CFLRP Project Name (CFLR#): Shortleaf – Bluestem Community
National Forest(s): Ouachita

1. Executive Summary

The Plant Community Monitoring Report - 2nd Re-measure of the Ouachita National Forest Collaborative Forest Landscape Restoration Project (CFLRP) by Gabriel De Jong and Douglas Zollner of the Nature Conservancy was completed this year. The report indicates that thinning combined with burning produced the best results over a 7-year period. Overall, many of the desired conditions were achieved, with many effects detected at a landscape scale; however, much of the pine bluestem community remains in an undesired condition, presumably because prescribed fire has not been implemented at effective frequencies and scale. As timber sales are completed in the area, prescribed burning has and will be increasing in size, moving the ecosystem closer to the desired condition.

The endangered red cockaded woodpecker has been a central component of this project. Nesting attempts, which is used as an indicator of population size, increased early on then leveled off for a long time. In these last few years, nesting attempts are beginning to increase, presumably due to improved habitat. The shortleaf bluestem habitat has been a boom for brownheaded nuthatch populations. An additional 22 brownheaded nuthatches were moved from the CFLRP area to the population on the Mark Twain National Forest in Missouri.

Prescribed burning acres continues to trend upwards. The number of wildfires remains a factor of weather and public idiosyncrasies however the size of wildfires appears to be decreasing. Timber sales continue to reduce stand density. The timber industry continues with mill improvements indicating their confidence in a steady supply of timber from the forest.

Fig. 1. Desired Condition - Vegetation Monitoring Plot.   Photo by Mary Mentz, 2022.

2. Funding

CFLRP and Forest Service Match Expenditures

Fund Source: CFLN and/or CFIX Funds Expended 0809*	Total Funds Expended in Fiscal Year 2022
CFLN21	$55,554.92
CFLN22	$972,069.93
TOTAL	$1,027,624.65

This amount should match the amount of CFLN/CFIX dollars spent in the FMMI CFLRP expenditure report. Include prior year CFLN dollars expended in this Fiscal Year. CFLN funds can only be spent on NFS lands. *These are funds spent on the forest not including salary

Fund Source: Forest Service Salary and Expense Match Expended 0820	Total Funds Expended in Fiscal Year 2022
NSCF21	$49,986.71
NSCF22	$649,468.87
WSCF21	$14,592.97
WSCF22	$349,172.35
TOTAL	$1,063,220.90

This amount should match the amount of matching funds in the FMMI CFLRP expenditure report for Salary and Expenses. Staff time spent on CFLRP proposal implementation and monitoring may be counted as CFLRP match – see Program Funding Guidance.

The 0820 Salary and Awards - Payroll Summary with just the people from NSCF and WSCF 0820 who charged salary to CFLN18 = $1,063,220.90. The Forest Service CFLR Initiative Summary Report total was $1,116,431.

Fund Source: Forest Service Discretionary Matching Funds 0809**	Total Funds Expended in Fiscal Year 2022
CFRD	$161,570.24
CFHF	$32,556.96
E7N14722	$21,608.00
CFKV	$157,353.00
TOTAL	$373,088.20

This amount should match the amount of matching funds in the FMMI CFLRP expenditure report, minus any partner funds contributed through agreements (such as NFEX, SPEX, WFEX, CMEX, and CWFS) which should be reported in the partner contribution table below. Per the Program Funding Guidance, federal dollars spent on non-NFS lands may be included as match if aligned with CFLRP proposal implementation. **These are funds spent on the forest not including salary.

Partner Match Contributions[1]

Fund Source: Partner Match	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY22	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
USFWS Oklahoma Ecological Services Field Office	In-kind contribution	$750	Monitoring of RCW active clusters both on the Ouachita National Forest and McCurtain County Wilderness Area	National Forest System Lands and Other lands within CFLRP landscape: McCurtain County Wilderness Area (State of Oklahoma)
The Nature Conservancy (based out of Little Rock, AR)	In-kind contribution and Funding Budget Line Item, if relevant.	$120,000	Salary involved with TNC data collection, analysis, and report on the 2nd Re-Measure of the CFLRP Plant community. Two professional video productions - One on the CFLRP project, the second on the Restoration Overview. Included current and retired Forest Service and TNC individuals.	National Forest System Lands
National Wild Turkey Federation	In-kind contribution	$500	Salary involved in coordination of wildlife stand improvements and thinnings.	National Forest System Lands
Arkansas Game and Fish Commission	In-kind contribution	$24,755.11	Total of 1,096 hrs. Mulching brush, and liming, fertilizing, seeding permanent food plots, assisting with burns. Bear work, pig (hog) work, assisting with prescribed burns.	National Forest System Lands

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[1] Addresses Core Monitoring Question #13

Fund Source: Partner Match	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY22	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
Natural Resource Conservation Service - Arkansas	In-kind contribution	Polk & Scott Counties $127,310 Financial Assistance, $10,105 Technical Assistance	Financial assistance dollars pay landowners to implement forestry practices on private land. Practices included: tree/shrub site preparation and planting, prescribed burning, fire breaks, riparian forest buffers, and forest stand improvements. Technical assistance $ pay our people and/or partners like the Division of Forestry to give the necessary technical information to landowners to implement the practices.	National Forest System Lands and Other lands within CFLRP landscape:
McCurtain County Wilderness Area – ODWC (Oklahoma Department of Wildlife Conservation)	In-kind contribution	$95,000	Funds include salaries for MCWA Personnel, area maintenance, RCW habitat management (nestling/fledging checks, banding, midstory management), fire preparations, COOP operations (controlled burns).	National Forest System Lands
USDI – Bureau of Land Management	In-kind contribution	$75,000	Prescribed Burn Support	National Forest System Lands
Missouri Department of Conservation	In-kind contribution	$228	Salary involved in coordination of Brownheaded nuthatch translocation from the CFLRP project Area to Missouri	National Forest System Lands
TOTALS	Total In-Kind Contributions: $453,648. 11 Total Funding: $0			

Total partner in-kind contributions for implementation and monitoring of a CFLR project across all lands within the CFLRP landscape.

Goods for Services Match

Service work accomplishment through goods-for services funding within a stewardship contract (for contracts awarded in FY22).

Total revised non-monetary credit limit for contracts awarded in FY22: $0

Revenue generated through Good Neighbor Agreements: $0

"Revised non-monetary credit limit" should be the amount in the "Progress Report for Stewardship Credits, Integrated Resources Contracts or Agreements" as of September 30. Additional information on the Progress Reports available in CFLR Annual Report Instructions. "Revenue generated from GNA" should only be reported for CFLRP match if the funds are intended to be spent within the CFLRP project area for work in line with the CFLRP proposal and work plan.

3. Activities on the Ground

FY 2022 Agency Performance Measure Accomplishments[2] - Units accomplished should match the accomplishments recorded in the Databases of Record. Please note any discrepancies.

Core Restoration Treatments	Agency Performance Measure	NFS Acres	Non-NFS Acres	Total Acres
Hazardous Fuels Reduction (acres) in the Wildland Urban Interface	FP-FUELS-WUI (reported in gPAS)[3]	43,740	0	43,740
Hazardous Fuels Reduction (acres) in the Wildland Urban Interface – COMPLETED	FP-FUELS-WUI-CMPLT (reported in gPAS)[4]	44,237	0	43,470
Hazardous Fuels Reduction (acres) outside the Wildland Urban Interface	FP-FUELS-NON-WUI (reported in gPAS)[3]	28,181	0	28,098
Hazardous Fuels Reduction (acres) outside the Wildland Urban Interface - COMPLETED	FP-FUELS-NON-WUI-CMPLT (reported in gPAS)[4]	28,098	0	28,098

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[2] This question helps track progress towards the CFLRP projects lifetime goals outlined in your CFLRP Proposal & Work Plan. Adapt table as needed.

[3] For service contracts, the date accomplished is the date of contract award. For Force Account, the date accomplished is the date the work is completed

[4] New Agency measure reported in FACTS when completed

Core Restoration Treatments	Agency Performance Measure	NFS Acres	Non-NFS Acres	Total Acres
Prescribed Fire (acres)	Activity component of FP-FUELS-ALL (reported in GI)	70,053*	0	70,053*
Wildfire Risk Mitigation Outcomes - Acres treated to mitigate wildfire risk	FP-FUELS-ALL-MIT-NFS (reported in FACTS)	0	0	0
Invasive Species Treatments (acres) - Noxious weeds and invasive plants	INVPLT-NXWD-FED-AC (reported in FACTS)[3]	0	0	0
Invasive Species Treatments (acres) - Noxious weeds and invasive plants - COMPLETED	INVPLT-NXWD-FED-AC-CMPLT (reported in FACTS)[4]	0	0	0
Invasive Species Treatments (acres) - Terrestrial and aquatic species	INVSPE-TERR-FED-AC (reported in FACTS)[3]	0	0	0
Invasive Species Treatments (acres) - Terrestrial and aquatic species - COMPLETED	INVSPE-TERR-FED-AC- CMPLT (reported in FACTS)[4]	0	0	0
Road Decommissioning (Unauthorized Road) (miles)	RD-DECOM-NON-SYS (Roads reporting)	0	0	0
Road Decommissioning (National Forest System Road) (miles)	RD-DECOM-SYS (Roads reporting)	0	0	0
Road Improvement (High Clearance) (miles)	RD-HC-IMP-MI (Roads reporting)	5.35 (0 reported in gPAS)	0	5.35

[3] For service contracts, the date accomplished is the date of contract award. For Force Account, the date accomplished is the date the work is completed

[4] New Agency measure reported in FACTS when completed

*GI data from ArcGIS – includes site prep burning.

Core Restoration Treatments	Agency Performance Measure	NFS Acres	Non-NFS Acres	Total Acres
Road Improvement (Passenger Car System) (miles)	RD-PC-IMP-MI (Roads reporting)	2.45 (0 reported in gPAS)	0	2.45
Road Maintenance (High Clearance) (miles)	RD-HC-MAINT-MI (Roads reporting)	0	0	0
Road Maintenance (Passenger Car System) (miles)	RD-PC-MAINT-MI (Roads reporting)	0	0	0
Trail Improvement (miles)	TL-IMP-STD (Trails reporting)	0	0	0
Trail Maintenance (miles)	TL-MAINT-STD (Trails reporting)	1.51 (0 reported in gPAS)	0	1.51
Wildlife Habitat Restoration (acres)	HBT-ENH-TERR (reported in WIT)	47,958	0	47,958
Stream Crossings Mitigated (i.e., AOPs) (number)	STRM-CROS-MITG-STD (reported in WIT)	0	0	0
Stream Habitat Enhanced (miles)	HBT-ENH-STRM (reported in WIT)	0	0	0
Lake Habitat Enhanced (acres)	HBT-ENH-LAK (reported in WIT)	0	0	0
Water or Soil Resources Protected, Maintained, or Improved (acres)	S&W-RSRC-IMP (reported in WIT)	1,250	0	1,250
Stand Improvement (acres)	FOR-VEG-IMP (reported in FACTS)	650	0	650
Reforestation and revegetation (acres)	FOR-VEG-EST (reported in FACTS)	214	0	214
Forests treated using timber sales (acres)	TMBR-SALES-TRT-AC (reported in FACTS)	1,306	0	1,433
Rangeland Vegetation Improvement (acres)	RG-VEG-IMP (reported in FACTS)	0	0	0

- **Is there any background or context you would like to provide regarding the information reported in the table above?**

HBT -ENH-TERR -1. Midstory removal contract was closed without being completed this fall (718.4 ac). The contract is being readvertised in 2023. 2. One prescribed burn (Golden Branch) was a large burn and ½ was in the CFLRP area and ½ was out- the wrong side was included in gPAS – Only 2,373 ac in CFLN.) I removed the midstory acres and reduced the burn acres to 2,373 ac resulting in 44,803 acres

Trail Maintenance – Miles. The Womble Trail South was maintained to standard in FY 2022. It probably wasn't tagged with CFLN18 in the database.

      FOR-VEG-EST = Completed acres
      FOR-VEG-IMP = accomplished acres – some contracts still open.

Category	FACTS - Acres	gPAS - Acres	GI-ArcMap - Acres
TMBR-SALES-TRT-AC	1,306	1,433	0
FP-FUELS-WUI	34,032	43,740	0
FP-FUELS-NON-WUI	28,181	28,098	0
FP-FUELS-ALL	61,021		70,053

Reflecting on treatments implemented in FY22, if/how has your CFLRP project aligned with other efforts to accomplish work at landscape scales?

Prescribed burning is a key factor in the restoration of the shortleaf pine bluestem ecosystem. Over the years, the Ouachita NF has been learning to maximize outside resources to accomplish larger burns. We have been partnering with other forests to dedicate an additional helicopter to the project (outside of the normal two helicopters); detailing a significant number of outside ground resources to assist (492 persons from outside the Ouachita NF assisted the entire forest with prescribed burning in 2022); adjusting the size/complexity of prescribed burns to increase the average burn size; coordinating the additional ground resources needed to simultaneously burn multiple blocks; and putting more focus on mechanical treatments.

We have developed agreements with other agencies to assist in prescribed burn implementation. This partnering also diversifies the workforce and the availability.   The CFLRP area overlapped with the Joint Chief Project – Building Resilient Watersheds to Improve Drinking Water Quality - #82. Fiscal Year 2022 was the last year of the 3-year project. The Joint Chief project in 2022 supported landscape level restoration by providing prescribed burning supplies and by contracting heritage and common stand exam surveys needed to produce NEPA decisions needed for timber sales, reforestation, midstory removal, and nonnative and invasives treatments. Joint Chief 82 was also used for timber sale prep and marking contracts in and around the CFLRP area.

The following map shows the location of the CFLRP in relation to the Joint Chief #82 project area.
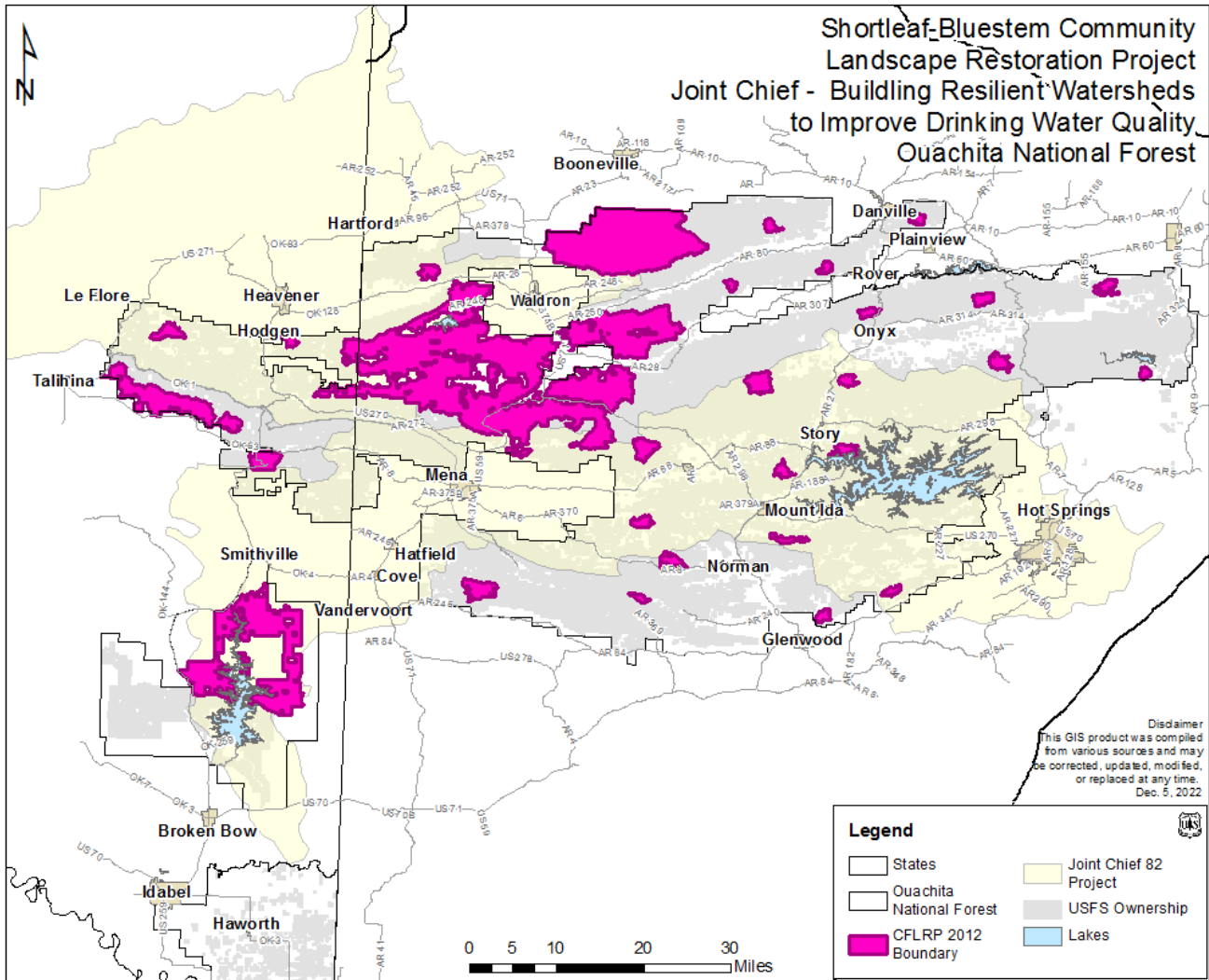
Fig. 2. Overlap of Joint Chief (pale yellow) and CFLRP (pink) areas.

The Forest also has a good neighbor agreement (GNA) with the Arkansas Department of Agriculture Forestry Division involving restoration work that includes timber removal. Currently, the GNA projects are outside the CFLRP boundary, but we anticipate new projects within the CFLRP as the program grows.

4. Restoring Fire-Adapted Landscapes and Reducing Hazardous Fuels

Narrative Overview of <u>Treatments Completed in FY22</u> to restore fire-adapted landscapes and reduce hazardous fuels, including data on whether your project has expanded the pace and/or scale of treatments over time, and if so, how you've accomplished that – what were the key enabling factors?

In Fiscal Year 2022, the Ouachita National Forest successfully implemented 70,053 acres of prescribed fire within the CFLRP project area during a year with a national "Prescribed Fire Pause". The Forest implemented a total of 160,809 acres of prescribed fire across the Forest for the year. Roughly 44% of the Forest's prescribed burning occurred within the CFLRP area. The national average of prescribed fire each

year is 1.3 million acres on NFS lands, making the 70,053 acres of prescribed fire on the Shortleaf – Bluestem Community CFLRP account for over 5% of the national average.   Using detailers from off forest, having a third helicopter, and assistance from other agencies has helped us increase prescribed burning capacity.

Figure 3. Andy Knight Prescribed Burn on the Poteau/Cold Springs Ranger District, March 2022

If a wildfire interacted with a previously treated area within the CFLRP boundary:

This forest does not collect FTEM monitoring data. We have a record of wildfires within the CFLRP area but not how they interacted within previously treated areas.

New programs on the GI in ArcGIS are allowing us to track wildfire acres within the CFLRP area. The following two chart compares acres burned by wildfires per year outside of the CFLRP area as recorded by the Ouachita NF Dispatch since 2011 for the three districts, PCS, MO, and OK (where the greatest contiguous amount of the CFLRP is located) to the total acres burned by wildfires inside the CFLRP boundary. While the trend is upward for acres burned by wildfires on all three districts, the acres burned by wildfires in the CFLRP areas remains at a low constant state.
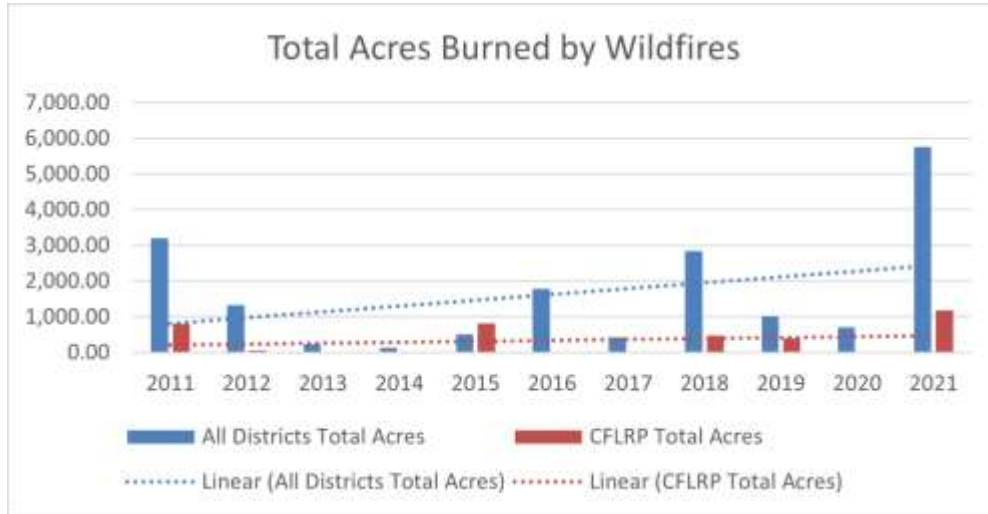
Fig. 4. Comparing acres burned on 3 Districts to acres burned in just the CFRLP area by wildfires.
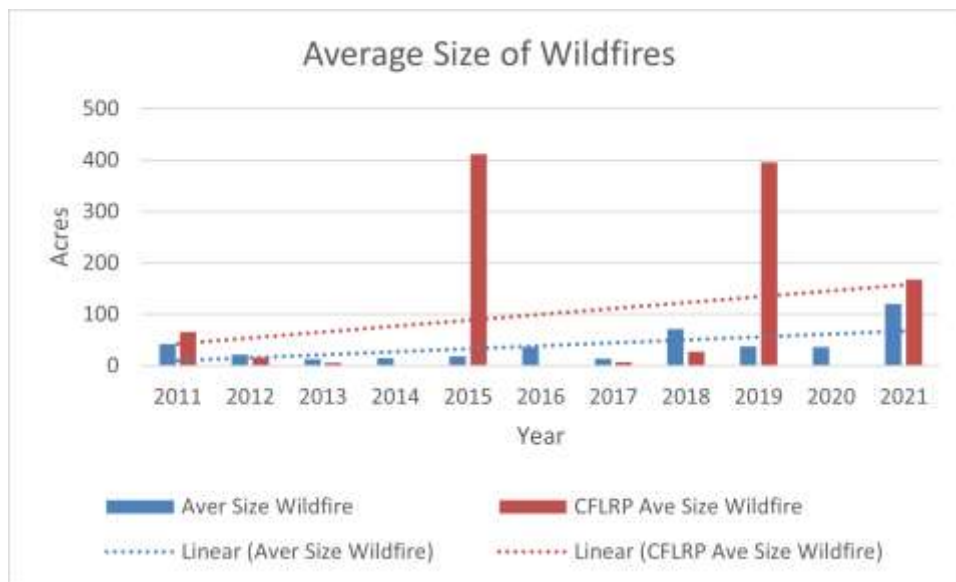

Fig. 5. Comparing average size of wildfires per year on 3 Districts vs just in the CFLRP area.

It appears in this chart (Fig. 5) that the average size of a wildfire is greater in the CFLRP Project area than outside the CFLRP area on the surrounding three Districts. Over the last decade, firefighting has changed tactics. In the past, a direct attack was used to put out wildfires. Today, existing firebreaks – for example roads or other existing control features and burning out is used to make firefighting safer and reduce impacts to the ground (firelines). Allowing larger areas to burn without causing catastrophic stand-replacement fires are probably due to CFLRP treatments that result in more fire-safe stand conditions.

The following charts show the difference in wildfire activity in the CFLRP areas before and after the Project inception.
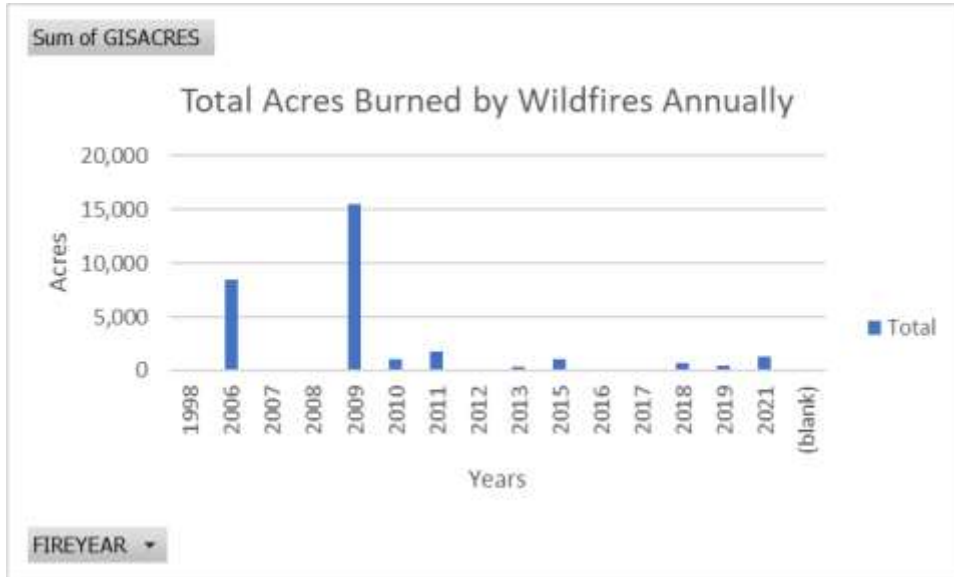
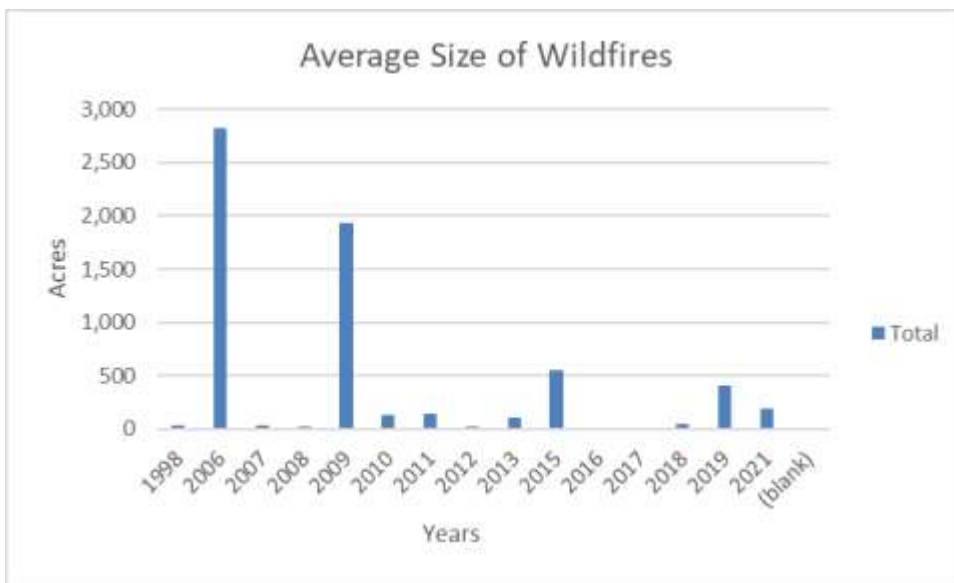Fig.6. Acres burned by wildfires in CFLRP areas annually since 1998

Fig. 7. Average size of wildfires before and after CFLRP project inception.

Although the number of wildfires each year is erratic, the total acres impacted by wildfires and the average size of each appears to be decreasing within the CFLPR project area. Extremely dry weather conditions, lightning strikes, and arson are all random events based on weather patterns and human behavior.   As the CFLRP area moves towards a more open shortleaf bluestem ecosystem, fast moving grass fires should have less impact on overstory trees resulting in fewer catastrophic loses that could occur in more dense forest conditions.

The chart below represents the number of wildfires by cause. When wildfires are coded miscellaneous, the actual cause of the fire could not be determined. Years 2010 -2011 were very dry years in Arkansas resulting in more wildfires caused by lightning strikes. Although the number of wildfires increased in 2015, 2018, and 2021, the size of each fire was kept small.
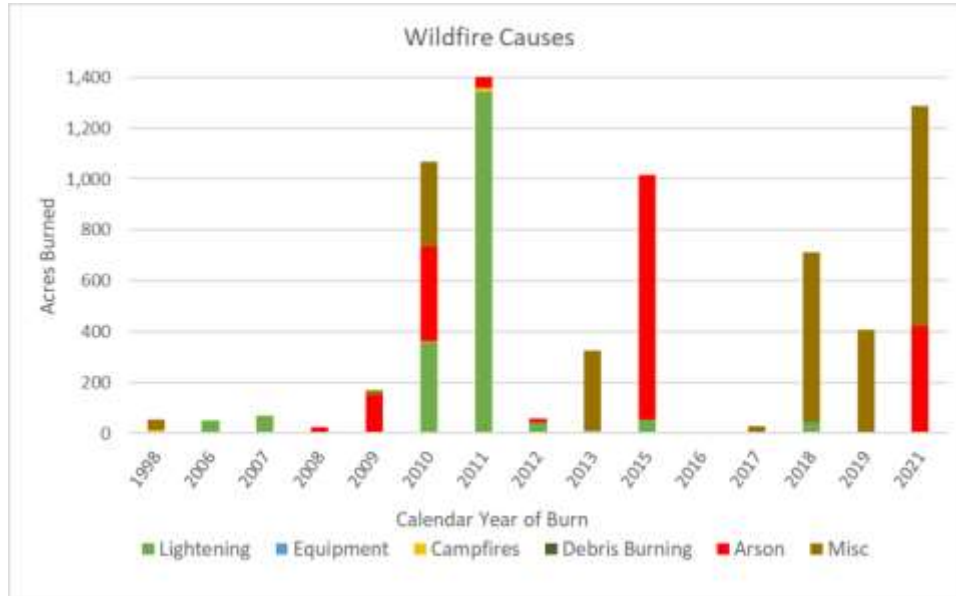
Fig. 8. Source of wildfires.

FY22 Wildfire/Hazardous Fuels Expenditures

Category	Expenditures
FY22 Wildfire Preparedness*	*
FY22 Wildfire Suppression**	**
FY22 Hazardous Fuels Treatment Costs (CFLN, CFIX)	$363,765
FY22 Hazardous Fuels Treatment Costs (other BLIs)	$32,557***

*Most of our implementation cost for the project comes from outside resources. In terms of preparedness and suppression it is difficult to measure CFLRP cost, wildfire preparedness and wildfire suppression costs across a landscape or Forest. This Forest's fuel types have a natural fire return interval of 3-5years. If our CFLRP annual target is 100,000 acres of prescribed burning and in every given year the condition class moves, going from 1-3 in 5years, it is difficult to calculate the cost difference of CFLRP land and the year treated versus the severity of the fire/cost associated with wildfire.

**Of the 1.8 million acres of NFS land on the Ouachita, approximately 130,000 acres are treated annually by prescribed fire. That is 7% and calculated over our fire return interval of 6 years, 43% of the Forest is treated. This 43% treated is misrepresented due to areas that naturally don't hold fire or may not be attainable. For example, river, lakes, and stream areas would decrease the overall burnable acres while increasing the % burned over a natural interval. Based on the previous statement, assume 70% or 1.2 million acres can burn bringing our % treated over 6 years to 65%. This inevitably has a significant impact to the large fire potential due to hazardous fuels from either human or natural ignition.

*** 63% of total forest acres prescribed burned was funded by CFLRP, the other 37% in and around CFLRN designated areas were treated with NFHF funding. These other acres also contribute to reducing wildfire risk in the designation. If the funding for CFLRP is diminished, our treated acres will be reduced to half, leaving us to fight the uphill battle the rest of the Forests are facing with large wildfires. Based on FMMI, CFHF funding (matching) was $32,557.

* Include base salaries, training, and resource costs borne by the unit(s) that sponsors the CFLRP project. If costs are directly applicable to the project landscape, describe full costs. If costs are borne at the unit level(s), describe what proportions of the costs apply to the project landscape. This may be as simple as Total Costs X (Landscape Acres/Unit Acres).

** Include emergency fire suppression and BAER within the project landscape.

How may the treatments that were implemented contribute to reducing fire costs? If you have seen a reduction in fire suppression costs over time, please include that here. (If not relevant for this year, note "N/A") N/A.

5. Additional Ecological Goals

Narrative Overview of <u>Treatments Completed in FY22</u> to achieve ecological goals outlined in your CFLRP proposal and work plan. This may include, and isn't limited to, activities related to habitat enhancement, invasives, and watershed condition.

One of the main goals when this project started was to improve habitat for the endangered red-cockaded woodpecker (RCW). By improving the shortleaf pine bluestem habitat, RCW and other species associated with this habitat type should increase. The following chart shows an upward trend in RCW nesting attempts which is what the biologists here use to indicate improving habitat and populations.
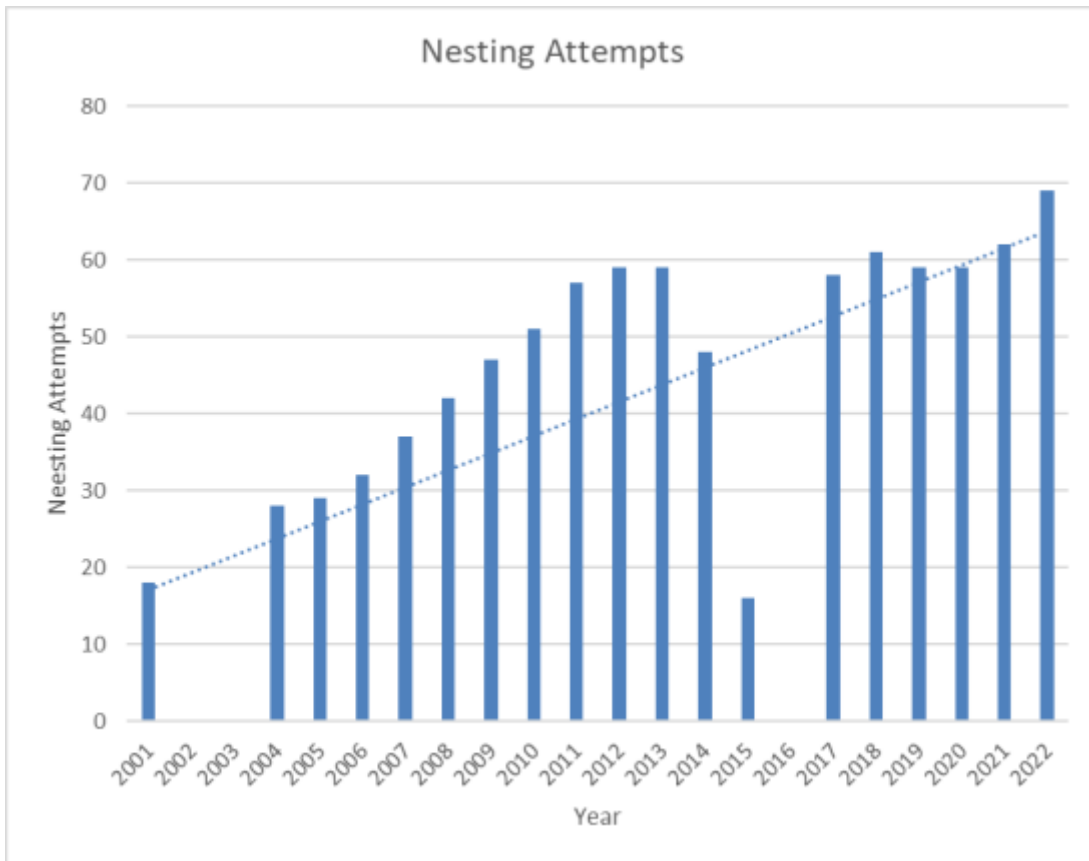

Fig. 9. Red Cockaded Woodpecker Nesting Attempts.

During 2014-2016, data was not collected (the gap does not represent a decrease in nesting attempts).

The Plant Community Monitoring Report - 2nd Re-measure of the Ouachita National Forest Collaborative Forest Landscape Restoration Project (CFLRP) by Gabriel De Jong and Douglas Zollner of the Nature Conservancy, was completed this year. Forest Service personnel helped the Nature Conservancy with data collection on 100 macroplots distributed across the CFLRP project area, (50 plots in Arkansas, 50 plots in

Oklahoma). Baseline data were collected in 2012 and 2013, Repeat 1 was remeasured in 2015/2016, and Repeat 2 in 2018/2019. The following information comes directly from the Plant Community Monitoring Report - 2nd Re-measure.

Macroplots were randomly placed across the landscape in four general topographic positions: ridgetops, north slopes, south slopes, and riparian. ArcMap was used to generate the 100 locations (points) where macroplots were established. Each macroplot consists of a 10-meter fixed radius tree plot, two nested shrub plots, and four ground layer plots within it. Within each macroplot, plant species at all forest levels (overstory and midstory trees, shrubs, and ground layer) were recorded. Ground layer species were recorded in the four nested 1 m^2 quadrats and included all herbaceous species (forbs, graminoids, and non-woody vines) and woody stems less than one meter tall.

Overall forest structure (tree density and basal area) moved closer to the desired woodland condition, with 26% of the landscape in the desired condition compared to 18% at baseline. Average midstory tree basal areas declined from 24 ft^2/ac to 19 ft^2/ac – a desired change. The Overstory tree basal area declined from an average of 93 ft^2/ac to 77 ft^2/ac moving closer to the desire future condition. The composition of the overstory and midstory shifted to more shortleaf pine and oak species with a decline in species like loblolly pine, winged elm, sweetgum, and hickories. Overall, the tree layer is still more dense than desired. Large overstory shortleaf pine (greater than 24" DBH) remain scarce. The shrub layer increased in density since baseline measurements and contained too many trees and fewer shrub species than desired.

Ground layer diversity and cover has increased across the landscape. Total species richness and average ground layer species richness per macroplot increased in all topographic positions and cover types. The average number of herbaceous species per macroplot was at 14 species/macroplot which is near the desired condition of 15+ species/macroplot. This is a 5 species increase since baseline. The Average Floristic Quality Index (FQI) per macroplot also increased between years. Ridgetops, south slopes, and riparian communities were meeting the desired ecological condition for average number of herbaceous species per macroplot. Forbs and graminoids have increased. Non-native species frequency increased slightly mainly on ridgetops.

Non-native species were more likely to be present in plots that had been burned or burned and thinned, suggesting that management activities might be introducing species and/or creating disturbances that encourage invasion. Seven non-native species were observed including Japanese bush-clover (Kummerowia striata), sericea lespedeza (Lespedeza cuneata), Japanese honeysuckle (Lonicera japonica), field bindweed (Convolvulus arvensis), Queen Anne's-lace (Daucus carota), Korean bush-clover (K. stipulacea), and beefsteak plant (Perilla frutescens). These increased from 12% to 18% in frequency between the last 2 inventories and the current one. Most of the increases occurred in the ridgetop communities with most of the increases in stands receiving thinning and burning treatments.

Japanese bush-clover also known as common lespedeza (Kummerowia striata), sericea lespedeza (Lespedeza cuneata), Japanese honeysuckle (Lonicera japonica), Queen Anne's-lace (Daucus carota) are on the list of invasive species maintained by the University of Arkansas Division of Agriculture (https://www.uaex.uada.edu/environment-nature/ar-invasives/invasive-plants/ accessed Dec. 14, 2022). Beefsteak plant (Perilla frutescens) is also considered invasive species (https://www.invasive.org/alien/pubs/midatlantic/pefr.htm#:~:text=Perilla%20frutescens%20(L.),Britt.&text=Also%20called%20perilla%20mint%2C%20beefsteak,mid%2DAtlantic%20region%20and%20elsewhere

accessed Dec. 14, 2022). Field bindweed (<u>Convolvulus</u> <u>arvensis</u>) is difficult to eradicate. However, it prefers full sunlight and is not competitive under shady conditions (https://www.nwcb.wa.gov/weeds/field-bindweed accessed Dec. 14, 2022). Korean Bush Clover is not considered a noxious weed (https://en.wikipedia.org/wiki/Kummerowia_stipulacea accessed Dec 14, 2022).

The Plant Community Monitoring Report – 2nd Re-measure brought up the issue that invasive species are a growing concern in treated areas. The data shows and in discussions with the districts, that no treatments specifically directed towards nonnative invasive plant species (NNIS) occurred in the CFLRP in FY 2022. While prescribed burning will have a detrimental impact on invasive species, this issue will have to be further addressed.

The two following photos are examples of the desired condition of the landscape vs initial or one treatment sites. The burned and thinned plots are meeting desired ecological conditions, while untreated or thinned only plots are not. The effect of thinning alone, without fire, has resulted in a dense midstory composed of less desirable species.

Fig. 10. Fire Class I vs Fire Class 3 in CFLRP area.   Photos from Plot Photos recorded in Monitoring Report 2.

Prescribed burning is not possible in the areas that are marked out for timber sales or are in the process of being harvested. As the sales close, prescribed burning should pick up moving thinned areas to the Fire Class I condition.

The following table shows the acres thinned or regenerated in the CFLRP area since 2010. The "BLANK" represents acres sold but not yet harvested. Timber sales generally have a 5-7 year contract length. Sales sold in 2013 would be cut out by 2018 or even 2020.   The amount harvested each year per sale is influenced by economic and operating conditions experienced by the individual timber companies. In areas where sales are occurring, prescribed burning does not occur. As sales are completed, prescribed burning is reintroduced to the sites. As this CFLRP Project proceeds, and prescribed burning is added to the thinned areas, looking at the second monitoring report results, the area should continue to move towards the desired ecological conditions.
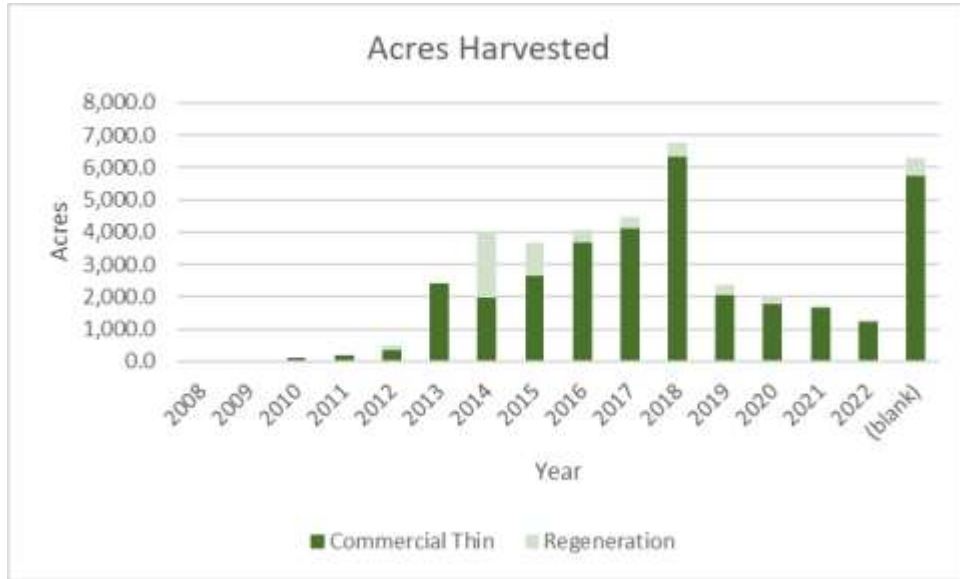
Fig 11. Acres Harvested. "Blank" represents acres sold but not cut.

Fig. 12. Stands in CFLRP area sold - to be thinned. Photo by Brandon Morris, 2022

Fig. 13. Stand thinned in 2022 in the CFLRP area. Photo by Brandon Morris 2022.

We are finding that in the regeneration areas, care needs to be used with prescribed burning. Shortleaf pine (SLP) is fire adapted during the seedling through sapling stage through a "S" shaped crook in its main root just below the soil surface. When burned, the top dies back and the root resprouts. However, since these areas are being prescribed burned on a 3-year cycle, the sprouts are continuously burned back and resprouting. The FMOs (fire managers) have found that they need to prescribed burn the regeneration areas during cool winter months. Then they can follow up with the larger hotter burns later in the year with little impact to the regeneration sites. This is more labor intensive but necessary to assure a future mature stand of SLP.

Fig. 14. Regeneration site about 2 weeks after spring prescribed burning and then the same site in July.
Photos by K Duncan, 2022.

Removal of the midstory and brush layer is another component in the restoration of the Shortleaf Pine Bluestem Ecosystem. The districts have been using masticators and manual cutting to reduce the midstory. In recent years, they have begun to use herbicides on a few sites. Prescribed fire is necessary in all these treatments to reduce the amount of sprouting that occurs after stems are cut or treated. The following two maps show the increase in midstory removal since 2010, the second map is a closer view of the core area. FACTS reports 97 acres of precommercial thinning occurring in 2022 in the CFLRP area.   The gPas database shows 995 acres of mulching midstory work in the CFLPR area for 2022.
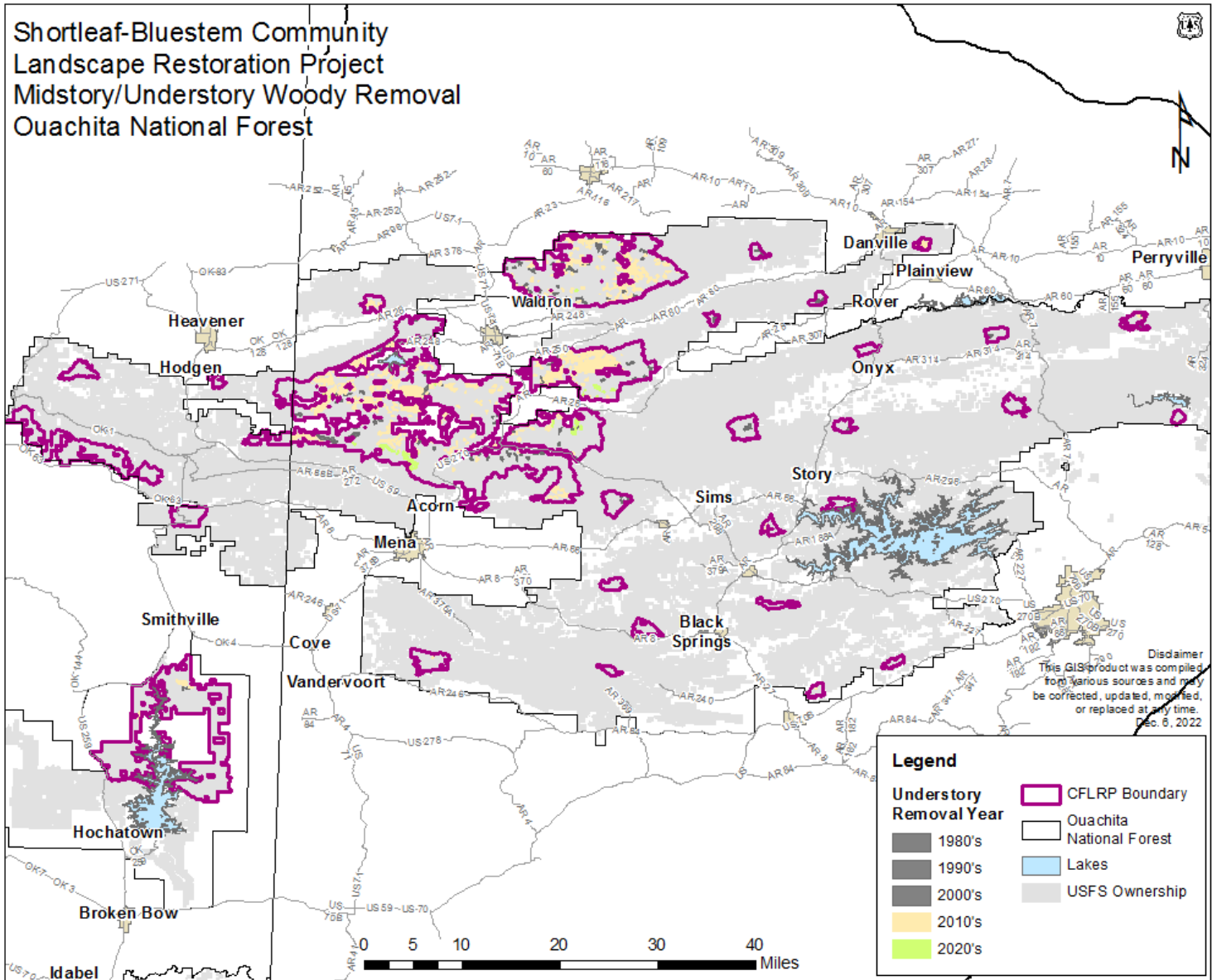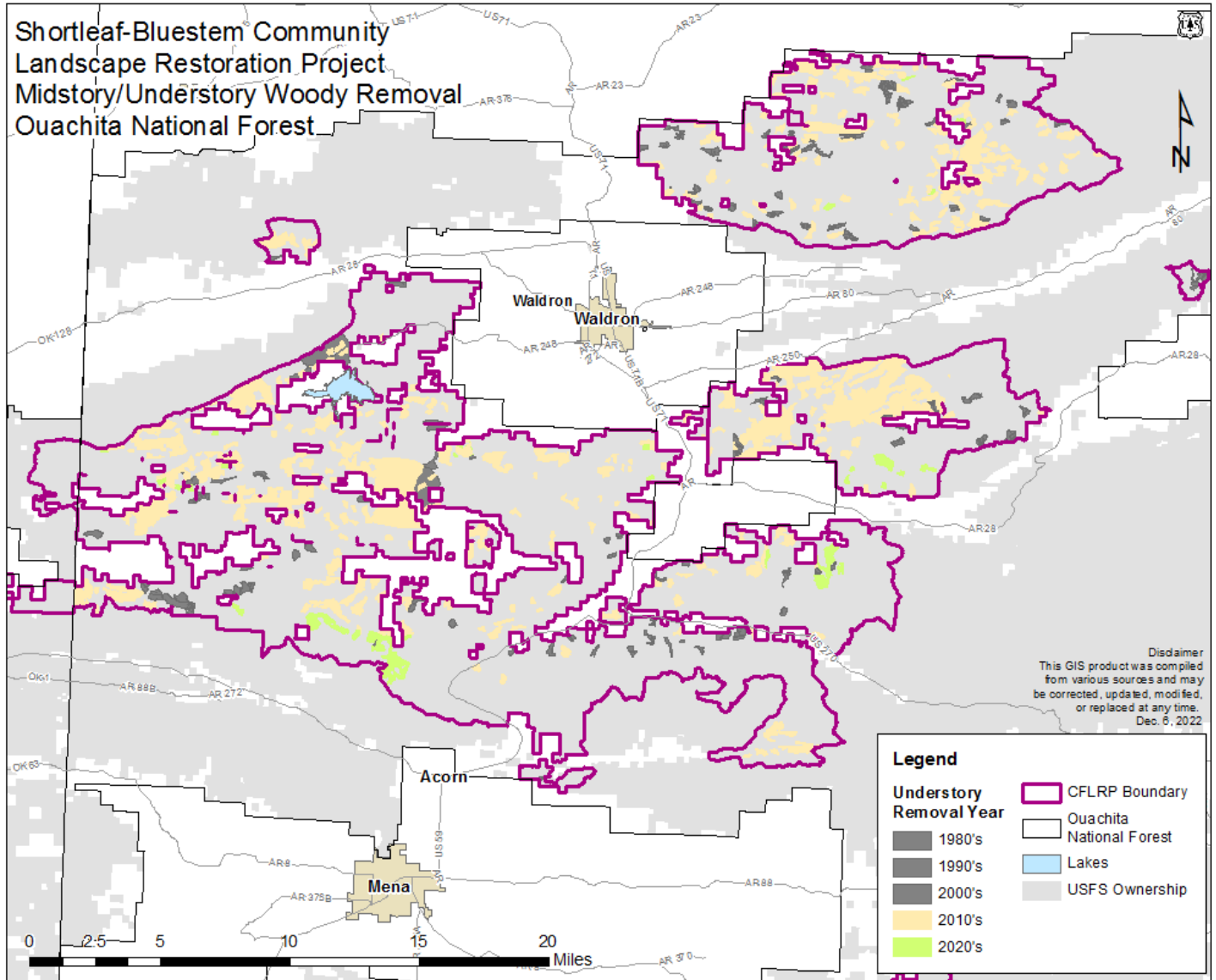
Fig. 15. Midstory Removal.

Fig. 16. Midstory Removal – core area.

6. Socioeconomic Goals

Narrative overview of <u>activities completed in FY22</u> to achieve socioeconomic goals outlined in your CFLRP proposal and work plan.

Examples may include activities related to community wildfire protection, contribution to the local recreation/tourism economy, volunteer and outreach opportunities, job training, expanding market access, public input and involvement, cultural heritage, subsistence uses, etc.

Overall, the increase in timber made available to the local timber industry has allowed the industry to upgrade their mills which may support additional jobs and increased money flowing through the local economy. The Forest Service plans to focus on hiring more local people to fill jobs to prepare the timber for market, which will benefit the local economy even more. The following events took place in 2022.

21

- Two Timber Purchaser meetings took place in FY 2022 following the initial meeting in 2021. In attendance were timber manufacturers and purchasers, State Forestry Division personnel including the State Forester, Forest Service personnel and leadership including the Regional Forester and Director of Forest Management, forest industry and timber producer associations, and special guest US Congressman Bruce Westerman (AR-4).
- Local Forest Industry Improvements in 2022.
  - West Frasier installed wood pellet mills at two locations to utilize small diameter timber and mill residuals.
  - Anthony Timberlands upgraded their mill in Malvern.
  - Potlatch Deltic had a mill burn down. Instead of abandoning it, they rebuilt it with upgrades that increased capacity while allowing them to utilize smaller diameter timber.
  - The Glenwood mill added a shift and increased production.

These are all seen as indicators that the timber industry has confidence in a sustainable supply of timber from the forest.

Results from the Treatment for Restoration Economic Analysis Toolkit (TREAT). For guidance, training, and resources, see materials on [Restoration Economics SharePoint](.).[7] After submitting your data entry form to the Forest Service Washington Office Economist Team, they will provide the analysis results needed to respond to the following prompts.

Percent of funding that stayed within the local impact area: 43%
Contract Funding Distributions Table ("Full Project Details" Tab):

Description	Project Percent
Equipment intensive work	8%
Labor-intensive work	42%
Material-intensive work	35%
Technical services	14%
Professional services	0%
Contracted Monitoring	1%
TOTALS:	100%

Modelled Jobs Supported/Maintained (CFLRP and matching funding):

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[7] Addresses [Core Monitoring Question #742%](.)

Jobs Supported/Maintained in FY 2022	Direct Jobs (Full & Part-Time)	Total Jobs (Full & Part-Time)	Direct Labor Income	Total Labor Income
Timber harvesting component	53	67	$3,324,852	$4,380,575
Forest and watershed restoration component	9	15	$367,797	$656,182
Mill processing component	87	194	$5,786,663	$11,455,280
Implementation and monitoring	19	21	$746,042	$859,445
Other Project Activities	0	0	$6,307	$9,025
TOTALS:	168	297	$10,231,661	$17,360,507

- **Were there any assumptions you needed to make in your TREAT data entry you would like to note here? To what extent do the TREAT results align with your observations or other monitoring on the ground**?
  None.

Please provide a brief description of the local businesses that benefited from CFLRP related contracts and agreements, including characteristics such as tribally-owned firms, veteran-owned firms, women-owned firms, minority-owned firms, and business size.[8] For resources, see materials here (external Box folder).

Numerous small business timber processing mills are present in and around the project area. These mills greatly contribute to the local economies and help facilitate restoration on the CFRLP by utilizing a variety of restoration byproducts not sought out by the larger mills such as pallet and shaving wood and oversized material. In addition, contracting firms engaged in restoration activities have a large workforce of minority employees who benefit from the CFLRF and the associated restoration work.

7. Wood Products Utilization

Timber & Biomass Volume Table[9]

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[8] Addresses Core Monitoring Question #8

[9] Addresses Core Monitoring Question #10

Performance Measure	Unit of measure	Total Units Accomplished
Volume of Timber Harvested TMBR-VOL-HVST	CCF	58,364.70(actual)
Volume of timber sold TMBR-VOL-SLD	CCF	26,660.21 (actual)
Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production BIO-NRG	Green tons	22,400.38 (1,840 captured in gPAS)

- Reviewing the data above, do you have additional data sources or description to add in terms of wood product utilization (for example, work on non-National Forest System lands not included in the table)?
- BioEnergy is 1,840 green tons. BioBased Products is 22,400 tons. These figures come from TIM report BIOW202F for BioBased Products.

In this project, we have increased timber harvests to reduce stand density. Then by applying fire, the result is an open shortleaf pine-blue stem ecosystem that is fire-adapted and resistant to catastrophic wildfire. The stable source of restoration byproducts (timber) generated by this project has helped to bring in significant investment in the forest products sector and allows for better utilization of restoration byproducts both now and in the future. The map below shows in the core area, harvesting before 2010 and after 2010.
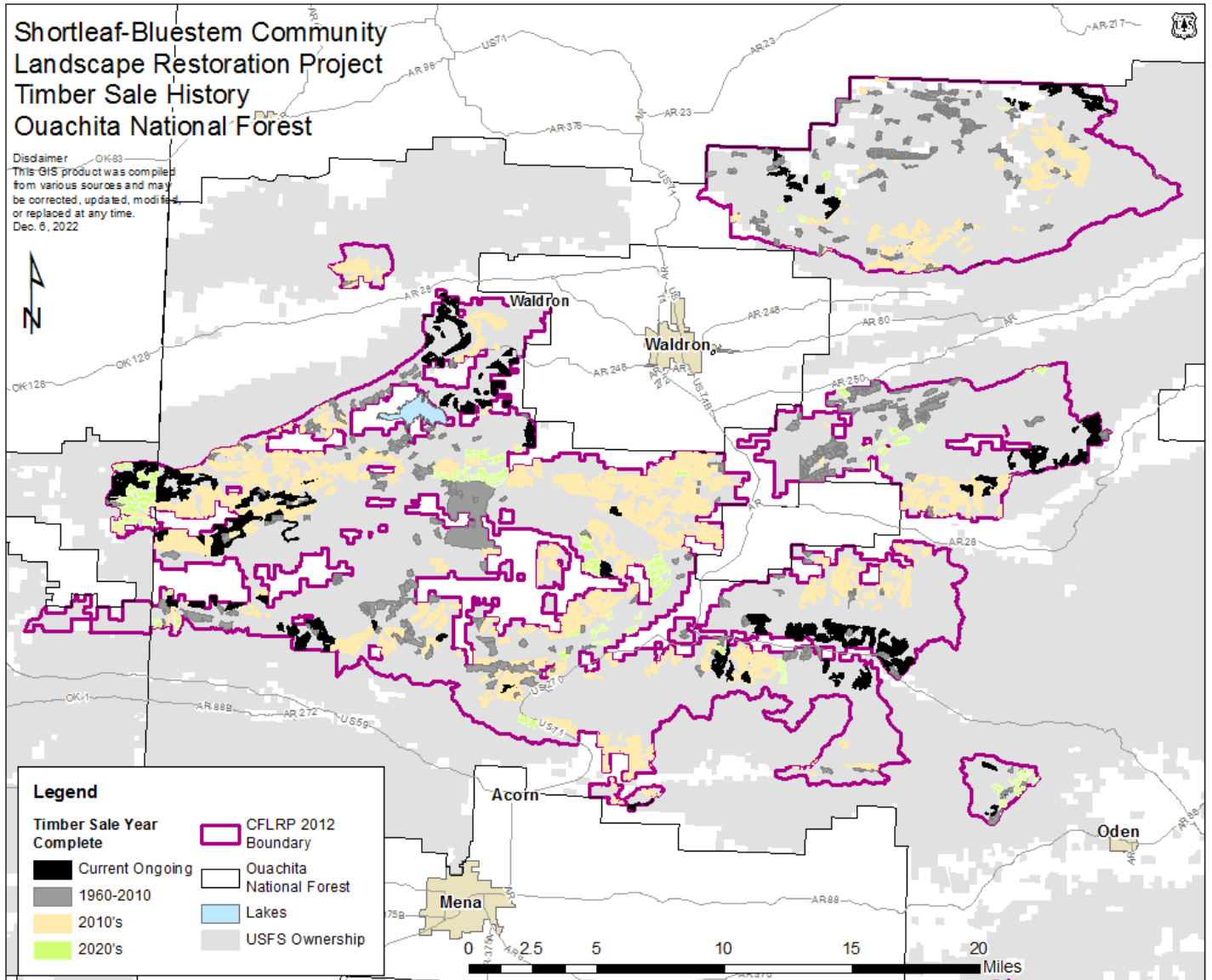
Fig. 17. Timber Sales completed or ongoing – Core Area.

The orange, green, and black areas are stands that have been or are being harvested since the project started (2010 - 2022). This will lead to a mix of habitats in this ecosystem with species that are fire adapted. This second map is the full project area.
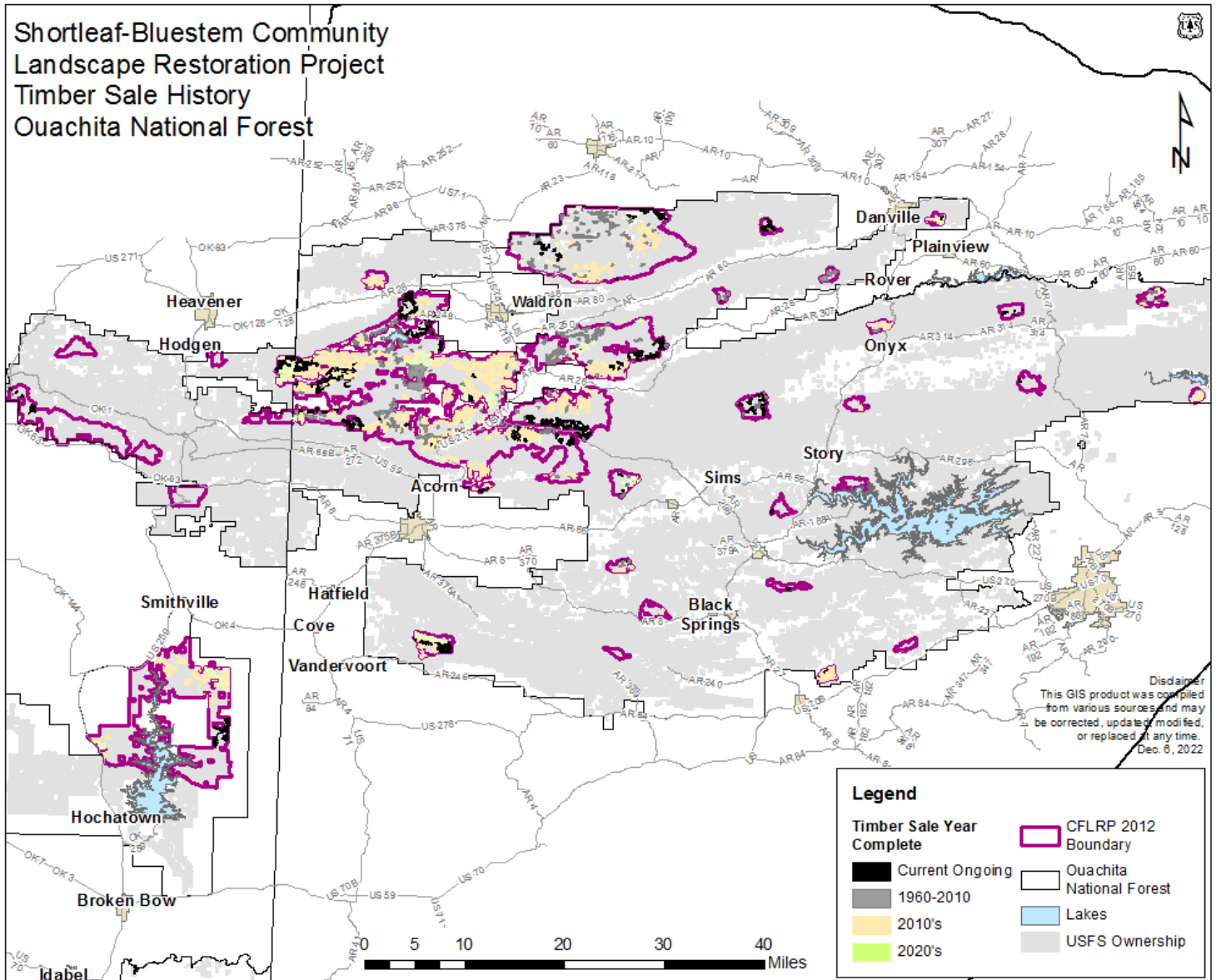
Fig. 18. Timber sales completed or on going – Entire Area.

8. Collaboration

Please include an up-to-date list of the core members of your collaborative <u>if</u> it has changed from your proposal/work plan (if it has not changed, note below).[10] For detailed guidance and resources, see materials. Please document changes using the template from the CFLRP proposal and upload to Box. Briefly summarize and describe changes below.

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[10] Addresses Core Monitoring Question #11

There have been no changes to the core members of our collaborative group. The Ouachita NF contact, Steve Cole, retired in October of 2022. This position has not been filled yet.

9. Monitoring Process

Briefly describe your current status in terms of developing, refining, implementing, and/or reevaluating your CFLRP monitoring plan and multiparty monitoring process.

The Nature Conservancy with help from Forest Service employees monitors the changes in vegetation communities for this project. They released the second remeasure of 100 plots they have across the CFLRP area which has been discussed earlier in this document (Ouachita National Forest Collaborative Forest Landscape Restoration Project (CFLRP) in Arkansas and Oklahoma Plant Community Monitoring Report – 2 nd Re-measure).

10. Conclusion

Describe any reasons that the FY 2022 annual report does not reflect your proposal or work plan. Are there expected changes to your FY 2023 plans you would like to highlight?

Fire in combination with timber harvesting and understory removal is working to move this area more towards the desired condition of a shortleaf pine bluestem ecosystem that is resilient to climate change and more resistant to catastrophic wildfire. Results are quite impressive as indicated with the TNC monitoring data. This project has been extended for another five years and with continued support will bring the area closer to the desired condition. We expect to see continuing positive impacts to RCW populations and increased resiliency to damaging insect outbreaks and wildfire.

Optional Prompts

FY 2022 Additional Accomplishment Narrative and/or Lessons Learned Highlights

This CFLRP project has been recognized on several levels. The project received the 2022 Southern Region's Regional Forester Land Managers and Shared Stewardship award for *Improving and maintaining desired ecological conditions and restoring health and resiliency across landscapes and watersheds* https://www.fs.usda.gov/detail/r8/home/?cid=fseprd1070412#improving and has been nominated at the national level for the Chief's Award.

The Shortleaf – Bluestem Community project was recognized during Southern Region's RT 300 (Prescribed Burn Boss Refresher Training). A poster describing the background of the project was submitted and won an award at the poster contest.

The National Advanced Silviculture Program (NASP) toured the area with Dr. Jim Gulden (retired) and District Wildlife Biologist Warren Montague. The discussion evolved around shortleaf pine ecosystem restoration and all the nuances involved. The National Forests of Mississippi's Forest Leadership Team (FLT) along with Regional Office employees came to tour the project area to develop ideas for potential future projects.

A virtual Ouachita/Ozark Highlands Collaborative meeting was held with the FS and collaborators. These meetings are valuable in exchanging information on where we are at and set up the next years progression.

Virginia McDaniel of the Forest Service Research Branch provided the following CFLRP articles and presentations she was involved with in 2022. The authors on these papers came from the Nature Conservancy, the Forest Service Research Branch, and retired Forest Service specialists.

Conference Presentations

V.L. McDaniel*, DeJong, G.L., D.M. Zollner, S.L. Hooks, T.L. Keyser, and D.C. Bragg. 2022. Woodland Restoration: A Tale of Two Management Areas, Ouachita National Forest AR & OK. Association of Southeastern Biologists. Little Rock, AR. March 30 – April 1, 2022. (recording available)

DeJong, G.L., V.L. McDaniel*, D.M. Zollner, S.L. Hooks, T.L. Keyser, and D.C. Bragg. 2021. Using fire and thinning to restore open woodlands in the Ouachita National Forest. Association of Fire Ecology Fire Ecology and Management Congress. Virtual. November 30 – December 3, 2021.

Technology Transfer Presentations

DeJong, G.L., V.L. McDaniel*, D.M. Zollner, S.L. Hooks, T.L. Keyser, and D.C. Bragg. Diversity Explodes with Another Boring Burn. Presented to Region 8 Fire and Aviation Management and National Forests of Mississippi – Forest Leadership Team and Fire staff. October 18, 2022. Hot Springs, AR

DeJong, G.L., V.L. McDaniel*, D.M. Zollner, S.L. Hooks, T.L. Keyser, and D.C. Bragg. Woodland Restoration: A Tale of Two Management Areas. Ouachita National Forest - Forest Leadership Team. October 4, 2022. Idabel, OK.

McDaniel, V.L. 2022. Woodland Restoration. Hot Springs Village Audubon Society. 14 April 2022. Hot Springs Village, AR. (INVITED).

McDaniel, V.L. 2022. Woodland Restoration. Know It to Grow It webinar put on by Garland County Master Gardeners/Garland County Library. 19 January 2022. (INVITED virtual presentation) https://ne-np.facebook.com/garlandcountylibrary/videos/woodland-restoration-in-the-ouachita-national-forest/611029280188652/

Videos

Video highlighting shortleaf pine woodland restoration on the Ouachita NF.
https://www.srs.fs.usda.gov/video/shortleaf-restoration/

Media Recap

Visuals

Two professional videos were created in 2022. One showcased the Shortleaf Pine Bluestem habitat in the CFLRP area https://www.americasforestswithchuckleavell.com/episode-9-arkansas-delta/ and was aired around the country on PBS. The second video showcased Restoration in the CFLRP area https://www.fs.usda.gov/detailfull/ouachita/home/?cid=FSEPRD988865&width=full. This link goes to the Ouachita National Forest home page which contains 5 videos, the last entry is a compilation of 3 videos one of which is the Restoration Video.

The following posters were produced. The first is the poster that received an award at the RT 300 (burn boss training). The second was used electronically to advertise the restoration videos available.
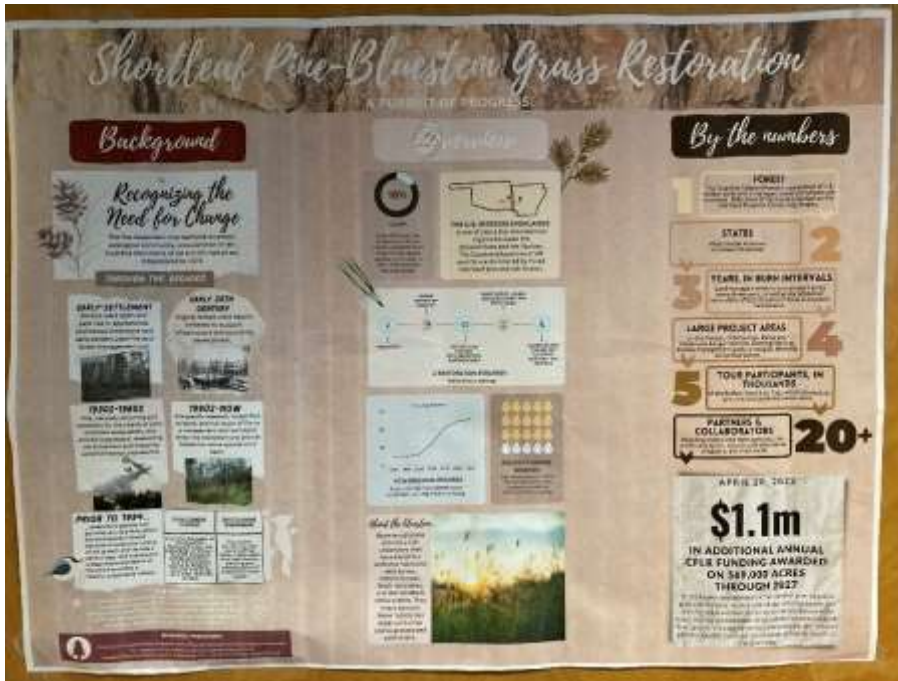
For Internal Use

Nothing.

Signatures

Recommended by (Project Coordinator(s)):	**/s/ Jeffrey C. High**
Approved by (Forest Supervisor(s)):	**/s/ Felipe Cana**
Draft reviewed by (collaborative representative):	**/s/ McRee Anderson**