

**CFLR Project (Name/Number): Shortleaf Bluestem Community
National Forest(s): Ouachita**

1. Match and Leveraged Funds:

a. FY17 Matching Funds Documentation

Fund Source – (CFLN/CFLR Funds Expended)	Total Funds Expended in Fiscal Year 2017
CFLN17*	\$1,179,160

** Due to delays within the U.S. Fish and Wildlife Service organization, a participating agreement for prescribed burning assistance was not signed and so this agreement was committed but could not be obligated. This was a \$100,000 agreement, so the Ouachita had \$1,279,160 committed out of \$1,304,639, or 98% of the total allocated.*

This amount should match the amount of CFLR/CFLN dollars obligated in the PAS expenditure report. Include prior year CFLN dollars expended in this Fiscal Year.

Fund Source – (Funds expended from Washington Office funds (in addition to CFLR/CFLN) (please include a new row for each BLI))	Total Funds Expended in Fiscal Year 2017
NFTM17*	\$135,972
WFHF17	\$606,193

** Due to late-in-the-FY approval of same-year CF job code to isolate these two allocations from same-year matching funds (CF9M1817 for NFTM; CF9F1817 for WFHF), \$265,284 in NFTM was not able to be adjusted into these codes and was not picked up in gPAS. Total spending of the direct allocations for our CFLRP project was \$401,256 in NFTM17 and \$606,193 in WFHF17.*

This value (aka carryover funds or WO unobligated funds) should reflect the amount expended of the allocated funds as indicated in the program direction, but does not necessarily need to be in the same BLIs or budget fiscal year as indicated in the program direction.

Fund Source – (FS Matching Funds (please include a new row for each BLI))	Total Funds Expended in Fiscal Year 2017
CMRD	\$256,897
CWKV	\$418,446
NFTM	\$336,194
NFVW	\$76,920
NFWF	\$66,907
WFHF	\$526,296

This amount should match the amount of matching funds obligated in the gPAS expenditure report, minus the Washington Office funds listed in the box above and any partner funds contributed through agreements (such as NFEX, SPEX, WFEX, CMEX, and CWFS) listed in the box below.

Fund Source – (Funds contributed through agreements)	Total Funds Expended in Fiscal Year 2017
NA	NA

Please document any partner contributions to implementation and monitoring of the CFLR project through an income funds agreement (this should include partner funds captured through the gPAS job reports such as NFEX, SPEX, WFEX, CMEX, and CWFS). Please list the partner organizations involved in the agreement. Partner contributions for Fish, Wildlife, Watershed work can be found in WIT database.

Fund Source – (Partner In-Kind Contributions)	Total Funds Expended in Fiscal Year 2017
Arkansas State University (Wild Turkey monitoring analysis)	\$19,348
National Wild Turkey Federation (Wild Turkey monitoring)	\$824
Arkansas Game and Fish Commission (Turkey monitoring) – includes some salary for UAM student	\$48,025
Arkansas Forestry Commission (comprehensive plans for landowners in WAWRP/OAWR JCLRP and collaboration)	\$121,752
National Park Service – Buffalo River (helitack support for prescribed burning)	\$5,000
The Nature Conservancy (Vegetation monitoring, tours, collaboration, presentations)	\$12,943
Natural Resources Conservation Service – Arkansas (EQIP in-kind – staff time for this effort)	\$37,000
Natural Resources Conservation Service – Oklahoma (EQIP in-kind)	\$15,000
Oklahoma Forestry Services (Prescribed burning, salvage, Farm Bill nomination)	\$ 1,200
Choctaw Nation (Prescribed burning and prep)	\$600
Oklahoma Department of Wildlife Conservation (Cooperative prescribed burning, RCW work)	\$5,300
Oak Woodlands & Forests Fire Consortium (Collaboration)	\$500
Southern Research Station (Soft mast manuscript preparation)	\$500
University of Arkansas – Monticello (salary, travel, presentations)	\$12,850
TOTAL...	\$280,842

Total partner in-kind contributions for implementation and monitoring of a CFLR project. Please list the partner organizations that provided in-kind contributions.

Service work accomplishment through goods-for services funding within a stewardship contract (for contracts awarded in FY17)	Totals
Total <u>revised non-monetary credit limit</u> for contracts awarded in FY17	\$NA

Revised non-monetary credit limits for contracts awarded prior to FY17 were captured in previous reports. This should be the amount in contract’s “Progress Report for Stewardship Credits, Integrated Resources Contracts or Agreements” in cell J46, the “Revised Non-Monetary Credit Limit,” as of September 30. Additional information on the Progress Reports is available in CFLR Annual Report Instructions document.

b. Please provide a narrative or table describing leveraged funds in your landscape in FY2017 (one page maximum). Leveraged funds refer to funds or in-kind services that help the project achieve proposed objectives but do not meet match qualifications. Examples include but are not limited to: investments within landscape on non-NFS lands, investments in restoration equipment, worker training for implementation and monitoring, research conducted that helps project achieve proposed objectives, and purchase of equipment for wood processing that will use restoration by-products from CFLR projects. See “Instructions” document for additional information.

Description of item	Where activity/item is located or impacted area	Estimated total amount	Forest Service or Partner Funds?	Source of funds
<p>NEPA Planning – Includes inventories for heritage, biological, roads, and inventory (CSE); analysis and documentation; GIS support; support services and fuels</p>	<p>Cold Springs – Poteau Ranger District: Hole in the Ground, Round Mountain, and Farm Bill Thinning</p> <p>Jessieville-Winona-Fourche Ranger District: Dry Fork and Kingston</p> <p>Choctaw-Kiamichi-Tiak Ranger District: Cedar Creek, Sycamore Creek, and Cedar Creek Farm Bill</p>	<p>\$377,700</p>	<p>Forest Service funds</p>	<p>NFTM, NFVW, WFHF</p>
<p>NRCS Oklahoma/Arkansas Woodland Restoration Project (JCLRP)</p>	<p>Shortleaf – Bluestem EQIP funding going to landowners within 10 miles of the CFLRP treatment areas.</p>	<p>\$370,055 (AR) and \$140,179 (OK) for a total of <u>\$510,234</u></p>	<p>Partner Funds</p>	<p>NRCS-AR and NRCS-OK</p>

The Forest completed multiple watershed assessments and decision documents that led to timber sales (including commercial thinning of shortleaf pine), midstory reduction (WSI), pre-commercial thinning or

release (TSI), and prescribed burning to move large landscapes toward a restored shortleaf pine – bluestem grass community. The Forest invested an estimated \$377,700 in these processes.

The NRCS in Arkansas and Oklahoma transmitted substantial amounts to private landowners within or near (10 miles) the CFLRP boundaries on the Forest for practices that are largely geared toward restoration of pine – bluestem stands. This work was made possible through a Joint Chief’s Landscape Restoration Partnership grant for FY 2016-18 called the Oklahoma/Arkansas Woodland Restoration Project (OAWR). During FY 2017, the Arkansas NRCS awarded EQIP funds totaling \$370,055, including practices of tree and shrub site preparation, tree and shrub establishment, fire break establishment, prescribed burning, fencing, forest stand improvement and forest and biomass planting. In Oklahoma, prescribed burning, firebreak construction, tree/shrub site preparation, forest stand improvement and herbaceous weed control practices were funded close in to the CFLRP efforts.

2. Please tell us about the CFLR project’s progress to date in restoring a more fire-adapted ecosystem as described in the project proposal, and how it has contributed to the wildland fire goals in the 10-Year Comprehensive Strategy Implementation Plan.

During fiscal year 2017 we treated 52,290 acres of the landscape within the project area with prescribed fire. Treatments were designed to restore fire-adapted ecosystems through the reintroduction of fire onto the landscape. Prescribed fire treatments designed to reduce fire intensities conform to the National Fire Plan by reducing hazardous fuels. No significant wildfire occurred within the treatment area during this time. As more and more prescribed fire is added to the landscape, we anticipate the occurrence of wildfire within the treated areas to increase but the resistance to control and fire behavior characteristics decrease.

3. What assumptions were used in generating the numbers and/or percentages you plugged into the TREAT tool?

Several questions were asked on the inputs this year to ensure we correctly responded to each entry and that outputs would be as accurate as possible. Some of them include:

- Fleet costs were not included in Force Account totals because only a portion of the dollars spent on fuel and maintenance would have “hit the ground” and this type of durable good will be depreciated over several years. However, all materials, travel and training for the Forest Service personnel that were supported by the project funds were counted in this total. Also, overtime amounts, since they contribute to the extra disposable income for employees, were counted in the total Force Account funding.
- Counties for the Impact Area were updated, including some Oklahoma counties that had some of the CFLRP area with them and also some counties where the business (not personnel) home of the organization was located (ex: Oklahoma County that includes Oklahoma City includes the headquarters for Oklahoma Forestry Services, an important partner with a binding participating agreement).

- The amount spent was assumed to be the correct request when dealing with the “funding” table. In some cases, these are one in the same, but sometimes not when the funding could not be fully spent (ex: delays in getting agreements approved and obligated.)

FY 2017 Jobs Supported/Maintained (FY17 CFLR/CFLN/ WO carryover funding):

FY 2017 Jobs Supported/Maintained	Jobs (Full and Part-Time) (Direct)	Jobs (Full and Part-Time) (Total)	Labor Income (Direct)	Labor Income (Total)
Timber harvesting component	39	53	2,285,364	3,018,446
Forest and watershed restoration component	3	4	48,604	109,554
Mill processing component	50	131	3,449,054	8,352,801
Implementation and monitoring	15	21	936,265	1,174,255
Other Project Activities	0	0	0	0
TOTALS:	106	209	6,719,287	12,655,056

FY 2017 Jobs Supported/Maintained (FY16 CFLR/CFLN/ WO carryover and matching funding):

FY 2017 Jobs Supported/Maintained	Jobs (Full and Part-Time) (Direct)	Jobs (Full and Part-Time) (Total)	Labor Income (Direct)	Labor Income (Total)
Timber harvesting component	99	135	5,824,132	7,692,354
Forest and watershed restoration component	5	7	95,102	195,001
Mill processing component	125	331	8,791,976	21,329,480
Implementation and monitoring	32	42	1,549,459	1,943,317
Other Project Activities	0	0	0	0
TOTALS:	261	514	16,260,670	31,160,153

4. Describe other community benefits achieved and the methods used to gather information about these benefits. How has CFLR and related activities benefitted your community from a social and/or economic standpoint? (Please limit answer to two pages).

Indicator	Brief Description of Impacts, Successes, and Challenges	Links to reports or other published materials (if available)
Project partnership composition	In Oklahoma, the Choctaw – Kiamichi – Tiak Ranger District became aware that the U.S. Fish and Wildlife Service was a willing and able (had a crew available) partner to help with prescribed burning preparation and execution, and started the process of executing an Intra Agency Agreement with the USFWS based out of the Wichita Mountains Wildlife Refuge. Although the agreement stalled within the USFWS in August and September of 2017 and the Forest was unable to fully obligate the agreement, the approved agreement was promptly signed in November of 2017 (early FY 2018), thereby providing needed “boots on the ground” for the Oklahoma unit to get prescribed burning accomplished.	NA
% Locally retained contracts	Over the past year, the Forest along with the Acquisitions Management team worked to reach out to more local contractors before advertising the Timber Sale Preparation MATOC. This paid off with a local contractor from Malvern, Arkansas successfully competing with other firms and being added to the list of multiple awardees for consideration with task orders. In FY 2017, this contractor was awarded several timber sale preparation task orders and has become an excellent performer and very competitive bidder for nearly all advertised task orders. This has made a substantial difference in the leakage from the project area, and has contributed economic activity more locally than with other contractors.	NA

Indicator	Brief Description of Impacts, Successes, and Challenges	Links to reports or other published materials (if available)
Ease of doing business	The Forest, including the CFLRP project, had been plagued by timber sales being advertised but no one bidding on them. The Forest worked actively with timber purchasers and found out that the percentage of pine sawtimber to other products (pine pulpwood + hardwood sawtimber and pulpwood) was too low. They specified a rule of thumb of approximately 60% pine sawtimber to 40% from other products as a level that would roughly meet their needs for reducing the workload of finding brokers or mills to take the other products during the year (the pulpwood market is especially volatile over any year-long period). While no-bid sales continue to occur, the incidence linked solely to the product mix is down and overall there is a trend downward, however slowly.	NA
Duration of jobs	Over the last five years of the CFLRP on the Ouachita, the Forest has employed the Enterprise Group (formerly TEAMS) for timber sale preparation. This was viewed by the Enterprise Group as a critical link to providing more work to their seasonal staff because work in the southern U.S. could provide a winter option they did not have at the time (most work was in the west or northern areas of the U.S.). We have seen the availability of work crews become more and more easy to come by in the last several years, especially the last two or so. We now can get crews in October through April compared to five years ago when the hiring for TEAMS would have people available starting in late April.	NA

(Optional) Additional narrative about leverage on the landscape:

In 2017, according to the TREAT model, approximately 30% of the timber sold off the Ouachita National Forest came off the CFLRP area. This timber from the CFLRP area is valued at over \$1,610,944 on the stump and equates to 64,117 ccf. Sawmills processing that timber hired or steadily employed about 125 employees and had around 99 loggers involved in the cutting of the timber. In FY 2017, all timber sold within the CFLRP areas was bought by purchasers within the impact area. Timber purchases in FY 2017 are shown below:

Location of Purchaser	Volume of Timber Sold (ccf)	Sale Value (\$)	Within CFLRP Impact Area?
Polk County, Arkansas	15,032	\$307,114	Yes
Conway County, Arkansas	5	\$105	Yes
Scott County, Arkansas	32,213	\$1,061,220	Yes
Howard County, Arkansas	125	\$1,442	Yes
McCurtain County, Oklahoma	1,962	\$56,438	Yes
TOTAL	64,117	\$1,614,944	NA

5. Based on your project monitoring plan, **describe the multiparty monitoring process. What parties (who) are involved in monitoring, and how? What is being monitored? Please briefly share key broad monitoring results and how results received to date are informing subsequent management activities (e.g. adaptive management), if at all.** What are the current weaknesses or shortcomings of the monitoring process? (Please limit answer to two pages. Include a link to your monitoring plan if it is available).

Vegetative monitoring with The Nature Conservancy: TNC completed plant community monitoring on 50 permanent micro-plots within the CFLRP area in Arkansas in FY 2016. The results will be summarized in a report that will be submitted to the Forest Service before the end of the 2017 calendar year. In kind contributions totaled \$12,943.

Bird monitoring with USFS Northern Research Station and Central Hardwoods Joint Venture: In 2015, bird monitoring was conducted by the USFS Northern Research Station in collaboration with the Central Hardwoods Joint Venture at 100 point locations. This work involved hiring a graduate research student to supervise the project and two technicians to assist with the surveys. These surveys also boost local economies with lodging and meals, etc. These bird points are located at the vegetation plots established by TNC. This coordination of survey points will allow comparison of flora and fauna changes over time at the same point on the landscape. To date bird point monitoring has occurred in FY13, FY14 and FY15. A report was received in FY2016. No CFLR funding was used in FY 17. There were no in kind contributions in 2017.

After the end of the CFLR funding, the Forest will be responsible for monitoring for another seven years to complete a 15-year monitoring effort as required by the CFLRA. The Ouachita will complete this by continuing with vegetation monitoring in partnership with The Nature Conservancy using a combination of NFMP, NFWW and NFTM funding combined with future grants from several sources. Since the Shortleaf Bluestem Community project had extremely low amounts of monitoring planned, we feel we can achieve high-quality results with the funding sources identified and show significant results, especially with the vegetation monitoring.

6. FY 2017 accomplishments

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost (\$) (Contract Costs)
Acres of forest vegetation established FOR-VEG-EST	Acres	620	\$26,170
Acres of forest vegetation improved FOR-VEG-IMP	Acres	1,051	\$210,224
Manage noxious weeds and invasive plants INVPLT-NXWD-FED-AC	Acre	0	N/A
Highest priority acres treated for invasive terrestrial and aquatic species on NFS lands INVSPE-TERR-FED-AC	Acres	0	N/A

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost (\$) (Contract Costs)
Acres of water or soil resources protected, maintained or improved to achieve desired watershed conditions. S&W-RSRC-IMP	Acres	3,756	0
Acres of lake habitat restored or enhanced HBT-ENH-LAK	Acres	0	N/A
Miles of stream habitat restored or enhanced HBT-ENH-STRM	Miles	0	N/A
Acres of terrestrial habitat restored or enhanced HBT-ENH-TERR	Acres	43,419	\$56,211
Acres of rangeland vegetation improved RG-VEG-IMP	Acres	1,000	0
Miles of high clearance system roads receiving maintenance RD-HC-MAIN	Miles	36	*unable to separate \$ from RD-PC-MAINT
Miles of passenger car system roads receiving maintenance RD-PC-MAINT	Miles	459	\$198,309
Miles of road decommissioned RD-DECOM	Miles	0	N/A
Miles of passenger car system roads improved RD-PC-IMP	Miles	0	N/A
Miles of high clearance system road improved RD-HC-IMP	Miles	0	N/A
Number of stream crossings constructed or reconstructed to provide for aquatic organism passage STRM-CROS-MTG-STD	Number	0	N/A
Miles of system trail maintained to standard TL-MAINT-STD	Miles	0	N/A
Miles of system trail improved to standard TL-IMP-STD	Miles	0	N/A
Miles of property line marked/maintained to standard LND-BL-MRK-MAINT	Miles	0	N/A
Acres of forestlands treated using timber sales TMBR-SALES-TRT-AC	Acres	3,182	0
Volume of Timber Harvested TMBR-VOL-HVST	CCF	110,042	0
Volume of timber sold TMBR-VOL-SLD	CCF	69,378*	\$232,814
Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production BIO-NRG	Green tons	4,212 (sold)	(see TMBR-VOL-SLD)

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost (\$) (Contract Costs)
Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildland fire FP-FUELS-NON-WUI	Acre	9,829	\$26,159
Acres of wildland/urban interface (WUI) high priority hazardous fuels treated to reduce the risk of catastrophic wildland fire FP-FUELS-WUI	Acres	47,293	\$125,866
Number of priority acres treated annually for invasive species on Federal lands SP-INVSP-FED-AC	Acres	0	N/A
Number of priority acres treated annually for native pests on Federal lands SP-NATIVE-FED-AC	Acres	0	N/A
Acres mitigated FP-FUELS-ALL-MIT-NFS (note: this performance measure will not show up in the WO gPAS reports – please use your own records)	Acres	0	(see FUELS-WUI and FUELS-NON-WUI)
Please also include the acres of prescribed fire accomplished (note: this performance measure will not show up in the WO gPAS reports – please use your own records)	Acres	52,290	(see FUELS-WUI and FUELS-NON-WUI)

***Portions of some of the timber sales were not within the CFLRP area (boundary split sale area), but payment units within timber sales cannot be individually tagged to CFLRP within the TIM database. The correct total is 64,117 ccf.**

Units accomplished should match the accomplishments recorded in the Databases of Record.

7. FY 2017 accomplishment narrative – Summarize key accomplishments and evaluate project progress not already described elsewhere in this report. (Please limit answer to three pages.)

The Ouachita continued to surpass annual targets for timber volume awarded as compared to the proposal schedule. Approximately 64,117 ccf was awarded in FY 17 within the CFLRP boundaries. The cumulative total for the first six years (out of eight total) is now at approximately 399,241 ccf, exceeding the eight year total target of 318,305 ccf, or 25.4%. The Ouachita continues to add to this volume over the final two years of the project, however it is expected that the annual volumes awarded will decrease over the next two years due to NEPA decisions rotating outside the CFLRP boundaries.

The Nature Conservancy Vegetation Monitoring:



Jason Garrett, Wildlife Biologist on the Poteau – Cold Springs Ranger District, describes how the flashing helps the red-cockaded woodpecker survive. This was a tour of the shortleaf pine – bluestem grass area on Buffalo Road for Zambian and Columbian land managers, planned and coordinated by The Nature Conservancy in April, 2017.

In 2017 The Nature Conservancy analyzed CFLRP plant community monitoring data that were collected during the summers of 2015 and 2016 (1st repeat of data collection). The results will be summarized in a report that will be submitted to the Forest Service before the end of the 2017 calendar year. The report will compare baseline and current conditions to the desired future conditions of the project area. This report will also incorporate a floristic quality assessment (FQA). This type of analysis was made possible through work that the Forest Service, TNC, and other conservation partners in Arkansas conducted in 2016 and 2017 to assign coefficients of conservatism to the flora of the pine-bluestem ecosystem. The report will also look at the effects of management activities, dating back to 2007, on the composition and structure of the pine-bluestem community. The third repeat of data collection will begin in the summer of 2018.

Preliminary results from data analysis show that in 2015-2016, 19% of the landscape was in the desired open-woodland condition (basal area < 70 ft²/acre). This represents little change since baseline, when 18% of the landscape was in the desired condition. Overall, total species richness, average species richness per plot, and total ground layer cover increased between baseline and repeat 1, which was a desired change. Average floristic quality index (FQI) per plot also increased between years. Average FQI values demonstrated that although plots in pine plantations contained more species on average than the native shortleaf pine cover type, the species in pine plantations tended to be less conservative (more ruderal species) and contained more non-natives. Our results show that management activities (such as prescribed fire and thinning) are having the desired effects in the pine-bluestem community. Plots that had been burned or burned and thinned had higher average species richness per plot, ground layer cover per plot, and FQI per plot, and met the desired ecological condition for the former two plant community properties. Overstory and midstory basal area were also lower in treated plots compared to the untreated plots, which was both expected and desired. Non-native species frequency in the ground layer increased between years, from 5% to 8% overall, with most

of that increase occurring in areas dominated by loblolly pine and in areas where management was more active with prescribed fire and thinning treatments.

Bird Monitoring:

In 2015, bird monitoring was conducted by the USFS Northern Research Station in collaboration with the Central Hardwoods Joint Venture at 100 point locations. The Ouachita National Forest collaborated with the Mark Twain NF (Missouri Pine Oak Woodlands Restoration CFLRP) and Ozark NF (Ozark Highlands Ecosystem Restoration CFLRP) to share techniques for vegetative and bird monitoring. Both Arkansas forests are conducting the same vegetation monitoring protocol with TNC and ANHC, with the Mark Twain NF doing similar vegetation monitoring with the addition of floristic data. These bird points are located at the vegetation plots established by TNC. This coordination of survey points allows comparison of flora and fauna changes over time at the same point on the landscape.

Data was collected at all points every year for 3 years (2013- 2015), with 3 years of no data collection (2016 - 2018), followed by 3 more years of data collection (2019-2021). Central Hardwoods Joint Venture submitted a report as part of a Master thesis in 2016 for the results of the first three years of data. This collaboration allows for comparison of landscape responses on multiple forests within different ecoregions within the shortleaf pine range.

8. The WO will use spatial data provided in the databases of record close to estimate a treatment footprint for your review and verification.

- **If the estimate is consistent and accurate**, please confirm that below and skip this question.
- **If the gPAS spatial information does NOT appear accurate**, describe the total acres treated in the course of the CFLR project below (cumulative footprint acres; not a cumulative total of performance accomplishments). What was the total number of acres treated?

Fiscal Year	Footprint of Acres Treated (without counting an acre of treatment on the land in more than one treatment category)
FY 2017	9,775 acres
Estimated Cumulative Footprint of Acres (2012 through 2017 for SBC on Ouachita)	231,766 acres

If you did not use the EDW estimate, please briefly describe how you arrived at the total number of footprint acres: what approach did you use to calculate the footprint?

In FY 2017, the Ouachita calculated the footprint using local databases of record. Total acres treated in FY 17 for the CFLRP was 51,823 acres. Acres which overlapped treatments from previous years were subtracted from the total. The results showed that the footprint for FY 17 was 9,775 acres.

9. Describe any reasons that the FY 2017 annual report does not reflect your project proposal, previously reported planned accomplishments, or work plan. Did you face any unexpected challenges this year that caused you to change what was outlined in your proposal? (Please limit answer to two pages).

Prescribed burning continues to be a significant challenge. Weather, once again, played an important part in FY 2017’s low acreage burned, but other systematic factors, some new and some old, continue to erode the windows we have for burning as well as the size of the landscapes we are able to burn:

- Voluntary Arkansas smoke management guidelines combined with handbook direction has effectively reduced the operational size of prescribed burn projects on the Forest. Most burns will calculate out to 1,200 to 1,500 acre limitations, substantially reducing numerous burn blocks of up to 5,000 acres. Ouachita units in Oklahoma are unaffected by this challenge.
- Forest Plan Design Criteria AQ004 (page 73 of the Forest Plan) has increasingly become a significant reduction in the burning window since it prohibits burning in any county that has imposed a burn ban. Counties have a trend over the last decade of imposing a burn bans more often and sooner to reduce the impact on fire fighters at all levels (local, state and federal).
- Personnel and helicopter availability also continue to play a role in daily limitations that are faced by district prescribed burning teams. A new agreement with the USFWS in Oklahoma may bring some improvement to these limitations in terms of personnel, but helicopter availability is likely to be a steady limit.
- One improvement that should reduce delays and possibly add additional opportunities for getting prescribed burning implemented is a change to a Forest Service Supplement that had an additional Forest-level variance for humidity values from 25-29%. This language has been taken out so now a variance at the Regional Forester level is needed for humidity values below 25%, but no variance is needed for the 25-29% values from the Forest Supervisor.

10. Planned FY 2019 Accomplishments

Performance Measure Code	Unit of measure	Work Plan 2019	Planned Accomplishment For 2019	Amount (\$)
Acres of forest vegetation established FOR-VEG-EST	Acres	NA	320	\$60,000
Manage noxious weeds and invasive plants INVPLT-NXWD-FED-AC	Acre	NA	34	\$8,200
Miles of stream habitat restored or enhanced HBT-ENH-STRM	Miles	NA	1	\$55,000
Acres of terrestrial habitat restored or enhanced HBT-ENH-TERR	Acres	NA	99,000	\$1,382,800

Performance Measure Code	Unit of measure	Work Plan 2019	Planned Accomplishment For 2019	Amount (\$)
Miles of road decommissioned RD-DECOM	Miles	NA	2	\$6,000
Miles of passenger car system roads improved RD-PC-IMP	Miles	NA	3	\$180,000
Miles of high clearance system road improved RD-HC-IMP	Miles	NA	18	\$900,000
Volume of timber sold TMBR-VOL-SLD	CCF	NA	32,000*	\$1,305,000
Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production BIO-NRG	Green tons	NA	5,000	(see TMBR-VOL-SLD)
Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildland fire FP-FUELS-NON-WUI	Acre	NA	35,000	\$980,000
Acres of wildland/urban interface (WUI) high priority hazardous fuels treated to reduce the risk of catastrophic wildland fire FP-FUELS-WUI	Acres	NA	65,000	\$1,820,000

**This is a lower volume than in the proposal. Due to the watershed assessment schedules on the districts, more timber sales will be outside the CFLRP area during this time period. The lifetime timber sale volume target has already been exceeded by some 20% as of the end of 2017, however increased administration costs due to the use of Designation by Prescription and weight-scaled sales in general will increase this cost during this time period, so the amount (\$) remains as planned in the proposal.*

Please include all relevant planned accomplishments, assuming that funding specified in the CFLRP project proposal for FY 2019 is available. Use actual planned funding if quantity is less than specified in CFLRP project work plan.

11. Planned accomplishment narrative and justification if planned FY 2018/19 accomplishments and/or funding differs from CFLRP project work plan (no more than 1 page):

12. Please include an up to date list of the members of your collaborative if it has changed from previous years. If the information is available online, you can simply include the hyperlink here. If you have engaged new collaborative members this year, please provide a brief description of their engagement.

The collaborative has grown, become broader-based and multi-pronged. The Ozark Ouachita Highlands Collaborative, as it now named, is a broad umbrella collaborative that is gaining momentum and independence and establishing itself as a known center for facilitating information flow and assistance. The

collaborative focuses on oak woodland restoration as well as shortleaf-bluestem and other restoration opportunities. Many members are active in more than one collaborative effort. Most of the collaborative work is accomplished jointly with our sister Forests, the Ozark-St. Francis National Forests. Members of one or more collaboratives are listed below (heads of organizations or the primary organizational contact are listed when there are multiple members from the same unit). All members participate in various projects and are invited to attend workshops/meetings.

- [AES Shady Point, LLC – Lundy Kiger](http://aes.com/), <http://aes.com/>
- [American Bird Conservancy- Mike Pae, President](https://abcbirds.org/), <https://abcbirds.org/>
- [Arkansas Chapter of the American Fisheries Society – Jeff Quinn, President](http://sdafs.org/arkafs/Home.html), <http://sdafs.org/arkafs/Home.html>
- [Arkansas Chapter of the Wildlife Society – Blake Sasse, President](http://drupal.wildlife.org/arkansas/), <http://drupal.wildlife.org/arkansas/>
- [Arkansas Forestry Association- President – David Cawein, Green Bay Packaging](http://www.arkforests.org/), <http://www.arkforests.org/>
- [Arkansas Forestry Commission-Joe Fox, State Forester](http://forestry.arkansas.gov/Pages/default.aspx), <http://forestry.arkansas.gov/Pages/default.aspx>
- [Arkansas Game and Fish Commission-Jeff Crow, Director](http://www.agfc.com/), <http://www.agfc.com/>
- [Arkansas Natural Heritage Commission -Darrel Bowman, Director](http://www.naturalheritage.com/), <http://www.naturalheritage.com/>
- [Arkansas State University - Tom Risch, Chair, Department of Biological Science](http://www.astate.edu/), <http://www.astate.edu/>
- [Arkansas Tech University – Chris Kellner, Professor of Wildlife Science](http://www.atu.edu/), <http://www.atu.edu/>



The Ouachita National Forest hosted a tour on Buffalo Road that was sponsored and coordinated by The Nature Conservancy for officials from the State of Tennessee. Tennessee is trying to reintroduce conditions into their forests, including fire, to regenerate native shortleaf pine.

- [Arkansas Wildlife Federation – Ellen McNulty, President](http://www.arkwildlifefederation.org/), <http://www.arkwildlifefederation.org/>
- [Audubon Arkansas – Brett Kincaid, VP and Executive Director](http://ar.audubon.org/), <http://ar.audubon.org/>
- [Bureau of Land Management](http://www.blm.gov/wo/st/en.html), <http://www.blm.gov/wo/st/en.html>
- [Caddo Nation of Oklahoma](http://www.caddonation-nsn.gov/), <http://www.caddonation-nsn.gov/>
- [Central Arkansas Water –Raven Lawson, Watershed Protection Manager](http://www.carkw.com/contact-us/), <http://www.carkw.com/contact-us/>
- [Central Hardwoods Joint Venture – Jane Fitzgerald, Coordinator](http://chjv.org/), <http://chjv.org/>
- [Cherokee Nation](http://www.cherokee.org/), <http://www.cherokee.org/>
- [Choctaw Nation](http://www.choctawnation.com/), <http://www.choctawnation.com/>
- [Department of Arkansas Heritage, Stacy Hurst](http://arkansasheritage.org/), <http://arkansasheritage.org/>
- [Gulf Coastal Plains & Ozarks Landscape Conservation Cooperative - D. Todd Jones-Farrand, Science Coordinator](http://gcpolcc.org/), <http://gcpolcc.org/>
- [Lower Mississippi Valley Joint Venture, Keith McKnight, Coordinator](http://www.lmvjv.org/), <http://www.lmvjv.org/>
- [Monarch Joint Venture - Priya Shahani, Program Coordinator](http://www.monarchjointventure.org/), <http://www.monarchjointventure.org/>
- [Monarch Watch – Orelly “Chip” Taylor, Director](http://www.monarchwatch.org/), <http://www.monarchwatch.org/>
- [National Bobwhite Conservation Initiative, Tom Dailey, Assistant Director/Science Coordinator](https://www.quailcount.org/contact.html), <https://www.quailcount.org/contact.html>
- [National Park Service- Kevin Cheri, Superintendent](http://www.nps.gov/buff/index.htm), <http://www.nps.gov/buff/index.htm>
- [National Wild Turkey Federation-Jeremy Everitts, Regional Biologist](http://www.nwtf.org/), <http://www.nwtf.org/>
- [Native Expeditions – Robin Gregory, Director](http://www.nativeexpeditions.org/), <http://www.nativeexpeditions.org/>
- [Natural Resources Conservation Service - Arkansas, George Rheinhardt, NRCS State Forester](https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/), <https://www.nrcs.usda.gov/wps/portal/nrcs/site/national/home/>
- Natural Resources Conservation Service - Oklahoma, Steven Glasgow, State Conservationist.
- [Oklahoma Biological Survey – Caryn Vaughn, Director](http://www.biosurvey.ou.edu/), <http://www.biosurvey.ou.edu/>
- [Oklahoma Department of Wildlife Conservation – Joe Hemphill, SE Region Wildlife Supervisor](http://wildlifedepartment.com/), <http://wildlifedepartment.com/>
- [Oklahoma Forestry Services – George Geissler, State Forester](http://www.forestry.ok.gov/), <http://www.forestry.ok.gov/>
- [Oklahoma State University – Ronald Van Den Sussche, Associate Dean of Research](http://www.research.okstate.edu/), <http://www.research.okstate.edu/>
- [Ozark Chinguapin Foundation, Stephen Bost, President](http://ozarkchinquapin.com/), <http://ozarkchinquapin.com/>
- [Quail and Upland Wildlife Federation – Nick Prough](http://www.quwf.net/), <http://www.quwf.net/>
- [Scott County - James Forbes, County Judge](http://scottcountyar.com/), <http://scottcountyar.com/>
- [Shortleaf Pine Initiative – Mike Black](http://shortleafpine.org/), <http://shortleafpine.org/>
- [Steve Osborne – Individual](mailto:jsteveosborne@gmail.com), jsteveosborne@gmail.com
- [Tall Timber Research, Inc. – William Palmer, Director of Research](http://talltimbers.org/), <http://talltimbers.org/>
- [The Nature Conservancy AR – Scott Simon, State Director](http://www.nature.org/), <http://www.nature.org/>
- [The Nature Conservancy OK – Mike Fuhr, State Director](http://www.nature.org/), <http://www.nature.org/>
- [West Fraser Lumber Company – Mark Travis](http://www.westfraser.com/company/locations/mansfield-sawmill), <http://www.westfraser.com/company/locations/mansfield-sawmill>
- [US Fish and Wildlife Service-Melvin Tobin, Field Supervisor](http://www.fws.gov/arkansas-es/), <http://www.fws.gov/arkansas-es/>
- [US Forest Service Ouachita National Forest-Norman Wagoner, Forest Supervisor](http://fsweb.ouachita.r8.fs.fed.us/), <http://fsweb.ouachita.r8.fs.fed.us/>
- [US Forest Service Ozark/St. Francis National Forest-Cherie Hamilton, Forest Supervisor](http://www.fs.usda.gov/osfnf), <http://www.fs.usda.gov/osfnf>

- [US Forest Service Northern Research Station – Frank Thompson, Research Wildlife Biologist](http://www.nrs.fs.fed.us/), <http://www.nrs.fs.fed.us/>
- [US Forest Service Southern Research Station – Jim Guldin, Project Leader](https://www.srs.fs.usda.gov/), <https://www.srs.fs.usda.gov/>
- [US Geological Survey- Scott Gain, Deputy Director](http://ar.water.usgs.gov/), <http://ar.water.usgs.gov/>
- [University of Arkansas, Fayetteville – James Rankin, Vice Provost for Research & Economic Development](http://provost.uark.edu/staff/james-rankin.php), <http://provost.uark.edu/staff/james-rankin.php>
- [University of Arkansas, Cooperative Extension Service, Tamara Walkingstick](http://uaex.edu/), <http://uaex.edu/>
- [University of Arkansas, Monticello – Mohammad Bataineh, Ass Prof, School of Forest Resources](http://www.uamont.edu/), <http://www.uamont.edu/>
- [University of Missouri, Dept. of Forestry, Michael C. Stambaughm, Asst. Research Professor](https://snr.missouri.edu/), <https://snr.missouri.edu/>

13. **Did you project try any new approaches to increasing partner match funding in FY2017** (both In-Kind contributions and through agreements)? (No more than one page):

The Ozark Ouachita Highlands Collaborative is becoming more formalized. The Nature Conservancy has been sponsoring annual meetings in cooperation with the Arkansas Game and Fish Commission and the National Wild Turkey Federation, and we hope that both in-kind contributions as well as additional agreements will help bolster the partner match for the CFLRP.

The Ouachita and the Ozark – St. Francis National Forests continue to work with the Arkansas and Oklahoma NRCS to obtain additional grants through the Joint Chiefs' Landscape Restoration Partnership. This year, coordination between the Forest Service and NRCS did not allow for a joint proposal to go forward from Arkansas and Oklahoma, but over the past four years the NRCS has become a major player for partnership efforts and in-kind contributions have escalated over that time span.

The Ouachita hopes to enter into a Master and Supplemental Project Agreement with the Arkansas Forestry Commission under the Good Neighbor Authority and this work may translate to a project within the CFLRP boundaries in either FY 2018 or 2019.

14. **Media recap.** Please share with us any hyperlinks to videos, newspaper articles, press releases, scholarly works, and photos of your project in the media that you have available. You are welcome to include links or to copy/paste.

[A tour given to members of the Oak Woodlands and Forest Fire Consortium in FY 2016 was publicized by that group in their newsletter that came out in July-2017](#)

A poster was presented at the AFE Fire Ecology and Management Congress in Florida recently that summarized some findings and conclusions by TNC and Ouachita National Forest Botanists in the **Shortleaf Bluestem Community** project area. It is displayed on the last page of this report.

A draft thesis prepared by Melissa C. Roach was shared with the Forest. Dr. Frank R. Thompson III, Thesis Supervisor from the University of Missouri at Columbia, said the thesis is in process, but the abstract is below for information:

Breeding Bird Response to Pine – Savannah and Woodland Restoration in the Ozark – Ouachita Interior Highlands:

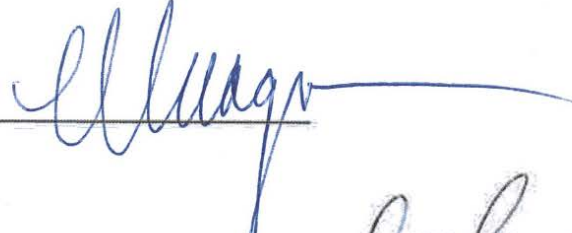
*Savanna and woodland communities have experienced drastic losses in the Midwest within the past century and many early-successional bird species have also experienced sharp population declines as well. Pine-savanna and woodland restoration efforts have increased in the region within recent years, and understanding breeding bird response to this restoration is critical for management strategies to be effective. Most focus in the Midwestern states has been on oak-dominated communities, not pine; therefore, its effect on the breeding bird community is comparatively unknown. Our objectives were to 1) determine species density in relation to management type, frequency, and extent as well as the resulting vegetation from management activities and 2) estimate reproductive success for six species with varying natural histories in relation to temporal, vegetation, and management variables in restored savanna and woodland in Missouri. We conducted point count surveys for 19 species across the gradient of savanna, woodland, and forest in restored and non-restored areas throughout the Ozark-Ouachita Highlands in parts of Missouri, Arkansas, and Oklahoma during the 2013-2015 breeding seasons. We estimated densities using distance sampling to account for detection probability and determined relationships with management and vegetation covariates by evaluating support for a priori models. In general, densities of early-successional and generalist species were positively related, and interior-forest species negatively related to restoration. Many species had higher densities in areas with less canopy cover, tree density, and forest cover. Densities of Brown-headed Nuthatch (*Sitta pusilla*), Eastern Towhee (*Pipilo erythrophthalmus*), Eastern Wood-Pewee (*Contopus virens*), Pine Warbler (*Setophaga pinus*), Prairie Warbler (*Setophaga discolor*), Red-headed Woodpecker (*Melanerpes erythrocephalus*), White-eyed Vireo (*Vireo griseus*), and Yellow-breasted Chat (*Icteria virens*) were positively related to prescribed fire activity. Blue-winged Warbler (*Vermivora cyanoptera*), Kentucky Warbler (*Geothlypis formosa*), and Yellow-breasted Chat densities were positively related to tree thinning. Acadian Flycatcher (*Empidonax virens*), Wood Thrush (*Hylocichla mustelina*), and Worm-eating Warbler (*Helmitheros vermivorum*) were negatively related to restoration treatments and preferred areas with higher tree density and canopy cover. Black-and-white Warbler (*Mniotilta varia*), Ovenbird (*Seiurus aurocapilla*), and Summer Tanager (*Piranga rubra*) showed inconclusive, mixed, or weak results. Restored sites provided breeding habitat for disturbance-dependent species and woodland generalists, some of which are species of conservation concern.*

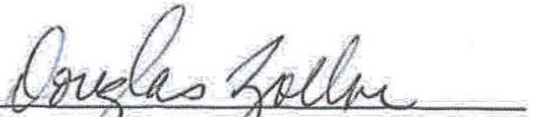
Eastern Towhee daily nest survival rate (DSR) was not related to any temporal, vegetation, or management covariate. Prairie Warbler DSR was related only to nest stage and day of year. Yellow-breasted Chat DSR was positively related to thinning events. Eastern Wood-Pewee and Summer Tanager DSR was negatively related to mean canopy cover. Pine Warbler DSR was positively related to sapling density. Combining species into two guilds based on nest height strategies showed that shrub nesters experienced greater DSR in areas that had been thinned while canopy nesters had greatest DSR in areas with less basal area and less canopy cover, a result of thinning activities.

We suggest that positive relationships in abundance and nesting success for most species directly and indirectly with management activities shows that pine-savanna and woodland restoration in Missouri is providing quality breeding habitat for both early-successional species and woodland generalists.

Signatures:

Recommended by (Project Coordinator(s)): 

Approved by (Forest Supervisor(s)): 

(OPTIONAL) Reviewed by (collaborative chair or representative): 
The Nature Conservancy



WOODLAND RESTORATION IN THE OUACHITA NATIONAL FOREST OF ARKANSAS

G.L. DE JONG[‡], V.L. MCDANIEL[^], S.L. HOOKS[†], and J.L. WALKER[^]



[‡]The Nature Conservancy of Arkansas, [^]Southern Research Station, [†]Ouachita National Forest

INTRODUCTION

Historically, open woodlands were common in the Ouachita Mountains of Arkansas and Oklahoma, where closed canopy forest prevails today. To return forests to this open condition, the Ouachita National Forest uses midstory and some overstory reduction and prescribed burning to reduce stem density of woody species and increase diversity of herbaceous plants and associated fauna. In 2012, the support of a nationally funded project called the Collaborative Forest Landscape Restoration Project (CFLRP) furthered this work. The goal of the CFLRP is to encourage collaborative, science-based ecosystem restoration on priority forest landscapes.



Figure 1: The Ouachita Mountains.

METHODS

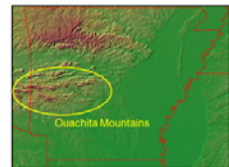


Figure 2: The Ouachita Mountains of Arkansas and Oklahoma.

Between 2012 and 2013, TNC and the Forest Service established one-hundred 10-meter radius plots in the shortleaf pine-bluestem community that was targeted for restoration (50 plots/year). All trees >2 cm DBH were measured to the nearest half centimeter and the species were recorded. Shrub species were counted in two 3.6 m nested plots and assigned a total cover class (0, 1-25, >25-50, >50-75, >75-95, >95-100%). Ground layer plants (herbs + woody stems < 1 m tall) were identified to species in four 1-m² quadrats

and assigned a cover class value (0-1, >1-5, 5-25, >25-50, >50-75, >75-95, >95-100%). In 2015 and 2016 all plots were re-measured (repeat 1). Ranger District personnel provided the management activities that occurred in the plots between 2007 and 2016 (e.g., prescribed fire, commercial thin, seed tree, etc.). Data were analyzed to determine changes in basal area, tree stem density, species cover and richness, native species richness, and FQI (Floristic Quality Index).

In 2016, Coefficients of Conservatism (CC-values) were developed for the flora of the pine-woodland community of the Ouachita mountains. CC-values have been used in a floristic ranking system (Swink and Wilhelm, 1979) to assess the floristic quality of natural areas. Species within a geographical area are assigned a rank (0-10) that reflects their level of conservatism relative to other species in the region (0 being non-native, 1 being native and highly tolerant of unnatural conditions, 10 being the least tolerant of unnatural disturbances). Average CC-value and Floristic Quality Assessment (FQA) provide another measure, beyond species richness, of plant community integrity. Rothrock and Homoya (2005) found that sites of natural quality had avg. CC values > 3.5 and avg. FQI >35.



Figure 3: Low intensity Rx-fires were one of the tools used to restore pine woodlands to the desired ecological condition.

RESULTS

Overall, basal area and stem density changed little between years, while total species richness, average ground layer species richness per plot, ground layer cover, and average FQI per plot increased. Changes in vegetation attributes were dependent on management history (excluding 7 riparian plots for analysis) and varied by covertype (Table 1).



Figure 4: Typical restored pine woodland in the Ouachita National Forest.

Table 1. Comparison of vegetation data between years and by covertype.

	All plots		Shortleaf pine (70 plots)		Pine plantation (30 plots)	
	baseline	repeat 1	baseline	repeat 1	baseline	repeat 1
Total number of species (spp.)	247	278	209	239	159	167
Avg. # of herbaceous spp./plot	9	12	8	11	13	16
Avg. # of ground layer spp./plot	15	20	14	19	19	22
NNS frequency (% nested plots)	5%	8%	4%	5%	8%	15%
Avg. C-value/plot (std. dev.)	4.9 (0.6)	4.7 (0.7)	4.9 (0.7)	4.9 (0.6)	4.8 (0.6)	4.5 (0.9)
Avg. FQI/plot (std. dev.)	18.5 (5.4)	20.6 (5.8)	17.7 (5.4)	20.8 (5.2)	20.2 (5.1)	20.1 (7.1)
Avg. overstory live BA/acre	83	81	73	77	106	91
Avg. midstory live BA/acre	24	23	28	28	13	9
Avg. shrub layer stems/acre	733	1190	816	1426	540	641

*overstory: dbh ≥ 20.5 cm, midstory: 2 cm ≤ dbh < 20.5 cm, shrub: > 1 m tall and dbh < 2 cm, ground: herbs + woody stems < 1 m tall

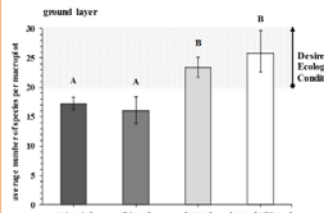


Figure 5 (left): Average ground layer species richness was significantly higher in plots that were burned (N=31) or burned and thinned (N=8), compared to untreated (N=45) and thinned plots (N=9) (GLM, negative binomial distribution, F = 5.53, p = 0.0016). Only the burned and burned + thinned plots had a predicted average ground layer species richness in the desired ecological condition. Thick bars are LS-means and error bars are standard errors from the model.

Figure 6A

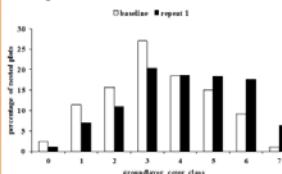


Figure 6B

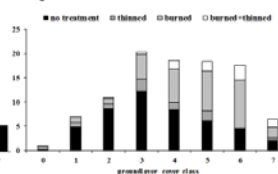


Figure 6: (A) Changes between years in the distribution of cover classes in nested ground layer plots. (B) The distribution of total cover classes in the ground layer by treatment type (in repeat 1).

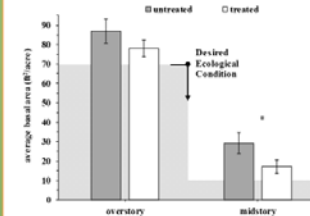


Figure 7: Differences in overstory and midstory tree basal area (ft²/acre) between treated plots (thinned, burned, and burned + thinned, N = 48) and untreated plots (N = 45) in repeat 1. Treated plots were closer to the desired ecological condition, and midstory basal area was significantly lower in treated than in untreated plots (*ANOVA, F = 4.66, p = 0.0336).



Figure 8: Jennifer Benefield (Forest Service) measuring tree DBH.

CONCLUSIONS

Where implemented, prescribed fire and thinning treatments have had the desired effects on the pine-bluestem ecosystem, bringing it closer to the desired, open-woodland condition. Overall, total species diversity, average ground layer species per plot, and average FQI per plot increased between years. Only plots that had been burned or burned + thinned had a predicted number of ground layer species per plot in the desired condition. These same plots tended to have higher total ground layer cover class values than plots that received no treatments or had only been thinned. Overall, there were more plots with high cover values (5-7) by repeat 1, compared to baseline, which was a desired change. If prescribed fire and mechanical thinning operations continue and are expanded, we would expect the vegetation trends to continue in the current desired trajectory and these changes could be even more evident than they are currently across the landscape.

FQA was a valuable analysis tool for detecting changes in species composition and in understanding variation between covertypes. The pine plantations (loblolly pine overstory) had higher ground layer and herbaceous layer species richness per plot than the native shortleaf pine covertype, an unexpected result that may have been difficult to understand in the absence of the FQA analysis. The average FQI values demonstrated that despite having more species, on average, pine plantations tended to have less conservative species than the areas with native shortleaf pine overstory. We recommend that, whenever feasible, FQA be used in conjunction with other measures of floristic quality and vegetation structure to monitor progress towards desired restoration outcomes.

REFERENCES

Rothrock, P.E. and Homoya, M.A. 2005. An evaluation of Indiana's floristic quality assessment. Proceedings of the Indiana Academy of Sciences 114 (1):9-18.
Swink, F. and Wilhelm, G. 1979. Plants of the Chicago Region. 4th edition. Morton Arboretum, Lisle, Illinois. 922p.



Figure 9: Sunflowers (*Helianthus hirsutus*) and pale purple coneflowers (*Echinacea pallida*) thrive in the open canopy.

ACKNOWLEDGMENTS

We thank the many Ouachita National Forest and TNC employees who assisted with the monitoring for this project as well as timber and fire management staff that made this restoration work possible.