless a critical resource is at risk, and then the criteria to trigger a BAER review is 300 acres.

National Best Management Practices for Water Quality Management became a required part of resource monitoring programs on National Forest lands beginning in 2013. In 2015, a total of 6 resource areas on 5 ranger districts were monitored, which included recreation management, vegetation management, roads management, fire management and minerals management.

Accomplishments by year for BAER and National BMP Monitoring activities follow:

Acres of Soil and Water Resource Assessments (BAER) and National BMP Monitoring by FY, ONF

Acres	2012	2013	2014	2015
Soil & Water Resource Assessment (BAER)	685	1,177	2,686	960
National BMP Monitoring	0	687	529	71

Trends Related to Forest Plan Objectives and/or Desired Conditions

The desired condition of Terrestrial, Riparian, and Aquatic Ecosystems on the ONF is, in great part, dependent upon the health of the soil resources. Each year, soil monitoring is conducted through various avenues to ensure that Forest Plan standards for maintaining soil and water quality are being met. Factors such as soil erosion and soil compaction are a threat to sustained soil productivity as well as to desired water quality. Preparation and follow-up work for watershed projects and monitoring activities serve as a check on current conditions of the soils, effects to soils from project implementation, and what mitigating measures may be required to bring the soils to the desired level of health. Where Best Management Practices (BMPs) are implemented, soil health and water quality are more likely to be preserved during and after Forest management activities. To date, on a Forest-wide basis, monitoring and observations have revealed that management actions in general have not had a consistently detrimental impact to soil conditions. Therefore, there are currently no recommended changes to ONF soils standards.

Fire Influences and Fuels

For additional information, contact Lance Elmore at lelmore@fs.fed.us

Fire regime includes how frequently fires occur and the season of the burn (dormant or growing season). A natural fire regime is a general classification of the role fire would play across a landscape in the absence of modern human mechanical intervention, but including the influence of aboriginal burning (Agee 1993, Brown 1995). 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 NF are slightly, moderately, or highly dependent on certain fire regimes to restore and maintain “good” conditions.

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 on the Ouachita National Forest is human-caused and burn on average less than 100 acres per fire (calculated by adding average acres/fire/year and dividing by total years). Lightning activity as a fire ignition source plays an important but usually subordinate role as a fire cause; however, 2011 was an unusually active year for lightning-ignited fires.

Fire Activity, by FY, ONF

Objective or Activity	FISCAL YEAR									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wildland Fire (#)	187	68	41	60	75	130	43	22	25	42
Wildland Fire (Acres)	23,185	14,347	460	2,247	2,029	7,720	1,795	3,305	3,428	2,255
Wildland Fire (Average Acres)	124	211	11	37	27	59	42	150	137	57
Lightning caused (#)	46	20	4	7	12	68	10	10	5	1

At the time the Forest Plan was approved, wildland fire was a general term describing any non-structural fire that occurred in wildland and was categorized into three types. Under current fire management terminology, the categories have been reduced into the following two categories:

1. Wildfire – Unplanned ignitions or prescribed fires declared a wildfire. All wildfires are 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. Less than Full Suppression fires, formerly a third category, is now included under the wildfire category; and if ignited from a natural source, it may be managed to achieve resource benefit objectives.

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

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 wildland; however, the policy now directs that there be only the two categories of wildland fire mentioned in the previous paragraph.

There are 2 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 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.*

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 reports prescribed fire activity by purpose and reports total acres treated with prescribed fire for 2006-2015.

Prescribed Fire Program by Purpose (acres) by FY, ONF

Year	Fuel Reduction	Wildlife Habitat 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
2012	72,219	24,170	3,345	1,795.4	101,529
2013	79,086	11,554	2,220	3,305.3	96,165
2014	87,341	10,870	916	0	99,127
2015	70,471	2,998	388	2,255	77,743*

*GIS acres sum to 73,857; however, reports from the Fire Management Office indicate that 2,255 acres were wildland fire not reported in GIS and that overall, 77,743 acres of Prescribed Fire were accomplished in 2015.

The Watershed Restoration and Enhancement Agreement Authority is known as the Wyden Amendment. Where public safety is threatened and benefits to resources within the watershed may be realized, the Forest Service is authorized to enter into domestic cooperative agreements or grants for purposes such as the protection, restoration, and enhancement of fish and wildlife habitat and other resources and for the reduction of risk from natural disaster. 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 and allow for landscape treatment projects and projects that go beyond NFS lands. Such agreements are for small tracts of an in-holding or an adjacent parcel that allows use of natural or pre-existing features for control lines. Acres treated with prescribed fire under agreement are shown in the following:

Acres of Prescribed Fire accomplished under Agreement by FY, ONF

Activity In Acres	Year									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Prescribed Fire Agreements	>4,000	>9,000	2,563	>3,000	2,728	1,394	0	2,480	2,828	0

Prescribed fire is consistently used to aid in the prevention of catastrophic wildfires and is essential to improve and promote forest and vegetation community health. The Forest is comprised of primarily fire-dependent communities, particularly the pine-dominated communities, and is dependent on a fairly frequent fire regime for Forest health. As shown in the following tabulation, the annual prescribed fire acres burned by community for 2014, were improved in the Pine Oak Forest primarily from accelerated woodland restoration activities. No report was available for 2015.

Community Type Treated with Prescribed Fire by FY, ONF

Year	Annual Desired Range							
	Pine Oak Forest		Pine Oak Woodland		SLP Bluestem		Dry-Mesic Hardwood	
	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%
2006	29,568	4%	8,235	3%	7,717	5%	11,196	5%
2007	46,238	6%	15,412	6%	51,617	26%	12,736	6%
2008	59,702	6%	9,764	6%	30,000	14%	15,324	5%
2009	46,405	5%	15,469	10%	37,105	19%	19,799	7%
2010	47,812	7%	21,478	8%	32,551	18%	25,633	8%
2011	26,446	4%	11,163	4%	19,489	11%	9,854	3%
2012	61,099	8%	20,962	7%	25,102	14%	16,063	5%
2013	61,094	8%	19,170	6%	23,198	13%	15,597	5%
2014	72,115	9%	14,420	6%	12,692	8%	9,866	4%
2015	No Report	No Report	No Report	No Report	No Report	No Report	No Report	No Report

The Forest Plan recognizes the importance of prescribed fire mimicking the role that wildfire played in the development of the fire-dependent ecosystems of the Ouachita NF over time. Prescribed fires conducted during the growing season, generally described as from leaf emergence to beginning of plant dormancy, are an integral part of many functioning ecosystems. For compatibility with the Ouachita NF reporting systems, prescribed fire accomplished from March through September annually are reported here. Implementing prescribed fire during the growing season to achieve desired ecological conditions will be continued as a management practice.

Acres of Prescribed Fire during March – September by FY, ONF

	YEAR									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Acres of Prescribed Fire	18,162	17,327	92,614	57,102	112,957	83,925	82,254	86,753	80,889	77,743

All wildland fires have the potential to pose threats 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 for fuel 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, 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

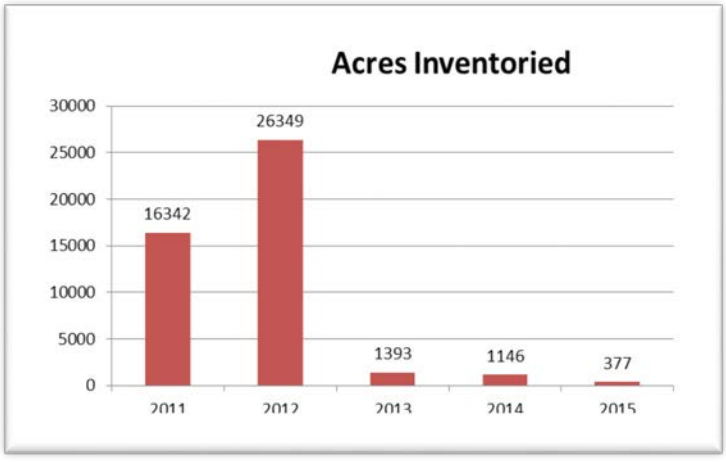
For additional information, contact Susan Hooks at shooks@fs.fed.us

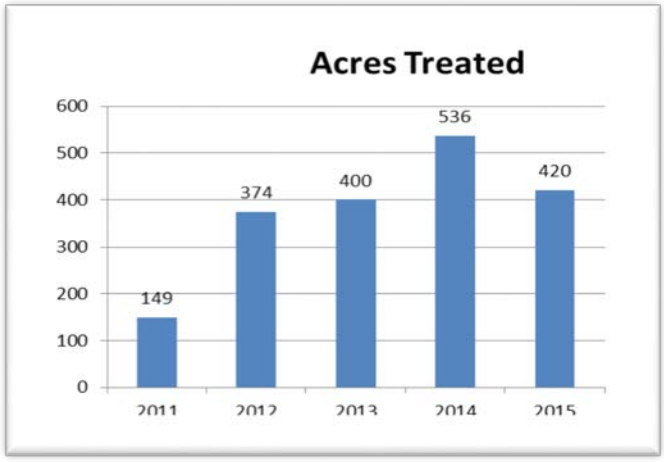
Forest Plan Objective 29 requires the following:

“*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 Forest not only treats acres for non-native invasive species but also surveys areas and locates new sites that need treatment. The information is entered into the Natural Resource Information System (NRIS) database. The NNIS inventories have been completed on 35,466 acres of wilderness inventory on 4 of the 6 wilderness areas within the Forest: Dry Creek, Poteau Mountain, Blackfork, and Flatside. In 2015 there were a total of 420 acres of non-native invasive plants treated and a total of 377 acres of new infestations were reported.

The following graphs display acres inventoried and acres treated for non-native invasive species.





Insects and Disease

For additional information, contact Dr. James D. Smith at jdsmith@fs.fed.us

The Ouachita NF continues to participate in the annual southern pine beetle (SPB) trapping protocol that attracts the SPB and forecasts activity based on the number of trap catches. During 2015 no SPB were found during spring trapping. The Ouachita NF also participates in the SPB prevention program that targets pine stands in need of thinning to keep them below the volume and spacing requirements known to contribute to SPB spot growth (timber loss).

The Ouachita NF is dealing with the invasive emerald ash borer (EAB). This beetle has rapidly moved from its entrance point into the United States (Michigan) to Arkansas. Six counties in south central Arkansas have had positive trap catches, and those counties plus other buffer counties have now been quarantined for the movement of hardwood timber products. This particularly affects the Ouachita NF in that firewood permitees now receive information on the pest when they obtain their permit. They are asked to "burn it where you obtain it" and to not transport firewood from their campsite or outside of the area where it is obtained. The Ouachita NF has been active in notifying the public of the destructive and invasive nature of this pest for the past 5 years.

One important factor in controlling insects and disease on the Ouachita NF is to monitor movements by pests in other states. For example, EAB has been discovered in North Louisiana, and the red bay wilt which is vectored by a bark beetle has been found within 8 miles of the Arkansas state line. Red bay wilt poses a risk to sassafras trees within the Forest. Insect/disease combinations may move quickly and knowing the direction of their movements is important. Trapping and surveying for the insect and the disease is continuing, and no changes have been noted in this pest activity for 2015.

Oak decline is still being found in Arkansas. This problem occurs on poor sites with high volume and older trees. The most damaging incidence of this disease has been found on the Ozark-St. Francis NF near Clarksville, Arkansas. There are isolated areas within the Ouachita NF that also host this disease complex. These areas will be aggressively treated as they are found and the disease component confirmed. 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.

Other Vegetation Management

Forest Regeneration

For additional information, contact Jo Ann Smith at joannsmith@fs.fed.us

The Ouachita NF predominately uses natural regeneration to propagate stands and provide early seral vegetation. Natural regeneration systems are very successful, with less than 10% of the area treated in need of supplemental planting. Seedtree and shelterwood cuts in Shortleaf Pine/Shortleaf Pine-Oak planned and contracted through commercial timber sales in 2015 resulted in 1,265 acres of regeneration. The annual average of natural regeneration since 2011 has been 1,477. This, however, is about one-quarter of the "proposed and probable activities" from the Forest Plan.

Artificial regeneration is often undertaken on the Forest after storm, fire, and insect or disease damage. A majority of artificial regeneration also occurs where off-site species (loblolly) are removed through clearcutting and planting to restore shortleaf pine (along with native hardwoods) and on cut-over acquired lands. In 2015, 1,271 acres were planted in shortleaf pine. No new uneven-aged management has been initiated in the last 3 years. There is an apparent trend away from uneven-aged management exhibited for the past 10 years.

Method of Harvest Trends

For additional information, contact Jo Ann Smith at 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 change.

Acres Harvested by Method of Cut by FY, ONF

Harvest Type by Year	Clearcut	Even-Aged Management (Seedtree/Shelterwood)	Uneven-Aged Management (Group/Single Tree)	Commercial Thinning
2006	74	2,602	3,216	13,046
2007	0	3,414	1,325	10,601
2008	193	3,186	1,246	10,981
2009	134	2,351	1,568	10,409
2010	152	2,086	1,336	8,120
2011	39	1,142 (150/992)	856 (856/0)	6,175
2012	29	2,322 (2,067/255)	684 (217/467)	10,517
2013	253	1,151 (855/296)	979 (882/97)	8,058
2014	46	1,503 (1,503/0)	0	4,710
2015	0	1,265 (1,144/121)	0	7,132

Terrestrial Habitats and Conditions

For additional information, contact Steve Cole at sncole@fs.fed.us

Vertical Structure

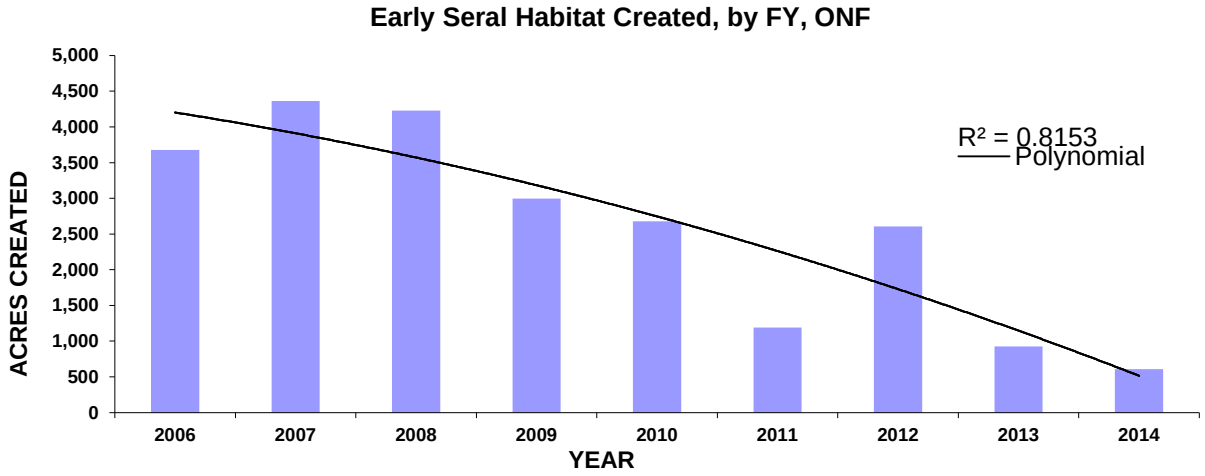
Fire, thinning, and other vegetation management practices help sustain the balance of structural and compositional diversity needed to support healthy populations of native plants and animals while maintaining the productivity of the land. Some plant and animal species can do well within any of the seral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

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

Early Seral Stage

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, many other bird and small mammal (rodent) species, and reptiles, such as terrapins 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 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 2005, p. 175.) The 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 following graph shows that the Forest has never met that objective since 2006. No report was received for 2015.



Inadequate levels of early seral stage habitat creation result in reduction of early seral species numbers. Forest-wide, less than 24,000 acres of early seral habitat have been created since Plan Revision in 2005, averaging less than 2,500 acres per year. In 2014, 3,287 acres were salvaged; however, adding this to the acres of early seral created through green timber harvesting (606) would still not meet the plan objective. The following presents acres of early seral stage habitat created by timber harvesting (even-aged methods) since 2000, which included accomplishments under the previous Forest Plan as well as the current Forest Plan.

Acres of Early Seral Stage Habitat Created by Timber Harvesting by FY, ONF

1990 Forest Plan	
Year	Acres of Early Seral Habitat Created
2000	2,246
2001	953
2002	772
2003	2,268
2004	1,866
2005	3,031

2005 Forest Plan	
Year	Acres of Early Seral Habitat Created
2006	2,602
2007	4,363
2008	3,869
2009	2,151
2010	2,676
2011	1,190
2012	2,605
2013	925
2014	606
2015	No Report

Due to continuous growth, the early seral condition has a 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. Without change, this will slowly result in a forest well over the desired rotation age and with far too little early seral structure to maintain 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% 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 an herbaceous ground cover on approximately 40% of those communities. Naturally limiting factors such as elevation, aspect, slope, and/or thin soils maintain primarily an early seral stage 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 woody encroachment and to maintain any early successional condition within most of these systems.

Mid-Seral Stage

The Mid-Seral Stage is tracked in FSVeg, a Forest Service database, as a transitory stage between early and late seral stages. There are no species of concern that are considered obligates of this vegetation condition.

Late Seral Stage

The late seral vertical structure condition (mature forest) provides habitat and forage for a suite of habitat generalists as well as habitat specialists such as the Scarlet Tanager and Cerulean Warbler that specifically require tall trees. 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 FY, ONF			
Year	**Mature Pine Forest**	**± Previous Year and % change from Previous Year**	**± from 2005 and % change from 2005**
2005	435,112	N/A	N/A
2006	565,683	+130,600 + 30	+130,600 + 30
2007	495,176	-73,500 - 12	+ 60,100 + 14
2008	507,068	+11,892 + 2	+71,956 +14
2009	553,923	+46,855 +9	+118,811 +27
2010	588,733	+34,810 +6	+153,621 +35
2011	568,851	-19,882 -3	+133,739 +31
2012	565,235	-3,616 -1	+130,123 +30
2013	581,925	+16,690 +3	+146,813 +34
2014	599,830	+15,095 +3	+164,718 +38
2015	No Report	No Report	No Report

Other Terrestrial Habitat Components – Wildlife

For additional information, contact Steve Cole at sncole@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 that is important specifically 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 (there are no reports specific to these elements for the 2015 M&E Report). A short discussion of Cave and Mine Habitat and Mast Production follows.

Cave and Mine Habitat

For additional information, contact Steve Cole at sncole@fs.fed.us

Bear Den Cave Monitoring: There were no bat surveys conducted at Bear Den Cave in 2015. Previous surveys at Bear Den Cave found 25 and 5 Indiana bats in 2010 and 2012, respectively; but since 2012, there has been no additional monitoring at Bear Den Cave.

During mine surveys in 2015, 5 northern long-eared bats (a new federally listed species) were identified in a single location. Most mines have been gated with bat-friendly gates.

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. In May 2013, the Southern Region enacted a regional closure order for caves and mines across the South. To extend the protection against the spread of white-nose syndrome; this closure order remains in place.

Bear Den Cave Closure
Source: USFS

Mast Production

For additional information, contact Steve Cole at sncole@fs.fed.us

Acorns and hickory nuts (hard mast) are important habitat elements 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. There were no reports of hardwoods greater than 50 years old or greater than 100 years old for 2015.

Hardwoods greater than 50 years old are used to determine hard mast capability. There were 421,072 acres of hardwoods greater than 50 years old in 2014 compared to a slightly larger number of acres (423,961) in 2012-2013. There was no report for 2015. The difference is small and does not imply a downward trend. Management activities critical to mast producing tree species and predominately hardwood communities are thinning and prescribed burning.

Acres of Mast Capability by FY, ONF

Acres (Acres & %)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mast Capability	433,250	468,172	474,384	452,111	454,787	394,357	422,992	423,961	423,961	421,072	No Report
± Previous Yr & %	N/A	+35,000 + 8	+>6,000 + 1	- 22,273 - 5	+2,676 +1	-60,430 -13	+28,635 +7	+969 0	0 0	-2,889 -1	No Report
± from 2005 & %	N/A	+35,000 + 8	+>41,000 + 9	+18,861 + 4	+21,537 +5	-38,893 -9	-10,258 -3	-9,289 -2	-9,289 -2	-12,178 -3	No Report

Hardwoods greater than 100 years old are used as a surrogate for mature hardwood forests. In 2014, there were 80,600 acres of hardwood forest greater than 100 years old (4.5% of the Forest) compared to 70,343 acres greater than 100 years old in 2012-2013. This is an increase of more than 10,000 acres since 2012. In 2011, there were 75,743 acres of hardwood forest greater than 100 years old (4.2% of the Forest).

Acres of Mature Hardwood Forest by FY, ONF

Acres (Acres & %)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Mature Hardwood Forest	50,959	51,873	130,343*	52,553	58,689	73,830	75,743	70,343	70,343	80,600	No Report
± Previous Yr & %	N/A	+>900 + 2	+78,500 + 251	77,790 - 59	+6,136 +12	+15,141 +26	+1,913 +3	-5,400 -7	0 0	+10,257 +15	No Report
± from 2005 & %	N/A	+>900 + 2	+79,400 + 255	+1,594 + 3	+7,730 +15	+22,871 +45	+24,784 +49	+19,384 +38	+19,384 +38	+29,641 +58	No Report

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

Habitat Capability Modeling for MIS

For additional information, contact Steve Cole at sncole@fs.fed.us

Modeling habitat capability using the Computerized Project Analysis and Tracking System (CompPATS) wildlife model and vegetation data from 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 2005, but due to lack pf personnel, the estimated current habitat capability for 2015 was not available. The projected capability for 2015 is shown and comparisons will be drawn as soon as personnel are available to run the CompPATS model again.

Habitat Capability, Modeled by FY, ONF

Estimated Modeled Habitat Capability in Acres												*Projected* Desired Habitat (Acres)
Terrestrial Management Indicator Species	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2015
Eastern Wild Turkey	18,461	17,601	18,316	18,370	16,204	14,610	14,736	14,643	14,727	14,809	Not Available	9,177
Northern Bobwhite	65,002	62,571	69,349	74,223	68,888	76,690	71,468	67,296	63,004	65,480	Not Available	101,748
Pileated Woodpecker	17,842	17,371	14,647	15,555	13,628	11,580	12,814	12,731	12,597	13,066	Not Available	11,265
Prairie Warbler	90,313	85,691	93,830	87,788	71,582	75,531	64,686	65,411	66,126	58,457	Not Available	112,590
Scarlet Tanager	90,583	86,455	85,046	84,040	73,136	66,744	66,743	66,811	66,573	68,014	Not Available	69,500
White-tailed Deer	58,395	50,840	51,898	50,325	42,442	41,775	40,223	37,814	38,415	38,017	Not Available	38,105

Forest-wide habitat capability modeling (2014 results) indicates that 3 terrestrial MIS are moving toward or have passed the projected desired habitat capability for 2015, with Northern Bobwhite, Pileated Woodpecker, and Scarlet Tanager being the exceptions. Habitat for such early successional species as Northern Bobwhite declined in 2012 and 2013 from the previous years; improved slightly in 2014; but is still below the 2015 Projected Desired Habitat Capability. Habitat for such late successional species as Pileated Woodpecker remains above levels projected for 2015. Habitat capability for Prairie Warbler has been declining since 2007, and although it has appeared to be stable with some increase since 2010, it continues to be well below the habitat capability estimated in the Forest Plan. Habitat capability for Scarlet Tanager has declined overall to below the 2015 projected level, but it has remained fairly stable for the last 5 years and is near the 2015 Projected Desired Habitat Capability. Most of these habitat estimates lend weight to the finding that the Ouachita NF is trending toward 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 and Wildlife Habitat Management

For additional information, contact Steve Cole at sncole@fs.fed.us

Management indicator species are analyzed separately from the threatened and endangered species. Northern Bobwhite and Red-cockaded Woodpecker were included as both Species Viability Evaluation (SVE) and Management Indicator Species (MIS). National Forest Management Act regulations, adopted in 1982, and under which the 2005 Forest Plan was completed, require selection of MIS during development of forest plans (36 CFR 219.19(a)). Reasons for their selection must be stated.

MIS are selected “because their population changes are believed to indicate the effects of management activities” (36 CFR 219 (a)(1)). Where appropriate, MIS shall represent the following groups of species (36 CFR 219 (a)(1)):

1. Threatened and endangered species on State and Federal lists,
2. Species with special habitat needs,
3. Species commonly hunted, fished, or trapped,
4. Non-game species of special interest, and
5. Species selected to indicate effects on other species of selected major biological communities.

The Forest Plan identified 7 terrestrial MIS, and with the exception of deer, all are bird species. Management indicator species (MIS) serve as indicators of habitat condition for species occurring on the Ouachita NF and allow measurement of a select few to represent other wildlife species in a variety of habitats across the ONF. MIS are monitored to determine if changes in the species indicate the effects of management activities. Periodically, the specialists of the Ouachita NF prepare a Management Indicator Species Report. The last such report was completed in November, 2008.

The MIS concept has been reviewed and critiqued by the scientific community, and the proper uses and limitations of the indicator species concept have been identified. Generally, caution is advised against overreaching in use of indicator species, especially when making inferences about ecological conditions or status of other species within a community. Such caution is needed because many different factors may affect populations of each species within a community, and each species’ ecological niche within a community is unique. Maintenance and improvement of habitat for MIS are addressed by objectives, design criteria, and Management Area allocations; however specific information for each of the species is collected and reported here and in periodic Management Indicator Species Reports. The

following tabulation includes 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		***Stream and River MIS***	
Eastern Wild Turkey	*Meleagris gallapavo*	Yellow Bullhead	*Ameiurus natalis*
Northern Bobwhite	*Colinus virginianus*	Pirate Perch	*Aphredoderus sayanus*
Pileated Woodpecker	*Dendroica discolor*	Highland 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		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*

[1]Only within the range of Leopard Darters.

Terrestrial MIS

In this report, terrestrial MIS and riparian and aquatic MIS are divided into 2 sections. The following is the summary of the terrestrial MIS with their SVE scores for 2010. All species were rated Fair in 2005 and all species remain rated Fair in 2010. The SVE needs to be repeated to see the progression of the species' scores. With the exception of the Pileated Woodpecker and the Eastern Wild Turkey, which remained the same, scores for terrestrial MIS declined slightly. A discussion of the 7 terrestrial MIS follows.

Terrestrial MIS Comparison of 2005 and 2010 SVE Scores and Ranks

Common Name	*Scientific Name*	2005 SVE Score	2010 SVE Score
Management Indicator Species*			
Eastern Wild Turkey	***Meleagris gallapavo***	**2.25 - Fair**	**2.25 - Fair**
Northern Bobwhite	***Colinus virginianus***	**2.50 - Fair**	**2.09 - Fair**
Pileated Woodpecker	***Dryocopus pileatus***	**2.37 - Fair**	**2.37 - Fair**
Prairie Warbler	***Dendroica discolor***	**2.50 - Fair**	**2.15 - Fair**
Scarlet Tanager	***Piranga olivacea***	**2.28 - Fair**	**2.24 - Fair**
White-tailed deer	***Odocoileus virginianus***	**2.21 - Fair**	**2.19 - Fair**

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

Eastern Wild Turkey *(Meleagris gallapavo)*

For additional information, contact Steve Cole at sncole@fs.fed.us

The Eastern Wild Turkey is a selected species for MIS to indicate the effects of management on meeting public hunting demand (USDA Forest Service 2005a, p. 165).

Data Sources: Sources of data include turkey poult surveys, spring turkey harvest data, habitat capability modeling using CompPATS, and Landbird Points survey data; however, only incomplete data were available for the 2015 monitoring cycle.

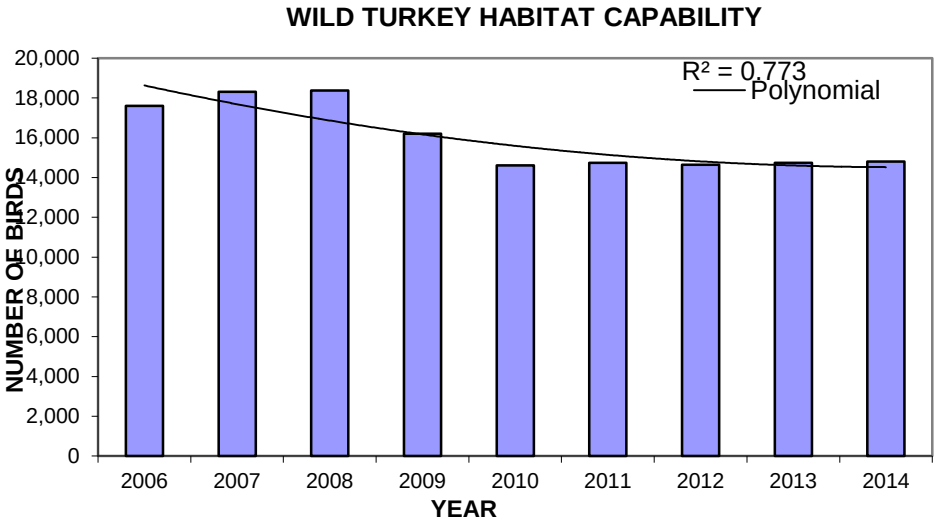
In the Forest Plan, the minimum population objective is 3.3 turkeys per square mile (9,177 turkeys Forest-wide) after 10 years and 3.9 per square mile at 50 years (USDA Forest Service 2005a, p166).

Eastern Wild Turkey Source: USFS

Data for population trends for Eastern Wild Turkey were not available for this Monitoring Report; however concern remains over the apparent decline in turkey poults. The Arkansas Game and Fish Commission (AGFC) addressed the turkey decline by adjusting the hunting season and eliminating the fall season entirely. The 2012 brood survey indicated the best reproduction since the early 2000s, and the 2014 harvest reaffirmed those observations; however, no data were available for 2015 for comparison. Turkey harvest as reported by AGFC for 2015 was 2,177 birds.

Landbird Points surveys are conducted on many acres within the Ouachita NF. No turkeys were detected during the 2011 surveys. During the surveys in 2012, 8 birds were identified; 2 birds were identified in 2013; and 3 birds during 2014. Some monitoring for wild turkey occurred in 2015. In Oklahoma McCurtain County, Glover Unit, 49 gobblers were heard over a 7 day survey period with 20 stops each day. Also in Oklahoma, in LeFlore County, at the Holson Valley area, 13 gobblers were heard over 9 days with 20 stops each day, and at the Billy Creek area, 9 gobblers were heard over 7 days with 20 stops each day. The Caddo Womble District reported turkey brood surveys for 16 dates with a total of 49 turkeys (23 gobblers, 12 hens, and 19 poults). Also noted were 3 broods.

Habitat capability was not calculated for 2015. For 2014 it was estimated at 14,809 turkeys. This is compared to 14,643 and 14,748 turkeys in 2012 and 2013, respectively, and an estimated 14,736 turkeys in 2011, 14,610 in 2010, 16,204 in 2009, 18,370 in 2008, and 18,316 in 2007, indicating a downward trend in habitat capability for the years 2006 to 2014. Although the estimated habitat capability is exhibiting a downward trend, actual habitat capability has remained relatively stable since 2010, with only a slight increase in 2014. Overall, 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 Forest Plan.



*Data for 2015 were not available for this Monitoring Report

Interpretation of Trends for Eastern Wild Turkey: A slight negative trend is suggested for the turkey population on the Forest based on habitat capability modeling. In addition, the drop in turkey harvest and birds detected on the Landbird Points data would indicate a reduction in the number of turkey Forest-wide. Still, habitat capability remains above the level projected in the Forest Plan. The sustained high levels of habitat capability may 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 suitability or availability.

Implications for Management: Turkey poult production, harvest, birds detected on Landbird Points and habitat capability were up in 2014 compared to 2013; however, trends for harvest, birds detected on Landbird Points, and habitat capability all show a slight downward trend. Insufficient data exist to suggest that Eastern Wild Turkey may be in danger of losing population viability or falling below 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 to harvest levels, weather conditions and predation may be having a negative impact on the turkey. Data are contradictory, with habitat projections and poult production reflecting a negative, but stabilized, trend in the past few years, and harvest and Landbird Points down from 2006 levels in most years. Due to conflicting indicators, more research should be conducted to determine if additional management changes are warranted. Research across the South has shown that prescribed fire treatments, including growing season burns, improve turkey habitat by opening up dense forest, reducing shrub and brush, and improving nesting and brood rearing habitat. Areas that were not burned for more than 2 years were almost devoid of turkey hens (Cox and Widener 2008). 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*)

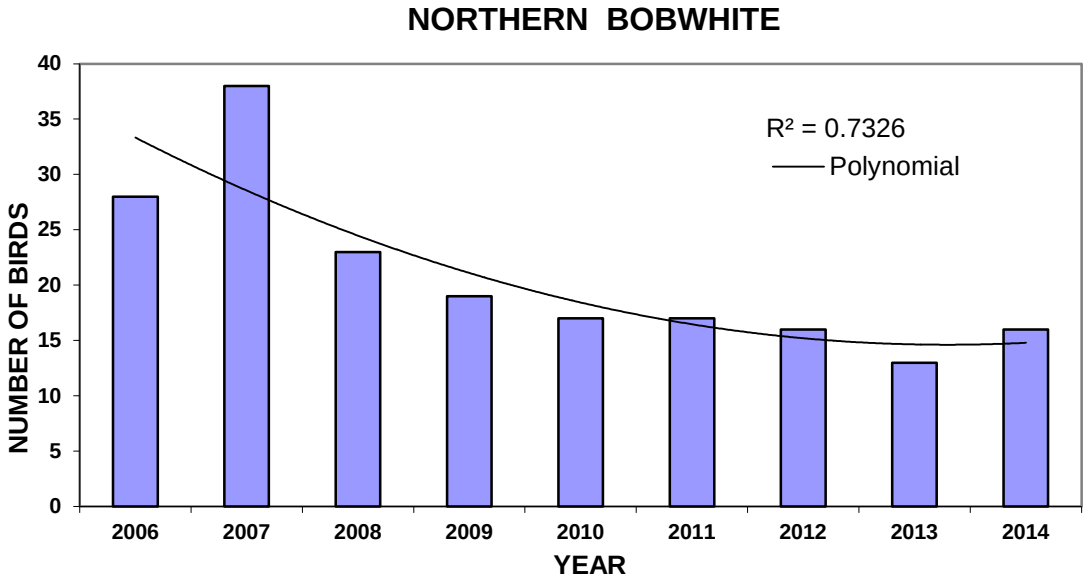
For additional information, contact Steve Cole at sncole@fs.fed.us

The Northern Bobwhite is an MIS selected to indicate the effects of management on meeting public hunting demand and the effects of management on the pine-oak woodland and pine bluestem communities (USDA Forest Service 2005a, p165).

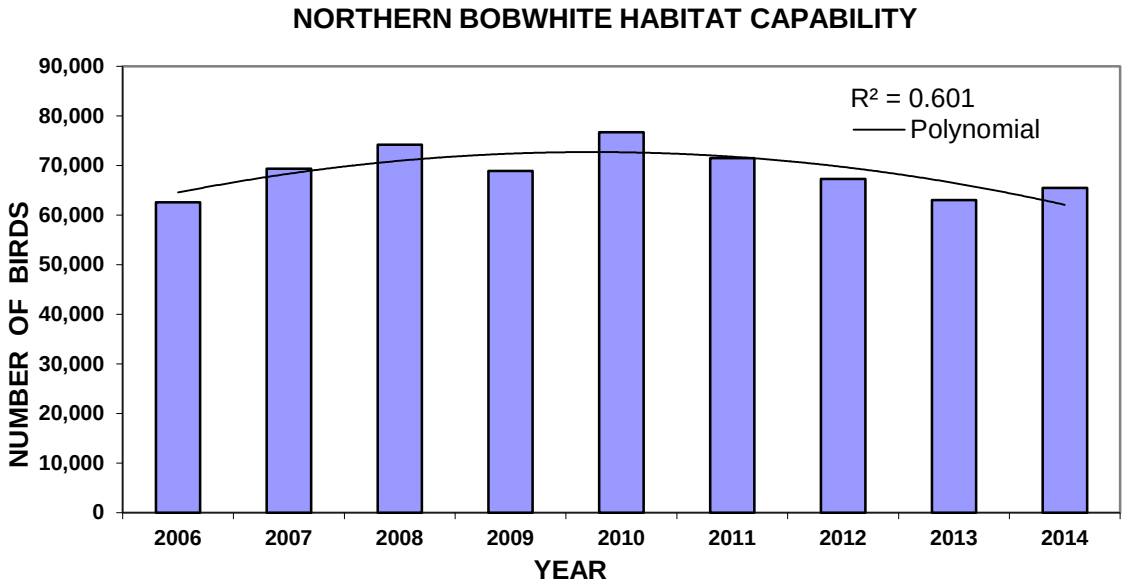
Northern Bobwhite
Source: USFS

Data Sources: Data sources and monitoring techniques for this species include Northern Bobwhite call counts (Arkansas Game and Fish Commission and Oklahoma Department of Wildlife Conservation); the CompPATS Habitat; Capability Model and the Ouachita NF Landbird Points monitoring data collected from 1997 – 2014. In the Forest Plan EIS, the population objective for the Northern Bobwhite is an average of 36.6 birds per square mile (USDA Forest Service 2005a, p. 166).

Population Trends: Since 1997, the Ouachita NF has been conducting bird surveys on over 300 Landbird Points. Northern Bobwhite data indicate a downward, but leveling, trend in birds detected over this 18-year period. Since 2006, a 9-year declining trend has continued mirroring this species range-wide population trends, although 2014 counts were higher than the previous year and about equal to the preceding 3 years (2010- 2012). No data were available for 2015.



Estimated habitat capability for the Northern Bobwhite has been relatively stable since 2006, with a slight decrease after 2008. However, it is still far from reaching the projected 2015 desired Forest-wide habitat capability of 101,748 based on the Forest Plan EIS. One major factor is that the Forest has not met the objective of establishing 5,500 acres of early seral habitat per year since the Forest Plan went into effect. The habitat capability trend has a quite low statistical significance. No data were available for 2015 and habitat capability was not calculated.



Interpretation of Trends for Northern Bobwhite: Regional declining population trends for the Ozark-Ouachita Plateau region are reported by most game and fish agencies or land managers. 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 act positively to overcome the downward trends.

Pileated Woodpecker (*Dryocopus pileatus)*

For additional information, contact Steve Cole at sncole@fs.fed.us

The Pileated Woodpecker is an MIS for the Ouachita NF, selected to indicate the effects of management on snags and snag-dependent species (USDA Forest Service 2005a, p. 166). This species prefers dense, 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.

Implications for Management: Based on reports from 2006-2014, 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. No additional data were available for 2015.

Pileated Woodpecker
Source: www.enature.com

Prairie Warbler *(Dendroica discolor)*

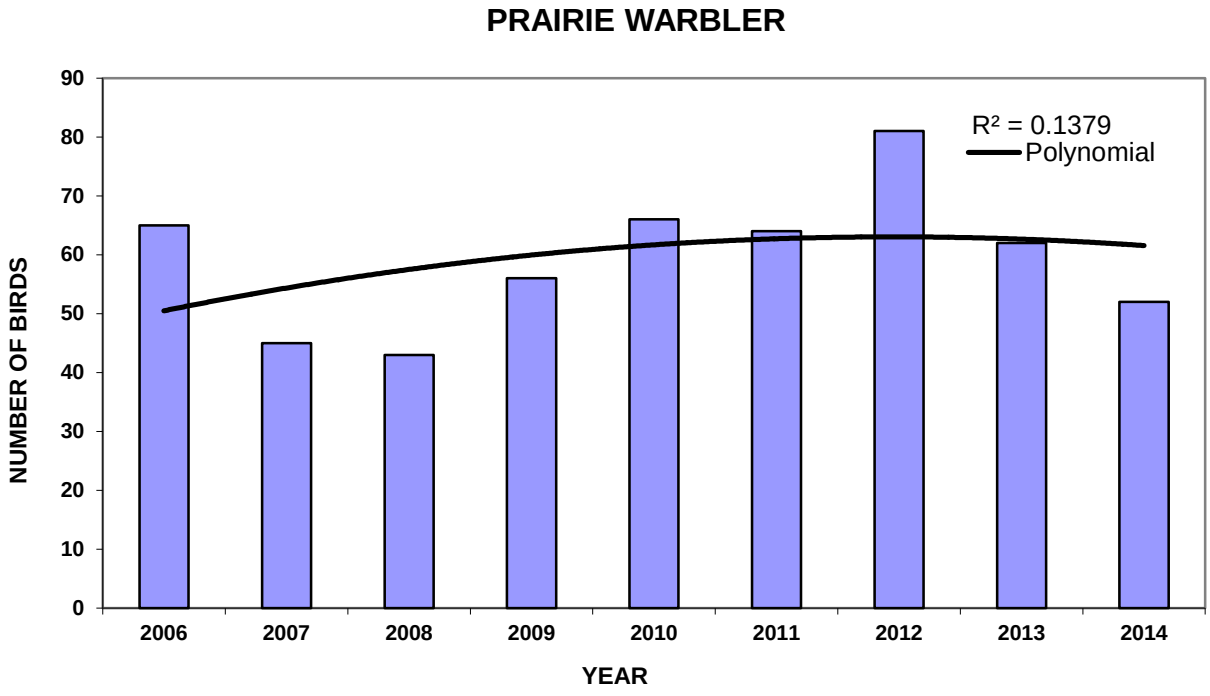
For additional information, contact Steve Cole at sncole@fs.fed.us

The Prairie Warbler is an MIS selected to indicate the effects of management on the early successional component of forest communities. As a neo-tropical migrant, the Prairie Warbler is an international species of concern. This species uses early successional habitats, such as regenerating old fields, pastures, and young or very open forest stands. The vegetation selected may be deciduous, conifer, or mixed types. Habitats with scattered saplings, scrubby thickets, cut-over and/or burned-over woods, woodland margins, open brushy lands, mixed pine and hardwood, and scrub oak woodlands are most often selected.

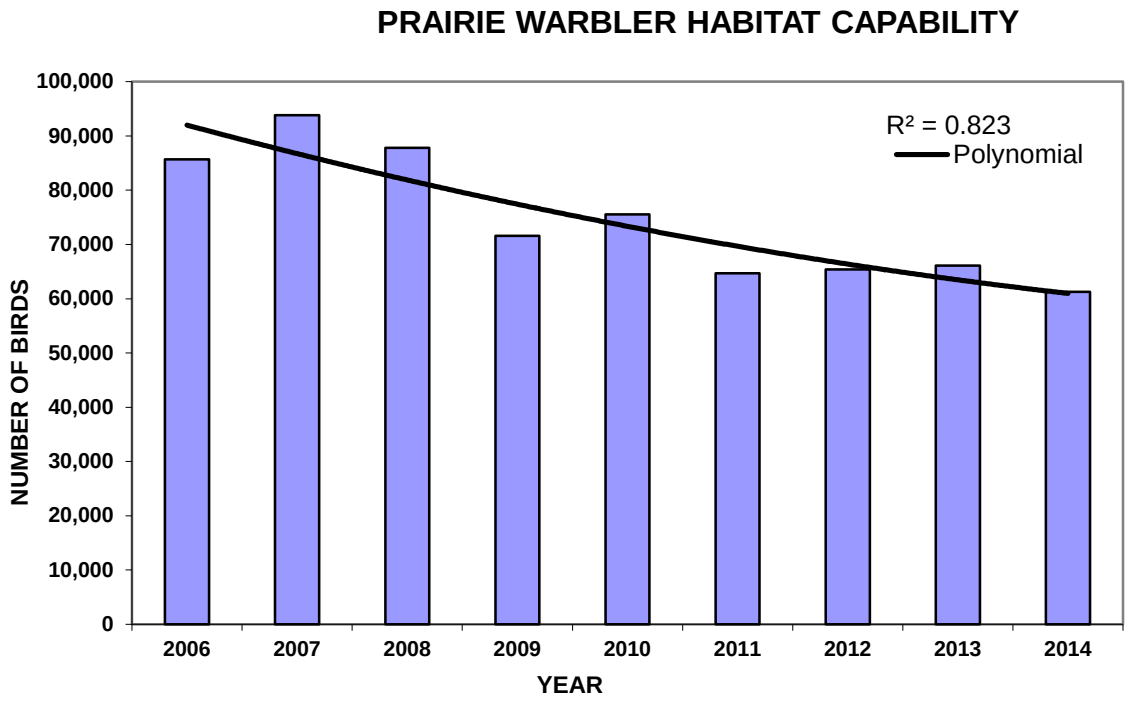
Prairie Warbler
Source: www.enature.com

Data Sources: Ouachita NF Landbird Points data (1997–2014) and the Habitat Capability Model data are sources for evaluating Prairie Warbler population trends.

Population Trends: Based on the data available, the Prairie Warbler shows a slight upward (but not statistically significant) trend since FY 2006 and a decline since 2012. Throughout the Prairie Warbler range, a downward trend is indicated. No additional data were available for 2015.



Habitat capability for the Prairie Warbler on the ONF continues to show a downward trend (which is consistent with range-wide trends), with some hint of having plateaued in the period 2011- 2014. Habitat capability was not calculated for 2015.



Interpretation of Trends for Prairie Warbler: The Prairie Warbler has a recently declining population on the Forest, based on Landbird Points data and habitat capability (these data were unavailable for 2015.) Under Forest Plan implementation, early seral stage habitat should continue to increase and then stabilize at approximately 50,000 to 60,000 acres after ten years (USDA Forest Service 2005a, p175); however, just the opposite is happening, with less than 1,000 acres regenerated in 2014 (less than 20% of the Forest Plan objective of 5,500 acres). Data point to 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 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; however, 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 associated with approximately 200,000 acres of shortleaf-bluestem ecosystem restoration, will benefit Prairie Warbler populations if these management activities are implemented to their full extent.

Red-cockaded Woodpecker (*Picoides borealis*)

For additional information, contact Steve Cole at sncole@fs.fed.us

The Red-cockaded Woodpecker (RCW) is an MIS 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 the shortleaf pine-bluestem woodland community (USDA Forest Service 2005a, p166.) The RCW is discussed in more detail in the 'Proposed, Endangered, and Threatened Species Habitat' section of this report; however, not much data were reported for 2015.

Scarlet Tanager *(Piranga olivacea)*

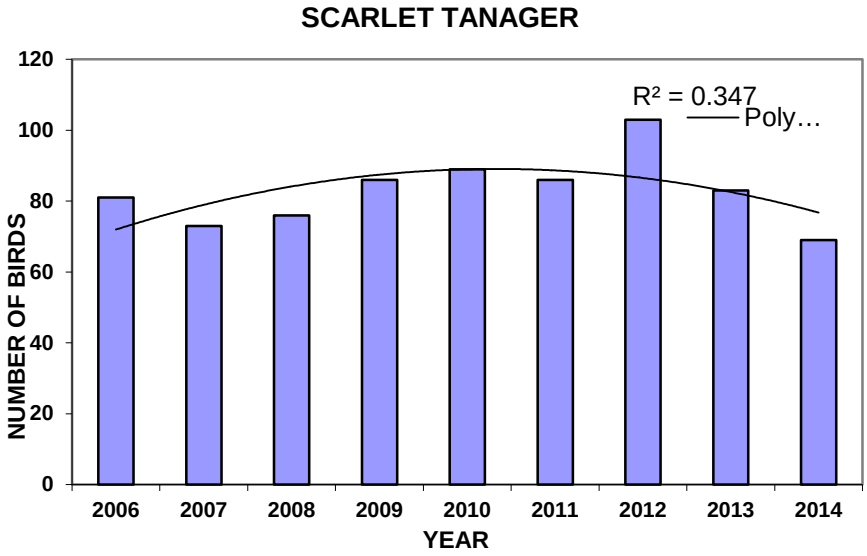
For additional information, contact Steve Cole at sncole@fs.fed.us

The Scarlet Tanager is an 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.

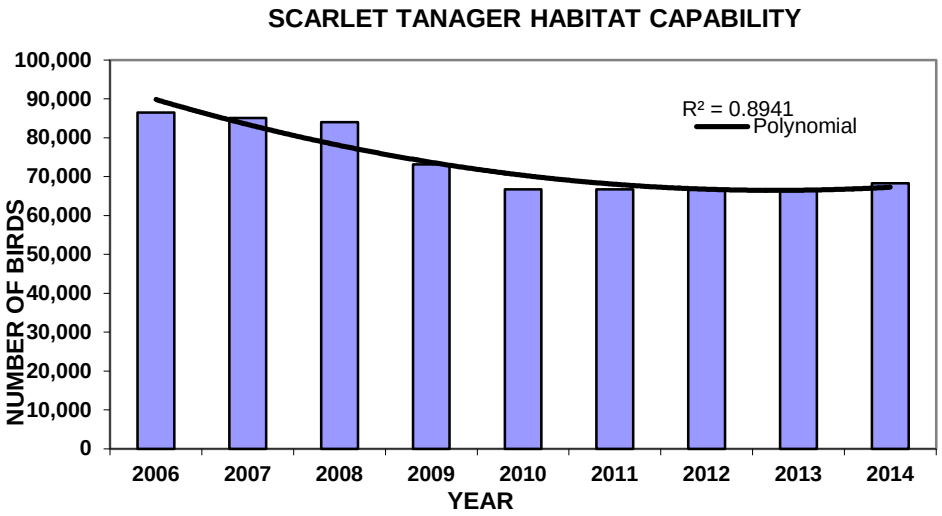
Scarlet Tanager
Source: www.enature.com

Data Sources: The usual Ouachita NF Landbird Points data and habitat capability predictions using CompPATS wildlife model, and Field Sampled Vegetation (FSVeg) data were not available in 2015 to make a population trend assessment.

Population Trends: The Landbird Points data collected from FY 2006-2014 suggest an overall decreasing trend for the Scarlet Tanager, with 2014 showing the lowest number of tanagers recorded in the last 10 years, but the trend is not statistically significant and could reflect natural variability.



Similar to Landbird Points data, Ouachita NF habitat capability data point to a (statistically significant) downward trend for Scarlet Tanager since 2006, although habitat capability has been relatively stable for the period 2010 to 2014. Habitat capability was not calculated for 2015.



Interpretation of Trends for the Scarlet Tanager: Recent data show 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 may be decreasing gradually within the Ouachita NF and the Ozark and Ouachita Plateau but 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 Steve Cole at sncole@fs.fed.us

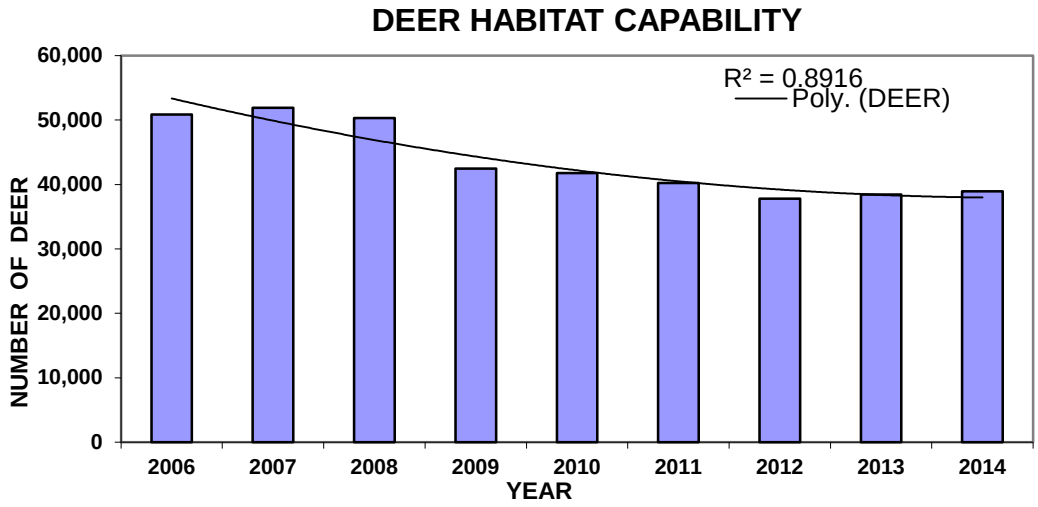
The white-tailed deer is an MIS that was selected to help indicate the effects of management on meeting the public hunting demand (USDA Forest Service 2005, p165). In the Forest Plan, the desired habitat condition is to sustain healthy populations of native and desired non-native wildlife and fish species.

White-tailed Deer
Source: www.enature.com

Data sources: Data sources and monitoring techniques for this species include deer spotlight survey counts (Urbston *et al.* 1987), harvest and population trend data from the AGFC and ODWC, CompPATS deer habitat capability model, and acreage of early successional habitat created by year. Due to lack of available funds and manpower, the deer spotlight survey counts will be discontinued and additional coordination with AGFC and ODWC will be used to obtain harvest data for deer.

Deer Population Trends: The estimated habitat capability for deer is within the range of the desired habitat capability of 38,105 acres for 2015. Habitat carrying capacity is calculated using acres within the Ouachita NF. Habitat carrying capacity is positively influenced by the number of acres of prescribed fire accomplished 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 (short-term).

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 and site preparation, the acres of thinning and prescribed fire have increased over the last 5 years. The Final Environmental Impact Statement for the Forest Plan (USDA FS 2005) indicated in Table 3.59 (p166), a desired terrestrial habitat capability to support an average of 13.7 deer per square mile within the Ouachita NF after 10 years. This was calculated on a land base of 1,789,320 acres (2,796 square miles) for a habitat capability that would support 38,303 deer. The habitat capability as estimated by the CompPATS wildlife model exceeds the Forest Plan projections for every year in the period 2006 – 2014 but is slightly declining. CompPATS was not calculated for 2015.



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 shows a slight increase in the last few years.

Implications for Management: Deer are widespread, abundant, and their 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 Steve Cole at sncole@fs.fed.us

The 7 terrestrial management indicator species show poor habitat conditions and capability for 3 species, Eastern Wild Turkey, Northern Bobwhite, and Prairie Warbler, but 4 species with habitat conditions and capability that are stable or increasing. The following table displays the expected population trends for all 7 terrestrial species, apparent population trends, risk for conservation of species, and management changes needed.

All 3 of the declining species show region-wide declines, not just declines within Arkansas and Oklahoma. Management changes to increase early seral habitat for the declining species through shelterwood and seedtree silvicultural methods combined with continued thinning and burning in pine and pine-oak woodlands are needed.

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 fire, 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

R8 Sensitive Species and Terrestrial Species of Viability Concern

For additional information, contact Steve Cole at sncole@fs.fed.us or *Susan Hooks at shooks@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).

The R8 Regional Forester's Sensitive 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) There are 67 species on the R8 Sensitive Species list that are known to occur on the Ouachita NF. Of those, 44 are 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. The following species on the Regional Forester's Sensitive Species list are regularly monitored: Bald Eagle, Caddo Mountain salamander, Rich Mountain slit-mouth snail, and certain sensitive bats. In late 2011, Region 8 began the process of revising the R8 Regional Forester's Sensitive species list and it should be completed in 2016.

Bald Eagle (*Haliaeetus leucocephalus*)

For additional information, contact Steve Cole at sncole@fs.fed.us

Bald Eagle
Source: www.enature.com

Bald Eagles were removed from the endangered species list in June 2007 due to population recovery. When the Bald Eagle was delisted, the USFWS prepared National Management Guidelines that the Forest Service implements. It is currently listed as a Regional Forester's Sensitive Species and protected by other federal laws, including the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act. Surveys in 2014 on the Ouachita NF showed 6 known nest sites (Irons Fork Lake, Lake Ouachita, North Fork Lake, Lake Hinkle, a new site near High Point Mountain, about 4 miles south of Waldron, and another new location near Waldron Lake) with 2 confirmed nest successes at North Fork Lake and Lake Hinkle. The species is expected to remain stable. No additional surveys were reported for 2015.

Caddo Mountain, Rich Mountain and Fourche Mountain Salamander *(Plethedon caddoensis, P. ouachitae, P. fourchensis)*

For additional information, contact Steve Cole at sncole@fs.fed.us

No recent surveys for the Caddo and Fourche Mountain salamander species have been conducted; however, one individual Rich Mtn. Salamander was located in 2015 by an Oklahoma Ranger District survey in a project area on Rich Mountain.

In 2007, studies were conducted to identify and define species and species boundaries of the Caddo Mountain, Rich Mountain, and Fourche Mountain salamanders, using modern DNA sequencing techniques (Burbrink *et al.* 2009).

Caddo Mountain Salamander
Source: Dr. Stan Trauth

The 2005 SVE score for the Caddo Mountain Salamander species declined from a "Good" to a "Fair" ranking in 2010 primarily due to road density and fire history. The USFWS has been petitioned for these species to be federally listed. Status surveys were planned for 2015; however due to declining manpower and funding these surveys were not conducted.

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

For additional information, contact Dan Benefield at dbenefield@fs.fed.us

In 2015, 3 Rich Mountain slit-mouth snails were found during 5, 30-minute surveys at 5 sites in Oklahoma. All sites are existing sites that are monitored on a 3-year cycle. The 2010 viability analysis ranked the Rich Mountain slit-mouth snail in the "Good" category, an improvement from the 2005 rank of "Fair." However, with no sightings in either 2012 or 2013, this species will require continued monitoring.

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

For additional information, contact Steve Cole at sncole@fs.fed.us

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

The Ouachita NF initiated a bat acoustic survey protocol in 2009 to monitor bat population trends and assess the impacts of White Nose Syndrome (WNS) on the summer distribution of bats. During 14 survey nights in the first year, the Ouachita NF captured calls from 7 bats species. *Myotis leibii* (Eastern small-footed bat), an R8 sensitive species rarely found to occur on the Ouachita NF, was identified during 4 of the survey nights on 2 separate survey routes. The SVE scores (2010) for both the Eastern small-footed bat and the Southeastern Myotis were in the "Good" category. Twenty-two Southeastern Myotis were found to occur in Chalk Mine during the 2014 mine monitoring efforts. No data for the Eastern small-footed bat were reported for 2015.

Other Bat Monitoring

The ONF, assisted by Roger Perry from the Southern Research Station, accomplished bat monitoring in 5 locations in 2015, finding WNS at 1 location (Spillway Mine). Monitoring occurred on 2 separate occasions and is shown with separate counts in the following:

Bat Monitoring in Mines, FY 2015, assisted by Southern Research Station, ONF				
	Northern Long-eared Bat	**Tri-color Bat**	**Southeastern Myotis**	**Big Brown Bat**
	Myotis septentrionalis	***Perimyotis subflavus***	***Myotis austroriparius***	***Eptesicus fuscus***
Spillway Mine*	1 1	18 27		
Sleeping Child Mine		20 22		
Charlton Rec. Mine	1	7		
Monte Cristo Mine		4 15	1	1
Twin Mines		9		
2015 Totals for Mines	3	122	1	1

***Bats tested positive for WNS at this site.**

Other monitoring (Winona District) on 2 successive nights resulted in capture of 18 bats: 5 Red Bats, 5 Evening Bats, and 2 Tri-color Bats at the 132 Pond and then, 4 Red Bats and 2 Silver-haired Bats at 962 Creek. The Red Bat (*Lasiurus borealis*), is unusual in that instead of roosting in interior spaces; it prefers trees. Evening bats *(Nycticeius humeraliscan)* resemble Big Brown Bats, but are smaller and can often be located in hollow trees or under bridges. The Tri-color Bat (*Perimyotis subflavus)* is plentiful in this area, may roost in trees, and is remarkable in that the females form broods and roost together to care for their pups. Silver-haired Bats (*Lasionycteris noctivagans*) are a migratory species with a range that includes most of the continental U.S. It is medium-sized, predominately black, but has fur with white-tipped hairs.

Terrestrial Proposed, Endangered, and Threatened Species Habitat

For additional information, contact Steve Cole at sncole@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 13 federally listed species that are considered as occurring on or potentially occurring on the Forest, and 8 are terrestrial species. Specifically within the Ouachita NF, 5 terrestrial, federally endangered species and 3 species listed as threatened occur or have the potential to occur on the Forest. For the 3 listed birds, 2 mammals, 1 plant, 1 insect, and 1 reptile species, habitat scores indicate that the Burying Beetle and Indiana Bat are stable, that the Red-cockaded Woodpecker has improved, and the American Alligator scored very good in the 2010 evaluation. The Species Viability database will need to be updated to evaluate and obtain scores for Least Tern, Northern Long-Eared Bat and Piping Plover, a species not known to frequent the Ouachita NF.

A list of species, species federal status, and a comparison of 2005 and 2010 SVE scores follow. These data were prepared for the 5-year Review and were not updated in 2015, as anticipated, due to personnel constraints.

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
Northern Long-Eared Bat* *(Myotis septentrionalis)* **Listed in April 2015*	Threatened	NA- Not evaluated	NA- Not evaluated
Piping Plover (*Charadrius melodus*)	Endangered	NA- Only passing occurrences on the Forest	NA- Only passing 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- Not evaluated	4.00 Very Good
Missouri Bladderpod (*Lesquerella filiformis*)	Threatened	NA- Not evaluated	NA- Not evaluated

American Burying Beetle (*Nicrophorus americanus*)

For additional information, contact Steve Cole at sncole@fs.fed.us

In May 2010, the U.S. Fish and Wildlife Service (USFWS) issued a Revised Programmatic Biological Opinion for the American Burying Beetle (ABB) that remapped the ABB areas on the Forest and incorporated the joint Ouachita and Ozark-St. Francis ABB Conservation Plan (USDA Forest Service 2010).

This Conservation Plan used the most current research and data from the USFWS and the 3 National Forests. It addresses conservation and improvement of habitat for ABB rather than just protecting individual beetles from human disturbances, which was the focus of earlier work.

American Burying Beetle
Source: USFS

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 (5 years).

Previously, Forest Plan Standard TE005 read: *"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 requirement TE005 was changed (via an early 2015 administrative correction) to: *"Project planning will adhere to the Conservation Plan and current Programmatic Biological Opinion regarding American Burying Beetles (ABBs) on the Ouachita and Ozark-St. Francis National Forests, as well as adhering to any other current FWS direction available."* In 2014, the Forest Service transitioned to the new protocol of 1, 5-gallon bucket per trap line instead of 8 cups. In 2013 and earlier, it was 24 trap-nights/survey because each cup was individually considered one trap-night. In 2014 and beyond, the count is 5 trap-nights/survey.

In 2014 and 2015 under the new protocol, 36 transects were monitored using the USFWS protocol, for a total of 155 trap nights. 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. No ABBs were captured on either Oklahoma or Poteau/Cold Springs Ranger Districts in 2015.

Indiana Bat (*Myotis sodalis*)

For additional information, contact Steve Cole at sncole@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 individuals of this species in the Forest or on adjacent lands in recent years. The 2010 surveys, however, did find 25 Indiana bats hibernating at Bear Den Cave (Oklahoma). According to the 5-year review on the status of the Indiana bat, white-nose syndrome has reduced the range-wide population by approximately 50%, with greater mortality expected (USFWS 2009).

Indiana Bat
Source: www.enature.com

Surveyors in 2012 found at least 5 Indiana bats hibernating in Bear Den Cave. No surveys were conducted at Bear Den Cave in 2013, 2014, or 2015 due to budget constraints.

Data from the Indiana Bat Recovery Team and other sources in the scientific literature show there are no records of this species reproducing within the Ouachita Mountain Region of Arkansas or Oklahoma. Indiana bats typically travel north from Ozark Mountain summer maternity sites and winter hibernacula. Indiana bats occasionally hibernate in small numbers in Bear Den Cave but have not been detected there or anywhere else on the Forest during the breeding season. Bear Den Cave, which lies within the congressionally designated Winding Stairs National Recreation Area, represents the only natural cave habitat known on the Forest. Very little active management occurs near the cave other than protection of the habitat by gating.

Northern Long-eared Bat (*Myotis septentrionalis*)

For additional information, contact Steve Cole at sncole@fs.fed.us

The Northern long-eared bat (NLEB) was proposed as an endangered species in October 2013 and listed as threatened on April 2, 2015. NLEB is a common bat species on the Ouachita NF and, prior to federal listing, was not a species of concern in Arkansas. However, the NLEB is one of the species of bats most impacted by white-nose syndrome. Identifying, protecting, and restoring summer maternity sites, as well as cave/mine winter hibernacula are primary objectives of the Ouachita NF's management program for all bats. In 2015, 4 NLEBs were found in a single location.

Northern Long-Eared Bat
Source: www.fws.gov

Bats and White-Nosed Syndrome (WNS)

For additional information, contact Steve Cole at sncole@fs.fed.us

Since the winter of 2006, White-nose Syndrome has killed more than 5.7 million bats in Eastern North America. White-nose Syndrome (WNS) is a disease caused by a non-native, cold-loving fungus which can be found in some caves. The fungus is transmitted primarily from bat to bat. The white fungus found on the bats is scientifically called *Pseudogymnoascus destructans* and refers to the white fungal growth found on the noses of infected bats, although it may also be found on their wings and tail membrane (www.Batconservation.org). The fungus disrupts bats' hydration and hibernation cycles, and then, the infected hibernating bats awake repeatedly during the winter. During the disrupted hibernation, they burn up their limited fat reserves by going out into the cold in search of insects and other food that is not available, often causing mortality. Arkansas became the 23rd state to confirm the deadly disease in bats in May 2014. Since then, the fungus has spread to 6 other states. Currently, WNS is found in 29 US states, including northern Arkansas within the caves on the Ozark NF, and 5 Canadian provinces. Up-to-date information may be found at https://www.whitenosesyndrome.org/faqs. During 2015, 2 mine-dwelling bats from the Ouachita National Forest tested positive for WNS.

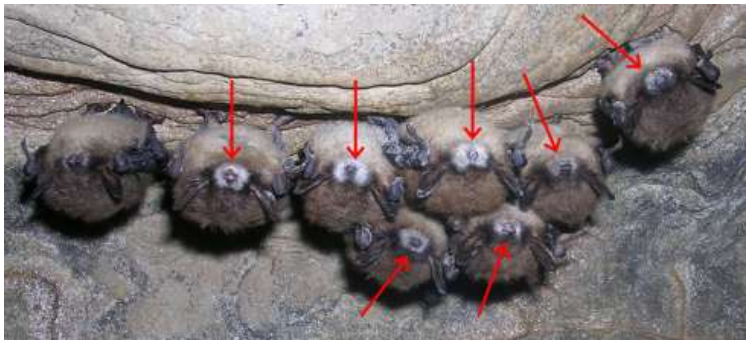


Photo Courtesy of: ©Al Hicks, New York Department of Environmental Conservation.
Arrows point to unusual white noses on bats in a New York cave during the winter 2006, apparently caused by a fungus and possibly related to an unusual number of bat deaths.

The Ouachita NF restricts access to the mines and caves across the Forest with a cave and mine closure order and by improving and installing gates at the cave and mine entrances. The Forest has gated most known mines or caves with bat-friendly gates to allow access for the bats and to prevent other disturbances and continues to gate and perform maintenance work on existing gates as needed. These measures are in place to implement the management goal of slowing the spread of the disease so that biologists have time to better understand the implications of WNS and to find stopgap measures to slow the spread of the disease.

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

For additional information, contact Robert Bastarache at rbastarache@fs.fed.us

The federally listed endangered species Interior Least Tern and Piping Plover are known to occur at Red Slough, but are not known to occur as reproducing populations on the Forest (James and Neal, 1986; Peterson, 1980). The following information 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.

The Interior Least Terns are seen regularly from late spring to early fall feeding over the wetlands and reservoirs. They nest on nearby sandbars in the Red River and bring their young to Red Slough to teach them to fish. The Piping Plover, however, is very rare at Red Slough as they prefer sandy beaches along shorelines. This species has appeared occasionally resting on mudflats during migration.

During 2015, Least Tern numbers were slightly higher than the 10-year average, with 47 being documented. This number, while higher than the 10-year average, was still about 50% less than the 10-year high of 82, recorded in 2014. The Red River reached its highest level ever in May 2015 due to major flooding, which caused Red Slough to have higher than normal water levels during the months of May and June. The flooding decreased the breeding success of the Least Terns on the Red River; and thus, fewer offspring were produced. The lower numbers of Least Terns using Red Slough to feed can be directly linked to the floods and reduced breeding success along the Red River.

Most Piping Plovers that occur on the Ouachita NF in Arkansas and Oklahoma are passing migrants and only occasionally forage within the Red Slough Wildlife Management Area. During 2015, 2 Piping Plovers were documented during July which is the first sighting of this species since 2006.

Least Terns and Piping Plovers by FY, ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Least Terns	17	56	81	21	63	8	9	18	82	47
Piping Plovers	1	0	0	0	0	0	0	0	0	2

Least Tern
Source: David Arbour

Piping Plover
Source: David Arbour

Red-cockaded Woodpecker (*Picoides borealis)*

For additional information, contact Steve Cole at sncole@fs.fed.us or Robert Bastarache at rbastarache@fs.fed.us

The Red-cockaded Woodpecker (RCW) is both a federally listed endangered species and an MIS for the Ouachita NF. MA 22, Renewal of the Shortleaf Pine-Bluestem Grass Ecosystem and Red-cockaded Woodpecker Habitat, (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 NF System lands on the Poteau-Cold Springs, Mena, and Oklahoma Ranger Districts. These lands consist primarily of extensive blocks of Pine-Oak Forest, Pine-Oak Woodlands, and intermingled stands of Dry-Mesic Oak Forest. In addition to providing extensive areas in which restoration of pine-bluestem ecosystems is featured, MA 22 incorporates 2 Habitat Management Areas (HMAs; one each in Arkansas and Oklahoma) for the endangered 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 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 RCW was selected as an MIS for the Ouachita NF due to its Federal listing as an endangered species. 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 2005a, p166).

Trends: RCW active territories have been increasing from a low of 11 territories to a known high of 70 active territories in 2014. Territories for 2015 have been estimated at 60, but that number has not been confirmed. Over the period that RCWs have been monitored on the Forest, the number of active territories and number of adult birds have generally increased. Oklahoma reported 1 active cluster which fledged 3 young in 2015.

The following table shows the 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 (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 number of Potential Breeding Groups (USDI FWS 2003).

RCW Management, by Breeding Season, ONF				
RCW Breeding Season	**Active Territories**	**Nesting Attempts**	**Estimated Fledglings**	**Number of Adult Birds**
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
2012	61	59	118	155
2013	67	59	114	158
2014	70	No Data[1]	No Data[1]	No Data[1]
2015	60[2]	No Data[1]	No Data[1]	No Data[1]

**Includes renest attempts*

[1] Due to reduction in personnel and funding, monitoring for nest attempts, fledglings and adult birds were discontinued.

[2] Estimated Territories based on information from the 2015 CFLRP Report (p. 17).

During 2013, a successful translocation to the Oklahoma Ranger District resulted in the first nesting pair of RCWs on the Oklahoma side of the ONF which produced 2 hatchlings. It was also the first nesting pair outside of the McCurtain County Wilderness Area in almost 30 years.

Implications for Management: Management of this species is guided by the RCW Recovery Plan, with an objective of a minimum 5% population increase per year as specified in Section 8.A.1 of the Recovery Plan (USDI FWS 2003, page 162). Populations of this species on the Forest exhibit a generally increasing trend. Barring any major catastrophic events, RCW populations should continue to improve under the present management intensity. A large-scale ecosystem restoration project was initiated to restore the shortleaf pine-bluestem grass ecosystem on over 200,000 acres (principally in Management Area 22). This project will eventually provide sufficient habitat for a recovery population of the endangered Red-cockaded Woodpecker (USDA Forest Service 2005a). 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 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 this species' 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. 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 WMA of southeastern Oklahoma, in streams, ponds and ditches. At least one alligator has also been observed in Broken Bow Lake in Oklahoma, but there is not much suitable habitat for this species on nearby National Forest System land.

American Alligators at Red Slough
Photo Courtesy of David Arbour

Alligators Counted by FY, ONF*

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Alligators counted	7	7	3	6	7	8	10	21	16	no survey

***Numbers above reflect a 2015 correction to alligators surveyed only on NF system lands. Previous Monitoring Reports had included numbers of alligators counted in surveys of Ward Lake, which is 2/3 private and 1/3 public and is not regularly surveyed.**

The Oklahoma Department of Wildlife Conservation did not conduct alligator surveys in 2015 due to weather and personnel issues; however other observances were recorded. Three alligator nests were found in 2015, which is the most recorded during a single nesting season. Two nests produced a total of 27 young, but the third nest was raided by raccoons. Eight dead baby alligators were collected from one of the nests and sent to Oklahoma State University for genetic testing. The Red Slough alligator population has remained steady, with trends indicating an increase in population size, most likely due to sustained successful hatching and overwintering. Future surveys are expected to note a sizeable increase in the number of alligators counted due to previously hatched young surviving to a detectable size.

Missouri Bladderpod (*Physaria filiformis*)

For additional information, contact Susan Hooks at shooks@fs.fed.us

Missouri bladderpod, *Physaria filiformis* Rollins (O'Kane & Al-Shehbaz), formerly included in the genus *Lesquerella* (as *Lesquerella filiformis* Rollins), is a federally listed Threatened species in the family Brassicaceae added to the Federal List of Endangered and Threatened Plants in January 1987 as a threatened species. In 2015, 2 new sites for Missouri bladderpod were located on National Forest land. This species occurs in open glade or barrens habitat containing treeless areas with very thin soil and exposed bedrock. The sites were surrounded by open woodlands and with some areas with a high density of eastern red cedar. The 2 new locations are smaller sites within a known local population. The sites had low numbers, less than 200 individuals, and were in flower and fruit when located. There were no apparent signs of disease or damage from browsing.

Other Habitat Considerations - Wildlife

For additional information, contact Steve Cole at scole@fs.fed.us

In addition to managing for species viability and health, the Ouachita NF maintains a very active role coordinating with the Arkansas Game and Fish Commission (AGFC) and the Oklahoma Department of Wildlife Conservation (ODWC), particularly in habitat improvement activities.

Hunting and Wildlife Management Areas

Hunting is permitted anywhere on the Ouachita NF except within developed recreation sites or otherwise posted areas. Hunting seasons are designated by the AGFC and the ODWC and adjusted as necessary to maintain sustainable populations. All state hunting and fishing regulations, fees, and seasons apply on National Forest System lands. Cooperatively-managed Wildlife Management Areas (WMAs) represent approximately 42% of NFS lands. Hunting with dogs is not allowed on Ouachita NF System lands within WMAs managed by either the AGFC or ODWC; however, hunting with dogs is still allowed outside of WMAs on the Ouachita NF in Arkansas.

There are 3 WMAs in Arkansas, each established by Memorandum of Understanding between the parties in 1968: Caney Creek, Muddy Creek and Winona. These WMAs are managed cooperatively with the AGFC for the benefit of the hunting public.

The National Wild Turkey Federation (NWTF) and the AGFC are instrumental in efforts for WMA and Walk-In Turkey Area wildlife food plot establishment, maintenance and reclamation, as well as dozer work for access route improvements. In most years, the Ranger Districts provide assistance with some native seed and fertilizer, but the AGFC contracts for disking, mowing/bushhogging, seeding, fertilizing, and any dozer work needed to allow access to the food plots.

Caney Creek WMA (85,000 acres) occupies portions of Howard, Montgomery, Pike, and Polk Counties. Maintainance for 2015 included mowing 125 acres and planting 75 acres of plots. AGFC total cost for the project was $22,193.55. Most plots are maintained on a 2-year rotation with the exception of plots within the Walk-In Turkey Area.

Muddy Creek WMA (150,000 acres) is located in Montgomery, Scott, and Yell Counties. Maintenance for 2015 included mowing and planting 187 acres of plots. AGFC total cost for the project was $32,454.80. AGFC maintained a 2-year rotation for maintenance with a few exceptions due to heavy rains washing out accesses in the Rockhouse Watershed area. Additionally, 8 new gates were purchased and installed and 6 more gates were repaired utilizing a $5,000 grant from NWTF.

The Winona WMA (160,000 acres) is located on lands in Garland, Perry, and Saline Counties. Maintenance for 2015 included mowing and planting 160 acres of plots. Food plot maintenance in the Winona WMA is on a 2-year rotation. AGFC total cost for the project was $34,842.30.

In Oklahoma there are 3 WMAs on the Ouachita NF, jointly managed in cooperation with the ODWC. Oklahoma is unique for the Ouachita NF in that all National Forest System lands within the 2 counties in Oklahama are contained within WMAs. All of the National Forest System lands within LeFlore County are contained within the Ouachita LeFlore Unit WMA (221,948 acres acres, which includes acreage formerly called the Cucumber WMA). 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).

On the Ouachita LeFlore WMA (in cooperation with ODWC and NWTF), 130 wildlife openings are maintained, of which 40 per year are planted. Wildlife openings can range in size from ½ to 1 acre. During 2015, 45-50 acres of wildlife openings were maintained. Existing openings are worked on multiple times throughout the year; however, no new wildlife openings were established. Management activities include bush hogging, disking, fertilizing and planting. The NWTF contributes to prescribed fire in areas where openings are located to promote grasses, forbs, and herbaceous vegetation necessary for maintaining quality foraging areas and improving the overall wildlife habitat.

The Red Slough WMA is cooperatively managed by the Ouachita NF, Natural Resources Conservation Service (NRCS), and ODWC. The Red Slough WMA is enrolled in the Wetland Reserve Program (WRP) which is administered by the NRCS. The WRP has a permanent easement that gives NRCS ultimate authority over the project activities that can take place on the ground. The NRCS is responsible for ensuring the goals and objectives of the Wetland Reserve Program including funding for all WRP projects. Day-to-day management activities are handled by the ONF and ODWC. Activities accomplished during 2015 include providing 54 tours, removal of 57 feral hogs, treatment of 481 acres with prescribed fire, and disking of 123 acres.

Following are reports on monitoring of nest box and egg hatch rate success for species in the Red Slough WMA. Compared to other years, nest box success rates were average; but the hatched egg to unhatched egg ratio for 2015 was higher for the Hooded Merganser than any preceding year.

Red Slough WMA Nest Box Success Rates Monitoring Results by FY, ONF

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wood Duck	50%	38%	45%	30%	40%	26%	62%	58%	39%
Hooded Merganser	88%	87%	100%	54%	70%	19%	78%	59%	50%
Black-bellied Whistling Duck	46%	100%	86%	59%	23%	62%	64%	90%	71%

Red Slough WMA Egg Hatch Success Rate* by FY, ONF

Year	2007	2008	2009	2010	2011	2012	2013	2014	2015
Wood Duck	724/713	791/1271	551/681	552/1298	520/769	293/818	420/260	562/406	480/742
Hooded Merganser	95/65	95/65	95/65	95/65	95/65	95/65	95/65	95/65	225/221
Black-bellied Whistling Duck	37/4	37/4	37/4	37/4	37/4	37/4	37/4	37/4	30/18

*Hatched eggs/Unhatched eggs

The Red Slough WMA bird surveys through 2015 revealed a total of 319 bird species. A new bird documented during the 2014-2015 survey was Worm-eating Warbler. Of interest during the 2014-2015 bird surveys is that the Eastern Towhee has expanded its range westward and is now breeding at Red Slough WMA. In addition, there is now an established breeding rookery on Pintail Lake containing Neotropic Cormorants and Anhingas. Some of the more 'rare' species that regularly-to-occasionally occur are: Black-bellied Whistling Duck, Trumpeter Swan, Mottled Duck, Wood Stork, Roseate Spoonbill, Glossy Ibis, Golden Eagle, King Rail, Yellow Rail, Cave Swallow, Common Ground-Dove, Swainson's Warbler, Willow Flycatcher, Bell's Vireo, and Henslow's Sparrow.

Vagrants are species that are outside of their normal range and not normally expected to be seen in a given area. Those that have been seen on the Red Slough WMA, include: Fulvous Whistling Duck, Tundra Swan, Least Grebe, Magnificent Frigatebird, Swallow-tailed Kite, Harris' Hawk, Crested Caracara, Sabine's Gull, Sooty Tern, Royal Tern, Band-tailed Pigeon, Ash-throated Flycatcher, Great Kiskadee, Western Kingbird, Brewer's Sparrow, Lark Bunting, McCown's Longspur, Chestnut-collared Longspur, Snow Bunting and Lazuli Bunting.

Gulf Coastal Plain species that only reach the extreme southeast portion of Oklahoma, typically don't occur elsewhere in the state, and are a big attraction to the birdwatchers include: Anhinga, White Ibis, and Purple Gallinule. Other wetland species that are seldom seen elsewhere in the state due to the disappearance of wetlands include Least Bittern and Common Gallinule. Species that are not necessarily rare or limited in range but are difficult to see due to their reclusive natures and can be more easily found at Red Slough include: Bell's Vireo, Sedge and Marsh Wrens, Le Conte's Sparrow, and Nelson's Sparrow. And finally, 2 very popular and colorful birdwatcher species that are relatively common at Red Slough are the Prothonotary Warbler and Painted Bunting.

Walk-In Turkey Areas

There are 9 Walk-In Turkey Areas on the Ouachita NF, 7 in Arkansas and 2 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 who desired opportunities to hunt on public lands managed by the Ouachita NF in places 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.

In Oklahoma, 5 food plots each (or 10 acres/Area) are annually maintained in Well Hollow Walk-In Turkey Area and in Blue Mountain Walk-In Turkey Area.

Riparian and Aquatic Ecosystems and Habitat

For additional information, contact Steve Cole at sncole@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."*

More detailed descriptions of desired conditions for Ouachita Rivers and Streams and Ouachita Lakes and Ponds are located in the Forest Plan on page 19. River and stream fish angling opportunities are enhanced through road crossing "aquatic organism passage" improvements implemented across the Forest and protected through "Streamside Management Areas or SMAs" during ground disturbing activities. Monitoring efforts of stream game fish indicate that population levels are well maintained and viabilities are not in question.

The primary MA associated with riparian and aquatic ecosystems is Management Area 9, Water and Riparian Communities, consisting of approximately 278,284 acres. This management area 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 all 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 ½ acre; variable distances (but at least 30 feet) from both edges of other streams with defined stream channels and ponds less than ½ acre in size; and certain lands surrounding public water supplies, lakes, and streams.

There are 5 riparian-associated vegetation community types and 2 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 Lakes and Ponds

Riparian and aquatic associated ecosystems comprise approximately 16% of the Forest, and are managed within designated 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.

Aquatic Management Indicator Species (MIS)

For additional information, contact Richard Standage at rstandage@fs.fed.us

In this report, terrestrial MIS have been previously discussed. Riparian and aquatic MIS are discussed in this section. Aquatic species are divided into Pond, Lake and Waterhole MIS and Stream and River MIS. There are 14 fish MIS associated with stream and river habitat, and 3 pond, lake and waterhole MIS (17 fish species total). The 17 fish species identified for the Ouachita NF under the Forest Plan as MIS follow:

Aquatic MIS Species for the Ouachita NF

Common Name	Scientific Name
Pond, Lake and Waterhole MIS - 3	
Bluegill	*Lepomis macrochirus*
Largemouth Bass	*Micropterus salmoides*
Redear Sunfish	*Lepomis microlophus*
Stream and River MIS - 14	
Yellow Bullhead	*Ameiurus natalis*
Pirate Perch	*Aphredoderus sayanus*
Highland Stoneroller	*Campostoma spadiceum*
Creek Chubsucker	*Erimyzon oblongus*
Orangebelly Darter	*Etheostoma radiosum*
Redfin Darter	*Etheostoma whipplei*
Northern studfish	*Fundulus catenatus*
Northern Hog Sucker	*Hypentelium nigricans*
Green Sunfish	*Lepomis cyanellus*
Longear Sunfish	*Lepomis megalotis*
Striped Shiner	*Luxilus chrysocephalus*
Smallmouth Bass	*Micropterus dolomieu*
Johnny Darter [1]	*Etheostoma nigrum*
Channel Darter [1]	*Percina copelandi*

[1]Johnny and Channel darters are monitored only within the range of Leopard Darters.

Pond, Lake, and Waterhole MIS

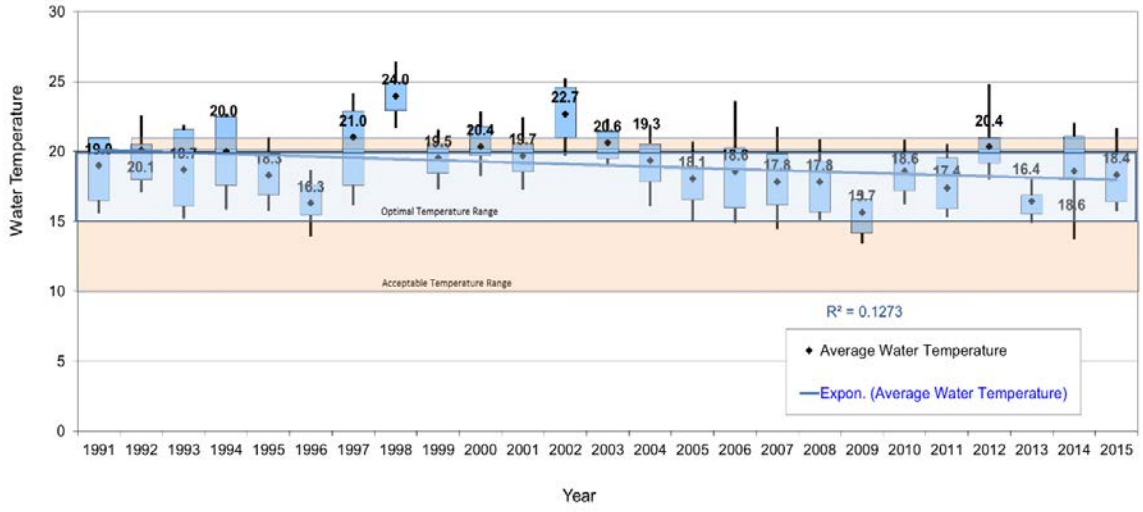
For additional information, contact Richard Standage at rstandage@fs.fed.us

The 3 pond, lakes and waterhole MIS consist of Largemouth Bass, Bluegill and Redear Sunfish. The primary method of assessing Forest-wide populations is boat electrofishing.

Ouachita Baptist University Students Assisting with Sampling

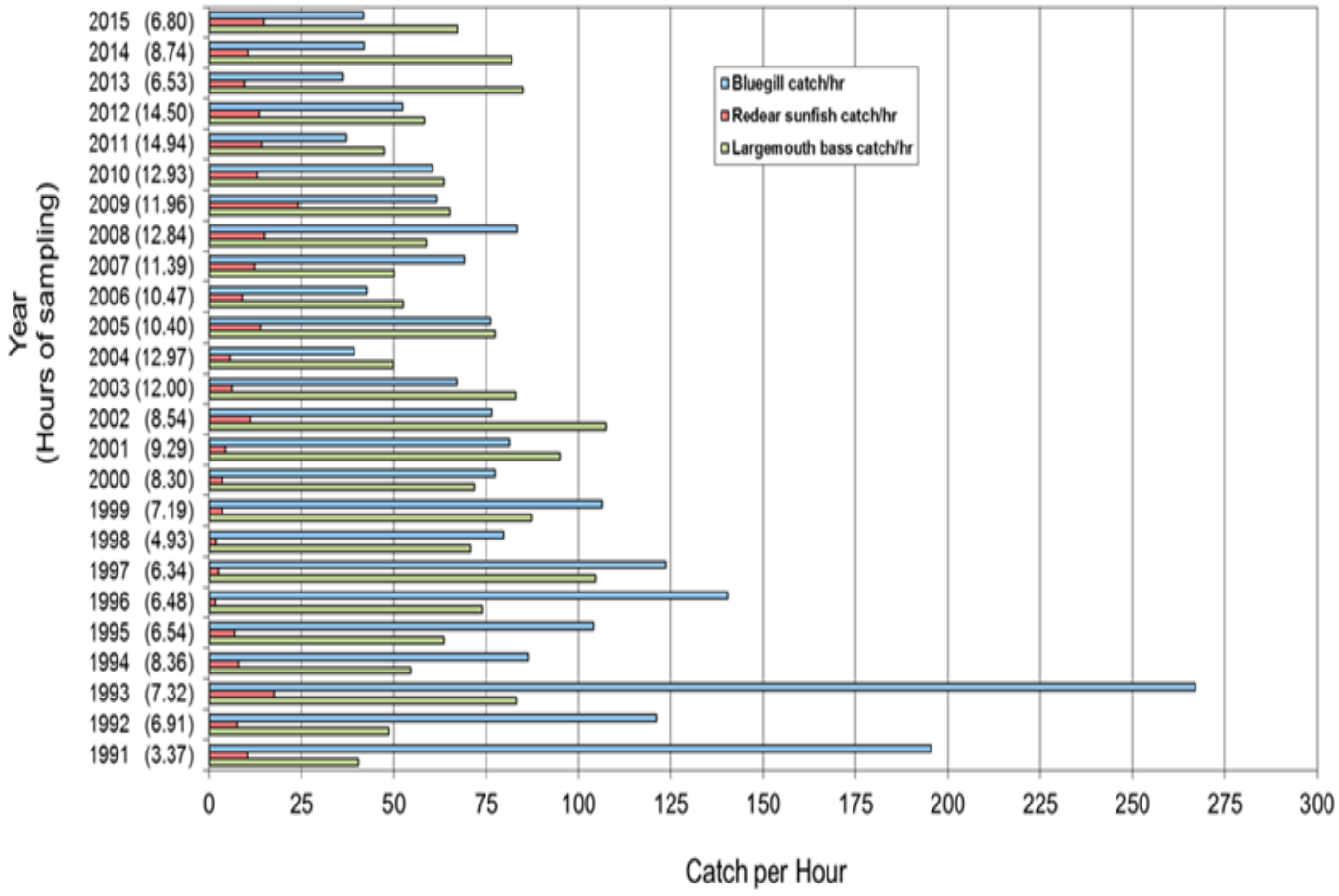
Electrofishing results since 2003 have been somewhat similar. The spring electrofishing seasons in the past several years have been characterized as wet springs with temperatures cooler than normal and the result that sunfish spawns have been missed. Also, the fall electrofishing seasons, more recently, have been 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 less susceptible to electrofishing capture. As seen in the annual pooled water temperature graph that follows, the pooled water temperatures of the samples became warmer 1997 through 2003. At that point it was decided to move the spring sampling earlier to keep from getting such warm lake temperatures toward the end of the season and push back the fall sampling to try to get cooler fall water temperatures. While the overall trend would indicate a successful outcome with that goal; there still remains a lot of variability in sample water temperatures across the years. Sample water temperatures are taken just prior to the start of electrofishing at each waterbody. While the water temperature may warm some in the course of an hour or two's worth of sampling, it would be a small change considering the volume of water in each lake and pond. Air temperature is recorded at the time of the water temperature reading and it typically fluctuates during the course of the sampling; however water temperatures typically do not fluctuate and do not affect the fish. Barometric pressure would be a good indicator of fronts moving through but since only an instantaneous pressure reading can be taken at the time of sampling, there is no indication of prior or post sampling barometric trends. The pressure reading at the time of the sample isn't felt to be of much use and the taking of the barometric pressure was discontinued after a year or so (after the barometer broke). The timing of fronts moving through is the needed value and no practical/cost-effective way has been devised to record the timing and amount of change caused by such an occurrence.

Annual Pooled Water Temperatures by Year, ONF



While there is a fair amount of variability between lakes and years in water temperatures, the majority of the samples fall within the optimal temperature range as defined by the AGFC, particularly after the sampling date adjustments that started in 2004.

Annual Pooled Catch per Hour
Bluegill, Largemouth and Redear by Calendar Year, ONF



Typical catches of big Largemouth Bass continue to be made at Cedar Lake in Oklahoma, with some nice bass and catfish taken from a number of other lakes and ponds. The values of catch per hour reflect all sizes of fish, not just that of stock size and larger Largemouth Bass and Bluegill as prescribed by the AGFC sampling protocol. Another deviation from the protocol used by state is that all species and all sizes are captured, measure, weighed and entered into the database. The results concerning the other non-MIS species are examined but only the 3 lake and pond MIS species are fully evaluated for this report as they make up the majority of the catch. Those, plus the stocked Channel Catfish and both species of crappie, are the most sought-after species. Crappie are not present in many of the lakes and ponds and are not caught in electrofishing sampling in significant numbers to allow meaningful analysis.

Student Volunteer Helping with Sampling
Source: USFS

The following discussions on Bluegill, Largemouth Bass, Redear Sunfish and Gizzard 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 2014 and the fall sampling took place at the start of FY 2015 and data for both are included in this report for 2015.

Bluegill *(Lepomis macrochirus)*

For additional information, contact Richard Standage at rstandage@fs.fed.us

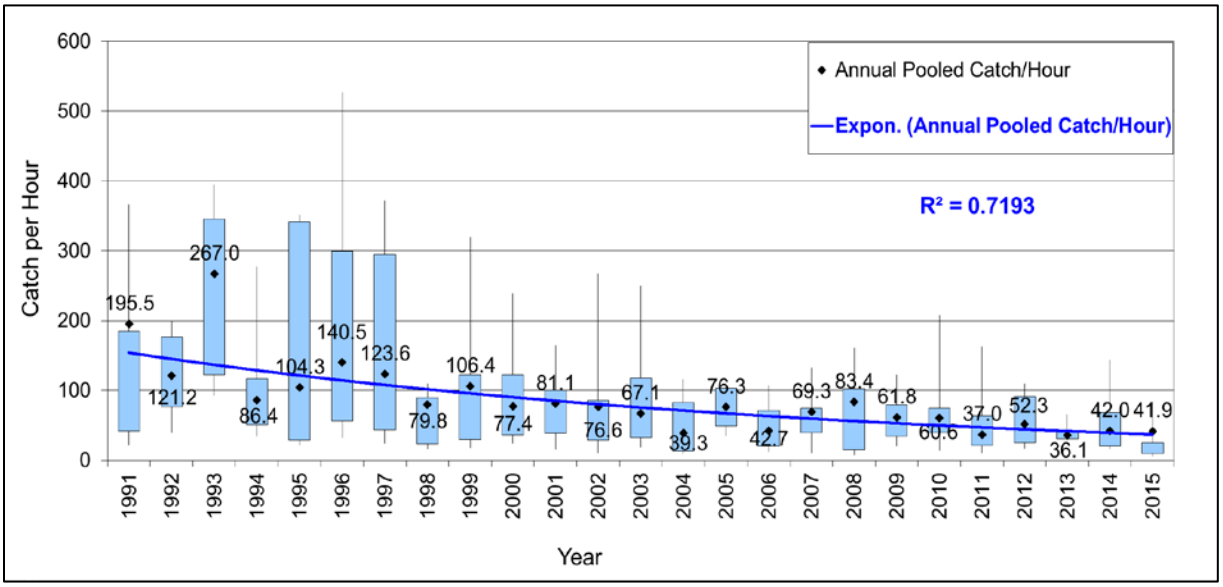
The Bluegill electrofishing catch for 2013 was the lowest since 1991; however, there were increases in 2014 and 2015. The spring samplings most recently have occurred before the bass spawn, and in most of the lakes, the sunfish had not started to congregate to spawn either. The fall pond sampling seems to have missed schooled large sunfish. Ideally, the spring sample finds the Largemouth Bass having spawned but with nest guarding still occurring, the Redear Sunfish spawning, and the Bluegill staging in shallower areas to spawn, so that a good representation of all species and sizes are sampled.

Bluegill
Source: USFS

With sampling normally occurring in 10-12 lakes in the spring within this temperature/spawning window, ideal conditions are missed more often than they are attained. As temperatures cool in the fall, the larger sunfish species tend to congregate around structure but recent fall samplings have found water temperatures too warm to catch any of the sunfish schooling on structure.

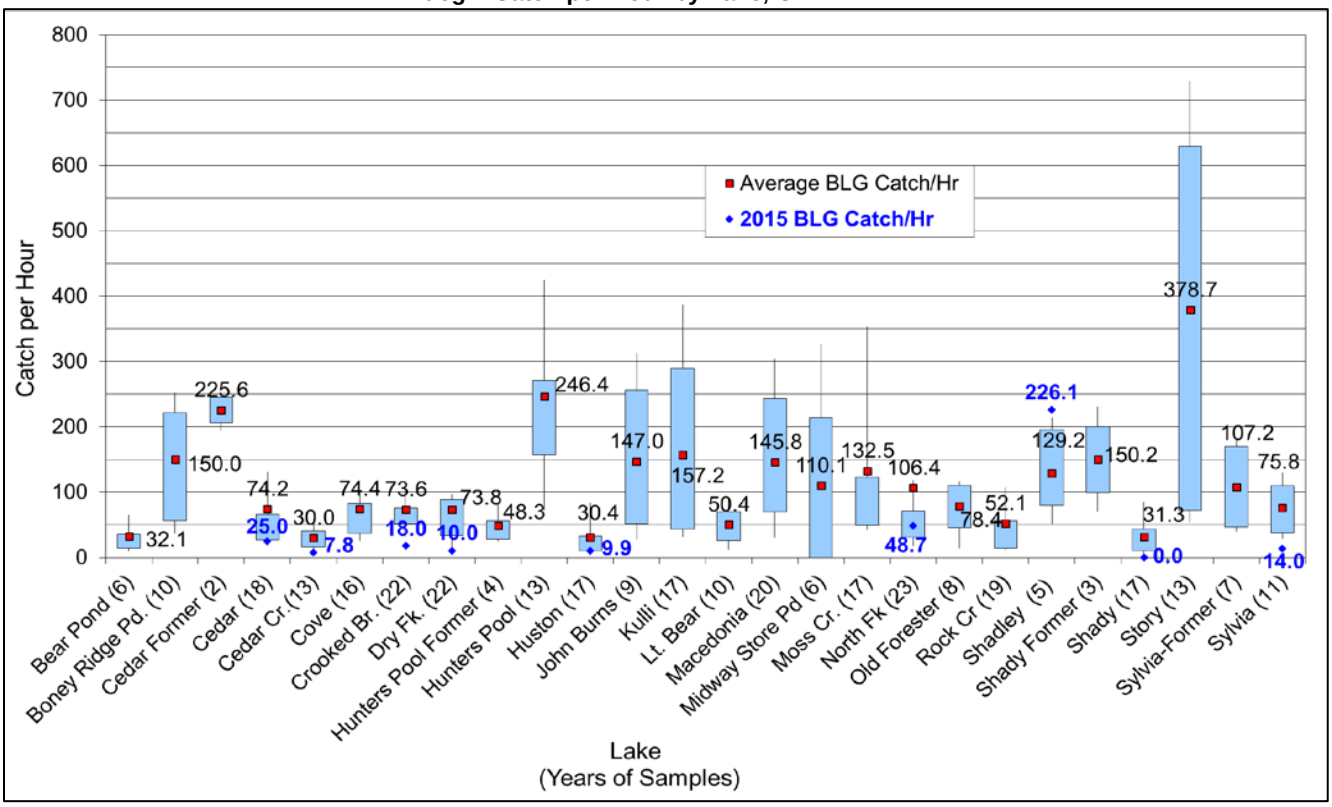
The trend line associated with the annual pooled catch per hour has a low statistical significance (r^2=0.72 meaning an accuracy/repeatability of 72%) showing a slight downward trend in catch per hour. Variabilities in sample sizes between and within water bodies over time are high. Only one 2015 sample had a larger catches than its long-term average, and it was nearly double its long-term average. This one sample highly influenced the Forest-wide catch rate. The following graph displays the variability in annual samples with the bars displaying the 25-75% range of the samples and the lines displaying the variability to the 10% and 90% levels. Variability was extremely low in 2013 and 2015 due to the small number of lakes and ponds sampled (7 and 10 respectively) as compared to other years (16-20).

Bluegill Catch per Hour by Year Forest-wide, ONF



The individual lakes and ponds with 178.3, 163.2 and 114.7 Bluegill caught per hour drove the Bluegill caught per hour up in 2014 over prior years; and 2015 is driven by the 226.1 Bluegill catch per hour at Shadley Lake. It appears on a Forest-wide basis, the catch per hour for Bluegill can be expected to be in the 40 to 60 range most years. Undoubtedly there will continue to be fluctuation within individual lake catches as seen in the following graph of catch per hour by lake.

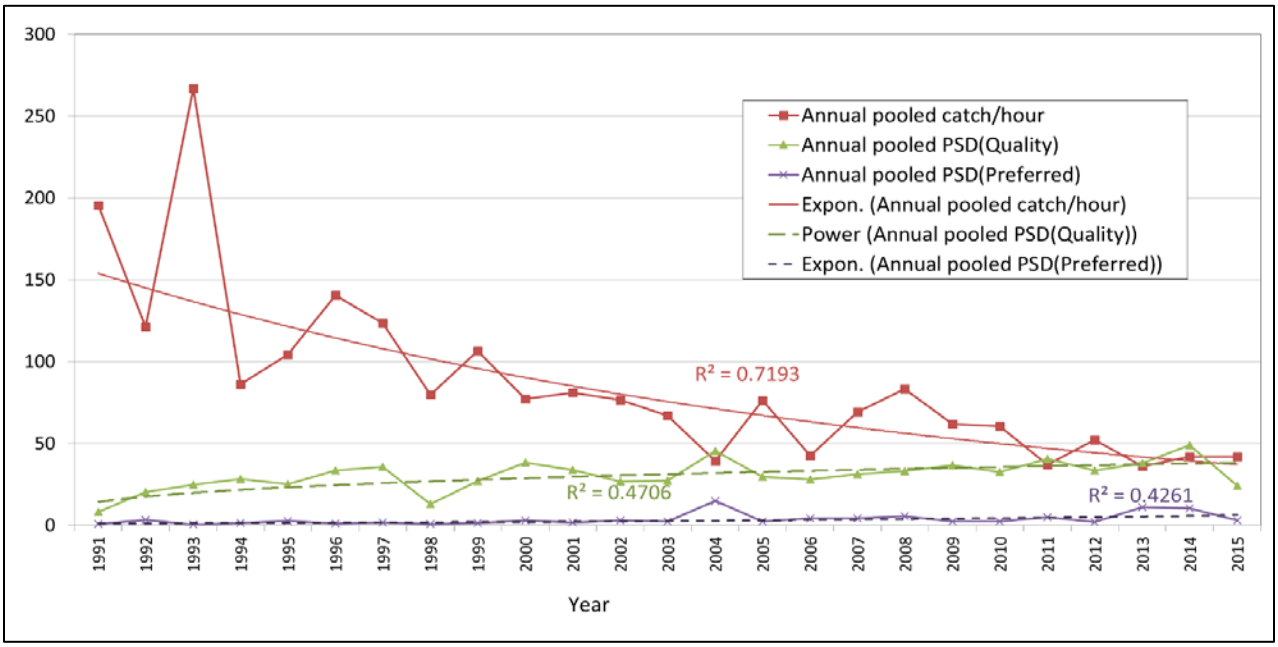
Bluegill Catch per Hour by Lake, ONF



Harvestability of Bluegill was low for the 2015 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. It was low in 2012 due to the high catch of small Bluegill in Hunters Pool and higher in 2013 as a function of the smaller catch. The harvestability was slightly higher in 2014, mostly driven by the high harvestability of the Kulli Pond Bluegill and then low again in 2015 due to the large catch of smaller Bluegill at Shadley Lake. The trend line shows a slightly increasing trend; however, it is not statistically significant (r^2=.53).

Proportional Size Distribution (Preferred), also known as RSD (Relative Stock Density) for Bluegill equal to or greater than 200 mm (7.9 inches) long, was low in 2012 driven by the large catch of small Bluegill at Hunters Pool and it shows relatively few catches of Bluegill above that size with an increasing trend line that is not statistically significant (r^2=0.46). The slight increase in the pooled 2013 catch for Preferred-Sized Bluegill is attributed to a small catch of large Bluegill in combination with that year's small sample size. The large Bluegill caught at Cove Creek Lake and Shady Lake drove up the percentage in the preferred range for 2014. The large catch at Shadley Lake of small Bluegill and low catches elsewhere drove the Preferred-Sized Bluegill count down in 2015. With so few Preferred-Sized Bluegill being caught at just a couple of lakes or ponds, and usually with a low catch per hour, the percent harvestable must be examined in light of the total number of Bluegill caught across the Forest by lake or pond. Usually the harvestability of the Quality-Sized Bluegill is a more meaningful number since larger numbers of fish are involved.

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



As sampled in all years through 2015, 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.

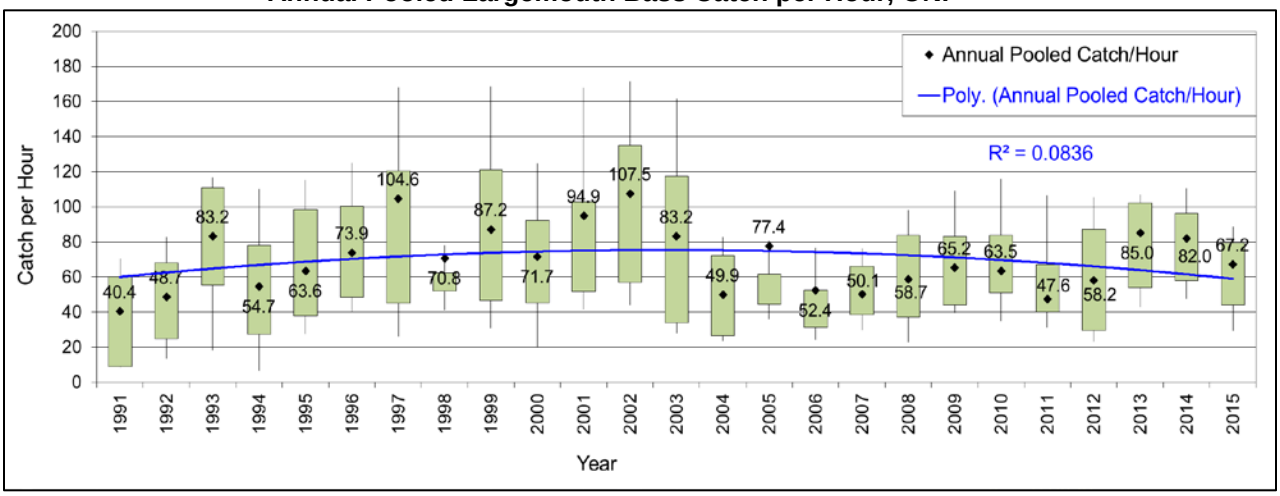
Largemouth Bass *(Micropterus salmoides)*

For additional information, contact Richard Standage at rstandage@fs.fed.us

The Largemouth Bass electrofishing catch rate in 2013 through 2015 was an improvement over the 2011 and 2012 samplings. The 2015 catch rate was slightly down from 2014 but contains less samples than the 2014 data set. The 2014 catch rate was the second highest of the past 5 years with the 2011 results the lowest for the same time period. The 2013 sampling results are slightly biased high by a smaller than normal number of lakes and ponds samples (10) that are the better producing Largemouth Bass waters. The catch rate for 2014 was heavily influenced by an abnormally high catch of Largemouth Bass at Dry Fork of 187.27 bass/hour when 72.47 is the average catch there. The 2015 sample was again of less lakes (10 as in 2013) with a catch rate at Cedar Lake nearly half of its average. That poor catch was enough to drive down the overall pooled catch rate. Sampling results from the last 25 years are shown in the following graph.

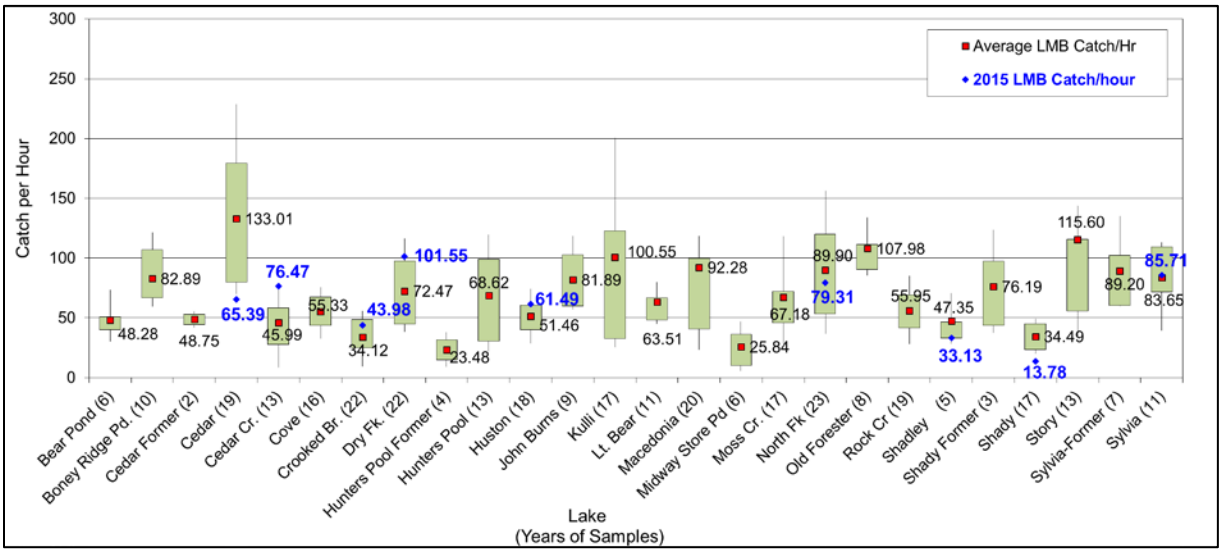
USFS Fisheries Biologist with Largemouth Bass
Source: USFS

Annual Pooled Largemouth Bass Catch per Hour, ONF



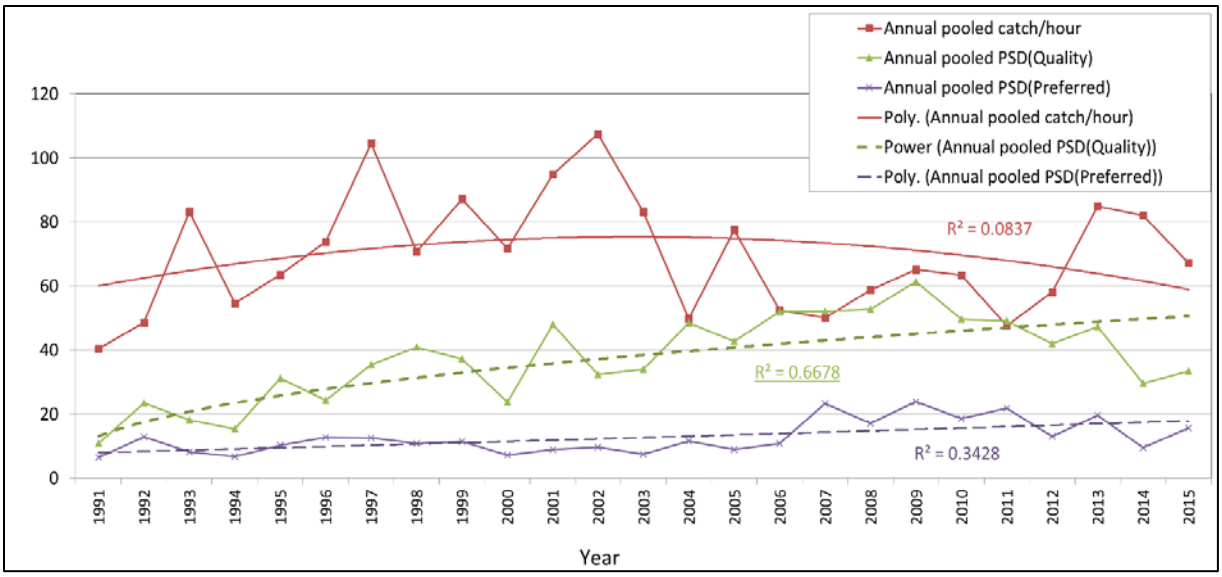
Largemouth Bass catch rates dropped in 2015 compared to the 2013 and 2014 catch rates. Even though they were lower than the previous 2 years, they were still higher than those of 2011. Variability was somewhat comparable for the last 3 years and was actually less variable than in many of the pre-2004 samples. There also seems to be a slight increasing trend in catch per hour since 2006 through 2014, even though the 25-year trend appears in a downward mode since 2003. Not conducting a fall sampling season in 2015 may well have influenced the decrease in the annual pooled catch per hour but there is no real way to tell. This trend has no statistical significance.

Largemouth Bass Catch per Hour by Lake, ONF



Catch per hour at the individual lakes sampled in 2015 are inconsistent with 5 of 9 lakes above their average catch per hours and 3 below their average catch per hour. Only Lake Sylvia's catch rate was fairly similar to its long-term average catch per hour. On the other hand, Shady Lake and Cedar Lake had less than half their average catch per hour in 2015. Overall there is a slightly significant increasing trend in harvestability of Quality-Sized Largemouth Bass as shown in the following graph even though for the last 4 years, the values are below the trend line. Harvestability of Quality-Sized Largemouth Bass for 2015 increased from the previous year. Quality-Sized Largemouth 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, ONF



The PSD (P) value for 2015 shows an improvement from 2014 and is near the 2012 value. Due to year-end reporting and the training necessary to complete it being prioritized over lake and pond electrofishing, harvestability for 2015 was mostly negatively influenced by the lack of fall sampling and the overall smaller number of lakes and ponds that were sampled for the entire year. As sampled in 2015, Largemouth Bass populations across the Ouachita NF are at suitable and sustainable levels and their viability is not in question.

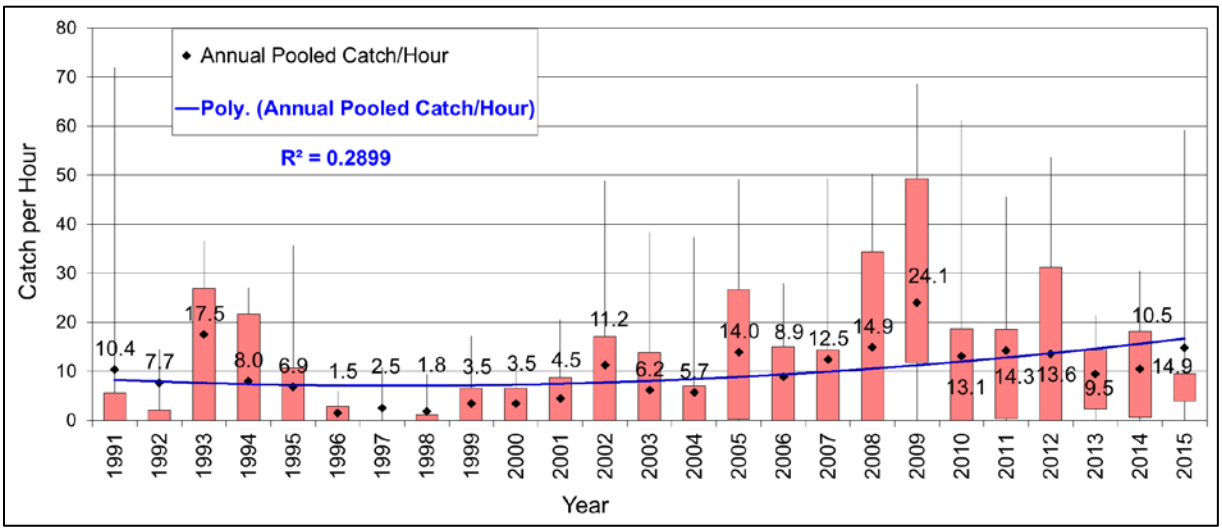
Redear Sunfish *(Lepomis microlophus)*

For additional information, contact Richard Standage at rstandage@fs.fed.us

Redear Sunfish
Source: USFS

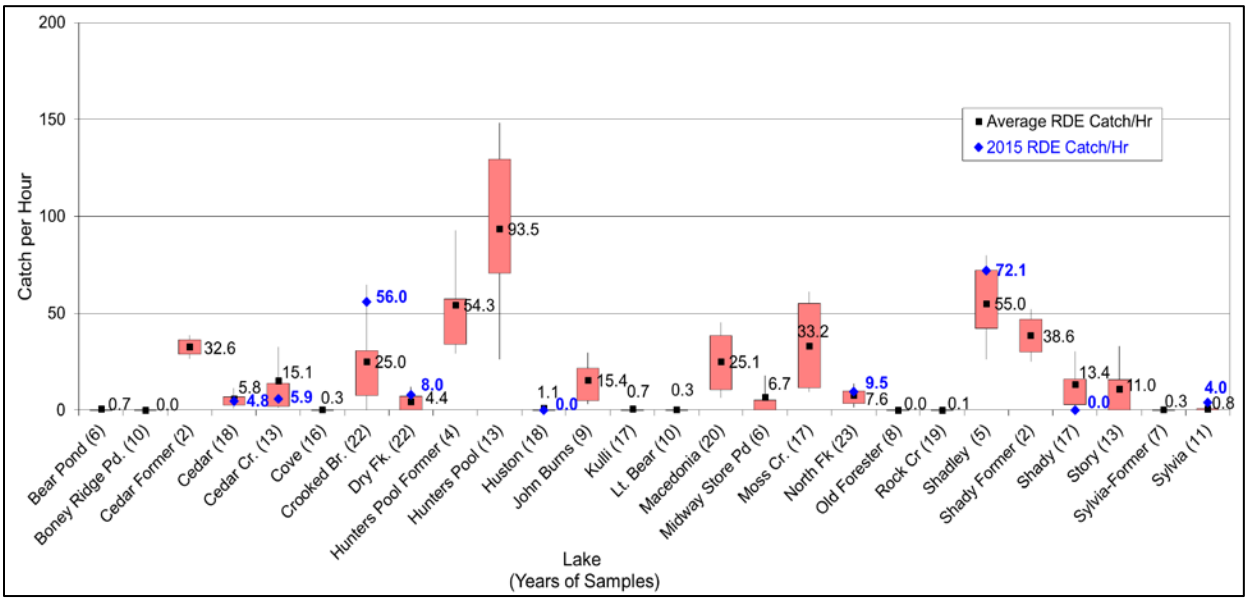
The Redear Sunfish electrofishing catches have ranged from 7 to 90 times less than Bluegill or Largemouth Bass catches over the past 25 years. As shown in the following graph; the Redear Sunfish catch in 2010 through 2015, excluding 2013 the year of low sample numbers, displays quite a bit of variance (10% to 90%). However the 25% to 75% variance for 2015 is quite small with the smaller number of samples and that Hunters Pool with its historically high catch rates was not sampled. While the Redear Sunfish annual pooled catch rate trend line shows an increase since 1998, the trend is not statistically significant.

Annual Pooled Redear Sunfish Catch per Hour, ONF



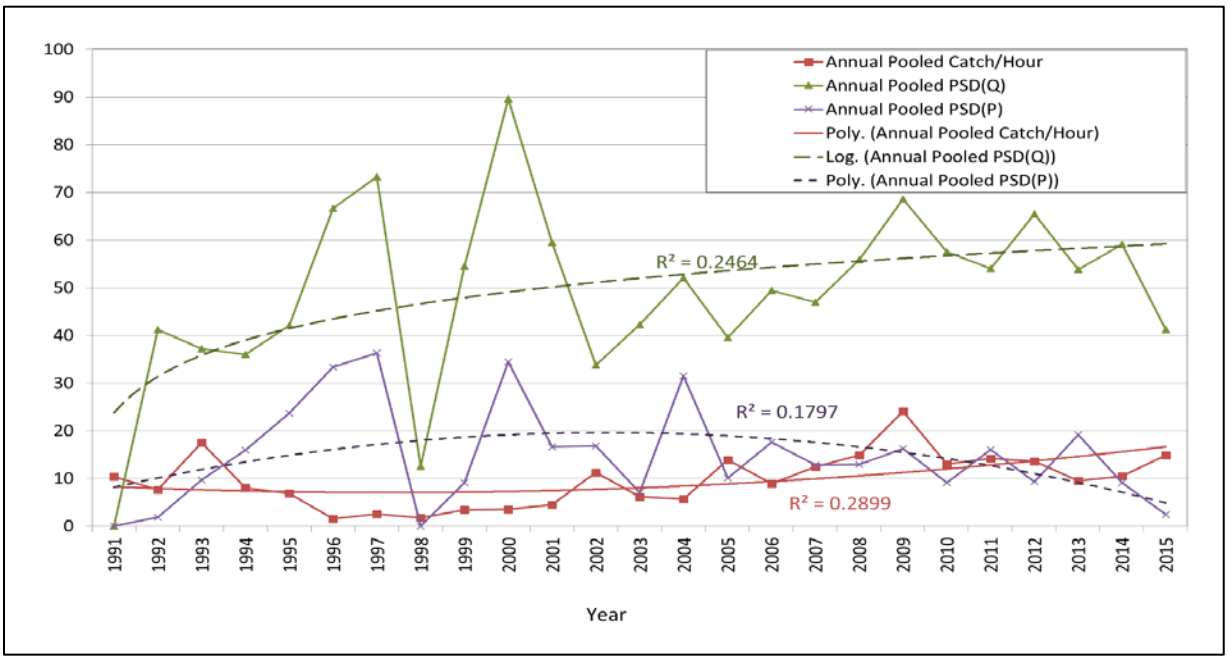
The 2015 Redear catch was dominated by the catch of 56.0 Redear per hour at Crooked Branch and 72.1 Redear per hour at Shadley Lake as shown in the following graph. This significantly added to that variance seen for 2015 at the 10-90%, but the small number of lakes sampled contributed to the much smaller variance in the 25-75% range. Less variability in 2013 is also partially attributable to the decreased number of lakes and ponds sampled.

Redear Sunfish Catch per Hour by Lake, ONF



Harvestability of Redear Sunfish utilizes a stock length of 100 mm (3.9 inches) and a Quality length of 180 mm (7.1 inches). Preferred-Sized Redear Sunfish are 230 mm or 9 inches and greater. The 2015 catch of Quality- and Preferred-Sized Redear Sunfish was quite low as the higher catches at Crooked Branch and Shadley Lake were dominated by small Redear Sunfish and few of the larger Redears were caught elsewhere. Without a fall sample to catch the larger schooled Redears, an incomplete picture of size ranges was seen for 2015. The trend lines are not statistically significant for the catch per hour or the harvestability of the Quality- or Preferred-Sized Redears. Most of the lakes with higher harvestabilities had very low catch rates for Redears.

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



As sampled in 2015, 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 rstandage@fs.fed.us

In addition to the pond, lake, and waterhole MIS species, 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. While the White Crappie population was followed for years at Dry Fork Lake due to its cyclic nature, the population is stable and past trends continue; thus Dry Fork's White Crappie have been dropped from further discussion in the Annual Monitoring Report. The data is contained within the Dry Fork sampling results since all species and sizes are caught and recorded for each lake and pond electrofishing sample. Likewise, Threadfin Shad, that suddenly appeared in the North Fork sampling efforts in 2006, but disappeared in 2009 and have not been found since, have been dropped from this report. Intensive management of Gizzard Shad at Cedar Lake, Oklahoma continues, and it will continue to be analyzed in this report should this management and sampling continue.

Gizzard Shad *(Dorosoma cepedianum)*

For additional information, contact Richard Standage at rstandage@fs.fed.us

Gizzard Shad
Source: USFS

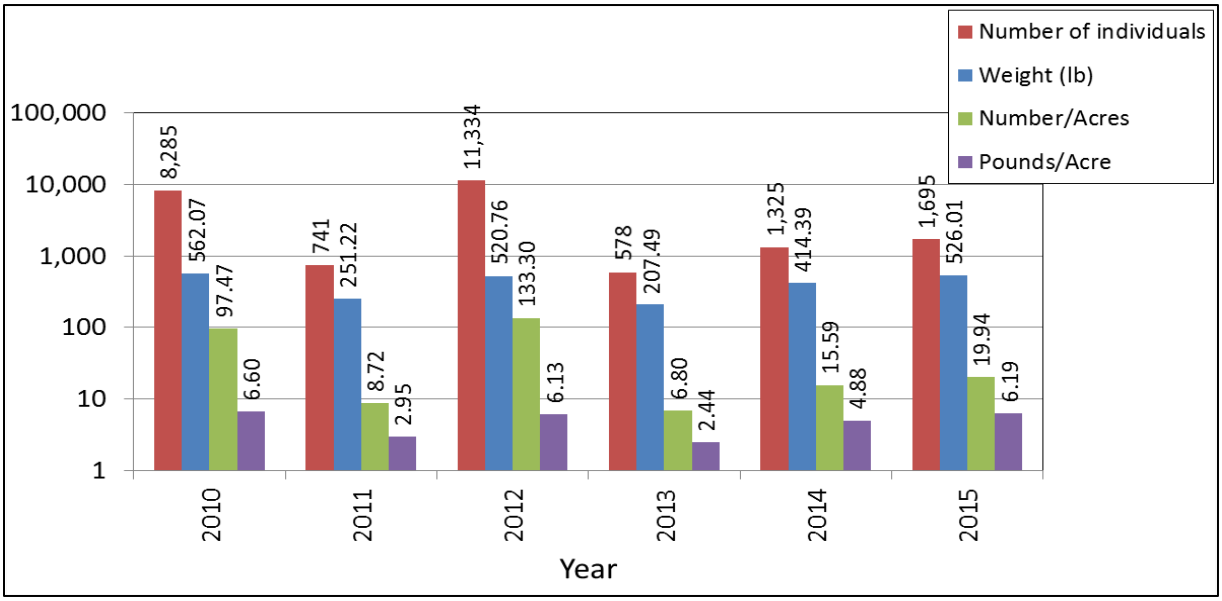
There has been a concern that the Gizzard Shad population might be expanding in Cedar Lake to the detriment of the sport fishing species. Gill netting was first conducted in the fall of 2005 in Cedar Lake to monitor the Gizzard Shad population. Two 200-foot monofilament nets, sized specifically to capture these shad and minimize Largemouth Bass catches were utilized in 2006 for the first time, and their use continued through 2013. In 2014, 2 additional and identical nets were set to try to increase the Gizzard Shad sample size and to better sample the open, deeper waters of Cedar Lake. The

Gizzard Shad length frequencies, as shown in the following graph, indicate 3-year/size classes were caught in the nets in 2006; 3 or more in 2007; only 2-year classes caught in 2008 and 2009; 4-year classes or at least distinct lengths caught in 2010; 3 to as high as 5 size classes caught in 2011 and 2012 with 4 in 2013; but again only 3 size/year classes in 2014. The results in 2014 with the 4 gill net set actually resulted in a lower catch per hour of Gizzard Shad than prior sampling; however, the nets were set in sub-freezing temperatures which likely reduced fish movements and thus, susceptibility of being caught. The netting results for 2014 is likely not as representative of the current Gizzard Shad population as those of prior years.

Due to changes in work priorities and a cold November, 2015, Gizzard Shad gill netting was not conducted. It was mutually decided by the Forest and ODWC that the netting was not likely to give reliable results due to the cold weather. In addition there were 2 floods in the spring that may have flushed out Gizzard Shad young or resulted in a late re-spawn. All 3 conditions were believed to lead to netting results which could not be separable from the effects of Gizzard Shad reduction work.

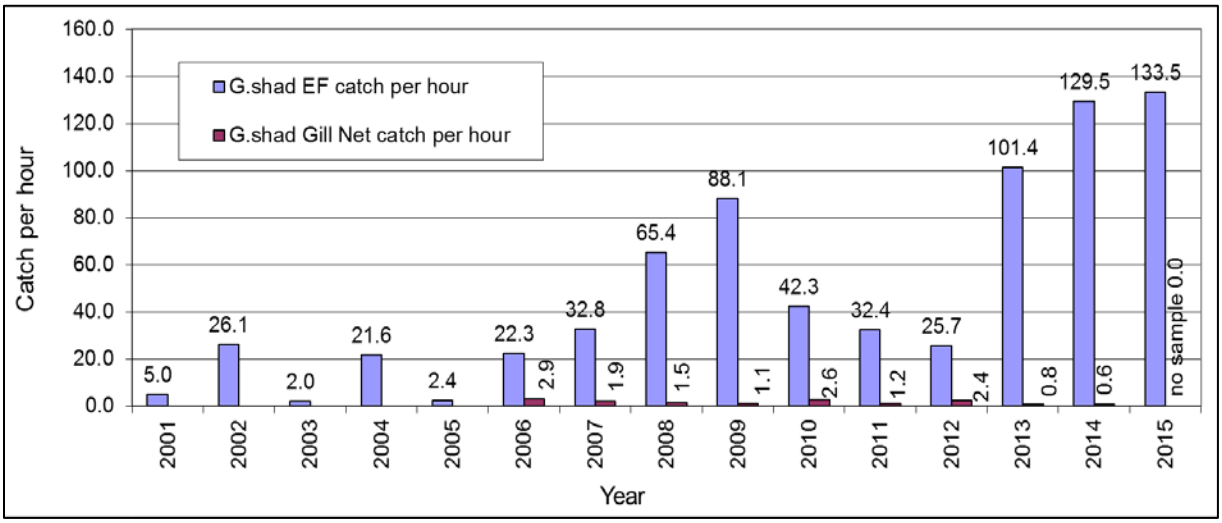
After review of the 2009 results, in consultation with the ODWC; it was decided that the Gizzard Shad population needed to be reduced in order to try to encourage more reproduction/recruitment of smaller sizes of Gizzard Shad and reduce the number of individuals in the population that are too large to serve as forage for the Largemouth Bass and crappie in the lake. In a single day of electrofishing in 2010, using both the ODWC electrofishing boat and the Forest's boat followed by another work-day with only the Forest Service boat and crew, approximately 562 pounds of Gizzard Shad, numbering approximately 4,100 individuals were removed. This electrofishing catch 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 an extra-small size class of Gizzard Shad that hadn't been recorded since 2007. This removal work has continued with usually one USFS boat and two ODWC boats with various quantities of Gizzard Shad removed (see the following graph). The fall netting results of more numerous and smaller shad in most years is believed to be the result of management removal efforts.

Cedar Lake Gizzard Shad Removals, ONF



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 2012 is not as high as that in 2008 through 2011, the 2013 through 2015 electrofishing catches are the highest to date. The gill net catch is the third highest in 2012 and the lowest in 2014 in spite of the past Gizzard Shad removals. No gill netting took place in 2015. The high catch of Gizzard Shad in 2014 by electrofishing were 10-12 inch shad ready to spawn and they were congregated against the shoreline where they were more susceptible to electrofishing capture as was the case in 2013. This might be a factor with the catches in these 2 years.

Cedar Lake Electrofishing Capture versus Gill Net Capture, ONF



The electrofished Gizzard Shad are generally too large to be consumed by all but the very largest Largemouth Bass and Channel Catfish in Cedar Lake. Based on these results, it appears the large shad should continue to be targeted with a reduction program to promote production of the smaller Gizzard Shad as forage for Largemouth Bass and Channel Catfish. The reduction work started with the ODWC should 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 and length frequencies within the Gizzard Shad population. Gill netting will likely continue with the use of 4 nets set under warmer conditions if and when personnel are available. The timing of spring electrofishing will not be adjusted away from Gizzard Shad spawning season for fear of hitting the Largemouth Bass spawning season and damaging their recruitment. As long as the Gizzard Shad electrofishing catch does not continue to climb, current management efforts should continue without change.

Shoreline Seining

For additional information, contact Richard Standage at rstandage@fs.fed.us

Shoreline seining was conducted, or at least attempted, in approximately 15 instead of the normal 33 lakes and ponds across the Ouachita NF in 2015. The AGFC stopped shoreline seining because a study they commissioned showed seining results did not adequately represent fall recruitment of Largemouth Bass. The Forest Fisheries Biologist, after reviewing the study, did not fully concur with the decision to halt a practice for which 25 plus years of data existed. Instead, a vastly reduced number of easily seined lakes and ponds was chosen to maintain some continuity in lake and pond reproduction monitoring. ODWC concurred with continuing to seine most of the Oklahoma lakes and ponds (Cedar and Crook Branch Lakes and Hunters Pool) previously sampled, but Boney Ridge and the other ponds were dropped due to the difficulty in seining them and getting an adequate sample.

Adequate reproduction was found for sunfish and bass in most of the waters that were easily seined. 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 date of sampling. Lakes and ponds sampled later in June had a lower bass catch in relation to sunfish catches. This likely indicates the bass had grown large enough to out-swim the seine. However those lakes sampled very early in June had almost no catches of bass or sunfish fingerlings and had to be resampled when the bass fingerlings were large enough to be captured and not go through the seine. Reliable seining results are an issue of timing which seems more unpredictable in the past few years due to greater fluctuations of warm and cold temperatures in the spring. Possibly significantly reducing the number of ponds and lakes sampled annually will allow for better timing in conducting the sampling since manpower commitments will be less and the work should be easier to schedule.

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

Summary of Pond, Lake, and Waterhole Management Indicator Species Monitoring, ONF
Data are from the 2010 Species Viability Evaluation

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***	**Barely Significant, Increasing**	**Not Significant, Barely Increasing**	**Sustainable-Viability not in Question**	**None**
Redear Sunfish	***Lepomis microlophus***	**Not Significant, Slightly Increasing**	**Not Significant, Slightly Decreasing**	**Sustainable-Viability not in Question**	**None**

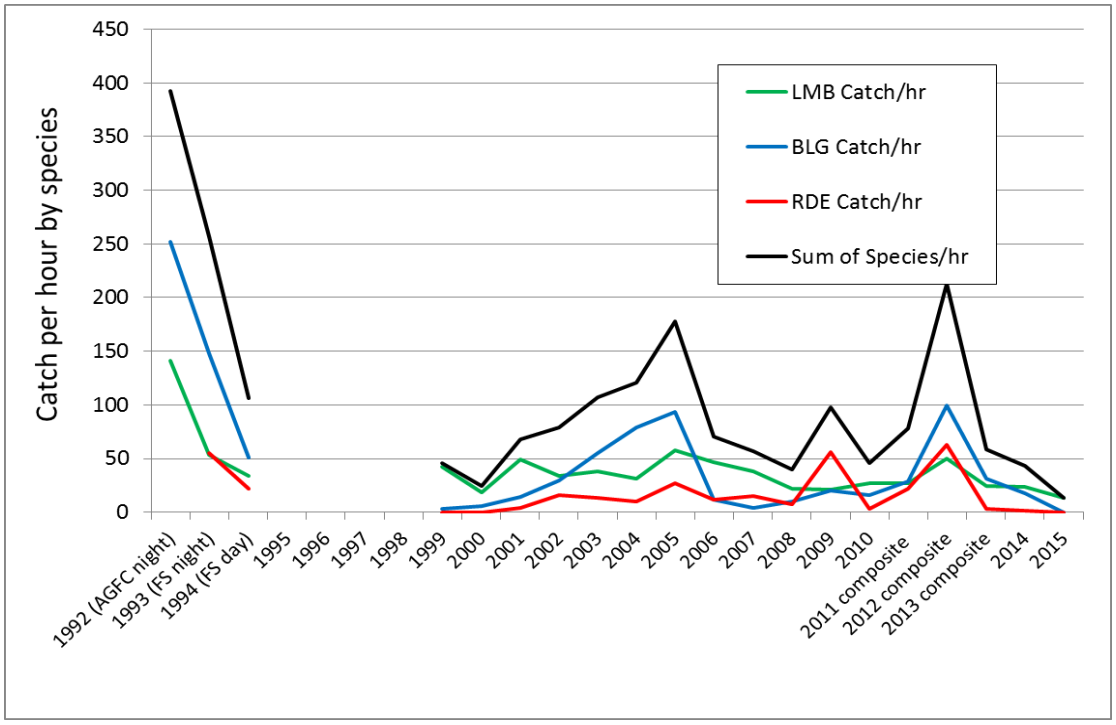
Additional monitoring and analyses for White Crappie, Gizzard Shad, and Threadfin Shad were conducted during 2015 even though these are not MIS species. The White Crappie population in Dry Fork Lake has been scrutinized because it has been the largest crappie population on the Ouachita NF. After 23 years of sampling with cyclic harvestability values; the reporting of such has been discontinued since there is no question as to the crappie population's sustainability. It should be examined as part of the typical review of Dry Fork sample data. Gizzard Shad in Cedar Lake are monitored to determine if the population is expanding and the management/reduction of the population is producing the desired results. Threadfin Shad were discovered in North Fork Lake during 2006 electrofishing efforts but disappeared after 2009. Since they have not been sampled since 2010, reporting of sampling efforts and results has been discontinued but should be restarted should they again show up in any of the on-going sampling (electrofishing and/or seining).

Pond, Lake, and Waterhole Fisheries Operations

For additional information, contact Richard Standage at rstandage@fs.fed.us

In 2009, it was discovered that the Mena/Oden Ranger District had been routinely draining or nearly draining Shady Lake to accomplish swim beach maintenance needs. Thus, large numbers of fish were flushed out annually. Flushing resulted in low electrofishing catch rates; and with little water left in the lake, the surviving fish were not reaching expected sizes. The Operations and Maintenance Plan for the lake adopted in 1999 provided for lowering the lake level no more than 50% during the winter to maintain the fishery and still provide the necessary draining and drying of the substrate to facilitate swim beach maintenance in addition to keeping nuisance aquatic vegetation (water shield) at bay. Operations have reverted to the proper maintenance procedures. However, during the winters of 2012/13 and 2013/14, drawdowns were not completed due to manpower issues and a broken pump system to raise and lower the outlet gate valve for the lake. In 2015, only a short-term, partial drawdown was completed, mostly to replace the water level control plumbing equipment; but, it did occur during a cold period of the winter. In the meantime, recovery in the catch per hour for the 3 species showed an improvement until 2013 and 2014. In review of the specific Shady Lake electrofishing data for 2013 spring and fall, an extraordinarily small catch was made in the spring of 2013 as the lake was too cold for the 3 species to be in shallower water and thus more vulnerable to electrofishing capture. The fall sample, while better, was not sufficient enough to significantly raise the pooled catch results. Only a single spring sample was taken in 2014 and 2015 and they suffered the same problem as the 2013 samples with very low to no Sunfish catches due to too cool lake temperatures and visibilities being too great. Without the drawdowns of the 2012 and 2013 winters, an increase in water shield beds became quite noticeable across the lake. Future sampling will be attempted under warmer conditions or at night to see if a more balanced and growing fish population may be detected.

Shady Lake Catch per Hour for MIS Species, ONF



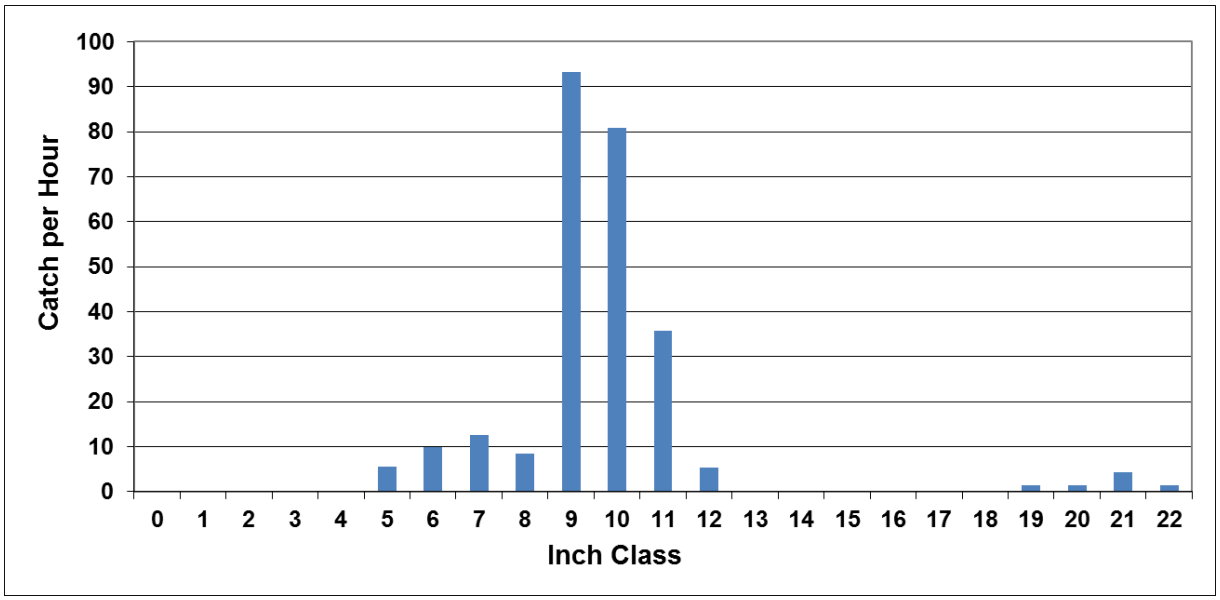
Note: During the period 1995-1998, Shady Lake was at such a low level that it needed to be refilled and restocked for fish of adequate size to sample.

The same problem with a leaky gate valve control system has occurred at Lake Sylvia, and a winter drawdown in 2014/2015 or 2015/2016 did not occur. The most likely outcome of no drawdown is greater rooted shoreline vegetation beds.

District technicians fertilizing Kulli and Macedonia Ponds have observed and commented that these ponds appear to be heavily fished. The electrofishing results seem to bear that out, though 2014 data has its limitations due to poor sampling conditions, and no 2015 fall pond sampling took place. These 2 ponds will continue to be monitored closely. Management options would normally revolve around adjustments to fish harvest quantity and size limits; however, it is suspected that changing fishing regulations would have little effect. Anglers are not keeping large numbers of fish, but it is the number of trips with just a few fish harvested each time that is adding up to a possible over-harvest situation. In addition, sufficient law enforcement effort is not available to adequately enforce any special regulations to reverse the over-harvest of Largemouth Bass as they first become of harvestable size to make any slot or minimum length regulation effective. Sampling techniques will be examined as to timing and whether adding a night-time sample might give a clearer picture of the fish population dynamics in both places.

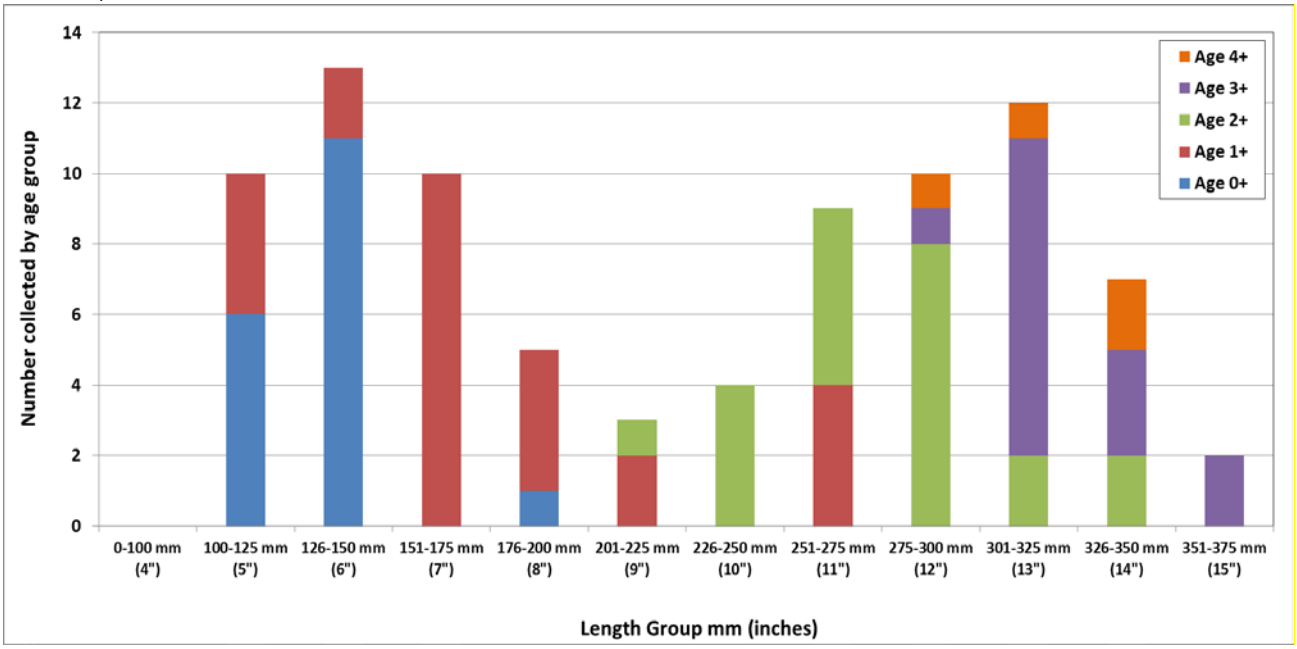
In the meantime, electrofishing samples and general comments received also indicate heavy fishing pressure at North Fork Lake and a similar lack of larger bass. A spring night-time electrofishing sample was conducted by the AGFC with USFS help, and extremely few Largemouth Bass 12 inches and larger were captured.

April 7, 2015 Night-time Sample at North Fork Lake by AGFC, ONF
Catch per Hour of Largemouth Bass



After seeing these results, the AGFC suggested the Forest conduct a length and age study. Ouachita Baptist University (OBU) was willing to undertake such a study as part of their classroom lab work electrofishing North Fork Lake numerous times a year with the Forest Fisheries Biologist. All bass collected in the 2 fall 2015 samples (target of 10 per inch group) were iced down and transported to OBU where Dr. Jess Kelly and student Julie Stanley of the OBU Department of Biology removed otoliths from the bass and aged them for the Forest and AGFC.

Age Distribution of Largemouth Bass, North Fork Lake, ONF, September 14 & 19 2015, stacked ages by length groups in inches



Based on these data (Kelly and Stanley, unpublished), it appears the Largemouth Bass population is sustaining good reproduction/recruitment and growth with the problem being heavy harvest with few bass over 12 to 13 inches escaping harvest. For the reasons cited above for the 2 smaller ponds, there is not a particularly efficient means of improving length frequencies with the harvest levels at North Fork Lake. However, if larger Largemouth Bass could be retained, they would contain higher levels of mercury making them less fit for human consumption. At this time, the situation should be monitored and Largemouth Bass samples taken again in the spring of 2016 to strengthen the analysis for preparation of a final report by Dr. Kelly.

River and Stream Fish Management Indicator Species (MIS) Summary and Conclusions

For additional information, contact Steve Cole at sncole@fs.fed.us

Stream and River MIS

There are 14 species of fish associated with stream and river habitat. Monitoring for 12 species is conducted every 5 years utilizing a Basin Area Stream Survey (BASS) along with annual data from long-term permanent stream monitoring sites. Data for the Johnny and Channel darters are collected during the annual Leopard Darter monitoring conducted jointly with the U.S. Fish and Wildlife Service. Monitoring for these MIS is to determine how well the stream and river aquatic habitat conditions are being maintained or enhanced. The following results are reflective of 2011 BASS surveys. Another BASS survey is being conducted in the summer of 2016, and results are expected in 2017.

Stream and River Fish Management Indicator Species, ONF					
Common Name	Scientific Name	Current Trend	Preferred Trend	Risk for Conservation of Species	Management Changes Needed
Smallmouth Bass	*Micropterus dolomieu*	Not Significant, Natural Range of Variability	Not Significant, Slightly Increasing	Sustainable-Viability not in Question	None
Green Sunfish	*Lepomis cyanellus*	Not Significant, Slightly Decreasing	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Longear Sunfish	*Lepomis megalotis*	Not Significant, Natural Range of Variability	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Yellow Bullhead	*Ameiurus natalis*	Not Significant, Natural Range of Variability	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Highland Stoneroller	*Campostoma spadiceum*	Not Significant, Slightly Increasing	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Northern Hog Sucker	*Hypentelium nigricans*	Not Significant, Natural Range of Variability	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Creek Chubsucker	*Erimyzon oblongus*	Not Significant, Natural Range of Variability	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Striped Shiner	*Luxilus chrysocephalus*	Not Significant, Slightly Increasing	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Northern Studfish	*Fundulus catenatus*	Not Significant, Slightly Increasing	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Orangebelly Darter	*Etheostoma radiosum*	Not Significant, Natural Range of Variability	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Redfin Darter	*Etheostoma whipplei*	Not Significant, Natural Range of Variability	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None
Pirate Perch	*Aphredoderus sayanus*	Not Significant, Natural Range of Variability	Not Significant, Natural Range of Variability	Sustainable-Viability not in Question	None

Basin Area Stream Survey (BASS) and "Other Stream Sites" (OSS) Data

For additional information, contact Steve Cole at sncole@fs.fed.us

Every 5 years, the watershed condition is evaluated to determine if progress in condition ratings has occurred through the paired-stream Basin Area Stream Survey (BASS). The BASS data includes biological (fish and aquatic macroinvertebrate surveys), morphological (physical measurements of stream reaches), and limnological (water chemistry) sampling. Paired streams are surveyed during the BASS, 2 streams each in the Arkansas River Valley (ARV), the Lower Ouachita Mountain (LOM), and the Upper Ouachita Mountain (UOM) ecoregions. Methods for BASS inventories can be found in the 2008 Ouachita National Forest MIS Report (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5327801.pdf). The most recent Forest-wide BASS was completed in FY 2011, and the next is due in FY 2016. The 2011 data has been reviewed and has been placed into the Forest BASS database.

There are up to 18 “other stream sites” (OSS) that are sampled annually as time and resources allow, as well as other stream sampling that occurs for site-specific project analysis. These OSS are sampled annually primarily within the Upper and Lower Ouachita Mountain Ecoregions using BASS protocols for 100-meter lengths. This analysis only uses the OSS data from the 2001 through 2014 surveys, which includes 245 OSS survey data. Data analysis by species from the fish survey results follow.

Note that the time scales for the BASS data (1990, 1991, 1992, 1996, 2001, 2006, 2011) and the OSS data (2001-2014, annual) are somewhat different, so comparisons for population trends would need to include only samples from 2001-2011. The 1996 data in the BASS data for some species may reflect effects of the sporadic years of drought and/or severe storm events experienced in the early to mid-1990s. Any sample may have been affected by drought, storm events, low/high water levels, weather (high temperatures for sampling), inconsistent sampling efforts, and a number of other factors that may temporarily cause a high or low number of individuals.

Smallmouth Bass (*Micropterus dolomieu*)

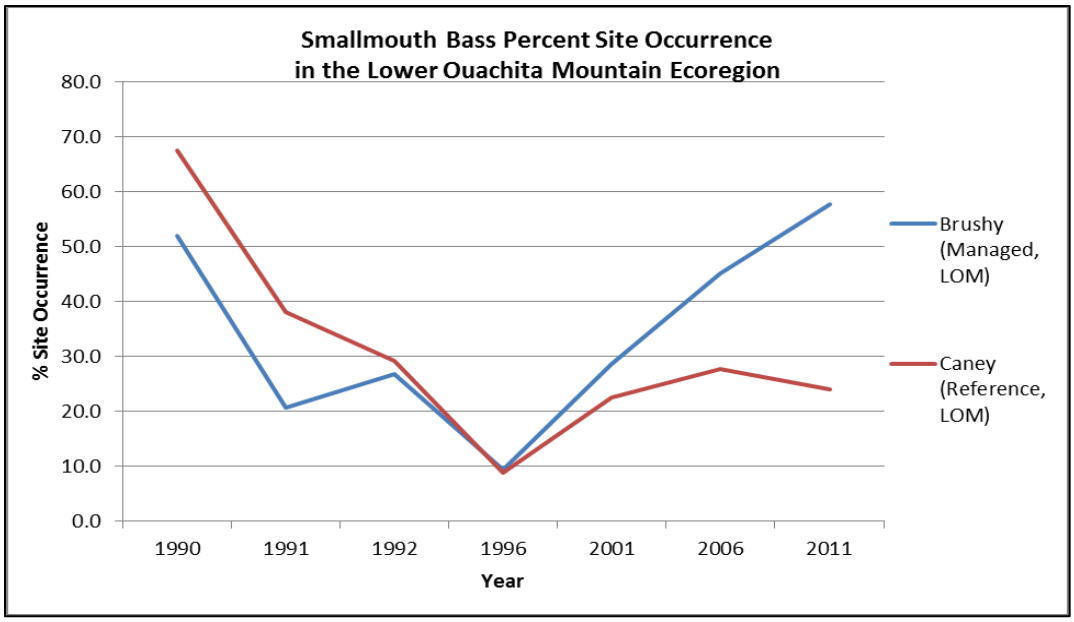
For additional information, contact Steve Cole at sncole@fs.fed.us

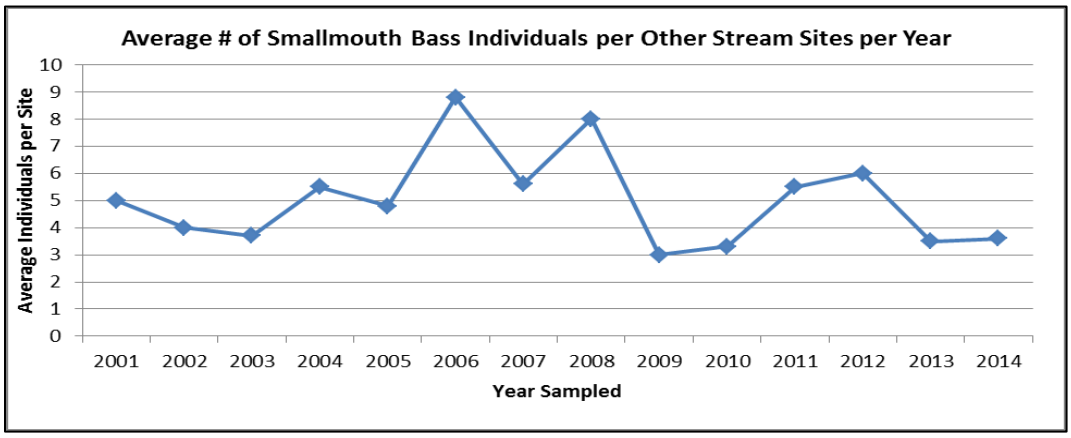
Smallmouth Bass was retained as a demand MIS to track the health of river and stream communities, particularly as it relates to supporting sport fisheries. Smallmouth Bass are known to be sensitive to habitat degradation and are not known to occur in less than high quality habitat.

Data Source: Smallmouth Bass (SMB) individuals were collected during every 5-year BASS inventory and in 35% (84 of 245) of the OSS inventories primarily within the Upper (UOM) and Lower Ouachita Mountain (LOM) Ecoregions. The Arkansas River Valley (ARV) streams’ collections revealed few SMB. The following table and graph display the percent site occurrence of Smallmouth Bass for Brushy and Caney Creeks (LOM) for the BASS, and the second graph shows the average number of individuals per the OSS sites per year (2001-2014). No sampling results were analyzed/reported for 2015. The following occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Smallmouth Bass, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Brushy Creek (Managed, LOM)	51.9	20.7	26.7	9.4	28.6	45.0	57.7
Caney Creek (Reference, LOM)	67.5	38.0	29.2	8.9	22.6	27.8	24.1





Population Trends: Both Brushy and Caney creeks show a decline in the percent occurrence from 1990 to 1991 and another sharp decline in 1996; however there is steady recovery through 2011 within the LOM ecoregion BASS inventories. The OSS surveys revealed Smallmouth Bass at 35% of the sites with the average number of individuals per site by year ranging from 3 to 8.8 individuals. Smallmouth Bass are very successful at avoiding the electrofishing sampler, so individuals are regularly observed that do not get counted. The BASS as well as the OSS survey data indicate that the Smallmouth Bass populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

Green Sunfish (*Lepomis cyanellus*) and Longear Sunfish (*Lepomis megalotis*)

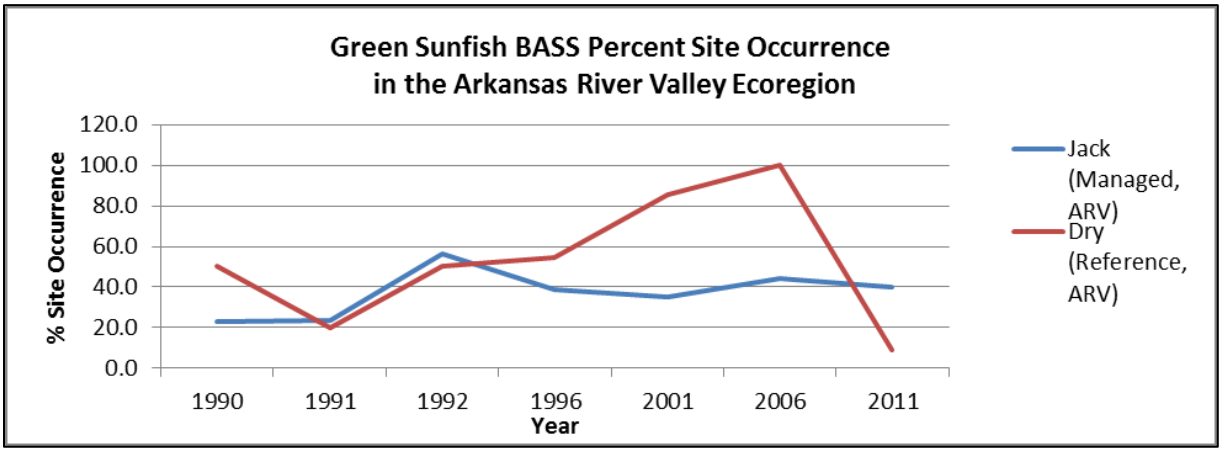
Green Sunfish and Longear Sunfish are commonly found throughout the Ouachita NF. They are natives to Ouachita Mountain streams, but differ in their tolerance to pollution and habitat disturbance. The Green Sunfish can be found in almost every type of aquatic habitat in Arkansas. It is a highly adaptable species and is tolerant of a wide range of ecological conditions. Green Sunfish occur naturally in the Upper and Lower Ouachita Mountains as well as the Arkansas River Valley. The Longear Sunfish occurs in a variety of habitats but is most abundant in small, clear, upland streams with rocky bottoms and permanent or semi-permanent flow. Significant changes in the relative abundances of these 2 species over time would likely indicate changes in ecological integrity.

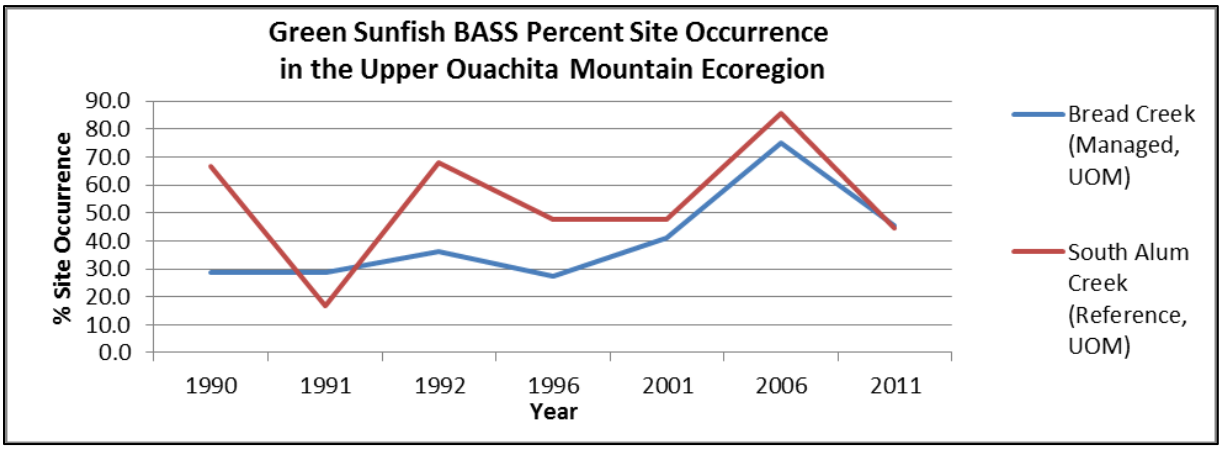
Green Sunfish (*Lepomis cyanellus*)

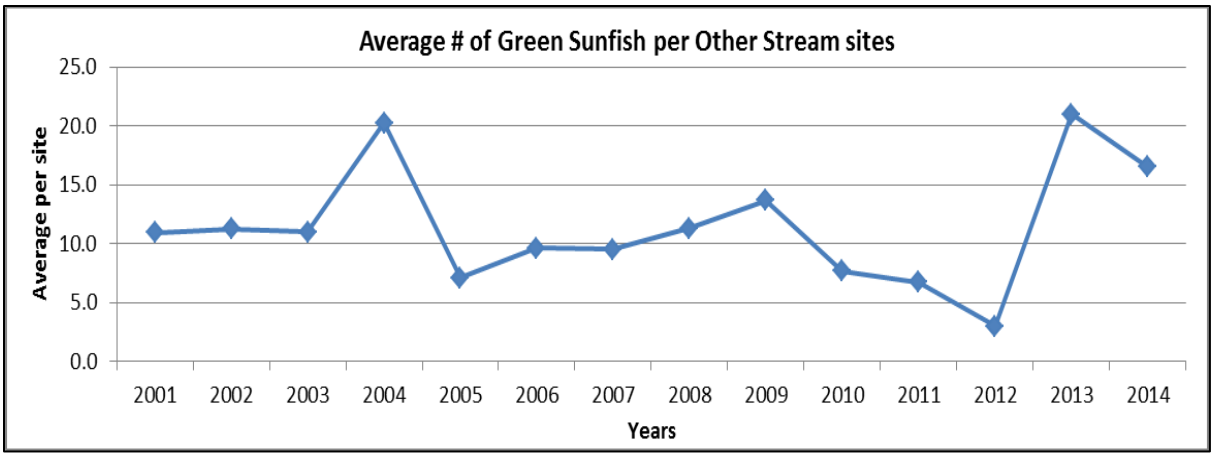
Data Source: Green Sunfish individuals were collected during every BASS inventory and in 73% (178 of 245) of the OSS inventories conducted within the Arkansas River Valley and the Upper and Lower Ouachita Mountain Ecoregions. The following table and 3 graphs display the percent site occurrence of Green Sunfish from the BASS data. The fourth graph shows the average number of individual Green Sunfish per OSS per year from 2001 through 2014 No sampling results were analyzed/reported for 2015. The following occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Green Sunfish, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Jack Creek (Managed, ARV)	23.1	23.8	56.3	38.9	35.3	44.4	40.0
Dry Creek (Reference, ARV)	50.0	20.0	50.0	54.5	85.7	100.0	9.0
Bread Creek (Managed, UOM)	28.6	28.6	36.4	27.3	41.2	75.0	45.5
South Alum Creek (Reference, UOM)	66.7	16.7	68.2	47.6	47.8	85.7	44.4
Brushy Creek (Managed, LOM)	51.9	17.2	20.0	9.4	14.3	10.0	7.7
Caney Creek (Reference, LOM)	2.5	8.0	12.5	0.0	0.0	0.0	13.8







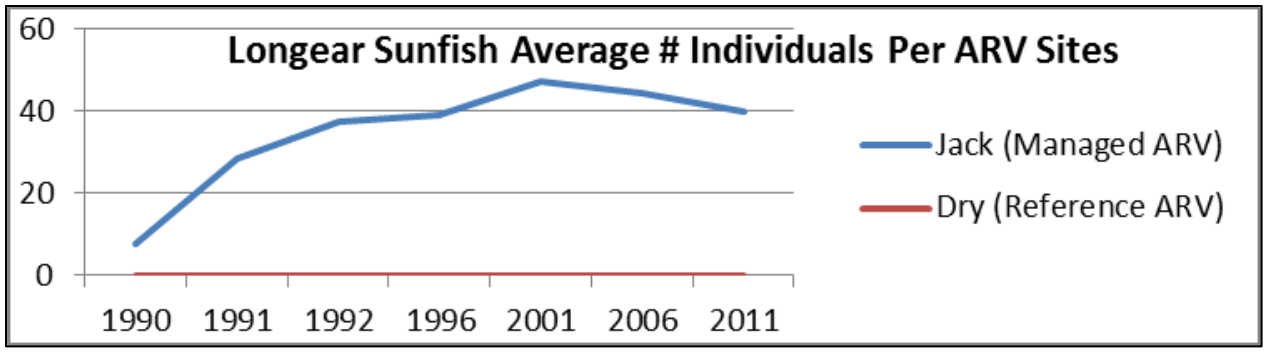
Population Trends: The 2011 BASS and OSS surveys indicate a decline in the 2011 Green Sunfish population data in all streams except Caney Creek, which has never exhibited a robust population. This decline is most likely due to the lower water levels from lack of rain at the time of sampling. The OSS data however from 2012 to 2013 and 2014 show substantial recovery. There is no obvious or known reason other than drought and/or severe storm events for the sharp and unusual decline. Continued monitoring should be conducted. The BASS as well as the OSS survey trend lines indicate that the Green Sunfish populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

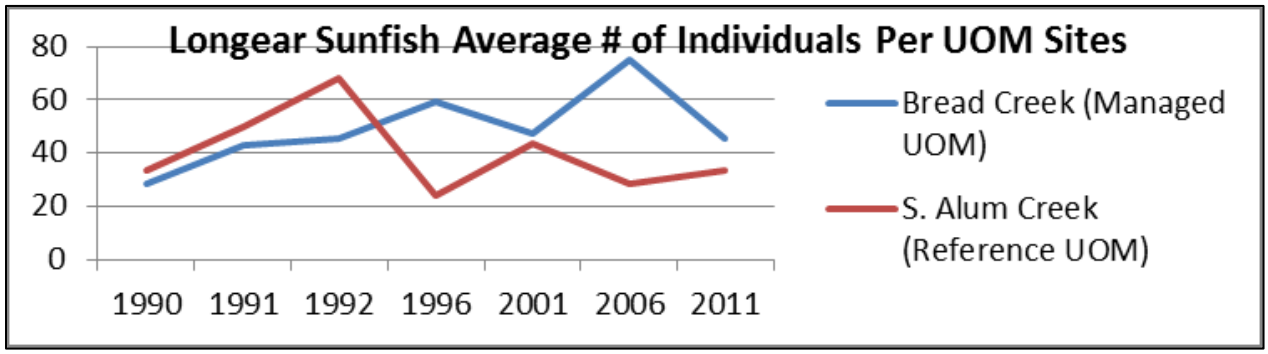
Longear Sunfish *(Lepomis megalotis)*

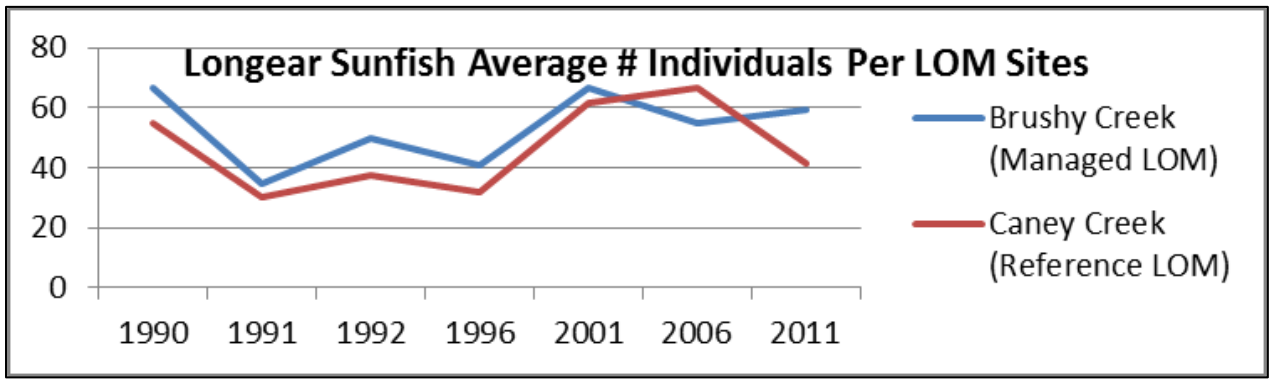
Data Source: Longear Sunfish are common throughout much of the Upper and Lower Ouachita Mountain ecoregions; however the percent site occurrence in the ARV was limited to Jack Creek (Reference). Longear Sunfish individuals were collected during every BASS inventory and in 91% (178 of 245) OSS inventories conducted within the Arkansas River Valley and the Upper and Lower Ouachita Mountain Ecoregion. The following table and 3 graphs display the percent site occurrence of Longear Sunfish from the BASS data. The fourth graph shows the average number of individual Longear Sunfish per OSS per year from 2001 through 2014. Due to Forest vacancies in key positions, sampling results have been not analyzed for OSS surveys in 2015. The following occurrence records reflect 2011 BASS survey data.

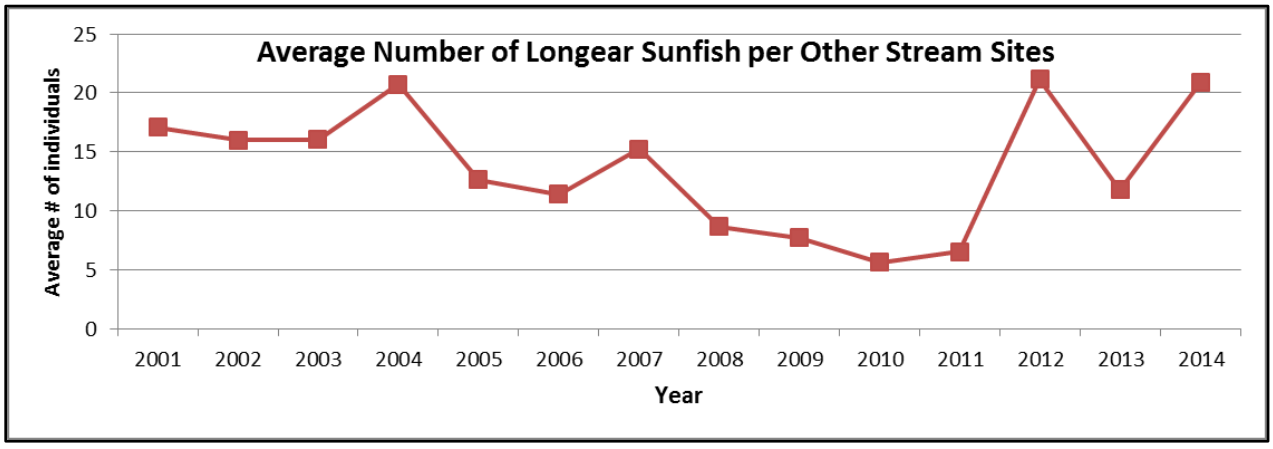
Percent Site Occurrence of Longear Sunfish, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Jack Creek (Managed ARV)	7.7	28.6	37.5	38.9	47.1	44.4	40.0
Dry Creek (Reference ARV)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bread Creek (Managed UOM)	28.6	42.9	45.5	59.1	47.1	75.0	45.5
S. Alum Creek (Reference UOM)	33.3	50.0	68.2	23.8	43.5	28.6	33.3
Brushy Creek (Managed LOM)	66.7	34.5	50.0	40.6	66.7	55.0	59.3
Caney Creek (Reference LOM)	55.0	30.0	37.5	32.1	61.3	66.7	41.2









Population Trends: The 2011 BASS and OSS surveys indicate fairly level population trends in the Longear Sunfish population data in all streams. The BASS as well as the OSS survey data indicate that the Longear Sunfish populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

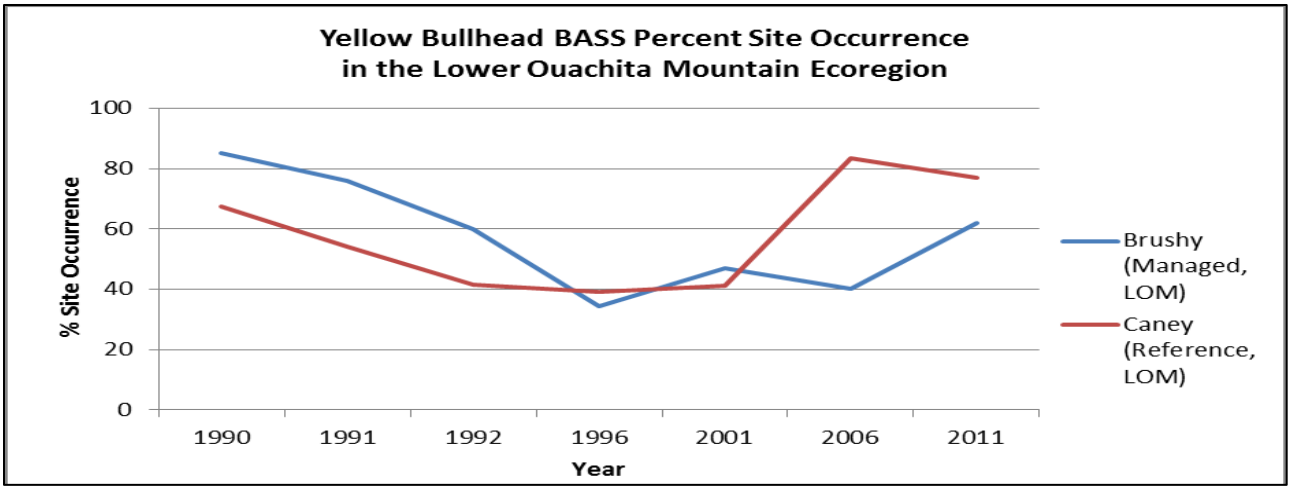
Yellow Bullhead (*Ameiurus natalis*)

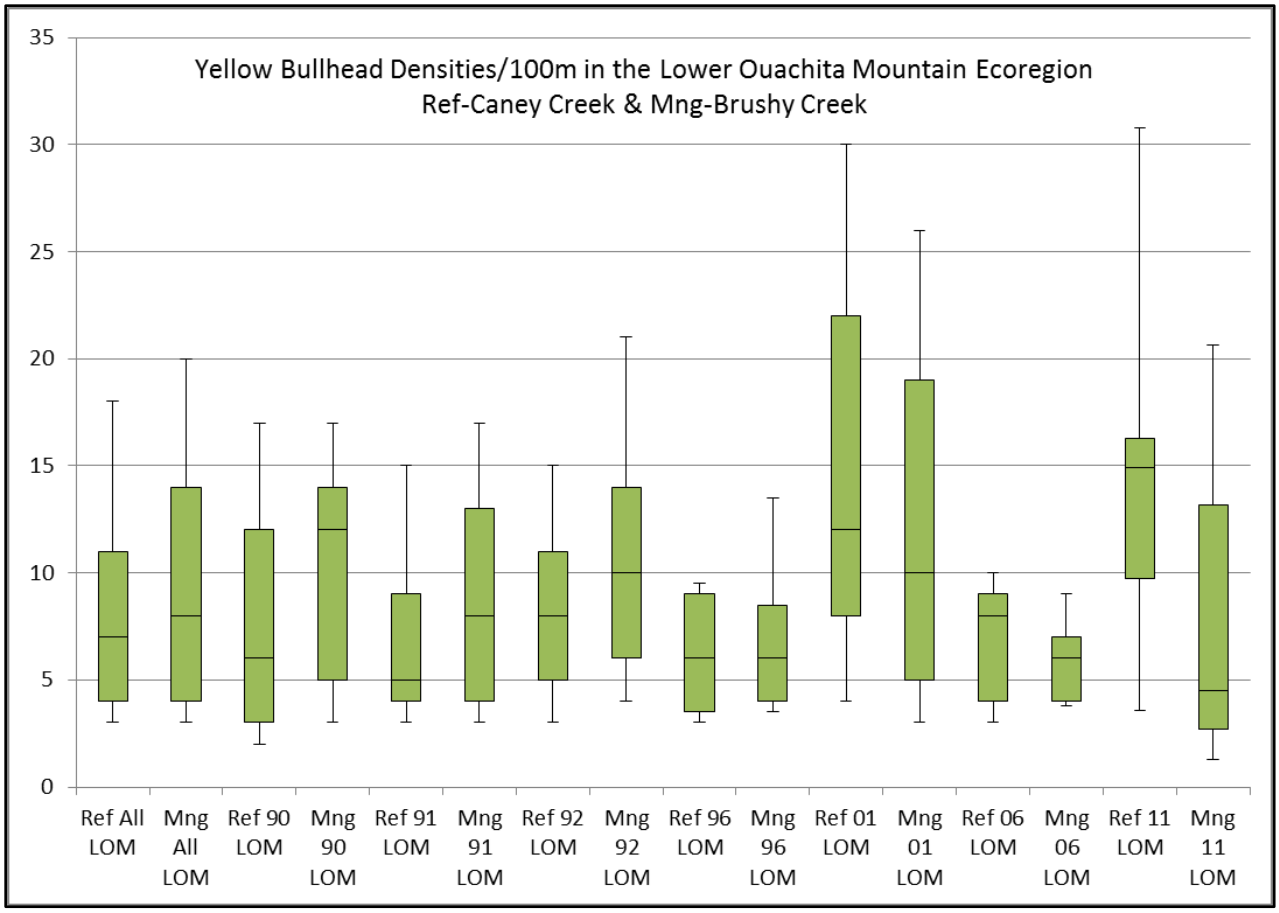
Yellow Bullheads are found Forest-wide in a variety of habitats, but seem to prefer clear, gravel and rocky-bottomed, permanent streams with some cover. It is considered a key species for the Arkansas River Valley by Arkansas Department of Environmental Quality (ADEQ). The Yellow Bullhead occurs in streams throughout the Forest. Favored habitat for the Yellow Bullhead consists of pools with structure (root wads, stable undercut banks, boulders, etc.)

Data Source: Yellow Bullhead individuals were collected during every BASS inventory and in 61% (149 of 245) of the OSS inventories conducted within the Arkansas River Valley and the Upper and Lower Ouachita Mountain Ecoregion. The following table and 2 graphs display the percent site occurrence of Yellow Bullhead from the BASS data. The third graph shows the average number of individual Yellow Bullheads per OSS per year from 2001 through 2014. No analysis was accomplished of sampling conducted in 2015. The following occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Yellow Bullhead, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Brushy Creek (Managed, LOM)	85.2	75.9	60.0	34.4	46.9	40.0	62.0
Caney Creek (Reference, LOM)	67.5	54.0	41.7	39.3	41.1	83.3	77.0




Yellow Bullhead Densities/100m in the Lower Ouachita Mountain Ecoregion
Ref-Caney Creek & Mng-Brushy Creek
35
30
25
20
15
10
5
0
Ref All LOM
Mng All LOM
Ref 90 LOM
Mng 90 LOM
Ref 91 LOM
Mng 91 LOM
Ref 92 LOM
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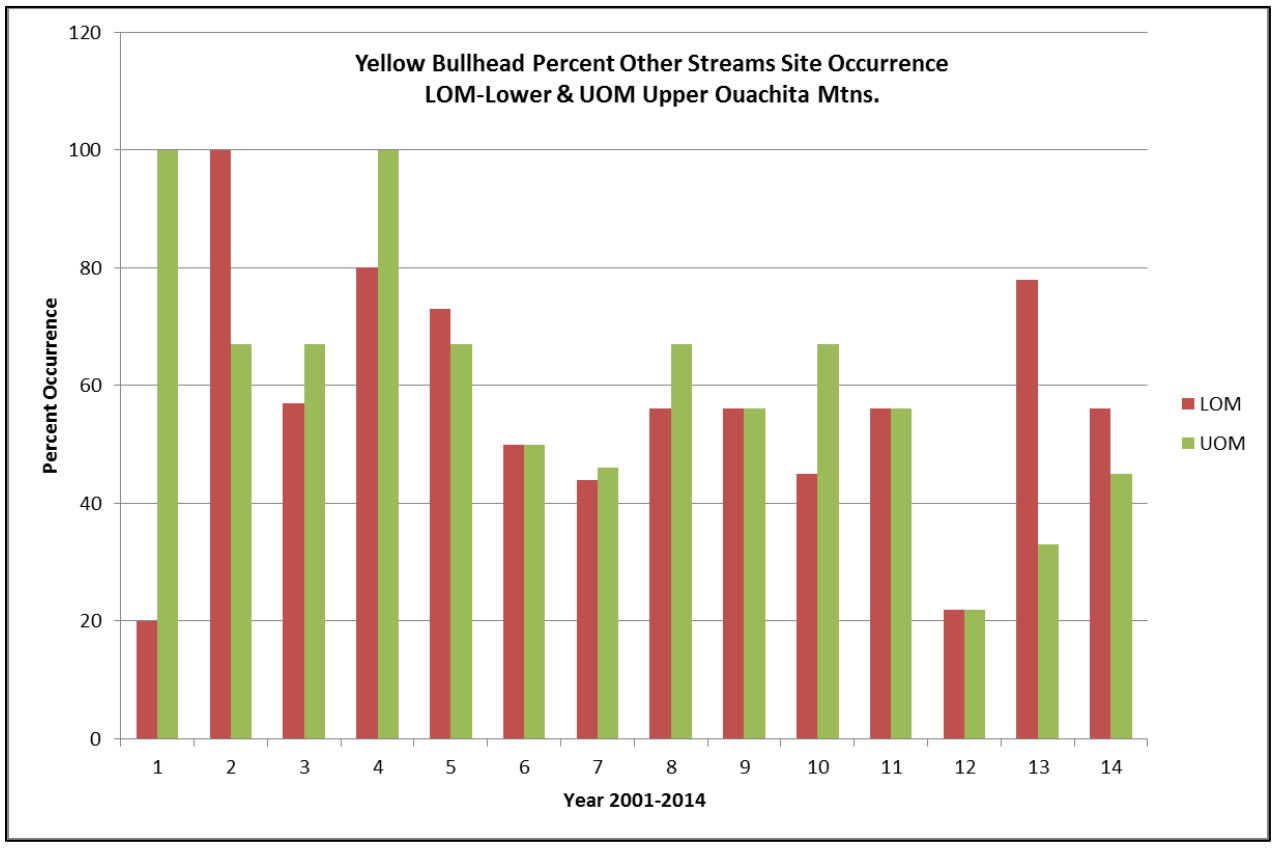

Yellow Bullhead Percent Other Streams Site Occurrence
LOM-Lower & UOM Upper Ouachita Mtns.
Percent Occurrence
120
100
80
60
40
20
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
Year 2001-2014
LOM
UOM

Population Trends: The previous figures demonstrate the natural range of variability for Yellow Bullhead population trends for LOM streams. Insufficient information from the BASS inventories is available to determine population trends for the Arkansas River Valley or the Upper Ouachita Mountain Ecoregions. Initially from the percent occurrence there appears to be a higher occurrence of Yellow Bullhead in the managed stream (Brushy Creek) than in the reference stream (Caney Creek) in the Lower Ouachita Mountain ecoregion (1990-1992), then the trend reversed with Caney Creek occurrences generally increasing while Brushy Creek occurrences slightly decreased. From the OSS data, the LOM and UOM streams population trends fall within the natural range of variability for population density. The BASS as well as the OSS survey data indicate that even though there is a slight downward trend, the Yellow Bullhead populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

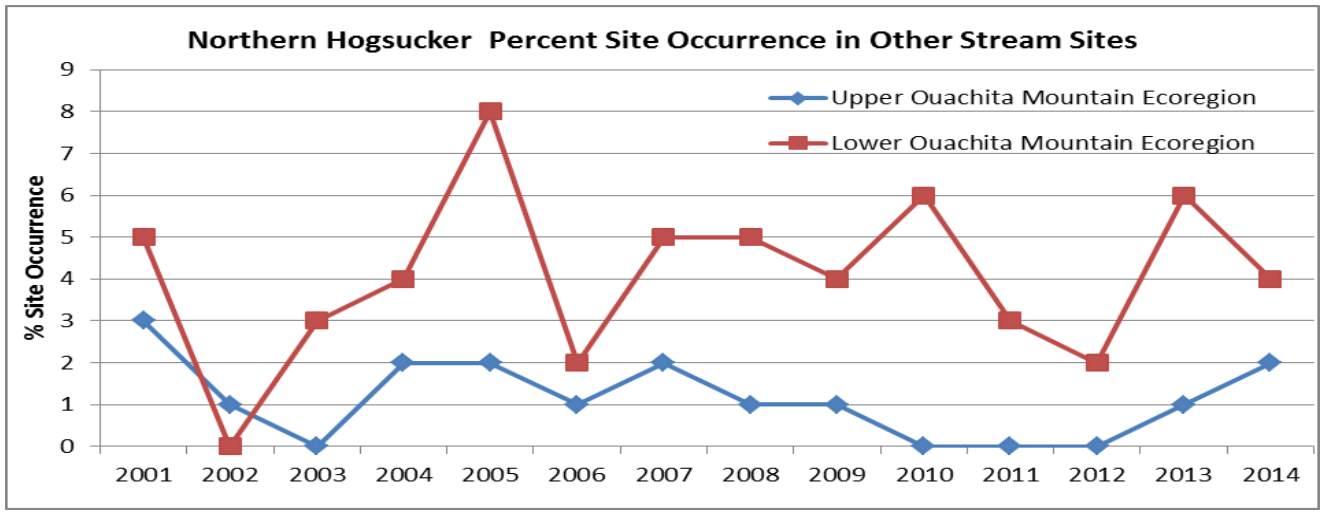
Northern Hog Sucker (*Hypentilium nigricans*)

Northern Hog Suckers are only found to occur in clear, permanent streams with gravel or rocky substrate and generally prefer deep riffles, runs, or pools having current. This fish species is intolerant of pollution, silt, and stream channel alteration. The Northern Hog Sucker is considered a key species for the Ouachita Mountains Ecoregion by ADEQ.

Data Source: Northern Hog Suckers were not collected in any of the BASS inventories, but they have been collected in several OSS surveys within the Upper and Lower Ouachita Mountains. This fish species is not known to occur within the Ouachita National Forest's Arkansas River Valley ecoregion. Northern Hog Sucker individuals were collected in 30% (73 of 245) of the OSS inventories conducted within the Upper and Lower Ouachita Mountain Ecoregions. The following table shows the number of OSS sites per year by ecoregion that Northern Hog Suckers were counted. The graph that follows displays the percent site occurrence of Northern Hog Sucker from the OSS data. No sampling results were analyzed/reported for 2015.

Number of OSS Sites per Year by Ecoregion, ONF

Ecoregion	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
UOM	3	1	0	2	2	1	2	1	1	0	0	0	1	2	No Report
LOM	5	0	3	4	8	2	5	5	4	6	3	2	6	4	No Report



Population Trends: Northern Hog Suckers, as a somewhat solitary rather than a schooling fish are often seen but not in great numbers. This fish species is not known to occur within the Ouachita National Forest's Arkansas River Valley ecoregion and is not captured often during the rest of the BASS efforts. Northern Hog Sucker individuals were collected in 30% (73 of 245) of the OSS inventories conducted within the Upper and Lower Ouachita Mountain Ecoregions. This species is also very successful at avoiding the electrofishing sampler, so individuals are regularly observed that do not get counted. The OSS survey data indicate that the Northern Hot Sucker populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

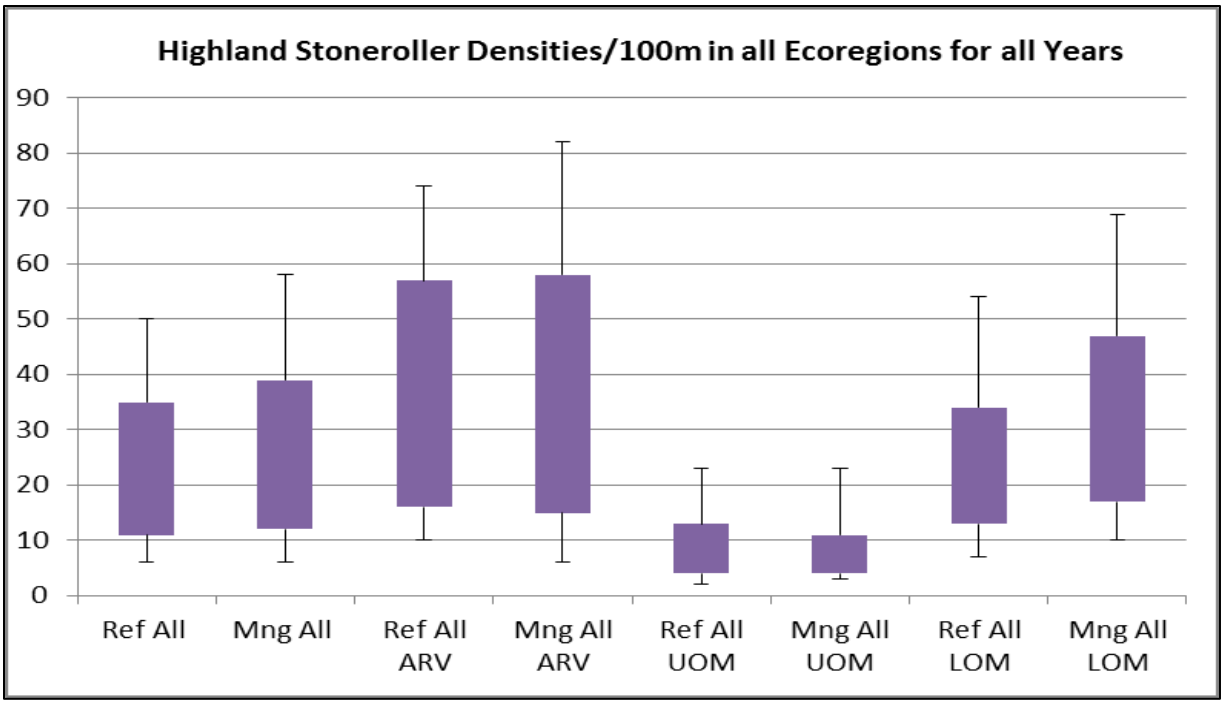
Highland Stoneroller (*Campostoma spadiceum*)

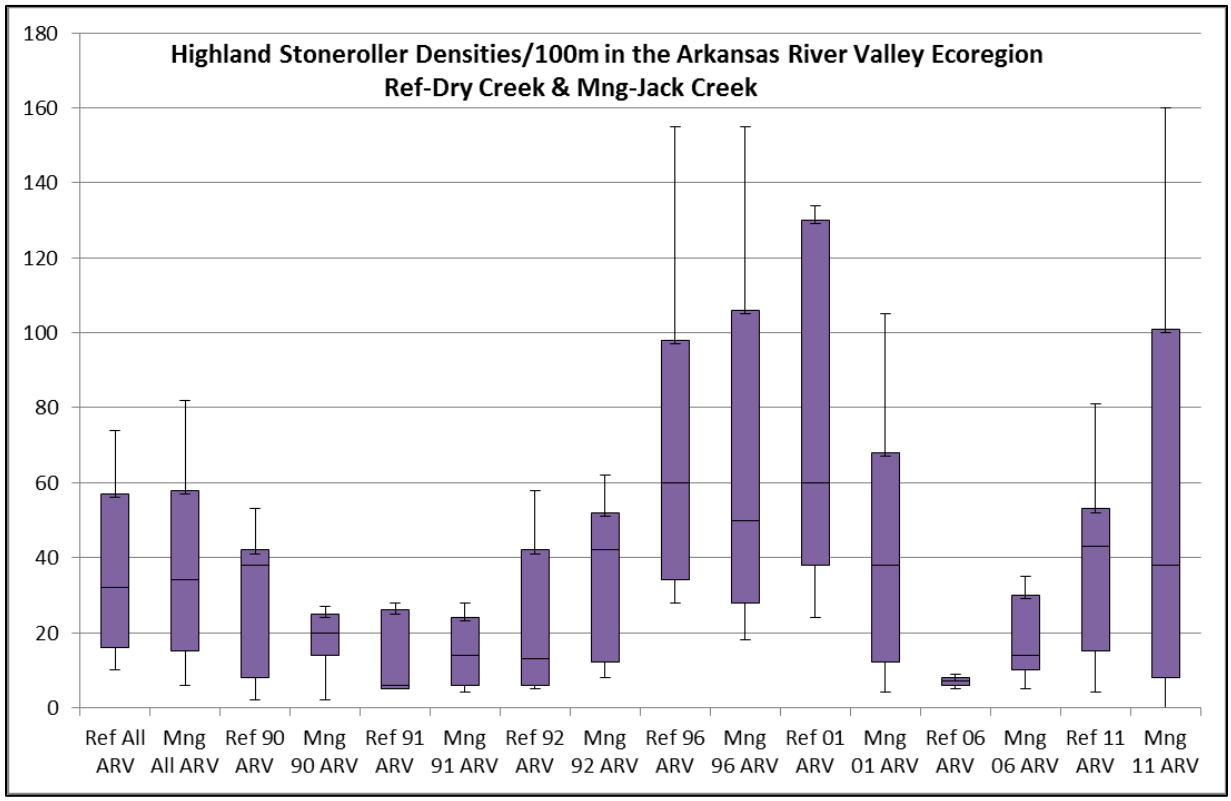
Highland Stonerollers occur in streams throughout the Ouachita NF. It is primarily an herbivore, eating algae from the rocky substrate in pools and runs. There seems to be a wide range of natural variation in population trends throughout the Arkansas River Valley and Upper and Lower Ouachita Mountain ecoregions.

Data Source: Highland Stoneroller individuals were collected during every BASS inventory and in all of the OSS inventories conducted within the Arkansas River Valley and the Upper and Lower Ouachita Mountain Ecoregions. The following table and 4 graphs display the percent site occurrence of Highland Stonerollers from the BASS data. The fourth graph shows the average number of individual Highland Stonerollers per OSS per year from 2001 through 2014. No sampling results were analyzed/reported for 2015. The following Occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Highland Stoneroller, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Jack Creek (Managed, ARV)	76.9	90.5	87.5	100.0	88.2	100	80.0
Dry Creek (Reference, ARV)	100.0	100.0	87.5	100.0	100.0	100.0	100.0
Bread Creek (Managed, UOM)	28.6	28.6	59.1	18.2	35.3	87.5	45.5
South Alum Creek (Reference, UOM)	40.0	8.3	40.9	33.3	21.7	28.6	44.4
Brushy Creek (Managed, LOM)	92.6	72.4	80.0	75.0	85.7	90.0	96.0
Caney Creek (Reference, LOM)	92.5	82.0	85.4	75.0	87.1	94.4	93.1


Highland Stoneroller Densities/100m in all Ecoregions for all Years
90
80
70
60
50
40
30
20
10
0
Ref All
Mng All
Ref All ARV
Mng All ARV
Ref All UOM
Mng All UOM
Ref All LOM
Mng All LOM


Highland Stoneroller Densities/100m in the Arkansas River Valley Ecoregion
Ref-Dry Creek & Mng-Jack Creek
180
160
140
120
100
80
60
40
20
0
Ref All ARV
Mng All ARV
Ref 90 ARV
Mng 90 ARV
Ref 91 ARV
Mng 91 ARV
Ref 92 ARV
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Ref 06 ARV
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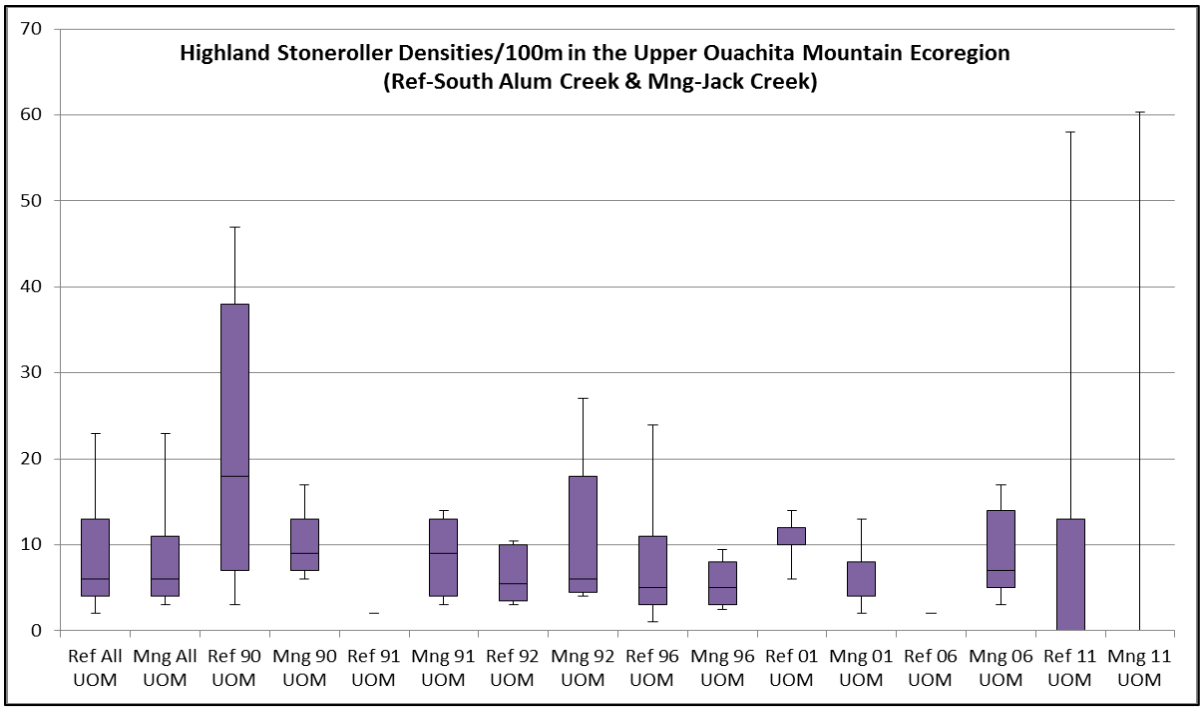
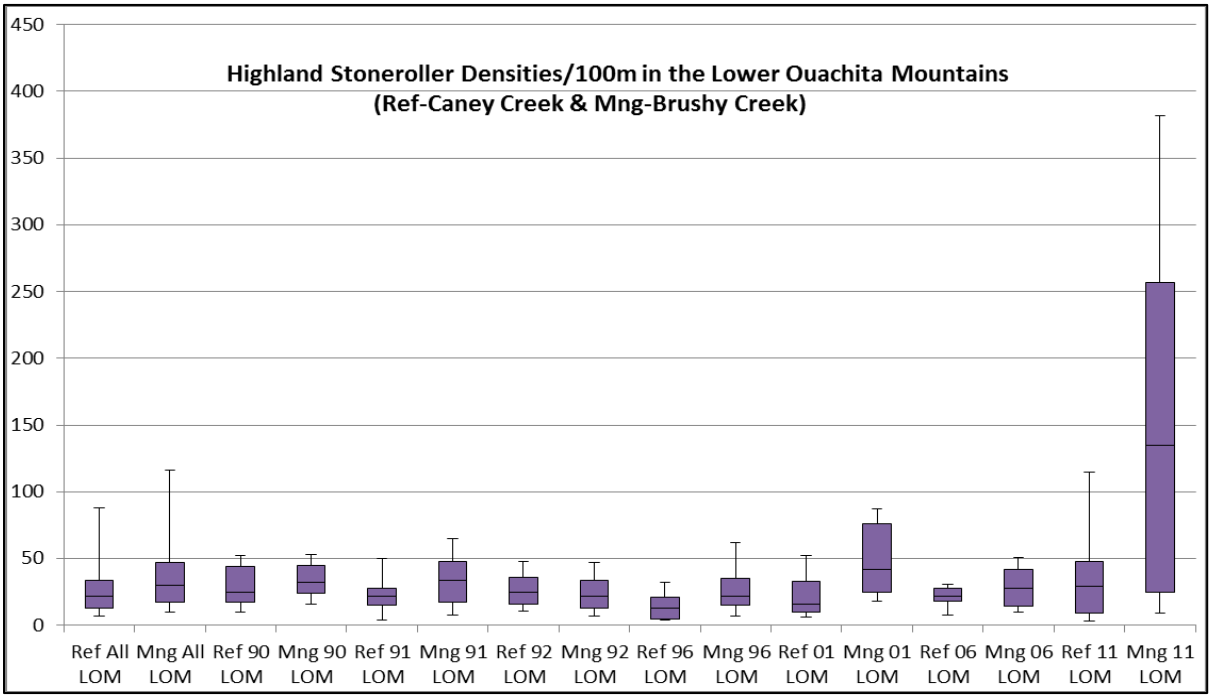
Ref 11 ARV
Mng 11 ARV





Population Trends: Highland Stonerollers are common across the Forest with a broad range of variation in population trends. The BASS data indicate that the population trends were increasing particularly in 2011, but the OSS survey data didn't necessarily follow that same pattern. The OSS data, however, indicates a slightly downward trend for the ARV and UOM Highland Stoneroller populations until 2014 when the levels were substantially higher. The OSS UOM populations, however, indicated an increasing trend level. Monitoring will continue. The BASS as well as the OSS survey data indicate that the Highland Stoneroller populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

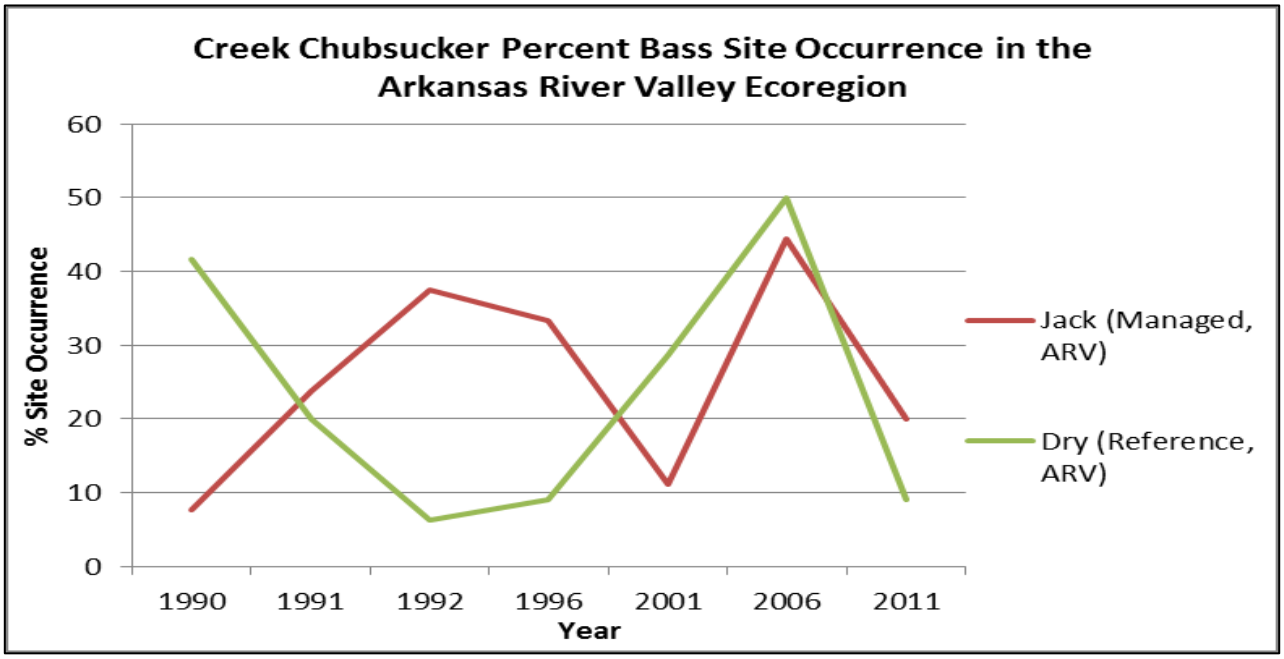
Creek Chubsucker (*Erimyzon oblongus*)

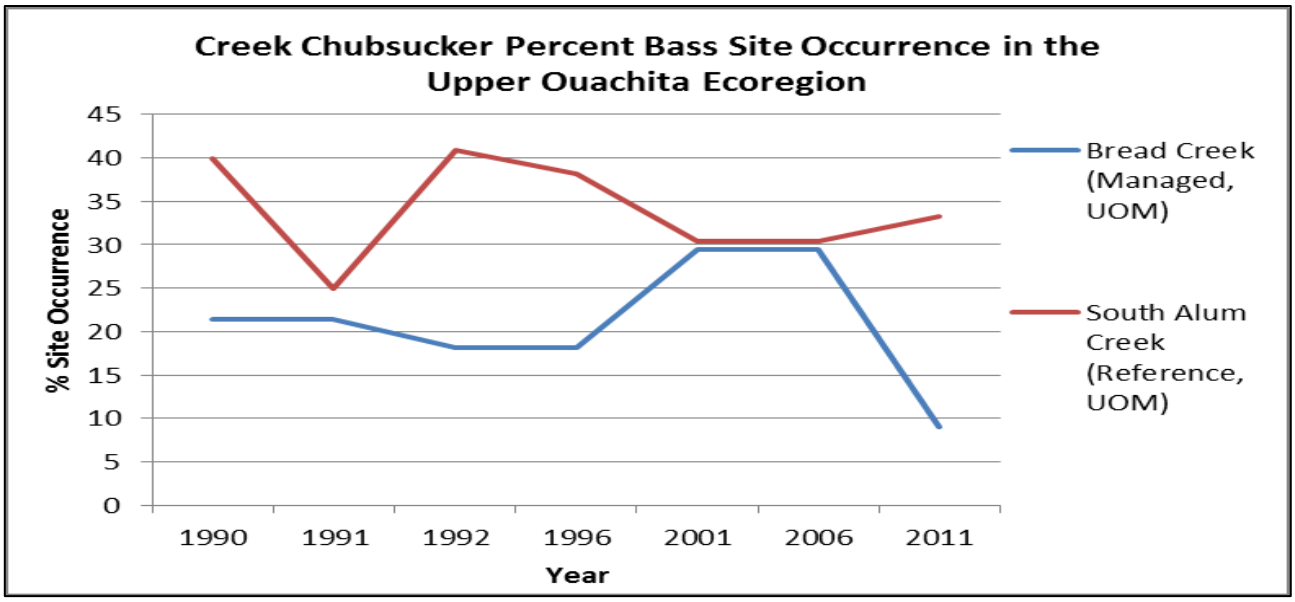
The Creek Chubsucker prefers small creeks and streams of moderate gradient, and it lives in quiet waters in vegetation over sand or gravel-bottomed and/or debris-laden substrates. It is somewhat intolerant of high flows and/or heavy silt loads and is considered a Gulf Coastal Plain indicator species by ADEQ. The Creek Chubsucker occurs Forest-wide but less often within the LOM.

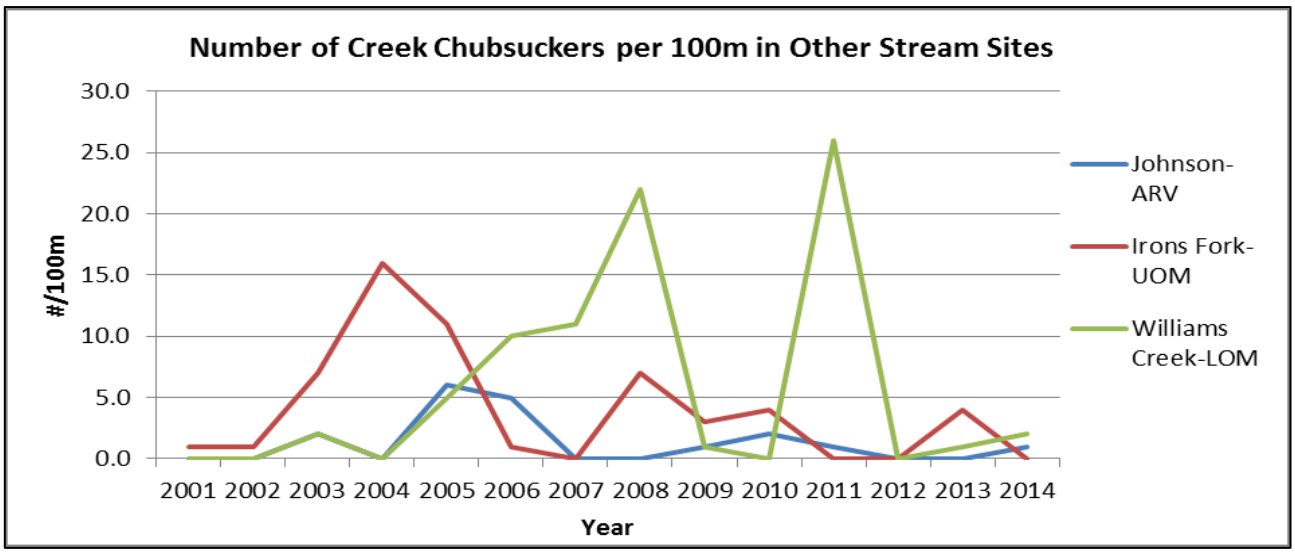
Data Source: Creek Chubsucker individuals were seldom collected during the BASS inventory and only in 13% (33 of 245) of the OSS inventories conducted within the Arkansas River Valley and the Upper and Lower Ouachita Mountain Ecoregions. The following graph displays the average number of individual Creek Chubsuckers per OSS per year from 2001 through 2014, for Johnson Creek in the Arkansas River Valley ecoregion, Irons Fork Creek in the Upper Ouachita Mountain ecoregion, and Williams Creek in the Lower Ouachita Mountain ecoregion. No sampling results were analyzed/reported for 2015. The following occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Creek Chubsucker, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Jack Creek (Managed, ARV)	7.7	23.8	37.5	33.3	11.1	44.4	20.0
Dry Creek (Reference, ARV)	41.7	20.0	6.3	9.1	28.6	50.0	9.0
Bread Creek (Managed, UOM)	21.4	21.4	18.2	18.2	29.4	29.4	9.0
South Alum Creek (Reference, UOM)	40.0	25.0	40.9	38.1	30.4	30.4	33.3







Population Trends: Creek Chubsuckers are regularly found during OSS as well as BASS efforts but usually not in great numbers, and their numbers fluctuate widely.

The BASS as well as the OSS survey data indicate that the Creek Chubsucker populations within the Ouachita NF are at suitable and sustainable levels. Their viability is not in question.

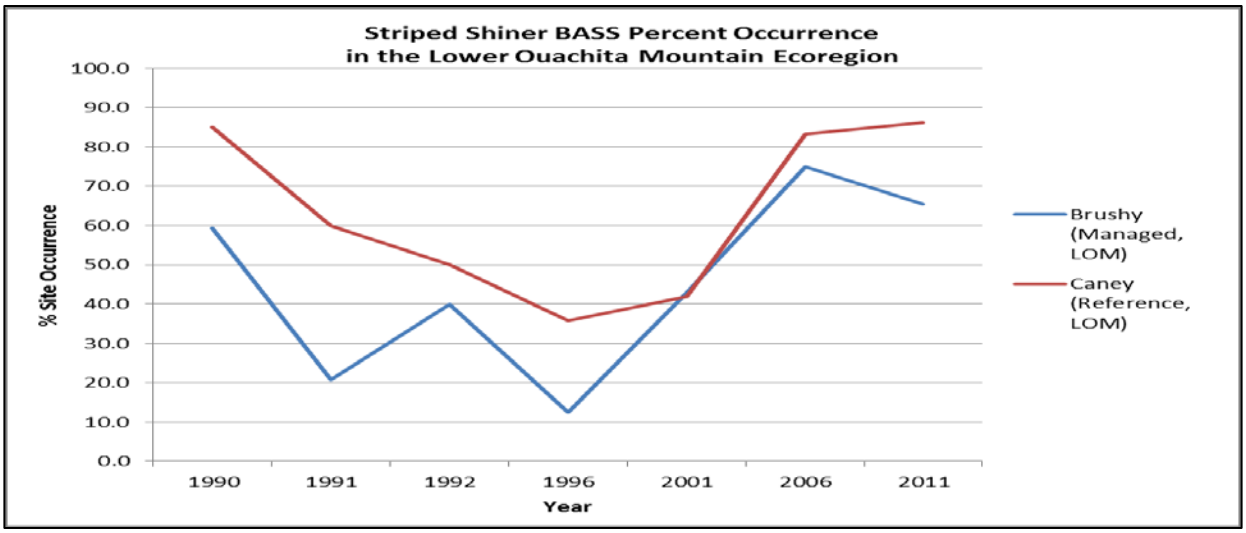
Striped Shiner (*Luxilus chrysocephalus*)

The Striped Shiner is abundant in the Ouachita Mountains, where it seems to prefer small to moderate-sized perennial streams with permanent flow, clear water, and rocky substrate. The Striped Shiner is found in low to moderate currents but avoids strong current. The ADEQ considers it an indicator species for the Ouachita Mountains Ecoregion. Striped Shiners were collected in the BASS inventories and other Forest stream surveys, primarily in the Lower Ouachita Mountains ecoregion in large numbers.

Data Source: Striped Shiner individuals were collected during every BASS inventory but most numerously within the Lower Ouachita Mountain ecoregion in Brushy and Caney creeks and in 55% (134 of 245) of the OSS inventories in the Lower Ouachita Mountain Ecoregion. The following table and graph display the percent site occurrence of Striped Shiners from the BASS data. No sampling results were analyzed/ reported for 2015. The following occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Striped Shiner, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Brushy (Managed, LOM)	59.3	20.7	40.0	12.5	42.9	75.0	65.4
Caney (Reference, LOM)	85.0	60.0	50.0	35.7	41.9	83.3	86.2



Population Trends: There appear to be wide fluctuations in populations of Striped Shiners on the Forest, with an upward trend in the BASS as well as the OSS numbers. Striped Shiners are common throughout the Lower Ouachita Mountain ecoregions. Based on BASS and other Forest stream surveys, there appears to be no adverse effect on Striped Shiner populations from Forest management activities. The BASS as well as the OSS survey data indicate that the Striped Shiner populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

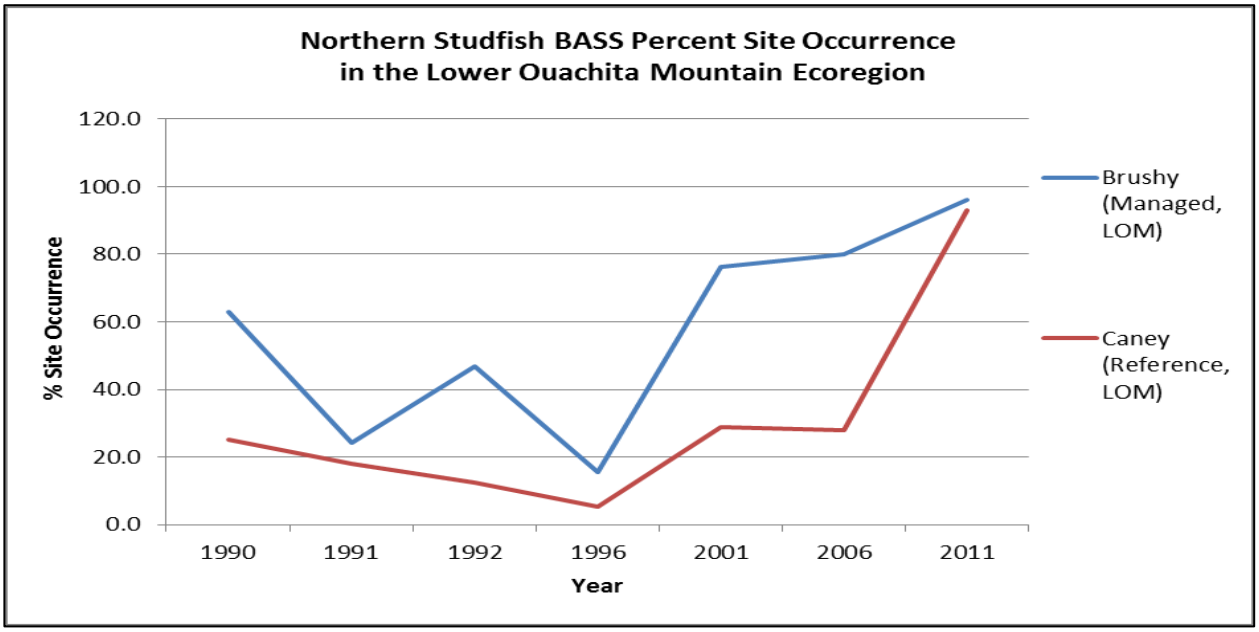
Northern Studfish (*Fundulus catenatus*)

The Northern Studfish occurs only in the Arkansas portion of the Ouachita Mountains. It is considered an indicator species for the Ouachita Mountains Ecoregion by ADEQ and is found only in clear streams of moderate to high gradient and permanent flow, usually in quiet, shallow waters along the margins of pools having rock and gravel substrate. Northern Studfish were collected in the BASS inventories and other Forest stream surveys, primarily in the Lower Ouachita Mountains ecoregion in large numbers.

Data Source: Northern Studfish individuals were collected during every BASS inventory but most numerously within the Lower Ouachita Mountain ecoregion in Brushy and Caney creeks, and in 33% (80 of 245) of the OSS inventories in the Lower Ouachita Mountain ecoregion. The following table and graph display the percent site occurrence of Northern Studfish from the BASS data. No sampling results were analyzed/reported for 2015. The following occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Northern Studfish, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Brushy (Managed, LOM)	63.0	24.1	46.7	15.6	76.2	80.0	96.0
Caney (Reference, LOM)	25.0	18.0	12.5	5.4	29.0	27.8	93.0



Population Trends: There appear to be wide fluctuations in populations of Northern Studfish on the Forest, with an apparent upward or increasing trend (1996 – 2011). Northern Studfish are common throughout the Lower Ouachita Mountain ecoregions. Based on BASS and other Forest stream surveys, there appears to be no adverse effect on Northern Studfish populations from Forest management activities. The BASS as well as the OSS survey data indicate that the Northern Studfish populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

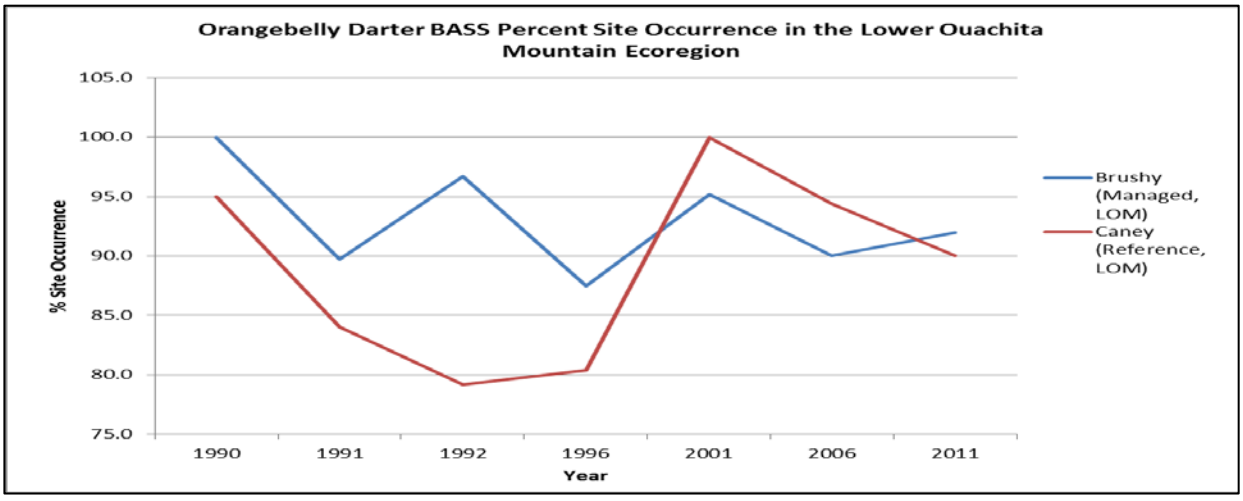
Orangebelly Darter (*Etheostoma radiosum*)

The Orangebelly Darter is endemic to tributaries of the Red River in southeastern Oklahoma and southwestern Arkansas. It seems to have a broad ecological niche, since it occurs in a variety of habitats from small, gravelly, high-gradient streams to larger, more sluggish lowland rivers. Like most darters, however, it is sensitive to the effects of siltation and seems to be most common in gravel and cobble-bottomed streams with moderate to high gradient. It is able to acclimate somewhat to habitat alteration and apparently is able to repopulate areas that have been environmentally disturbed after the disturbance has been removed. The ADEQ considers the Orangebelly Darter to be a key species for the Ouachita Mountains Ecoregion, and it has been collected commonly in BASS and OSS surveys.

Data Source: Orangebelly Darter individuals were collected during every BASS inventory but most numerously within the Lower Ouachita Mountain ecoregion in Brushy and Caney creeks, and in 80% (196 of 245) of the OSS inventories in the Lower Ouachita Mountain Ecoregion. The following table and graph display the percent site occurrence of Orangebelly Darters from the BASS data for Brushy and Caney creeks in the LOM. No sampling results were analyzed/reported for 2015. The following occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Orangebelly Darter, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Brushy (Managed, LOM)	100.0	89.7	96.7	87.5	95.2	90.0	92.0
Caney (Reference, LOM)	95.0	84.0	79.2	80.4	100.0	94.4	90.0



Population Trends: Orangebelly Darters are common and abundant on the Forest with wide fluctuations in populations and no apparent upward or downward trend. Orangebelly Darters are most common throughout the Lower Ouachita Mountain ecoregions. Based on BASS and other Forest stream surveys, there appears to be no adverse effect on Orangebelly Darter populations from Forest management activities. The BASS as well as the OSS survey data indicate that the Orangebelly Darter populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

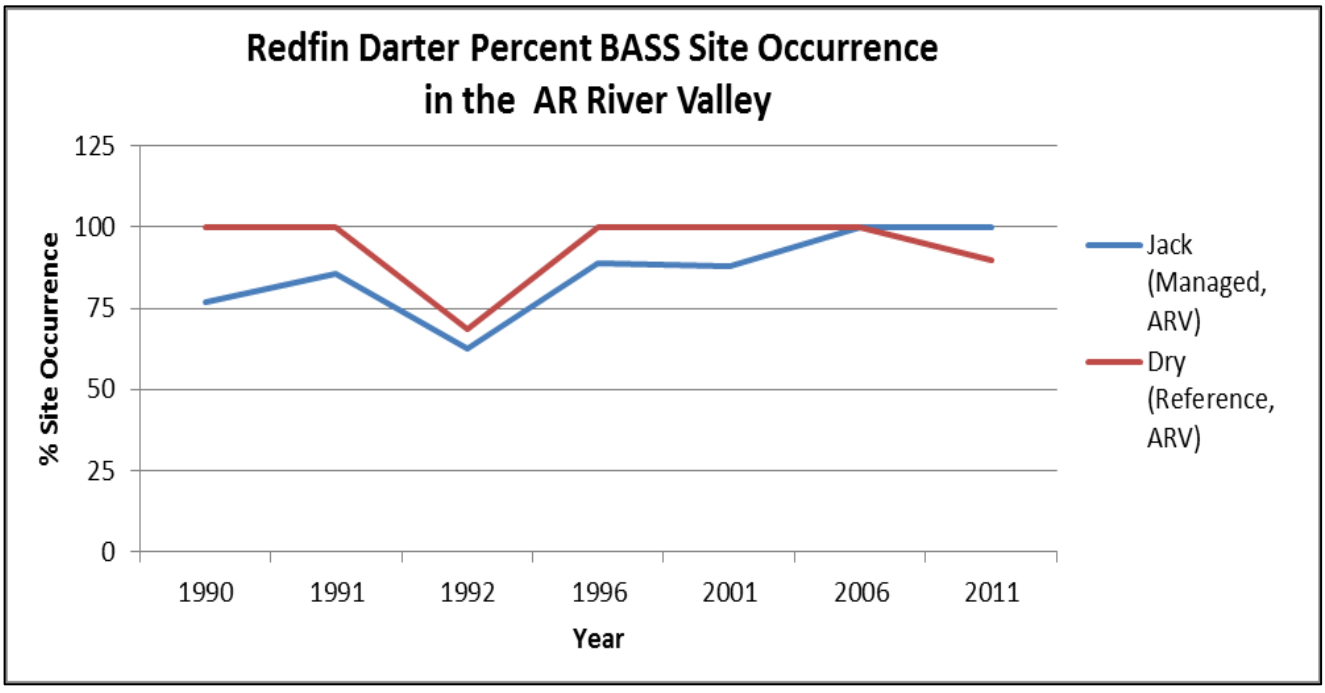
Redfin Darter (*Etheostoma whipplei*)

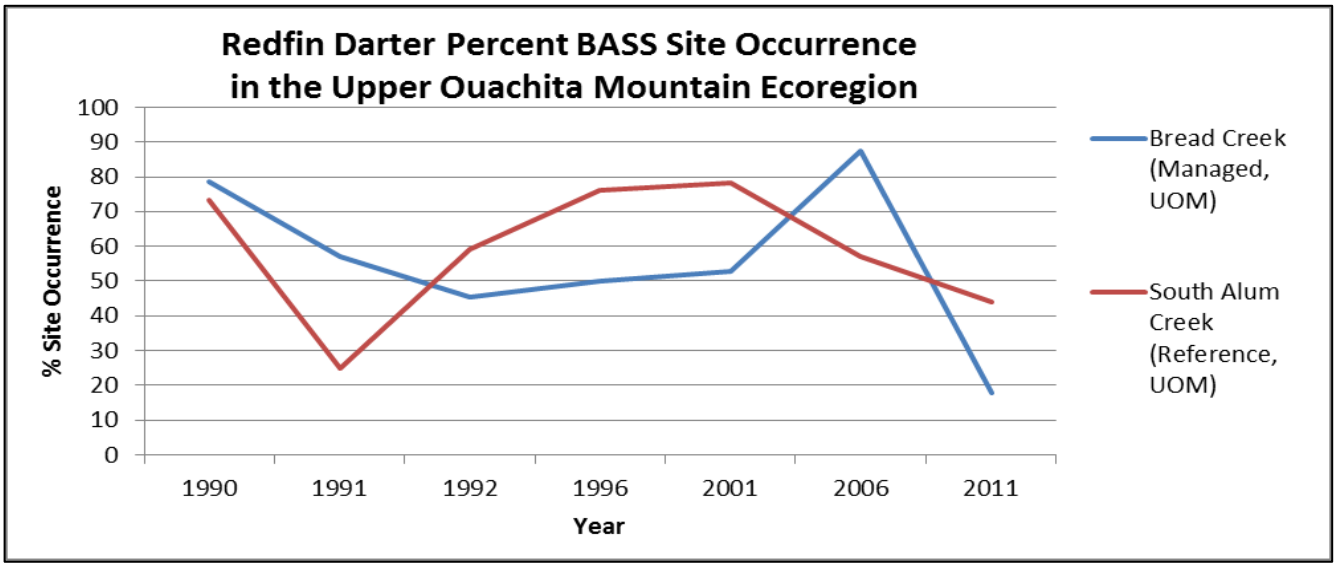
The Redfin Darter occupies a niche similar to the Orangebelly Darter, but generally occurs in other areas of the Forest, such as the Upper Ouachita Mountains and the Saline River drainage. This species represents the niche of "riffle benthic specialist feeder."

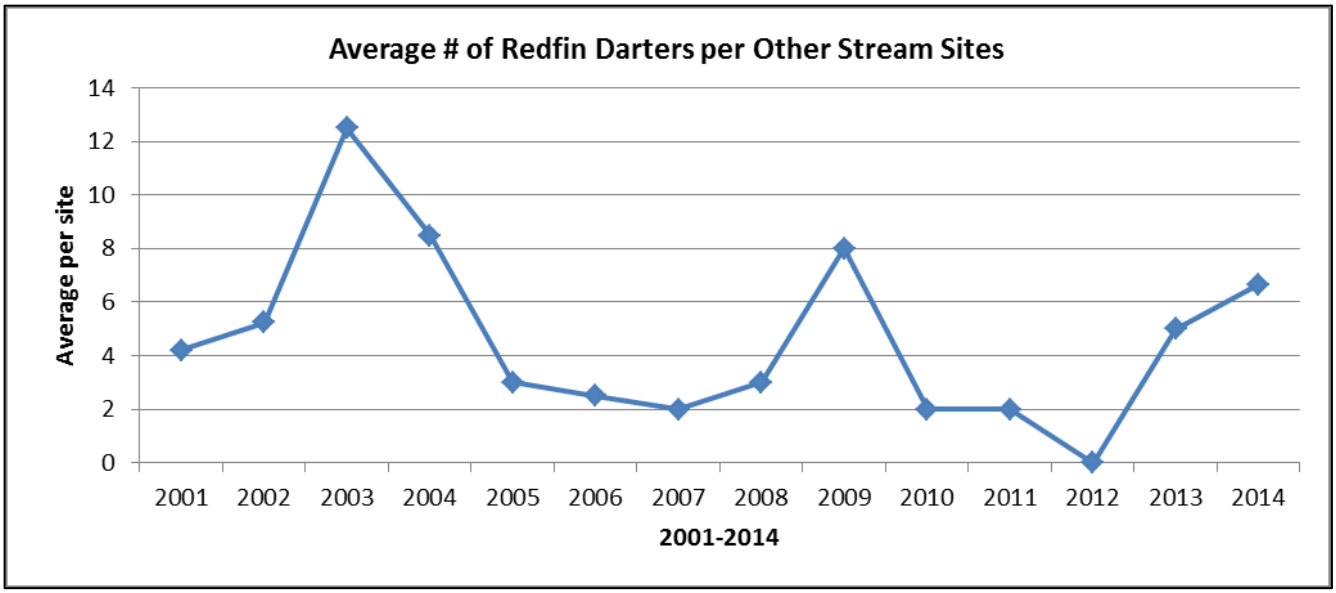
Data Source: Redfin Darter individuals were collected during the BASS inventory within the Arkansas River Valley and the Upper Ouachita Mountain ecoregion in Brushy and Caney Creeks. It is not known to occur within the Lower Ouachita Mountain Ecoregion. Redfin Darters were found to occur in the OSS surveys only in the UOM and the ARV ecoregions in 13% (33 of 245) of the OSS inventories. The following table and 3 graphs display the percent site occurrence of the Redfin Darter from the BASS data. No sampling results were analyzed/reported for 2015. The following occurrence records reflect 2011 BASS survey data. The third graph shows the average number of Redfin Darters per OSS.

Percent Site Occurrence of Redfin Darter, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Jack Creek (Managed, ARV)	76.9	85.7	62.5	88.9	88.2	100.0	100.0
Dry Creek (Reference, ARV)	100.0	100.0	68.8	100.0	100.0	100.0	90.0
Bread Creek (Managed, UOM)	78.6	57.1	45.5	50.0	52.9	87.5	18.0
South Alum Creek (Reference, UOM)	73.3	25.0	59.1	76.2	78.3	57.1	44.0







Population Trends: There appear to be some slight fluctuations in population trends of Redfin Darters on the Forest, with no extreme upward or downward trends. Redfin Darters are fairly common but not abundant throughout the ARV and UOM ecoregions and are not known to occur in the LOM. Based on BASS and other Forest stream surveys, there appears to be no adverse effect on Redfin Darter populations from Forest management activities. The BASS as well as the OSS survey data indicate that the Redfin Darter populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

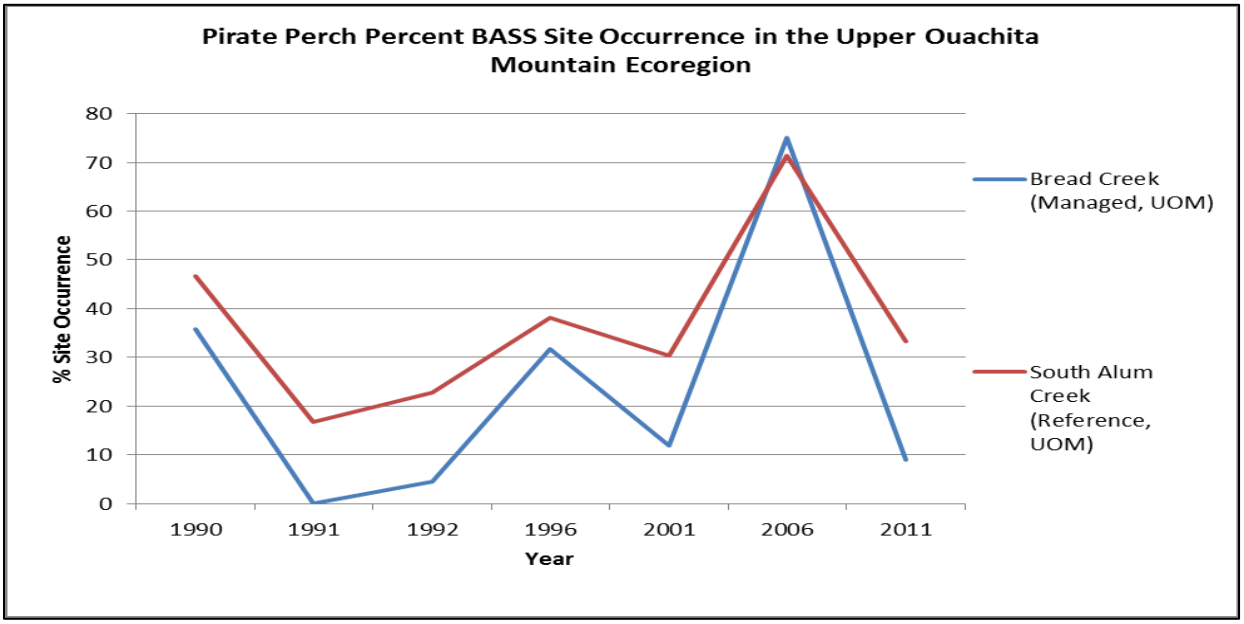
Pirate Perch (*Aphredoderus sayanus*)

Pirate Perch is a solitary species inhabiting quiet ponds, oxbow lakes, swamps, ditches, and sluggish mud and sand-bottomed small rivers and streams. It is locally abundant over soft mud and silt bottoms with thick vegetation and is found in both clear and turbid waters. The Pirate Perch is considered an indicator species by the ADEQ for the Gulf Coastal region.

Data Source: Pirate Perch individuals were collected during the BASS inventory within the Upper Ouachita Mountain ecoregion in Bread and South Alum Creeks. It is not known to occur in substantial numbers within the ARV or the LOM ecoregions. Pirate Perch were found to occur in the OSS surveys only in the UOM and the ARV ecoregions in 14% (35 of 245) of the OSS inventories. No sampling results were analyzed/reported for 2015. The following occurrence records reflect 2011 BASS survey data.

Percent Site Occurrence of Pirate Perch, ONF

Stream	1990	1991	1992	1996	2001	2006	2011
Bread Creek (Managed, UOM)	35.7	0.0	4.5	31.8	11.8	75.0	9.0
South Alum Creek (Reference, UOM)	46.7	16.7	22.7	38.1	30.4	71.4	33.3



Population Trends: The conservation of this species is more closely linked to the Gulf Coastal Ecoregion of where there is little influence from National Forest Lands. Pirate Perch are not commonly collected anywhere on the Forest. There appear to be wide fluctuations from the BASS inventories in populations of Pirate Perch within the UOM ecoregion. Based on BASS and OSS surveys, there appears to be no adverse effects on Pirate Perch populations from Forest management activities. The BASS as well as the OSS survey data indicate that the Pirate Perch populations within the Ouachita NF are at suitable and sustainable levels, and their viability is not in question.

Johnny and Channel Darters *(Etheostoma nigrum and Percina copelandi)*
For additional information, contact Richard Standage at 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 as to species, counted and recorded. Snorkeling of each transect is conducted by an experienced 5-member crew with the time recorded for each snorkeler at each site (experience level of the crew ranges from 9 to 25+ years.)

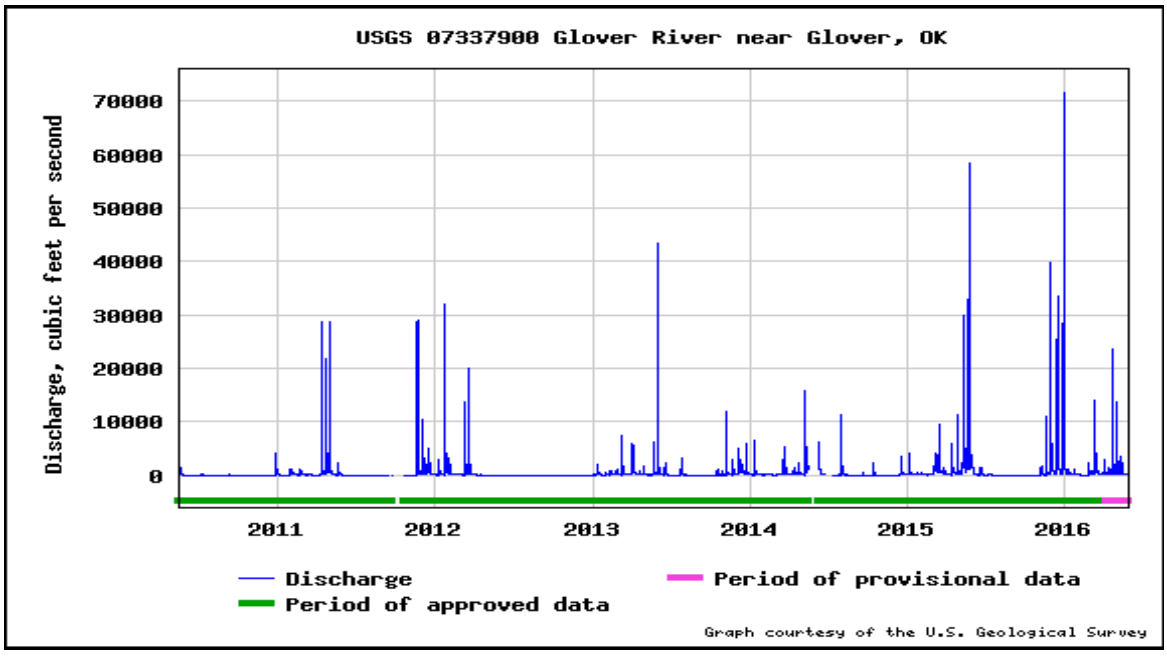
Johnny Darter
Source: USFS

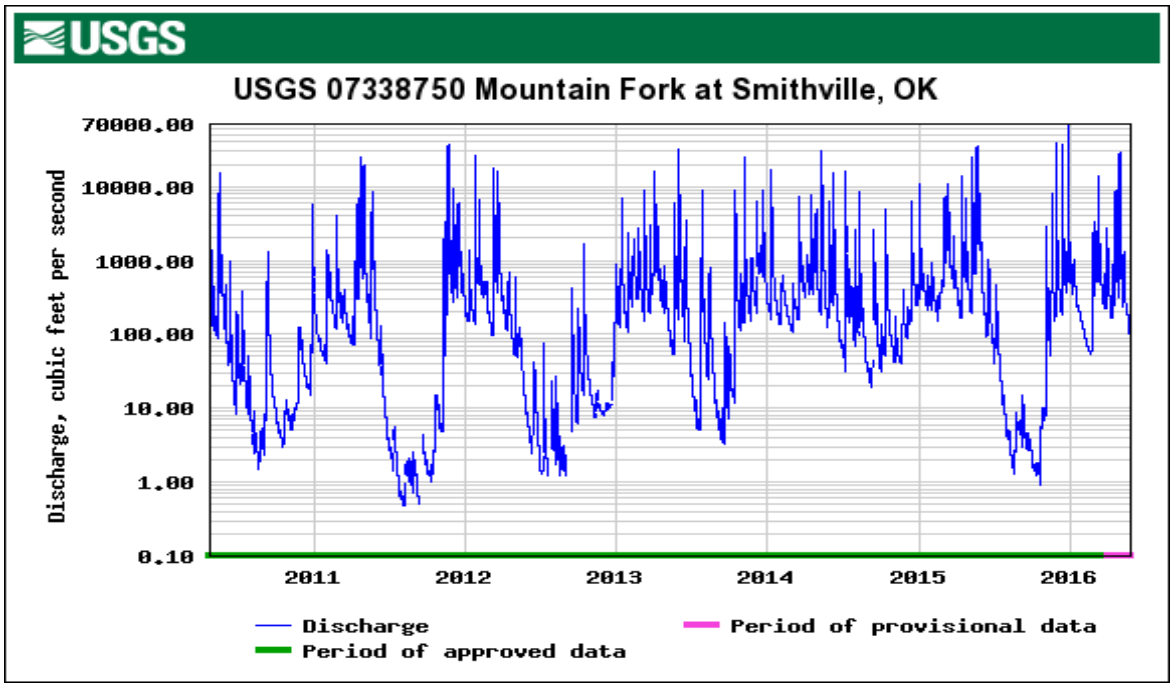
Johnny Darters: Johnny Darters are more typically found over fine gravel and sand substrates whereas Channel Darters prefer coarser cobble and boulder substrates (R. Standage, personal observations). Shifts in species distribution have been compared to shifts in substrate observations in an effort to establish a relationship; however, after examining the variability in the numbers of the 2 species and substrate observations at the individual sites over many years, there is no discernable correlation between species numbers and habitat types. It is obvious that there are more influences than just substrate differences occurring at the site, drainage and regional/ climatic levels. Fewer and smaller flushing storm events than normal occurred during winter 2004/2005, 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, possibly as a result of continuing improvement in spawning conditions due to flushing flows. In 2008, there were a number of flushing flows (February - early April) that may have flushed eggs and larval darters out of their ideal hatching and rearing habitat and caused lower population levels during the summer of 2008. In the winter of 2008/2009 there were even more significant storms that lasted through the spring of 2009 accompanied by a high likelihood of flushing eggs and larvae out of ideal habitats. Streamflow 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 Darter counts 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 sixth worst drought since 1921. Particularly for the Mountain Fork River drainage, 2014 was a very wet year (there were 3 weeks in July when it was not possible to conduct surveys due to high water/flooding). Three of the Upper Little River site counts could not be conducted due to poor visibilities from rain; however, the Upper Glover River was somewhat low, making for high visibilities and easier counting of the darters that were present.

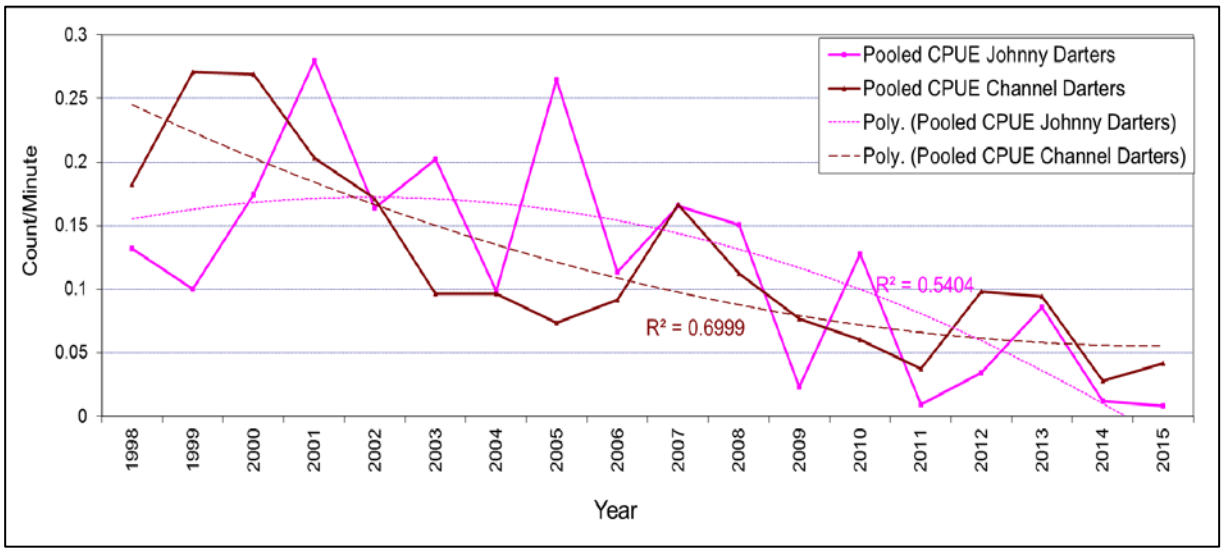
Stream Flow Records for the Glover and Mountain Fork Rivers, ONF at or near Permanent Sites by Year





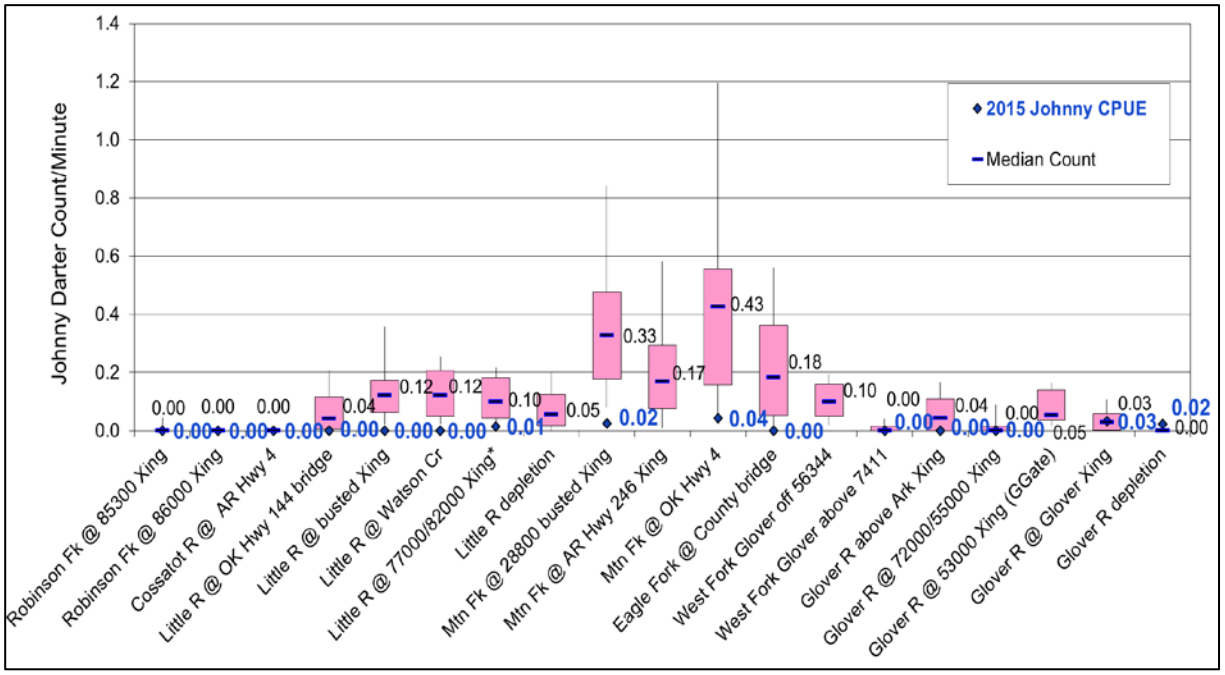
Overall trend lines for Johnny and Channel darters show a downward trend, but only the trend line for the Channel Darter is statistically significant (that significance is low, equivalent to the 70 percentile in accuracy/repeatability verse the 54 percentile for the trend line of the Johnny Darter).

Johnny and Channel Darter Annual Pooled Counts per Minute, ONF



Johnny Darter counts were generally quite low in 2012 with some improvement in 2013; then a large drop in 2014; and a slight further drop in 2015. Most of the 2014 drop is from not being able to do a number of the Mountain Fork River sites that traditionally have had the higher Johnny Darter numbers to pull up the annual pooled counts. In 2015 all sites but one were sampled. Both 2012 and 2013 surveys were done during extremely dry conditions and 2014 was the same in some places and flooded in others. The last 4 years each had numerous high water events during the winter through the spring. In 2015 flooding in the spring was again experienced. Low water conditions, not seen in several years, existed from the summer into fall of 2015. Because of the variability between years and sites, several good water years without flushing flows should result in higher numbers of Johnny Darters.

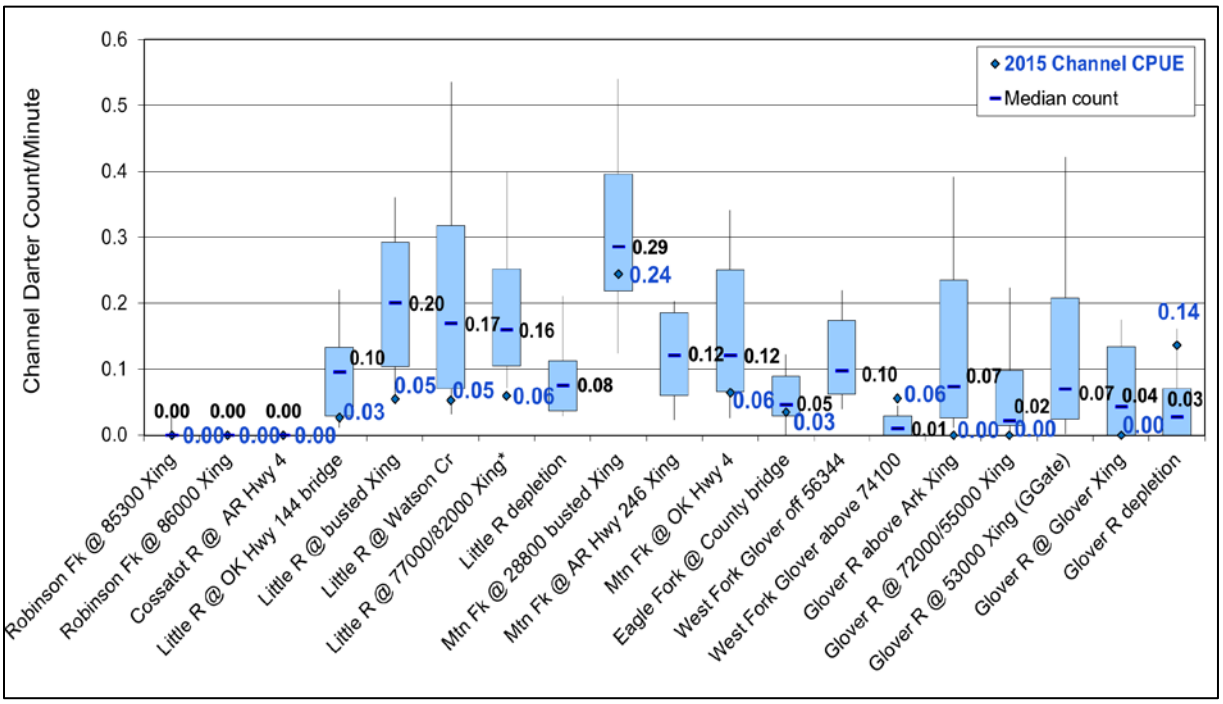
Johnny Darter Counts per Minute by Site, ONF



Channel Darters: For Channel Darters in 2014, the counts plummeted for the same reason as the numbers did for the Johnny Darter with many sites too flooded or too muddy to be able to snorkel or see anything underwater. However, conditions were much better in 2015 and all sites but one were surveyed with Channel Darter numbers showing a slight rebound. While the trend line for Channel Darters annual pooled counts is showing a bit of an upturn, it is due to the results of 2012 and 2013 which were up from prior years with 2015 up from the year before. Most individual sites that could be surveyed in 2015 had numbers near or below the median counts for that site with the exception the Glover River depletion site and one of the new West Fork Glover sites (above road 74100) that had counts above their median long-term value.

Channel Darter
Source: 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 the result of the frequent and high intensity flooding of 2008/2009 with limited rebound in 2010, a good water year. High flows were experienced in April and May of 2011-2015 during juvenile growth periods, followed by droughts with low water conditions or the flooding in late 2014, and then, low water conditions in the summer and fall of 2015. 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 in 2010. Based on historic trends, the populations appear to fluctuate frequently with periods of population numbers expanding and contracting. Channel Darter pooled counts have been low before (2005) and then rebounded for 2 years. The Johnny Darter pooled count for 2009 is the second lowest in the 17 years sampled; then made a sizeable rebound in 2010; but dropped again in 2011. Rebounds occurred in 2012 and 2013 for Johnny Darters, though counting in these 2 years may have been easier and a reflection of low water with higher than normal water clarity. Fluctuating populations seem to be the norm for these 2 species as with the Leopard Darter. Poor sampling conditions and the loss of several of the more productive (higher counts) sites

acerbated the situation for 2014. Low flows during the sampling period in 2015 and that more sites could be sampled may have helped slightly improve counts for both darters. It may also be the case that spawning and recruitment of young Johnny and Channel Darters are just enough different that a few days difference on a flood event may not affect both species equally, possibly accounting for one species counts increasing while the other decreases. So little is known of spawning dates and recruitment periods that more in-depth conclusions cannot be made. Given that Leopard Darters have been discovered to have declining genetic diversity issues due to isolation because Federal Reservoirs and stream crossing barriers prevent individual darters from intermingling between river populations within the Little River drainage, there is potential the same could be occurring for these additional 2 species.

Summary of Stream and River Management Indicator Species Monitoring
The following shows results of the Species Viability Analysis Conducted in 2010

Stream and River Management Indicator Species					
Common Name	Scientific Name	Expected Population Trends	Apparent Population Trends	Risk for Conservation of Species	Management Changes Needed
Creek Chubsucker	(*Erimyzon oblongus*)	Stable	Stable	Sustainable – Viability not in Question	None
Highland Stoneroller	(*Campostoma spadiceum*)	Stable	Increasing	Sustainable – Viability not in Question	None
Green Sunfish	*(Lepomis cyanellus)*	Stable	Increasing	Sustainable – Viability not in Question	None
Longear Sunfish	(*Lepomis megalotis*)	Stable	Stable	Sustainable – Viability not in Question	None
Orangebelly Darter	(*Etheostoma radiosum*)	Stable	Potentially Decreasing	Sustainable – Viability not in Question	None
Northern Studfish	(*Fundulus catenatus*)	Stable		Sustainable – Viability not in Question	None
Northern Hog Sucker	(*Hypentelium nigricans*)	Stable	Stable	Sustainable – Viability not in Question	None
Pirate Perch	*(Aphredoderus sayanus)*	Stable	Stable	Sustainable – Viability not in Question	None
Redfin Darter	*(Etheostoma whipplei)*	Stable	Stable	Sustainable – Viability not in Question	None
Smallmouth Bass	*(Micropterus dolomieu)*	Stable	Stable	Sustainable – Viability not in Question	None
Striped Shiner	*(Luxilus chrysocephalus)*	Stable	Stable	Sustainable – Viability not in Question	None
Yellow Bullhead	(*Ictalurus natalis*)	Stable	Declining	Sustainable – Viability not in Question	None
Johnny Darter	*(Etheostoma nigrum)*	Normally fluctuating	Relatively Stable	Sustainable – Viability not in Question	None
Channel Darter	*(Percina copelandi)*	Normally fluctuating	Potentially Decreasing	Sustainable – Viability not in Question	Unknown

R8 Sensitive and Other Aquatic Species of Viability Concern

For additional information, contact Steve Cole at sncole@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 *(*formerly *Percina sp. nov.)* now (*Percina brucethompsoni*)

For additional information, contact Richard Standage at rstandage@fs.fed.us

Ouachita Darter
Source: USFS

The Ouachita Darter has been formally described (A New Species of Darter from the Ouachita Highlands In Arkansas Related to *Percina nasuta* (Percidae: Etheostomatinae) by Henry W. Robison, Robert C. Cashner, Morgan E Raley and Thomas J. Near, Bulletin of the Peabody Museum of Natural History 55(2):237-252, October 2014.) 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.

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 trawling 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 ATU and his major professor. Work continued on the Stargazing Darter and the Ouachita Darter for the next 2 field seasons with the final report received in FY 2014. Results indicated that while there are Ouachita Darters in the stretch of the river that the Ouachita NF is monitoring; larger populations are found further downstream particularly at and right above the backwaters of Lake Ouachita, likely on U.S. Army Corps of Engineers or private lands.

A Forest Service snorkel survey for Ouachita darters was not conducted in 2015 due to the short turnaround time for required training and reporting in the WIT data base of accomplishments, poor flow conditions and fire borrowing eliminating the possibility of canoe rentals to float to the historic sampling sites. Based on the ATU surveys and Forest Service previous surveys, the Ouachita Darter population in this section of the river appears viable but may be declining. Efforts were made in October, 2015 to backpack electrofish Ouachita Darters into a blocking seine at 3 bridge crossings starting with HWY 270, the Oden and the Little Hope Church bridges with no success. Continued monitoring will better assess their numbers and viability in this section of the river and the monitoring efforts will be fine-tuned utilizing the results from the various ATU studies, particularly as it relates to sample locations. At best, this seems to be a somewhat rare species and is never found in great abundance at any site except for possibly the site right above the backwaters of the lake which is not on Forest Service lands and not readily accessible to the Forest. The Forest needs to work with the AGFC to better assess the species distribution and abundance of the Ouachita Darter.

Arkansas Fatmucket *(Lampsilis powellii)*

For additional information, contact Steve Cole at sncole@fs.fed.us

The federally threatened Arkansas Fatmucket Mussel, listed in 1990, lives only in Arkansas and is endemic to the Saline, Caddo, and Upper Ouachita Rivers. Historically, this 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, a 5-year status review by the USFWS (USDI Fish & Wildlife Service 2007), included findings that the Arkansas Fatmucket Mussel had 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 and from several stream reaches of the Caddo River, Ouachita River, South Fork Ouachita River, Middle Fork Saline River, and North Fork Saline River. 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 NF, and protective measures are coordinated through the USFWS whenever Forest activities may impact this species or its habitat.

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

Federally listed as threatened or endangered are 7 freshwater mussel species, 1 fish species, and 1 aquatic-dependent plant species. Of the 9 federally listed aquatic species, Harperella carries the distinction of being the only endangered plant species.

Common Name	Scientific Name	Viability Concern
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
Spectaclecase	*Cumberlandia monodonta*	Federally Endangered
Arkansas Fatmucket	*Lampsilis powellii*	Federally Threatened
Rabbitsfoot	*Quadrula cylindrica cylindrica*	Federally Threatened
Leopard Darter	*Percina pantherina*	Federally Threatened
Harperella	*Ptilimnium nodosum*	Federally Endangered

*Not known to occur within the Ouachita NF

Listed Freshwater Mussels

There were no specific freshwater mussel surveys conducted on the Ouachita NF during the past 4 years including 2015, except for a 5-year review of the Arkansas Fatmucket conducted by the U.S. Fish and Wildlife Service (USFWS). Researchers are currently investigating the limits and phytogeography of *Lampsilinae* in Arkansas, with emphasis on species of *Lampsilis* (Fatmucket). Mussel surveys will continue to be conducted as funding permits or as required to determine status.

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

For additional information, contact Steve Cole at sncole@fs.fed.us

There are no records that show that the Pink Mucket and Winged Mapleleaf Mussels have ever occurred within the Forest's waters; however, the Winged Mapleleaf is found just upstream of the Ouachita NF in the Little River. These species will remain on the viability concern list, and survey efforts by other agencies will continue to be tracked. Any occurrences will be reported to the USFWS. Otherwise, protection of aquatic habitat will follow the streamside management area direction in the Forest Plan.

Scaleshell Mussel (*Leptodea leptodon*)

For additional information, contact Steve Cole at sncole@fs.fed.us

The South Fourche La Fave River is dominated by a few widely distributed and abundant mussel species. The only Scaleshell Mussel record from this river is a single, live specimen found in 1991, but a second survey of the site in 2001 did not locate specimens of this species. Small quantities of suitable substrate limits the potential for additional mussel populations. 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 Steve Cole at sncole@fs.fed.us

Populations of this freshwater mussel are known to occur in the Kiamichi River in Oklahoma and the 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 mussels that are known to occur within the Forest's waters.

Ouachita Rock-pocketbook
Source: USFWS

Spectaclecase *(Cumberlandia monodonta)*

For additional information, contact Steve Cole at sncole@fs.fed.us

Spectaclecase, Mature and Immature
Source: Nick Rowse, FWS

The Spectaclecase is a freshwater mussel that was added to the federal list of threatened and endangered species in 2012, giving the species full protection under the Endangered Species Act (ESA). The ESA provides protection against practices that kill or harm the species and requires planning or recovery and conservation actions. Identifying, protecting and restoring aquatic habitat are objectives of the Forest Service's management program. A single half-shell relict was found near Dragover Access on the Ouachita River in 2000. After multiple searches, Spectaclecase is considered by the mussel experts in Arkansas to be extirpated from the Ouachita River above Lake Ouachita. Dams affect both upstream and downstream populations by disrupting seasonal flow patterns, scouring river bottoms, changing water temperatures and eliminating river habitat and have contributed to the decline and potential extinction of the Spectaclecase. Large rivers throughout nearly all of the Spectaclecase mussel's range have been dammed, leaving short, isolated patches of habitat between dams. Spectaclecase mussels likely depend on a host fish species, or other aquatic species, to move upstream. Because dams block the aquatic mussel hosts, generally fish, from moving upstream, mussels are also prevented from moving upstream.

Rabbitsfoot *(Quadrula cylindrica cylindrica)*

For additional information, contact Steve Cole at sncole@fs.fed.us

Rabbitsfoot
Source: USFWS

The Rabbitsfoot, a freshwater mussel, was federally listed as a threatened species in 2013. It is found in rivers and streams on the Ouachita NF. Estimates are that it has been lost throughout 64% of its historical range. While 51 of 140 historical populations are still present, only 11 populations are viable; 23 populations are at risk of extirpation, and 17 populations do not seem to be reproducing at a level that can sustain the populations. Most of the existing Rabbitsfoot populations are marginal to small and isolated. Significant habitat loss, range restriction, and population fragmentation and size reduction have rendered the Rabbitsfoot vulnerable to extinction. Threats include exotic species; sedimentation; small population sizes; isolation of populations; livestock grazing; wastewater effluents; mine runoff; unstable and cold water flows downstream of dams; gravel mining; and channel dredging. Many of the remaining populations are isolated and may be eliminated by single catastrophic events, such as toxic spills. Natural repopulation is impossible without human intervention.

Conservation actions that may benefit Rabbitsfoot are programs that support life history research and surveys that contribute to public understanding of the functions that the Rabbitsfoot and other mussels play in the environment. Ensuring that regulations designed to protect water quality and aquatic habitats are fully implemented is vital to maintaining or enhancing remaining Rabbitsfoot populations. The federally listed threatened Rabbitsfoot Mussel will be considered in every watershed project analysis where it exists for effects to individuals and/or habitat.

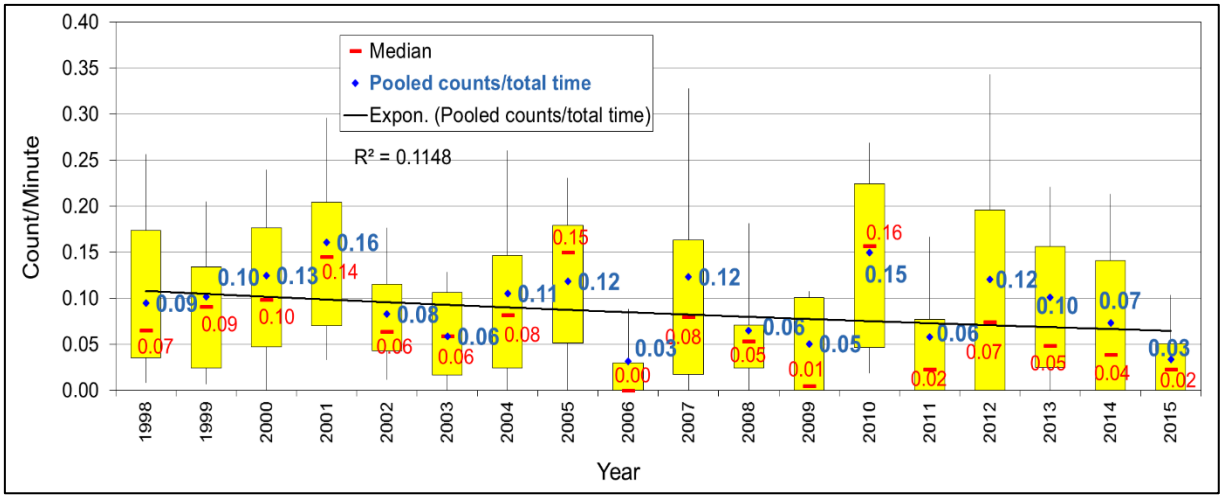
Leopard Darter (*Percina pantherina*)

For additional information, contact Richard Standage at rstandage@fs.fed.us

Leopard Darter
Source: USFS

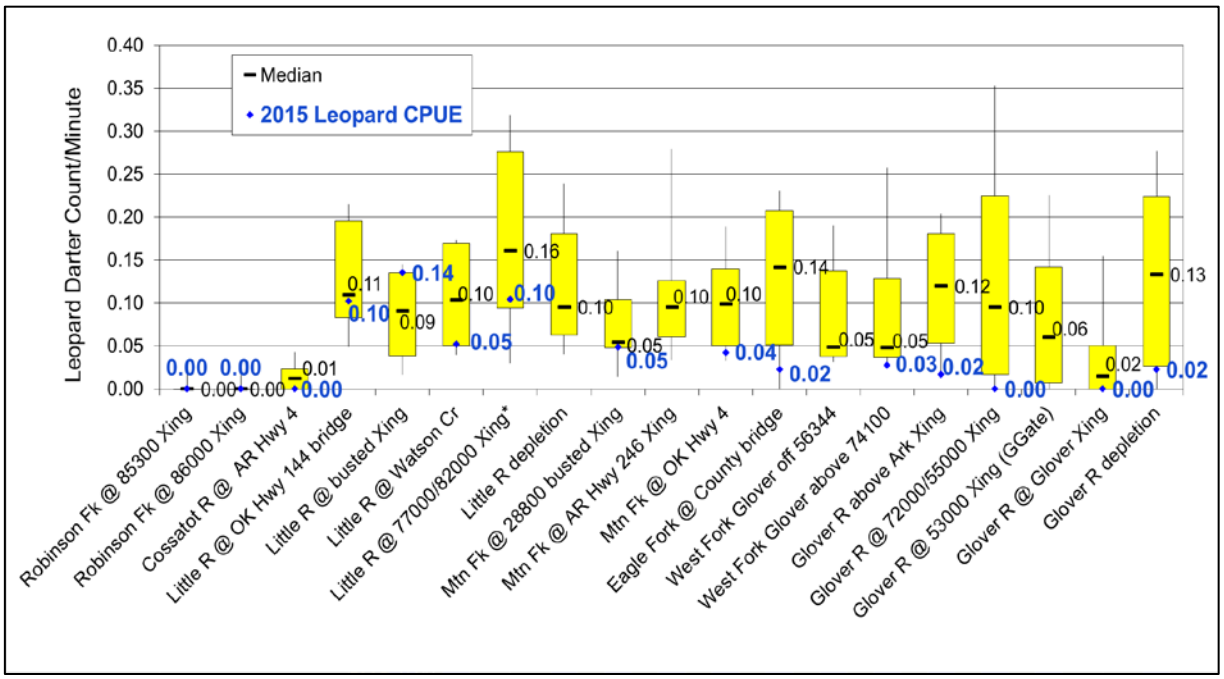
Snorkel counts for Leopard Darters in 2015 equaled the same median count as the summer of 2011, but their pooled count/total time was lower and the variance in the count (box size and length of whiskers) was much smaller than that of 2011. It was observed and noted that low water and high water clarity was experienced during the surveys in 2012 and 2013. This could lead to higher counts with the greater visibility and with the low water levels that trapped and concentrated Leopard Darters. In the summer of 2014, the Mountain Fork River and one tributary (4 sites) and 3 of the upper Little River sites could not be snorkeled due to high flows and/or poor underwater visibility. The team was forced to set back the second week's surveying due to high water and poor visibilities. Sites missed, while often having higher than median counts, would likely have had low counts had they been done due to the flooding. For 2015, all but one West Fork Glover River site was sampled and while significant spring flooding occurred, conditions were suitable or low to marginal for surveying in 2015. The trend line for the annual pooled counts of Leopard Darters is not statistically significant.

Leopard Darter Annual Pooled Counts, ONF



No Leopard Darters were found at the 2 permanent Robinson Fork sites, making it now 10 years since the last leopard darter was found in a transect. A number of non-permanent Robinson Fork sites were surveyed in 2014 with no Leopard Darters found within them either. The Cossatot River site also has no Leopard Darters counted within the permanent transect. Leopard Darters were last counted in 2010 within the Cossatot permanent transect, but they are usually seen in non-transect areas as they were again 2014 and 2015. These 2 off-forest populations are highly vulnerable to extirpation because of small drainage areas each isolated above a large U. S. Army Corps of Engineers' reservoir. With the loss of the site on the Glover River at the 53000 crossing due to the change from a pool to a steep riffle with the new low-water crossing and the continual poor counts at the Glover Crossing (Xing) due to excessive sedimentation; 2 West Fork Glover sites had been added as permanent transects to balance the number of sites per river drainage. The Upper Little River Depletion Site can no longer be surveyed due to the loss of the vented ford that pooled the river to make a suitable site. While still surveyable when there is sufficient stream flow/depth, it was unsuitable to survey in 2014. In 2015 this site's access was barricaded and it was not accessed. Only 15 of the now 19 permanent sites could be sampled in 2015 with 2 unaccessible or not suitable for surveys and 2 with unsuitable underwater visibilities (less than1 meter visibility) or swimable conditions.

Leopard Darter Counts per Minute by Site, ONF



Data presented here would indicate that the populations are experiencing natural variations. However most sites' pooled counts for 2015 were under the long-term medians for that site. Numerous large floods were experienced in 2015 that could have negatively impacted spawning, survival of young or simply flushed young out of sampled reaches. There is a newly perceived and significant threat to Leopard Darter survival of inadequate genetic variation between and within populations due to their isolation by reservoirs and stream crossing barriers. This matter is under further scrutiny with a Genetic Rescue Plan being developed with the goal to enrich the gene pools of each of the isolated river basin populations of Leopard Darters to prevent their demise.

Harperella (Ptilimnium nodosum)

For additional information, contact Susan Hooks at shooks@fs.fed.us

Harperella 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 spots of deposition of fine alluvium. In most Harperella sites, there seems to be significant deposition of fine silts. It may occur in mostly sunny to mostly shaded sites. On the Ouachita NF, harperella occurs in perennial to near-perennial streams either on or among boulders or large cobbles or on course sediment bars. Harperella is most often associated with *Justicia americana*, *Gratiola brevifolia, Dulchium arundinaceum,* and *Eleocharis quadrangulata.*

Harperella
Source: USFS

Population levels at individual sites appear to vary greatly from year to year. Some of this variation is attributable to past population estimates based on rough guesses rather than numerical counts or samples. Even so, the life history of this species suggests that population fluctuations are natural and to be expected. This phenomenon suggests that Harperella depends on a seed bank to supplement annual seed production and should be tolerant of a range of habitat conditions. This is consistent with observations since the discovery of Harperella on the ONF. Annual rainfall and the timing of the rainfall appear to have the most influence on population numbers.

Eleven known sites of harperella were monitored by the Forest Botanist. These sites in include 2 areas along Fiddler Creek, 1 on Rainey Creek, 6 sites along the Irons Fork, 1 on Brushy Creek and 1 on Little Brushy Creek. The populations continue to fluctuate from year to year due to drought and flooding events. In 2015 the habitats were in good shape and no known threats to the habitat were observed.

Other Aquatic Habitat Considerations

Game Fish Habitat

For additional information, contact Richard Standage at rstandage@fs.fed.us

The desired condition for game fish habitat in the Forest Plan is as follows: *"Fishable waters support high-quality angling opportunities."* Objective 27 states, "*Maintain recreational fishing opportunities of stocked lakes and ponds."* This objective is being met by activities that protect, and maintain or enhance fishing recreational opportunities. Monitoring of bass and sunfish spawn by shoreline seining is conducted with supplemental stocking requested from either state as needed. Structural habitat improvements (fish attractors/cover/spawning beds) are added to increase fish cover and improve spawning conditions. 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 and sub-adult fish populations of select Ouachita NF lakes and ponds. Annual Channel Catfish stocking is occurring in most managed recreational fishing waters in close coordination with the AGFC and ODWC. In 2015, fish sampling was continued to monitor the Gizzard Shad population at Cedar Lake. Control measures were again undertaken to reduce the Gizzard Shad population to encourage greater reproduction of young-of-the-year Gizzard Shad to provide needed forage to help game fish populations in Cedar Lake obtain better growth. Since gill netting was not/could not be conducted in late fall 2015, the reduction effects are unknown. The trend in Gizzard Shad electrofishing numbers continuing to rise while gill netting numbers continue dropping is of concern. The picture is clouded due the very sub-optimal sampling conditions in 2014 and no gill netting results for 2015. In the past few years, electrofishing has occurred during the Gizzard Shad spawning season when they were closer to shore than is typically the case, and they are more vulnerable to electrofishing capture since electrofishing occurs only along the shoreline. This would drive up their electrofishing catch, but these results for the larger Gizzard Shad should top out at some point.

Aquatic Habitat Enhancement Activities

For additional information, contact Richard Standage at 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 6 stream crossings per year (where there are road-related barriers to passage)."*

FY 2015, 30.2 miles of fish passage/aquatic organism passage and sediment reduction/ control was accomplished, mostly funded with Federal Highway's flood restoration dollars (ERFO) and with Joint Chief's Woodland Restoration funding in the Wolf Pen Gap OHV Area.

In FY 2015, 9 projects opened up aquatic organism passage (AOP) to approximately 21.9 miles of streams with the remainder contributing to sediment reduction and control.

Road 68 washed out low-water crossing AOP barrier replaced with Aluminum box/arch with AOP.

Road 903 low-water box culvert with AOP that replaced natural ford that received heavy use and streambed disturbance/sedimentation.

Road 517 low-water open span bridge with AOP that replaced two washed-out and mangled plastic pipes.

The following data display a summary of all activities undertaken during the last 7 years, by fiscal year to improve aquatic habitat.

Activity by FY	2008	2009	2010	2011	2012	2013	2014	2015
	Acres or Units							
Lake Fish Attractors Installed	48	73	40	48	16	0	0	0
Stream Fish Structure/Fish Passage Restored (miles)	11	20	14	11.5	5	3	23.6	21.9
Fishing Pond/Lakes Enhanced/fertilized, limed, etc.	558	474	548.5	696	702	593	743	639

Amphibian Habitat

For additional information, contact Steve Cole at sncole@fs.fed.us

In 2014, 44 wildlife waterholes were constructed or reconstructed as ephemeral aquatic habitat particularly for amphibian spawning. No report was available for the 2015 reporting cycle.

Watershed Function and Public Water Supply

For additional information, contact Steve Cole at sncole@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."*

Municipal water supplies (public water source areas) are protected when pesticide applications or soil disturbing activities are implemented through coordination with the public water supply manager/operator.

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, Maumelle, and Saline (eastern) rivers.

Herbicide Monitoring

For additional information, contact Steve Cole at sncole@fs.fed.us

No report was submitted for 2015. In 2014, one stream was monitored twice on the Mena-Oden RD for the presence of herbicides (Imazapyr and Triclopyr) below treated stands. This is an ongoing monitoring program where 10% of areas treated with herbicides are supposed to be monitored for off-site movement. Lab results indicate that the presence of herbicides was insignificant for all sites. No changes to the monitoring protocols are recommended; however, samples need to be submitted to the lab for analysis and reported each year. Work was done to assure that District offices knew where to submit samples for analysis.

This monitoring program of herbicides is undertaken to assure compliance with a provisions of state's regulations for water quality (under the Clean Water Act). These regulations require the NFS to conduct sample water quality monitoring to determine if pesticide applications have resulted in any pesticide runoff to water and to determine contamination, if any, on areas such as municipal watersheds, fish hatcheries, or near private domestic water supplies.

Recreation and Scenery Management

For additional information, contact Bill Pell or bpell@fs.fed.us

Abundant opportunities exist for the public to use and enjoy the Ouachita NF. 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 Bill Pell or bpell@fs.fed.us

There are 6 wilderness areas totaling approximately 64,469 acres located within the Ouachita NF, 1 with land in both Arkansas and Oklahoma (Black Fork Mountain Wilderness), 4 in Arkansas (Caney Creek, Poteau Mountain, Dry Creek, and Flatside), and 1 in Oklahoma (Upper Kiamichi). The 6 wilderness areas were congressionally designated in 3 separate acts:

- 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 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 they met the criteria and 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 additions to Flatside Wilderness and Poteau Mountain in Arkansas and Upper Kiamichi Wilderness 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 congressional sponsor (proponent) would be required to advance the recommendations through the system. No action has been taken 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; however, all Wilderness units on the Forest have met and exceeded the goals set by the Chief's 10 Year Wilderness Stewardship Challenge (the Challenge), which concluded in FY14. The 10-Year Challenge was developed by the Chief's Wilderness Advisory Group as a quantifiable measurement of the Forest Service's success in Wilderness stewardship. The goal identified by the Wilderness Advisory Group, and endorsed by the Chief, was to bring each and every wilderness under Forest Service management to a minimum stewardship level by the 50th Anniversary of the Wilderness Act in 2014. Ten critical elements of wilderness stewardship were identified and a "minimum stewardship level" was defined as meeting 6 out of the 10 elements. The following chart depicts the individual scores per elements and final stewardship score for each individual wilderness unit.

10 Yr. WSC Element	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	
Wilderness	Fire Plans	Invasive Plants	AQV Monitoring	Education Plans	Ops for Solitude	Rec Site Inventory	Outfitter & Guide Language	Forest Plan Standards Adequate	Information Mgt. Needs Met	Baseline Workforce	**Final Scores**
Black Fork Mountain	10	10	10	4	6	4	6	6	10	2	68
Caney Creek	10	10	10	10	10	10	6	6	10	2	78
Dry Creek	10	10	10	4	6	4	6	6	10	2	68
Flatside	10	10	10	4	6	4	6	6	10	2	68
Poteau Mountain	10	10	10	4	6	4	6	6	10	2	68

Color Key

60+ At or Above Standard

Wilderness Stewardship Headwater Stream Sampling

For additional information, contact Judy Logan at jlogan@fs.fed.us

The "Wilderness Stewardship Challenge" was instituted in 2004 to ensure that wildernesses are being properly managed to leave them unimpaired for present and future generations. Monitoring air quality values was identified as 1 of 10 accountability elements in the Challenge. An air quality value (AQV) is simply a resource that can be affected by air pollution. An AQV is selected based upon relative sensitivity to pollution, value as an indicator of the natural conditions of the wilderness area, and importance to wilderness visitors.

The Forest was required to develop an Air Quality Value Plan that provides a thorough evaluation of currently available air quality monitoring and modeling data for the wilderness areas managed by the Ouachita NF, as well as a characterization of resources that might be affected by air pollution (http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprd3811710.pdf). This evaluation was used to select AQV's and develop a monitoring plan that will allow the Forest to determine whether air quality in wilderness areas is improving or degrading, and whether it is affecting wilderness values. The plan also identifies the sensitive receptors and indicators that can be measured to evaluate the effect of air pollution on the AQV and describes how inventory and monitoring will be conducted. See Monitoring and Evaluation Report for Fiscal Years 2012-2013 for more information.

Wild and Scenic Rivers

For additional information, contact Bill Pell at bpell@fs.fed.us

The National Wild and Scenic Rivers System (NWSRS) 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 NWSRS.

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 McCurtain County, Oklahoma was studied as part of an amendment to the 1990 Forest Plan, completed in 2002, and described in Appendix B of the EIS for that amendment with a recommendation that 16.5 miles be added to the NWSRS with a designation of "scenic." A review of other eligible rivers for the Forest Plan revealed none suited for recommendation by the Ouachita NF as additions to the NWSRS, because most were bordered by too little NFS land. A local proponent would need to champion the designation of the Glover River for formal designation as a part of the NWSRS. Rivers may be designated by Congress or, if certain requirements are met, the Secretary of the Interior. Each designated river or river segment is administered by either a federal or state agency.

Semi-Primitive Areas

For additional information, contact Bill Pell at bpell@fs.fed.us

Management Area 17, Semi-Primitive Areas, consisting of approximately 136,091 acres, are areas that (a) meet the Recreation Opportunity Spectrum 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.

Scenery Management

For additional information, contact Bill Pell at bpell@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 among the many focus areas where Scenery Integrity Objectives are of very high priority.

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 26,989 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, 2 Botanical Areas, and a large, undeveloped recreation area (Rich Mountain). There are areas specifically designated as scenic areas (shown in the following), and 3 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 Ouachita NF within other MAs. Rich Mountain Botanical Area and Rich Mountain Recreation Area are on the Mena Ranger District.

There are 2 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 NFS 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 transportation 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 within the last 10-year period.

MA 19 – Winding Stair Mountain Recreation National Area

Management Area 19, Winding Stair Mountain Recreation National Area and Associated Non-Wilderness Designations, consists of approximately 79,897 acres and contains lands designated by the Winding Stair Mountain National Recreation and Wilderness Area Act of 1988, Public Law 100–499, except for the 2 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 MA.

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, Special Interest Areas.	

MA 3 – Developed Recreation Areas

For additional information, contact Bill Pell or bpell@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 2 Forest Plan Objectives that govern developed recreation:

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

At present, 159 of 162 recreation facilities are maintained to standard. "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 99% 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 attained with improvements to Camp Clearfork with the installation of new hardened trail surfaces throughout the recreation area to improve accessibility from overnight facilities to other recreation facilities at the site.

Fee Sites

For additional information, contact Bill Pell at bpell@fs.fed.us

Occupancy rates are not tracked at non-fee sites. Of the recreation sites that are operated as fee sites, occupancy rates are not developed for the 5 day-use areas (at Cedar Lake, Lake Sylvia, Shady Lake, Little Pines, and Charlton recreation areas). The following shows data through 2015 for the 14 recreation sites where fees are collected.

The decrease in fee collections for 2012 through present is due to closures of several campgrounds and individual campsite units due to flash flooding concerns. 2012 figures are also likely influenced by a mid-year change to a new accounting and collection system.

Trails

For additional information, contact Tom Ledbetter at tledbetter@fs.fed.us

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 trail system in Oklahoma, the International Mountain Bicycling Association Epic Womble and Lake Ouachita Vista Trails. Mountain biking is fast becoming one of the most important niches that the Forest can support and currently provides over 200 miles of single-track trail for the mountain bike enthusiast. Key to the development and maintenance of these trail systems is the involvement of dedicated, well-trained volunteer trail enthusiasts such as the Friends of the Ouachita Trail and the Trail Dogs.

Trail maintenance on Lake Ouachita Vista Trail.

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

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. It should be noted that in past years, the Ouachita NF has reported non-motorized trail maintenance and motorized trail maintenance separately, but due to database structures, it is no longer possible to separate the 2 types of maintenance.

Demand for OHV riding opportunities is 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 Bill Pell at bpell@fs.fed.us

A preliminary Forest-level visit estimate obtained from the National Visitor Use Monitoring for 2015 is 1.189 million visits the Ouachita NF per year. This is an increase from the 2010 estimated 1.067 million visits to the ONF annually. As revealed in the survey, for the ONF, the greatest changes between 2010 and 2015 include a 138,000 visit increase in General Forest Area (GFA) Low sites and a 121,000 visit decline in GFA Medium sites. No special events visits were recorded.

Public and Agency Safety

For additional information, contact Alissa Land at aland@fs.fed.us or Tim Fincham at (501) 321-5202

The 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."*

A safe environment is critical for the public and agency employees on National Forest System lands as is protection of the natural resources and other property under the agency's jurisdiction. In 2015, the Law Enforcement and Investigation (LE&I) unit for the Ouachita NF administered 6 Cooperative Law Enforcement Agreements that support local county law enforcement assistance in Arkansas and Oklahoma. The number of Forest law enforcement officers (LEOs) in 2015 was 7 full-time and 2

in “reserve” LEO status. The historic high of LEOs Forest-wide was 12. LEOs often work 120-150 hours per week compared to other employees who would normally work an 80-hour, 2-week pay period. During 2015, approximately 3,997 hours (equal to 500 days) of Administratively Uncontrollable Overtime were worked by the 7 LEOs and 2 Reserve Officers.

LEOs responded to or assisted with 43 accidents within/adjacent to the Ouachita NF. Twenty-one accidents were motor vehicles, 12 ATV accidents, 2 motorcycle accidents and 8 personal injury/other accidents. Twenty-one separate search and rescue operations were conducted during 2015 for lost hikers and hunters, and LE&I investigated 10 assault cases. Ninety-two separate ATV violations were recorded for 2015. During 2015, 2 categories exceeded their previous reported year highs – vehicle and ATV accidents.

Year	Motor Vehicle Accidents	ATV Accidents	Motorcycle Accidents	Personal Injury/Other Accidents	Search and Rescue
2011	19	7	4	12	20
2012	12	9	12	18	10
2013	14	3	2	1	9
2014	7	1	2	1	24
2015	43	12	2	8	21

During 2015, a total of 541 Federal and State Violation Notices, 290 Warning Notices, and 353 Incident Reports were issued. Although these numbers represent an extremely heavy workload, they are comparable to activity reported since 2010.

Violations, Notices, and Incident Reports by FY, ONF

Fiscal Year	Violations	Warning Notices	Incident Reports
2010	581	394	628
2011	487	474	476
2012	354	262	364
2013	542	344	339
2014	570	282	374
2015	541	290	353

Officers investigated and assisted in 17 felony drug cases and 59 misdemeanor possession drug cases. In 2015, approximately 4,510 marijuana plants were located during joint operations within and adjacent to NFS and eradicated. Approximately 4 grams of methamphetamine was seized along with 79 items of paraphernalia. Forty-seven cases were initiated and 81 arrests were reported during 2015. Two-hundred-twenty-eight DUI and public intoxication and alcohol possession incidents were documented. Seventeen fires were investigated of which 13 were determined to be arson or human caused fires. The following show these data since 2006, the first full year of monitoring for the 2005 Forest Plan.

Eradications, Arrests, and Investigations by FY

FY	Marijuana Plants	Methamphetamine Grams Seized	Investigations	Felony Drug Cases	Misdemeanor Drug Cases	Arson cases
2006	6,300	Data Not Reported 2006-2013	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
2012	4,200		74	35	42	50
2013	8		46	15	66	16
2014	600	9	39	27	42	18
2015	4,510	4	47	17	59	13

*Arson cases occurred and were investigated during 2006 and 2007; however, the data were not reported in the Monitoring and Evaluation Reports.

Outreach projects include purchase of a marine patrol boat to be used to address alcohol and fishing violations on Forest Service lakes and assist in night hunting violations. This equipment is an addition to the ATV Razor acquired to address violations on ATV trails. There were 0 fatalities during 2013 and 2014; however, there was 1 ATV fatality in 2015. The Ouachita NF has an active K9 program that has provided dozens of assists to state, county and local LE agencies in addition to the numerous cases initiated on the Forest. The LEO/K9 team presents a variety of programs and demonstrations to local schools to educate youth about the dangers of drug use. Officers conducted/assisted with 17 compliance checkpoints to address the growing traffic, ATV and alcohol violations occurring as a result of increased public visitation on the Ouachita. A total of 64 timber compliance checkpoints were performed in 2015. Ouachita NF Law Enforcement personnel spent 90 hours in public relations and training programs. Forest LEO's traveled approximately 180,000 miles in 2015 in support of public and agency safety, as well as protection of natural resources and property. Law Enforcement reports show a total of 15,019 public contacts during 2015. A comparison of public Relations Program Hours, Miles Traveled and Public Contacts made by is provided in the following.

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
2012	166	208,000	22,271
2013	228	212,000	18,436
2014	82	192,000	16,304
2015	90	180,000	15,019
*Data reported are programs, not hours, as reported in subsequent years.			

Heritage Resources and Stewardship

For additional information, please contact Roger Coleman at recoleman@fs.fed.us

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

There are 3 Forest Plan objectives for Heritage Stewardship:

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

Review of Progress toward Desired Condition, Priorities, and Objectives

The Heritage Overview is complete and consultation with tribal and state consulting partners is concluded. The document is available in electronic format (OBJ20). A Heritage Resources Management Plan, based on the Heritage Overview and Forest-wide land type associations is in production (OBJ21).

During 2015, the State Historic Preservation Officers of Arkansas and Oklahoma and several tribes agreed to extend the existing programmatic agreement with the Forest Service (Ouachita and Ozark-St. Francis National Forests). This agreement, originally ratified in 2006, guides the implementation of National Historic Preservation Act Section 106 procedures on these 3 national forests. This agreement has been extended several times and now expires in May, 2017.

Priority Heritage Assets (PHAs) are heritage sites with public value that meet one or more of the following criteria:

- The site has an official designation like listing on the National Register of Historic Places.
- There is a prior investment in preservation, interpretation, and use.
- The site is recognized in an agency-approved management plan.
- The site exhibits critical deferred maintenance needs and those needs have been documented (where critical deferred maintenance is a potential health or safety risk or imminent loss of significant resource values).

PHAs are monitored on a 5-year rotation. For 2015, the Ouachita had 183 archeological and historic sites on the PHA list. Thirty-two PHAs were actively monitored and 22 PHAs were managed to standard. Other heritage assets including structures and archeological sites may be potentially important; however, they are currently unevaluated or do not have a demonstrated need for active maintenance.

Archeological collections are Priority Heritage Assets. In 2015, additional efforts were made to prepare collections for curation. Volunteers donated 1,207 hours to this effort at an estimated dollar value of $13,361.49. Curation activities are ongoing.

Tribal and Native American Interests

For additional information, please contact Roger Coleman at recoleman@fs.fed.us

In addition to the 3 objectives listed under Heritage Stewardship, the Forest Plan identifies a desired condition that the "Forest has active agreements and protocols to facilitate consultation (all resources) and government-to-government relationships."

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 provides a process for identifying and returning cultural patrimony to Native Americans. In 2014, to implement the act, the Caddo Nation of Oklahoma and the Choctaw Nation of Oklahoma signed comprehensive NAGPRA agreements with the USDA Forest Service (Ouachita and Ozark-St. Francis National Forests). Protocols were implemented during 2015. These agreements represent positive steps toward stronger Government-to-Government relationships with Tribes. To date, all archeological collections maintained by the Ouachita NF have been examined, and analysis revealed several small human bone fragments representing 12 individuals of Choctaw or Caddo affiliation from 7 Oklahoma sites. After discussing the collections with the Caddo and Choctaw nations, the Ouachita NF will be ready to publish the Notice of Inventory Completion (NIC) in 2016. Tribal reburial requests will be dealt with on a case-by-case basis.

The *To Bridge A Gap* (TBAG) conference is an annual Government-to-Government meeting between federal agencies and Native American tribes. Initiated in 2002, the meeting is a successful forum that promotes intergovernmental collaboration and information exchange. From March 30 to April 2, 2015, the 14th annual TBAG meeting was hosted by the Eastern Shawnee Tribe in Wyandotte, Oklahoma. The University of Arkansas, School of Law, was once again a partner for the first evening reception. This year, a pre-meeting GIS session was held. Individual breakout sessions occurred directly before and after the general meeting. This is also the first year a tribal caucus was held before the general session. The banquet was highlighted by Keynote Speaker, Mr. Jhon Goes In Center. The 2015 meeting featured more than 250 registered attendees representing 19 federal agencies, 30 Tribes, 22 contractor/organizations, and 11 state agencies.

In 2015, heritage paraprofessional training was conducted at the Arkansas River Valley Wildland Fire Academy in Russellville, Arkansas and at the Absentee Shawnee Cultural Center in Norman, Oklahoma. ONF heritage personnel served as trainers for both sessions, collectively instructing 30 individuals including members of the Absentee Shawnee Tribe and the Comanche Nation. Many of the ONF tribal consulting partners now have heritage paraprofessional programs and under Forest Service and tribal participating agreements, some tribal members conduct heritage surveys for the Forest.

Additionally, in 2015, heritage staff conducted public outreach at 5 venues including 2 flint knapping demonstrations, history and archeology programs for the Ouachita Chapter of the Arkansas Archeological Society, and by staffing a booth at the Yell County fair. An ONF history display was setup in Perry County. Three interpretive panels were installed at Shady Lake Recreation Area. The largest, at the central kiosk, details Civilian Conservation Corps (CCC) activities during recreation area construction. Two panels in Loop D illustrate the CCC program generally, and the activities of local Camp F-4 specifically. The Rich Mountain Fire Tower brochure was updated and a new brochure was created for the Tall Peak Fire Tower.

Performance History

Contribution to Social & Economic Sustainability

For additional information, contact Alett Little at alittle@fs.fed.us

The Ouachita NF is important to many local economies in terms of providing employment and in providing products, services, recreational visits, contracting, and other sources of revenue that then multiply to support local communities; and this support has remained fairly stable over the years. The timber sale program contributes to the economic base of local communities as do the recreational opportunities that bring visitors to the Forest and surrounding communities. Some other Forest contributions are difficult to quantify. One type of economic contribution to counties, however, is clear as described in the following section on payments to counties in lieu of taxes.

Payments to Counties

For additional information, contact Bill Pell at bpell@fs.fed.us

An important source of revenue for many counties that include National Forest System lands within their borders 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% 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.

Allocations ($) to Counties (Titles I and III), 2006 – present, ONF
Note: Funds are not payed until the following year.

Year/ Co.	Arkansas													Oklahoma	
	Ashley (003)	Garland (051)	Hot Spring (059)	Howard (061)	Logan (083)	Montgomery (097)	Perry (105)	Pike (109)	Polk (113)	Saline (125)	Scott (127)	Sebastian (131)	Yell (149)	LeFlore (079)	McCurtain (089)
2006	3,539	454,370	676	3,235	42,505	1,243,580	387,420	21,847	648,426	184,787	1,456,962	64,570	695,433	974,175	264,770
2007	2,869	453,437	548	2,622	42,418	1,241,027	328,632	22,957	687,539	216,951	1,165,618	64,438	694,006	972,176	264,226
2008	6,633	321,296	571	5,820	70,754	1,467,711	324,278	31,344	876,424	146,405	1,614,725	38,467	801,940	956,344	383,889
2009	6,235	291,494	568	5,200	50,287	1,325,823	260,347	29,111	832,968	124,858	1,456,841	35,477	733,059	842,016	350,417
2010	4,970	276,302	549	5,085	45,922	1,290,494	237,031	25,179	890,615	112,788	1,577,973	34,226	666,927	773,112	347,835
2011	4,233	211,103	561	4,956	43,652	1,158,828	219,113	23,132	759,411	95,534	1,500,621	31,424	614,500	674,238	309,374
2012	3,412	229,758	530	4,495	38,414	1,111,849	187,900	24,170	683,118	91,072	1,386,118	31,118	569,457	651,328	265,335
2013	2,573	185,034	492	4,827	35,367	1,107,819	187,993	25,732	632,456	87,389	1,340,211	28,399	576,372	645,564	269,341
2014	2,318	166,642	444	4,121	33,614	998,289	193,351	21,857	565,027	88,963	1,091,255	27,575	486,532	619,979	254,783
2015	2,080	149,490	399	3,566	24,371	911,888	216,871	23,918	504,739	113,475	957,404	31,931	463,814	527,602	244,047

Source: http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd494969.pdf

These annual payments (plus additional payments processed through the Department of the Interior) have provided some stability and predictability for funding to the counties since 2000, when Congress passed the SRS Act. The Secure Rural Schools Act (SRS Act) was reauthorized by section 524 of P.L. 114-10 and signed into law by the President on April 16, 2015. The actual amount of each state's payment is determined by a number of factors determined by law, including how many counties ultimately decide to share in that payment.

Each county's share of their state's payment amount can be found on this Forest Service website: http://www.fs.usda.gov/main/pts/securepayments/projectedpayments.

In addition to payments made by the Forest Service to Oklahoma and Arkansas for counties that contain National Forest System lands, many counties participate actively in Title II of the SRS Act, including the 8 counties shown in the following that include lands of the Ouachita National Forest. Title II projects are recommended by resource advisory committees and may be used for the for protection, restoration, and enhancement of fish and wildlife habitat and other resource objectives consistent with the SRS Act on Federal land and also on non-Federal land if such projects would benefit the NFS resources.

County	Title II Funds ($) Distributed, by year, ONF Note: Distributions determined by previous years' calculation		
AR	**2013 (2012 $)**	**2014 (2013 $)**	**2015 (2014 $)**
Logan	9,582	8,821	8,382
Montgomery	277,575	259,510	233,802
Perry	46,861	33,098	34,040
Polk	170,542	157,889	141,021
Scott	303,896	293,836	239,171
Yell	49,442	50,047	42,231
OK	**2013 (2012 $)**	**2014 (2013 $)**	**2015 (2014 $)**
LeFlore	114,940	113,923	109,408
McCurtain	46,824	47,531	44,962

2015 Source: Final Title I, II and III Report PNF (ASR-18-01)

Budget

For additional information, contact Diane Lowder at 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 NFS allocated funds for the Ouachita NF in Arkansas and Oklahoma without earmarks or returns on receipts of timber sales under Knutson-Vandenberg (KV)* for the time period 2006 through 2015 are shown in the following.

Allocated Funding 2006-2010, by FY, ONF

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Dollars (in Millions)	**8.5**	**6.8**	**8.8**	**11.7**	**10.5**	**9.8**	**11.8**	**8.7**	**10.3**	**9.2**

Source: Ouachita NF

*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.

The Ouachita NF comprises approximately 4.2 percent of the land base of the state of Arkansas and less than 1% of the total land area in Oklahoma. In Arkansas, Ouachita NF System lands occupy a high of 67% to a low of 0.08% of total lands by county. Within the 2 Oklahoma counties, National Forest System lands occupy 22% of LeFlore County and 11% of McCurtain County. The following displays the amount and percentages of Ouachita NF lands in each county and within each state as a whole:

Lands by State and County, September 2010 - 2015

State/County	Acres	Ouachita NF Acres 2010	Ouachita NF Acres 2011	Ouachita NF Acres 2013	Ouachita NF Acres 2014	Ouachita NF Acres 2015	Ouachita NF Percent of State or County 2015
ARKANSAS	34,034,560	1,434,899	1,434,718	1,434,718	1,434,718	1,434,718	4.22
Ashley	589,440	1,675	1,675	1,675	1,675	1,675	0.28
Garland	433,280	120,573	120,573	120,573	120,573	120,573	27.83
Hot Spring	393,600	320	320	320	320	320	0.08
Howard	375,680	1,531	1,531	1,531	1,531	1,531	0.41
Logan	454,400	18,586	18,586	18,586	18,586	18,586	4.09
Montgomery	499,840	336,840	336,839	336,839	336,839	336,839	67.39
Perry	352,640	99,170	99,170	99,170	99,170	99,170	28.12
Pike	385,920	13,427	13,427	13,427	13,427	13,427	3.48
Polk	549,760	206,441	206,261	206,261	206,261	206,261	37.50
Saline	462,720	58,959	58,959	58,959	58,959	58,959	12.74
Scott	572,160	369,587	369,587	369,587	369,587	369,587	64.59
Sebastian	343,040	18,956	18,956	18,956	18,956	18,956	5.53
Yell	593,920	188,834	188,834	188,834	188,834	188,834	31.79
OKLAHOMA	43,946,880	354,954	354,954	354,953	354,953	354,953	0.81
LeFlore	1,015,040	221,949	221,949	221,948	221,948	221,948	21.87
McCurtain	1,185,280	133,005	133,005	133,005	133,005	133,005	11.22

Source: Ouachita NF – 2012 acres not reported.

There were no substantive changes in the total acres managed under the National Forest System over the past several years and no changes at all during 2015.

Summary - Resource Management Accomplishments

The following table summarizes resource management accomplishments for the Ouachita NF from 2003 to 2015.

Objective or Activity	FISCAL YEAR												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Miles of Trail Construction	6	6	0	5	5	4	5	24	24	3	5	5	0
Miles of Trail Maintenance	293	288	293	299.8	300	245	244	150	150	281	211	271	328
Acres of Heritage Resource Survey	6,490	22,930	20,046	16,176	22,460	10,444	21,965	6,597	6,211	10,988	10,227	11,591	10,025
# of Waterholes Developed	107	142	220	57	212	99	85	51	101	44	31	44	63*
Acres of Midstory Reduction	3,014	353	1,350	7,715	4,935	2,410	5,965	5,159	5,362	5,035	6,408	3,651	3,734
Acres of Prescribed Fire	128,319	134,386	96,376	43,093	145,354	120,748	120,125	142,817	96,720	101,529	96,165	99,127	76,104
Acres of Lime, Fertilize/Stock Lakes/Ponds	647	670	828.5	970	1,281	558	474	548.5	696	702	593	743	639
# Livestock	1,179	903	715	530	300	154	142	133	116	116	116	116	130
# Active Range Allotments	20	17	16	16	16	6	4	3	3	3	3	3	3
Acres of Watershed Improvement & Maintenance	35	56	73	87	45	41	75	64	118	505	1003	515	304
Cases -Minerals Administration	191	577	860	403	640	894	894	839	N/A	232	235	142	204
MMCF Timber Offered	13.11	17.77	20.02	7.57	19.86	21.52	16.17	20.47	19.88	16.13	18.19	13.34	20.73
MMCF Timber Sold	11.16	14.24	16.68	19.93	20.64	20.18	17.54	18.93	20.05	17.84	15.37	16.93	18.10
Miles of Land Line Location/Maintenance	39.5	77.0	80.0	52.6	65.0	135.4	136.5	114.02	105	99.75	40.00	56.58	62.00
Rights-of-way Cases	2	1	1	0	1	0	2	3	0	6	1	0	3
Miles of Arterial/Collector Roads Reconstructed	33	4	14	15.56	6.44	10.54	1.94	7.96	112.35	37.6	0.99	0.88	1.49
Local Roads Constructed	5	5	5	15.99	4.28	8.54	21.00	3.29	11.13	5.1	2.21	0.72	0.85
Acres of Soil Inventory	50,000	0	9,090	3,240	0	0	26,165	0	24,800	0	0	515	304
Stream Inventory Miles	N/A	N/A	N/A	46	10	10	10	10	46	24	27	25	12.25
Stream Inventory For Leopard Darter Miles	N/A	N/A	N/A	8	8	8	8	7	7	8	8	7	8
# Fish Attractors	45	26	6	16	65	48	73	40	44	16	0	0	0
# Streams Monitored for Offsite Herbicide Movement	11	11	11	6	3	4	0	0	4	3	3	3	3

*Additionally 15 waterholes were rehabilitated in Oklahoma.

Appendix A – Contributors to the FY 2015 M&E Report

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Elaine Sharp, Forest Special-Use Coordinator
Gary Griffin, Forest Bridge Engineer
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Judy Logan, Zone Air Resource Specialist
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Appendix B – Project Decisions Signed in FY 2015

Management Unit	Project Name	Decision Type	Project Purpose
Caddo-Womble	Bonnerdale Burn CE	DM	Vegetation management (other than forest products), Fuels management
Caddo-Womble	Christopher Mountain Restoration Project	DN	Recreation management, Wildlife, Fish, Rare plants, Forest products, Vegetation management (other than forest products), Fuels management, Watershed management, Road management
Caddo-Womble	Erosion Control Project	DM	Recreation management, Watershed management
Caddo-Womble	FY15 Womble Trail Relocation	DM	Recreation management
Caddo-Womble	Lake Resort Special Use	DM	Special use management
Caddo-Womble	McDowell Private Road Special Use Permit	DM	Special use management
Caddo-Womble	Mount Ida Watershed Restoration Management Project	DN	Recreation management, Wildlife, Fish, Rare plants, Forest products, Vegetation management (other than forest products), Fuels management, Watershed management, Road management
Caddo-Womble	Ouachita Outfitter Inc. Special Use Permit	DM	Special Use Management
Caddo-Womble	Singleton Easement	DM	Special Use Management
Cold Springs-Poteau	East Fork Burn Block	DM	Vegetation management (other than forest products), Fuels management
Jessieville-Winona-Fourche	2015 WHI Midstory	DM	Wildlife, Fish, Rare plants, Vegetation management (other than forest products), Fuels management
Jessieville-Winona-Fourche	Arkansas Forestry Commission – Amend Existing Permit	DM	Special use management
Jessieville-Winona-Fourche	Arkansas Game & Fish Permit Renewal for Communication Site	DM	Special use management
Jessieville-Winona-Fourche	Arkansas Traveler 100 Mile Run	DM	Special use management
Jessieville-Winona-Fourche	Brushy Mountain, Compartment 645, Middle North Fork, and Potato Hill Prescribed Burns	DM	Fuels Management
Jessieville-Winona-Fourche	Driveway Authorization – E Crumpton	DM	Special Use Management

Management Unit	Project Name	Decision Type	Project Purpose
Jessieville-Winona-Fourche	Full Moon 25K and 50K Run Event	DM	Recreation management, Special use management
Jessieville-Winona-Fourche	Junior Murders Special Use Reauthorization	DM	Special Use Management
Jessieville-Winona-Fourche	Maumelle River Prescribed Burn	DM	Vegetation management (other than forest products), Fuels management
Jessieville-Winona-Fourche	Porter Creek Prescribed Burning	DM	Fuels Management
Jessieville-Winona-Fourche	Potato Hill Mountain	DN	Recreation management, Heritage resource management, Wildlife, Fish, Rare plants, Forest products, Vegetation management (other than forest products), Fuels management, Watershed management, Road management
Jessieville-Winona-Fourche	West Bear Den, Vanderslice South, and Compartment 612	DM	Forest vegetation improvements, Fuel treatments (non-activity fuels)
Jessieville-Winona-Fourche	Williams Junction VFD Communication Site	DM	Special Use Management
Jessieville-Winona-Fourche	Windstream Permit Amendment	DM	Special Use Management
Mena-Oden	2015 Mena Oden Farm Bill Thinning	DM	Vegetation management (other than forest products)
Mena-Oden	2015 Silviculture Activities	DM	Vegetation management (other than forest products)
Mena-Oden	Big Brushy Campground	DN	Recreation management, Facility management
Mena-Oden	Southern Creek Ouachita River	DN	Wildlife, Fish, Rare plants, Forest products, Vegetation management (other than forest products), Fuels management, Watershed management, Road management
Mena-Oden	Wolf Pen Gap 2011 Project	DN	Recreation management, Watershed management, Road management
Mena-Oden	Nickleson Branch	DN	Wildlife, Fish, Rare plants, Forest products, Vegetation management (other than forest products), Fuels management, Watershed management, Road management
Oklahoma	MCWA White Oak Prescribe Burn	DM	Vegetation management (other than forest products), Fuels management
Oklahoma	Tiak Plantation Thinnings Project (HFRA)	DM	Timber sales (green), Environmental compliance actions, Road maintenance

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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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