CFLRP Project Name (CFLR#): ***Zuni Mountains CFLRP #012***

National Forest(s): ***Cibola National Forest & National Grasslands***

1. Executive Summary

Briefly summarize the top ecological, social, and economic accomplishments your CFLRP project participants are most proud of from FY23 and any key monitoring results. This is a space for key take-home points (< 500 words).

Fiscal Year 2023 was a rebound year for the implementation of forest restoration treatments. Acres treated nearly doubled in 2023 from 784 to 1,319 with work completed in both the Bluewater and Puerco Project areas. Coming into the winter of 2024, the winter log deck is much larger than in the past few years, allowing for steady employment through the winter months. Maintaining 1,500-2,000 acres of mechanically treated ponderosa pine forests per year remains our goal. Low intensity prescribed burning was also completed on 1,855 acres, completing the restoration process and preparing the site for natural regeneration. In an administrative change, the loggers became contracted with the National Wild Turkey Federation instead of through the Mount Taylor Manufacturing Mill.

Fencing of the Shush-Kin Fen, a type of peat-accumulating wetland fed by mineral-rich ground water, and two springs were completed in 2023. Fencing around the springs, which feed into Bluewater Creek, will help protect the Rio Grande Chub and Rio Grande Sucker, both species of conservation concern. Baseline aerial drone monitoring of the fen was performed to track change over time visually, and on the ground monitoring with the New Mexico Environmental Department is scheduled for 2024.

The Forest Stewards Guild (FSG), in cooperation with the Cibola National Forest (CNF), was awarded with a Bipartisan Infrastructure Law (BIL) grant proposal for A Holistic Approach to Invasive Species Detection and Eradication in the Zuni Mountains for $180,000. Phase 1, which includes a baseline inventory of Class B and C invasives and an evaluation of local capacity and training needs, will be initiated in 2024 when the funds are provided to the CNF.

Inventory and data collection on the federally threated Zuni fleabane and its habitat was conducted to inform ongoing habitat modeling efforts in conjunction with United States Geological Survey (USGS), Bureau of Land Management (BLM), and New Mexico Energy, Minerals and Natural Resource Department (EMNRD). Several new populations were discovered during the surveys.

Stand examinations were conducted on 1,366 acres by CNF, FSG, and FSG Youth crews to collect data on stands scheduled to be harvested over the next 1-2 years. This existing condition data will be used to compare against imputed nearest neighbor data as well post-treatment conditions.

This year was a bumper cone crop for ponderosa pine across the Southwest Region. We collected 77 bushels of green cones from within the Puerco Project and transported them up to Lucky Peak Nursery in Boise, ID for processing and storage.

2. Funding

CFLRP and Forest Service Match Expenditures

Fund Source: CFLN and/or CFIX Funds Expended	Total Funds Expended in Fiscal Year 2023
CFLN1220	$ 24,475
CFLN1222	$ 868,937
CFLN1223	$ 960,000
TOTAL	**$1,853,412**

Fund Source: Forest Service Salary and Expense Match Expended	Total Funds Expended in Fiscal Year 2023
NFSE23 **TOTAL**	$489,821 **$489,821***

*The official total in the FMMI CFLRP expenditure report for Salary and Expenses was $0. A spreadsheet with estimated personnel days is routed across the Forest annually and Workplan costs were used to determine salary match. The forest will keep pushing to have people code their time as CFSE in FY24 for a more accurate and traceable record. Staff time spent on CFLRP proposal implementation and monitoring may be counted as CFLRP match – see Program Funding Guidance.

Fund Source: Forest Service Discretionary Matching Funds	Total Funds Expended in Fiscal Year 2023
NFTM0323 (Guild Monitoring Agreement) NFMP0323 (Guild Monitoring Agreement) RTRT0322 (Cone Collection) **TOTAL**	$25,000[1] $ 5,000 $13,000 **$43,000***

*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. The expenditure report shows $247,563.86 of NFTM expenditures, but this is equivalent to the entire Cibola NFTM allotment, which did not all go into the Zuni Mountains Landscape, only the $25,000 shown above.

Partner Match Contributions[2]

Fund Source: Partner Match	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY23	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
National Wild Turkey Federation	☒ In-kind contribution ☐ Funding	$15,000	Staff time contributions to support the Stewardship Agreement implementation	☐ **National Forest System Lands** ☒ Other lands within CFLRP landscape:
Cibola Trails Alliance	☒ In-kind contribution ☐ **Funding**	$40,000	A grant from RERC enabled 18 miles of trail to be built.	☐ **National Forest System Lands** ☒ Other lands within CFLRP landscape:
Cibola Trails Alliance	☒ **In-kind contribution** ☐ Funding	$64,000	Funding from the NW NM Council of Governments allowed CTA to improve their marketing and communications while $39,000 from Cibola Economic Development supported trail	☒ **National Forest System Lands** ☐ Other lands within CFLRP landscape:

[1] FMMI shows $247,563.86, which is the entire forest allocation, but only $25,000 went into the CFLRP.

[2] Addresses Core Monitoring Question #13

Fund Source: Partner Match	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY23	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
			management in the landscape.	
New Mexico's Forest and Watershed Restoration Act (FAWRA)	☒ In-kind contribution ☐ **Funding**	$255,869	New Mexico FAWRA funds used to treat USFS managed lands in the landscape across 138 acres through the NM Forestry Division.	☒ National Forest System Lands ☐ **Other lands within CFLRP landscape: Private**
New Mexico Forestry Division	☒ In-kind contribution ☐ **Funding**	$132,759	The Forestry Division invested in the Puerco West cultural surveys in the landscape.	☒ **National Forest System Lands** ☐ Other lands within CFLRP landscape:
New Mexico State Land Office	☒ In-kind contribution ☐ **Funding**	$353,665	The State Land Office treated 537 acres on state trust lands in the landscape	☐ National Forest System Lands ☒ **Other lands within CFLRP landscape: State Trust Lands**
Natural Resource Conservation Service	☒ In-kind contribution ☐ **Funding**	Amount of funding unavailable.	NRCS investments with landowners in the landscape treated 1,010 acres.	☐ National Forest System Lands ☒ **Other lands within CFLRP landscape: Private**
New Mexico Forestry Division and Forest Stewards Guild	☒ **In-kind contribution** ☐ **Funding**	Landowner contributions: $17,332.50 FHI Program: $36,067.50	New Mexico's Forest Health Initiative treated 40.5 acres of private lands in the landscape this FY across 4 landowners. This program is a partnership between R3 Forest Health, NM Forestry Division, and the Forest Stewards Guild.	☐ National Forest System Lands ☒ **Other lands within CFLRP landscape: Private**
Forest Stewards Guild	☒ **In-kind contribution** ☐ Funding	$35,000	The Forest Stewards Guild's Forest Stewards Youth Corps funded a youth crew in partnership with the Mt. Taylor Ranger District for 9-weeks this summer. The completed conservation projects on USFS managed lands in the landscape.	☒ **National Forest System Lands** ☐ Other lands within CFLRP landscape:

Fund Source: Partner Match	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY23	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
Mt. Taylor Millwork and Machine	☐ **In-kind contribution** ☒ Funding Funding Source: USDA, USFS Wood Innovations	$300,000	Enhancing sawmill volume, value, and employment in the Zuni Mountains landscape.	☒ **National Forest System Lands** ☐ Other lands within CFLRP landscape:
New Mexico Game and Fish Department	☒ **In-kind contribution** ☐ Funding	$75,786	Spring Fence Construction and cattle guard installation. Local Contractor used was Wilson Construction Services, LLC.	☒ **National Forest System Lands** ☐ Other lands within CFLRP landscape:

Total In-Kind Contributions: $1,025,479

Total Funding: $300,000

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 FY23)	Totals
Total revised non-monetary credit limit for contracts awarded in FY23: Timber Stand Improvement incorporated into the per acre cost of the NWTF Agreement (assume 10% goes to precommercial thinning (PCT)).	$100,000
Revenue generated through Good Neighbor Agreements	Totals
	$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 2023 Agency Performance Measure Accomplishments[3] - Units accomplished should match the accomplishments recorded in the Databases of Record. Please note any discrepancies.

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

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 FACTS)[4]	**2,597**	**1,588**	**4,185**
Hazardous Fuels Reduction (acres) in the Wildland Urban Interface - COMPLETED	FP-FUELS-WUI-CMPLT (reported in FACTS)[5]	**1,855**	**40.5**	**1895.5**
Hazardous Fuels Reduction (acres) outside the Wildland Urban Interface	FP-FUELS-NON-WUI (reported in FACTS) [3]	na		
Hazardous Fuels Reduction (acres) outside the Wildland Urban Interface - COMPLETED	FP-FUELS-NON-WUI-CMPLT (reported in FACTS) [4]	na	**1,547**	**1,547**
Wildfire Risk Mitigation Outcomes - Acres treated to mitigate wildfire risk	FP-FUELS-ALL-MIT-NFS (reported in FACTS)	**3,710**		**3,710**
Prescribed Fire (acres)	Activity component of FP-FUELS-ALL (reported in FACTS)	**1,855**		**1,855**
Invasive Species Treatments (acres) - Noxious weeds and invasive plants	INVPLT-NXWD-FED-AC (reported in FACTS)[3]	0		
Invasive Species Treatments (acres) - Noxious weeds and invasive plants - COMPLETED	INVPLT-NXWD-FED-AC-CMPLT (reported in FACTS)[4]	0		
Invasive Species Treatments (acres) - Terrestrial and aquatic species	INVSPE-TERR-FED-AC (reported in FACTS)[36]	0		
Invasive Species Treatments (acres) - Terrestrial and aquatic species - COMPLETED	INVSPE-TERR-FED-AC- CMPLT (reported in FACTS)[47]	0		
Road Decommissioning (Unauthorized Road) (miles)	RD-DECOM-NON-SYS (Roads reporting)	0		
Road Decommissioning (National Forest System Road) (miles)	RD-DECOM-SYS (Roads reporting)	0		
Road Improvement (High Clearance) (miles)	RD-HC-IMP-MI (Roads reporting)	0		
Road Improvement (Passenger Car System) (miles)	RD-PC-IMP-MI (Roads reporting)	0		
Road Maintenance (High Clearance) (miles)	RD-HC-MAINT-MI (Roads reporting)	**29.9**		**29.9**
Road Maintenance (Passenger Car System) (miles)	RD-PC-MAINT-MI (Roads reporting)	**24.9**		**24.9**
Trail Improvement (miles)	TL-IMP-STD (Trails reporting)	**3.8**	**18**	**21.8**

[4] 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.

[5] New Agency measure reported in FACTS when completed.

[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
Trail Maintenance (miles)	TL-MAINT-STD (Trails reporting)	na		
Wildlife Habitat Restoration (acres)	HBT-ENH-TERR (reported in WIT)	**3,063**		**3,063**
Stream Crossings Mitigated (i.e. AOPs) (number)	STRM-CROS-MITG-STD (reported in WIT)	na		
Stream Habitat Enhanced (miles)	HBT-ENH-STRM (reported in WIT)	na		
Lake Habitat Enhanced (acres)	HBT-ENH-LAK (reported in WIT)	na		
Water or Soil Resources Protected, Maintained, or Improved (acres)	S&W-RSRC-IMP (reported in WIT)	**3,339**		**3,339**
Stand Improvement (acres)	FOR-VEG-IMP (reported in FACTS)	**742**		**742**
Reforestation and revegetation (acres)	FOR-VEG-EST (reported in FACTS)	**1,855**		**1,855**
Forests treated using timber sales (acres)	TMBR-SALES-TRT-AC (reported in FACTS)	0		
Rangeland Vegetation Improvement (acres)	RG-VEG-IMP (reported in FACTS)	**890**		**890**

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

Facts accomplishments come from listed User View Reports in FACTS. Additional 148 acres of RG-VEG-IMP (difference between acres shown in CFLR Accomplishments_AsOf_11092023 spreadsheet) accomplished on 5-12-2023.

TMBR-SALES-TRT-AC is zero because although many acres were harvested in FY23, none were completely closed out.

Reflecting on treatments implemented in FY23, if/how has your CFLRP project aligned with other efforts to accomplish work at landscape scales?

Within the CFLRP footprint outside of NFS lands, there were 1,010 acres treated on private lands using EQIP Grants through the Natural Resources Conservation Service (NRCS). The NM Forestry Division also funded 537 acres of treatment on NM State Land Office lands, which were made available for community fuelwood gathering. In addition, there were 41 acres of private lands treated through New Mexico's Forest Health Initiative in the landscape this FY across 4 landowners. This program is a partnership between R3 Forest Health, NM Forestry Division, and the Forest Stewards Guild.

The Zuni Mountains CFLRP landscape, as well as approximately 5,000 acres to the south is one of 10 Shared Stewardship Priority Landscapes identified in New Mexico, which have priority for treatment and funding. The Timberlake Project, located within the shared stewardship boundary, is under analysis with a decision expected in 2024. This project will provide fuelwood and forest products to surrounding local communities and will be included in a Wood for Life proposal.

More specifically, the Zuni Mountains landscape is one of the top 10 landscapes identified in the 2020 New Mexico Forest Action Plan in need of investment and treatments (https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/FocalAreasPublic.pdf). The watersheds in the landscape were also subsequently elevated in the 2021 New Mexico Shared Stewardship top 500 forested watersheds in the state (https://www.emnrd.nm.gov/sfd/wp-content/uploads/sites/4/Top-500-Watersheds-1.pdf).

Out of 8,123 shared stewardship acres planned or completed in 2023, 537 were completed on State Land Office lands immediately adjacent to NFS lands within the CFLRP footprint. The Forest Stewards Guild works with partners such as the State Land Office and New Mexico Forestry Division to assess how many acres of treatment within the CFLRP area are completed each year on private, Tribal, County, State, or non-Forest Service federal lands.

4. Restoring Fire-Adapted Landscapes and Reducing Hazardous Fuels

Narrative Overview of <u>Treatments Completed in FY23</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?

There were 1,319 acres logged by Forest Fitness providing wood to the Mt Taylor Manufacturing mill (Figure 1). All harvested areas, commercial and non-commercial, are prioritized in the Bluewater EIS and Puerco EA Decisions and consider the proximity to WUI and resources at risk. Winter logging is prioritized by ease of access and accessibility to all weather roads. Given extensive private inholdings, all of the Zuni Mountains are considered a WUI area. All mechanically treated acres are scheduled for follow-up prescribed burning to maintain treatment effectiveness and complete overall restoration by reintroducing low-intensity fire back into the landscape. Some restoration units are prioritized to work around northern goshawk breeding season, which has operational restrictions from March through September.

Figure 1. Continental Divide Unit 2 post-harvest Aug 2023 (Puerco Project).

Prescribed burning in Copperton Burn Units 1 & 2 was completed in spring 2023, totaling 1,856 acres. The pace and scale of treatments has fluctuated over the past couple of years due to turnover of the logging contractor(s) and work stoppages related to weather and forest closures due to high fire danger. However, this fiscal year saw a rebound in the number of acres treated, a trend that is expected to continue and increase.

A seasonal forestry crew (supported jointly by CFRP and CFLRP funds), overseen by the Forest Stewards Guild, cut 1 mile of fire line, removed fuels along the boundary, and improved fire access roads on the Mt. Taylor side of the Mount Taylor RD in preparation for prescribed burning.

With major assistance from the Forest Steward's Guild and the youth crew, CNF collected pre-harvest condition stand examination data in 1,366 acres on stands scheduled to be harvested over the next 1-2 years. This existing condition data will be used to compare against the accuracy of imputed nearest neighbor data as well post-treatment conditions to help determine how well we are meeting desired conditions and project objectives.

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

- FROM FTEM (can be copied/summarized): Did the wildfire behavior change after the fire entered the treatment? n/a

Despite a less than average summer monsoon season, there were no significant wildfires in the CFLRP project area during this fiscal year. In total, six wildfires occurred in the Zuni Mountains landscape, totaling less than five acres (see table below).

- FROM FTEM (can be copied/summarized): Did the treatment contribute to the control and/or management of the wildfire?
  n/a

Name	Identifier	Type	Date Time	Size	Agency	Long	Lat	Cause	County	Fuels
POWERLINE	2023-NMCIF-000167	WF	5/23/2023 6:00	0.25	USFS	-107.959	35.01383	Human	Cibola	Grass-Shrub
QUARTZ	2023-NMCIF-000354	WF	7/26/2023 22:29	0.1	USFS	-108.042	35.08383	Natural	Cibola	Timber
REID	2023-NMCIF-000385	WF	7/29/2023 23:59	0.1	USFS	-107.978	34.97956	Natural	Cibola	Grass-Shrub
MATEO	2023-NMCIF-000447	WF	8/18/2023 17:58	1.8	USFS	-107.639	35.20556	Natural	Cibola	Timber
BLIZARD	2023-NMCIF-000475	WF	9/17/2023 19:43	2.2	USFS	-108.485	35.36608	Natural	McKinley	Timber
FROSTY	2023-NMCIF-000474	WF	9/17/2023 19:40	0.15	USFS	-108.564	35.35986	Natural	McKinley	Timber

- FROM FTEM (can be copied/summarized): Was the treatment strategically located to affect the behavior of a future wildfire?
- Please describe if/how partners or community members engaged in the planning or implementation of the relevant fuels treatment. Did treatments include coordinated efforts on other federal, tribal, state, private, etc. lands?
- What resource values were you and your partners concerned with protecting or enhancing? Did the treatments help to address these value concerns?
- How are planned treatments affected by the fire over the rest of the project? Was there any resource benefit from the fire that was accomplished within the CFLRP footprint or is complementary to planned activities?
- What is your key takeaway from this event – what would you have done differently? What elements will you continue to apply in the future?

FY23 Wildfire/Hazardous Fuels Expenditures

Category	$
FY23 Wildfire Preparedness*	$312,121
FY23 Wildfire Suppression**	$145,820
FY23 Hazardous Fuels Treatment Costs (CFLN, CFIX)	
FY23 Hazardous Fuels Treatment Costs (other BLIs)	RX Burning $18,245 Rx Burn Prep $22,480

* 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")

As always, restoration thinning to restore species composition, density and historic stand structure are designed to reduce potential future fire suppression costs, as well as facilitate the reintroduction of low-intensity surface fires that maintain fuel loads at more historic levels. This was evidenced by the 2018 Bluewater-Diener Fires, where treated areas experienced reduced fire intensity and fire behavior upon burning into treated areas on Salitre Mesa, thus reducing suppression costs. These are the only large fires to occur within the CFLRP footprint since 2012, despite approximately 76 fire starts over that time. This provides at least anecdotal evidence that mechanical restoration and prescribed fire treatments have reduced fire size and intensity since treatments under the CFLRP began in 2012. Aerial ignitions have become the norm for prescribed burning in the Zuni Mountains. Although the cost per acre is more expensive, the amount of acres treated has substantially increased over the past 5-10 years since its adoption. When fires do occur within treated areas, the fuel load is such that ignitions can be contained much quicker before increasing in size.

5. Additional Ecological Goals

Narrative Overview of <u>Treatments Completed in FY23</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.

Ecological goals outlined in the Zuni Mountains CFLRP proposal include:

- *The protection of large and old trees.*
- *The restoration of vegetation resistant to uncharacteristic crown fires and resilient to disease and pests.*
- *Improved habitat availability and quality for species of concern, including Zuni bluehead sucker, Mexican spotted owl, and other focal species (i.e.- Species of Conservation Concern).*

Because of the railroad logging history in the Zuni Mountains at the turn of the 20th century, there is a conspicuous lack of large and old trees across the landscape. Because of this fact, the CNF has implemented a large and old tree retention strategy where all trees exhibiting old tree characteristics and/or greater than 24" in diameter are retained. Restoration treatments focus on restoring historic conditions that include a clumpy-groupy arrangement with regeneration openings and interspace in between groups that increase tree vigor, promote natural regeneration, and greatly reduce crown fire potential (Figure 2). All 1,319 acres of restoration treatments accomplished in 2023 utilized the group selection silvicultural system, which retains the underrepresented older trees and is designed to naturally regenerate 20% of treated acres. Prescribed fire accomplishments of 1,855 acres reduced fuel loading and prepared sites for natural regeneration.

Figure 2. Uneven-aged group selection creating a “clumpy-groupy” arrangement that promotes natural regeneration and reduces crown fire potential.

A total of 3,339 acres of vegetation treatments were completed to improve soil and water condition (S&W-RSRC-IMP). A shared restoration opportunity at Shush Kin Fen at the headwaters of Bluewater Creek, originally scheduled for completion in FY22 and postponed due to heavy rains, was completed in FY23. Cattle exclusion pipe fences were installed around two headwater springs which feed Bluewater Creek and around the historic perimeter of the rare Shush Kin histosol fen to protect them from grazing degradation. Construction of a third barbed wire fence and new cattle guard was started along the perimeter of the larger grazing allotment within which the Fen and Headwaters are located to prevent leased cattle from entering the allotment during unauthorized periods of the year. This restoration initiative will improve watershed condition and habitat quality by limiting encroachment by cattle.

Terrestrial habitat enhancements were accomplished through a combination of forest restoration thinning and low intensity prescribed burning on 3,063 acres. All wildlife surveys (Mexican spotted owl and northern goshawk) in the Bluewater and Puerco projects are current, and 5-year MSO resurveys began in the summer of 2022 and continued in FY23.

Forest treatments

Forest treatments narrative: values of restored areas.

In the most recent data analysis (Figure 3), Forest Stewards Guild ecological monitoring staff compared the results of the 2020 analysis to measurements taken after two or more forest restoration treatment entries and found that:

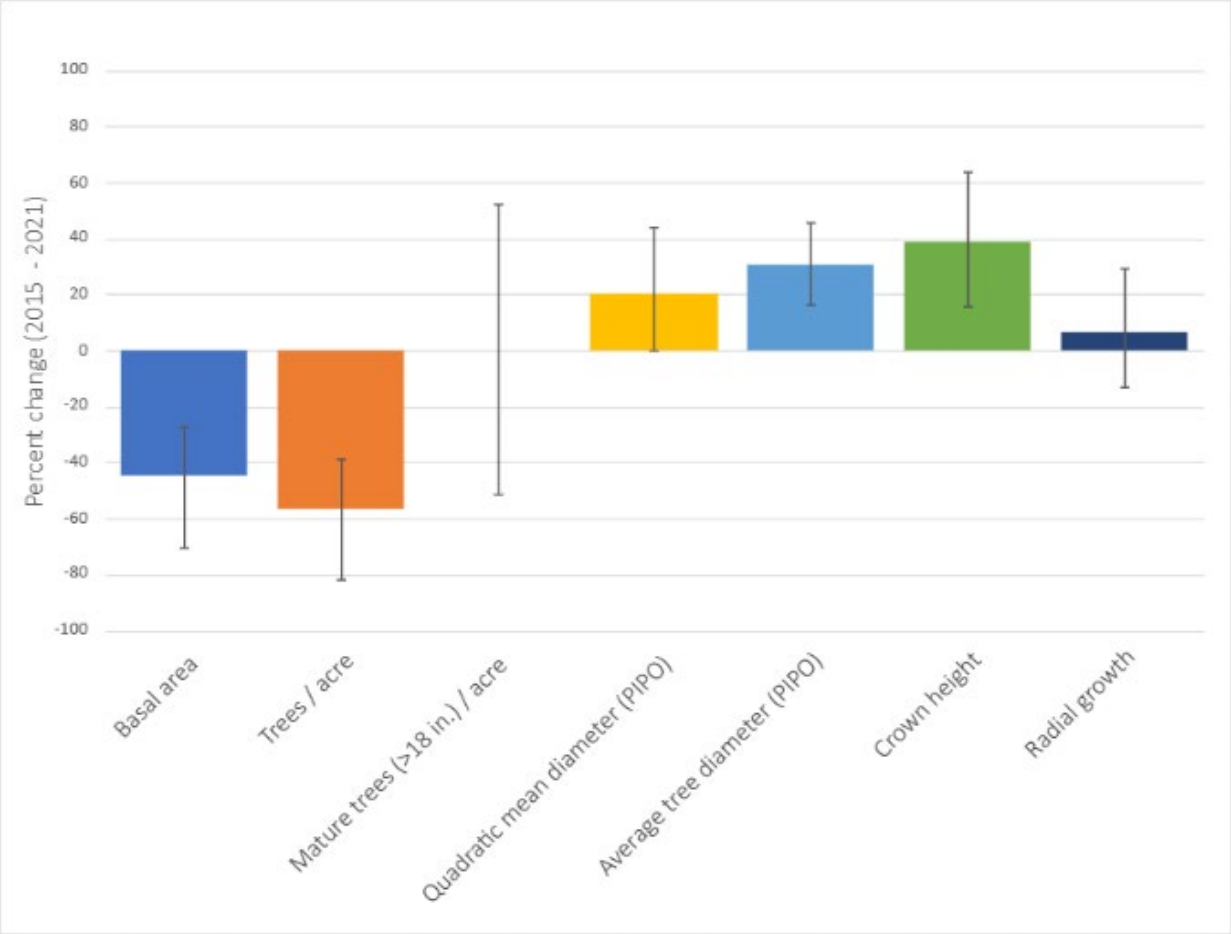


Figure 3: Results of the 2020 analysis to measurements taken after two or more forest restoration treatment entries.

- *Number of small trees decreased, mature trees were preserved, average diameter of ponderosa pine increased, and overall tree density was reduced.*
- *Average crown height (distance from the ground to lowest live branches) increased, signaling a lowered probability of surface fire being able to burn into the living canopy.*
- *Prevalence of large and old trees on the landscape remained steady with 5-6 mature trees (greater than 18" DBH) per acre.*

Taken as a whole, these changes to stand structure are associated with a substantial reduction in the hazard of uncharacteristic crown fire, an increase in forest resilience to drought, pests, and disease, and an increase in resistance to wildfire induced mortality in ponderosa pine. This restoration work lays the groundwork for a return to a historical fire regime while preparing for the impacts of climate change in the Zuni Mountains.

Watershed restoration

Shush Kin Fen is a histosol fen located at the headwaters of Bluewater Creek in the heart of the Zuni Mountains. A histosol fen is a peat-forming wetland, which means its rate of organic matter accumulation exceeds its rate of decomposition. Fens have high organic carbon content, making them a major sink for atmospheric carbon. They are also biodiversity hotspots, home to rare plants, insects, and small mammals while providing forage for large mammals. Fens are an incredibly rare wetland feature in New Mexico, typically taking thousands of years to form.

Over the past decades, overgrazing, trampling, and compaction by cattle have degraded Shush Kin Fen to the point that it no longer perennially holds water. The objectives of the Shush Kin Fen restoration project are to restore the structure

and function of the fen, enhance wildlife habitat, reduce erosion, and improve water retention in an increasingly arid landscape. This project is being carried out through the support of the New Mexico Department of Game and Fish, Bat Conservation International, Rocky Mountain Elk Foundation, and New Mexico EMNRD – Forestry division.

***Figure 4**. Pipe rail fence constructed at the headwaters of Bluewater Creek*

During the last week of June, crews constructed a pipe fence at Shush Kin Fen to prevent cattle from entering the sensitive wetland area (Figure 4). In addition to fencing, diverse methods will be used to restore vegetation structure, including filling in between hummocks and smashing them down. Through these measures, the Mt. Taylor Ranger District hopes that Shush Kin Fen will, in time, return to its former condition. The Mount Taylor Ranger District is also working with Alamo Navajo to restore three nearby springs that provide habitat for populations of rare native fish, including the Rio Grande sucker and Rio Grande chub. Here, pipe rail fencing was installed this summer, and a barbed wire pasture fence will be erected this fall to help keep cattle in a better rotational pattern. The District and its partners are currently developing a monitoring plan to track the recovery of these valuable riparian habitats.

We are working with partners to develop implementation project for concept design of instream structures Fall/Winter 2023-24. Other planned tasks include developing the design and project scope for hummock restoration in the fen, monitoring plan and installation of temperature monitoring equipment in FY24.

Read more about the Shush Kin Fen restoration project here.

Prescribed Fire

In May 2023 the Mt. Taylor District implemented Copperton 1 and 2 blocks of the Redondo Prescribed Burn with ignitions on May 11th and 12th. The 813-acre Copperton 2 unit and the 1,043-acre Copperton 1 unit were ignited for a total 1,856 acres accomplished with prescribed fire. Low to moderate fire behavior was observed with the safe reintroduction of surface fire to the units (Figures 5&6).

Figures 5 & 6. Low-intensity prescribed fire and holding line from Copperton Burn Units 2023.

6. Socioeconomic Goals

Narrative overview of <u>activities completed in FY23</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.**

The project continued to support increased investment in the landscape and had important social and economic benefits to employment, training, and capacity. One longstanding example that pre-dates the CFLR is the partnership between the Cibola National Forest and the Forest Stewards Guild where the Mt. Taylor District hosts a Forest Stewards Youth Corps (FSYC) crew every summer. The crew is comprised of 16-19 year old youth from local communities who earn a pay check, gain access to college credit, get first-aid and CPR certified, and get critical on the job training while performing important conservation projects on public lands. This year they completed 1 goshawk survey with 17 plots, monitored 3 acres for grazing permit renewal, built over 3.25 miles of fence, marked 2 water engine pumps, monitored 100 plots and 2 sites for water quality in the CFLR landscape. In addition, they completed 2 miles of trail maintenance outside of the landscape and spent a week in the Hermit's Peak – Calf Canyon Fire burn scar implementing post-fire restoration projects and were able to build 4 trash racks and 3 one-rock dams in high severity burned areas. They then bring their paychecks, college credits, training, and experiences back to the CFLR landscape and their communities.

Another crew first hired in 2021, the Forest Stewards Forestry Crew, is a more recently initiated example of partnership between the Forest Stewards Guild and the Cibola National Forest. Although their FY23 season extended only a few weeks into October 2022, this 4-person crew comprised of local forestry professionals and foresters-in-training has become an essential part of completing the unit layout and tree marking that is necessary to prepare thinning units for bid or stewardship agreement within the CFLRP landscape. These individuals work under the supervision of permanent seasonal and year-round Cibola staff, earn a living wage, receive forest health and timber sale preparation training, add

capacity to the Forest's timber shop to accomplish its out-year wildfire protection and forest resilience program of work, and reinvest their paychecks into the local community.

Local technical specialists such as Forest Fitness (forest thinning), Rocky Mountain Ecology, Springs Stewardship Institute, Forest Stewards Guild (ecological and social/economic monitoring), Cibola Trails Alliance (recreation), and more are hired by or enter into agreements with the Cibola National Forest to complete a variety or essential services within the landscape. These partners are generally owned and staffed by local individuals who earn and spend their money in the larger CFLRP landscape, pay taxes to the state of New Mexico which are re-invested in local communities, and keep talent and knowledge in the community by providing employment opportunities locally.

In 2023, a Forest Service Wood Innovations Grant was awarded $300,000 to Mt. Taylor Manufacturing for Enhanced Sawmill Volume, Value and Employment, Zuni Mountains, New Mexico, one of only four funded projects in the state of New Mexico.

Overall, 81% of total CFLRP FY23 funds were used for contracts with businesses located within the impact area.

Collaborative Governance Assessment

The Southwest Ecological Restoration Institutes (SWERI) deployed an online survey to the Zuni Mountains CFLRP and Zuni Mountains Collaborative in the winter of 2022–2023 to assess collaborative health, function, and resilience, as well as perceived outcomes of collaborative work. Overall, a strong majority agreed on almost every indicator that the Collaborative members worked well together and accomplished their goals. In fact, 100% of respondents thought the CFLRP process was collaborative overall.

Respondents provided a number of recommendations to improve the collaborative process and performance, including:

- *Increase stakeholder participation, engagement, and outreach, especially with local residents. The questionnaire had a low overall response rate, with a lack of participation by key players; the Collaborative is already expanding their efforts to include more participants.*
- *Enhance understanding of restoration work including increasing transparency in Forest Service decision making and hosting informative field trips.*
- *Increase collaborative personnel capacity as personnel turnover was a documented disruption, and action was limited by time constraints and agency and wood products industry capacity. Commenters recommended the development of young staffers' leadership skills and the addition of botanical expertise.*
- *Continue to support flexible approaches, building on successful collaborative pivoting to maintain mill supply during the Mexican spotted owl injunction and fire restrictions.*

Several respondents were very positive on the outcomes of the CFLRP process:

"The acres that are being treated and the restoration that is taking place is fantastic."

"Our local timber business would not be functioning if the CFLRP were not thriving."

A couple of respondents expressed appreciation for the role the FSG has played:

"Partnering with the Forest Stewards Guild early in the process, prior to the initial CFLRP proposal in 2011–12, has proved invaluable in garnering and maintaining support of the collaborative, as well entering into a monitoring agreement that involves multiple parties and provides credible feedback on progress effectiveness."

Results from this questionnaire provided a baseline assessment of collaborative governance among the Zuni Mountains CFLRP. The SWERI will continue to engage in assessing collaborative health and performance of CFLRP projects, the goal of which is to identify where capacities lie and areas for improvement to target investments and activities that support resilient and durable collaboration.

Results from the Treatment for Restoration Economic Analysis Toolkit (TREAT). For guidance, training, and resources, see materials on Restoration Economics SharePoint.[8] 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: _81__%
Contract Funding Distributions Table ("Full Project Details" Tab):

Description	Project Percent
Equipment intensive work	**21%**
Labor-intensive work	**60%**
Material-intensive work	**2%**
Technical services	**3%**
Professional services	**7%**
Contracted Monitoring	**7%**
TOTALS:	**100%**

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

Jobs Supported/Maintained in FY 2023	Direct Jobs (Full & Part-Time)	Total Jobs (Full & Part-Time)	Direct Labor Income	Total Labor Income
Timber harvesting component	**27**	**0**	**$1,400,000**	**$0**
Forest and watershed restoration component	**0**	**19**	**$648,380**	**$972,730**
Mill processing component	**20**	**69**	**$830,841**	**$2,822,945**
Implementation and monitoring	**6**	**7**	**$213,816**	**$271,991**
Other Project Activities	**1**	**1**	**$62,625**	**$87,298**
TOTALS:	**54**	**96**	**$3,155,662**	**$4,154,964**

- **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**?

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.[9] For resources, see materials here (external Box folder).

Mt. Taylor Manufacturing - Operates a state-of-the-art Double Cut Band Mill alongside double Morgan Scragg Mills. This provides the ability to cut standard size wood products very rapidly or to cut custom-sized wood products to customer order. Current rough green offerings include cants and beams and custom cutting: virtually any size and length are available up to 30' long, as long as large logs are available. Also, under the same ownership is Out of the Woods Manufacturing, a wood processing and manufacturing plant based out of Albuquerque that processes wood into a variety of environmentally friendly products including Clean Burning Wood Pellets, Garden Mulch, premium fragmented animal bedding, IPEMA Certified Playground Chips, and Smoker Pellets. (https://www.mttaylormanufacturing.com)

[8] Addresses Core Monitoring Question #7
[9] Addresses Core Monitoring Question #8

Forest Fitness – Forest Fitness, LLC was started in January 2002 with two chainsaws and a chipper in response to the demand for landscape-scale restoration across the Southwest. Since then, they have conducted forest thinning, wildlife habitat enhancement, riparian restoration, and fuels reduction services on hundreds of projects, totaling thousands of acres of piñon/juniper woodlands, ponderosa pine, riparian, and mixed-conifer systems across the Western United States. (http://www.forestfitness.com)

In FY 2023, Forest Fitness (FF) received the stewardship contract with National Wild Turkey Federation and the business has grown substantially. CFLRP funding has played an important role in stabilizing FF and this has supported important investments in the business and the development of horizontally integrated partner businesses -- Armstrong Conservation and Rocky Mountain Ecology. Both new businesses work in close partnership with FF and provide an additional 10 full-time jobs, providing important secondary economic benefits in the Zuni Mtns. Landscape. Additionally, in FY 23 FF has invested considerably in new equipment that will support the business in years to come, including: 2 new forwarders, a skidder, a processor, and a timber-pro feller buncher. Business owner Jeremy Hanlon attributed the growth in his business to the stabilizing effect that the CFLRP has had on his business and described how the CFLRP has established important relationships with National Wild Turkey Federation that have led to new NWTF contracts in Utah. Aside from the federal and partner investments in project work within the CFLRP landscape, the Zuni Mtns. CFLRP has provided an important platform for businesses like FF to build capacity and relationships that will benefit the wood processing capacity in New Mexico.

Wilson Construction Services, LLC. was contracted through the New Mexico Game & Fish Department to construct fences around two springs and install cattle guards leading into Shush-Kin Fen and the spring protection areas.

Maintaining and creating restoration related jobs through thinning operations and wood processing at MTM that will continue to provide sustainable well-paying jobs to surrounding local communities. Local natural resource crews that have trained and gained experience through work implemented in the ZML, such as Alamo and Ramah Navajo, will continue to be prioritized for non-commercial thinning operations and commercial fuelwood permits.

7. Wood Products Utilization

Timber & Biomass Volume Table[10]

Performance Measure	Unit of measure	Total Units Accomplished
Volume of Timber Harvested TMBR-VOL-HVST	CCF	6,595*
Volume of timber sold TMBR-VOL-SLD	CCF	4,813
Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production BIO-NRG	Green tons	26,800.25

*TMBR-VOL-HVST calculated from the number of acres treated (1,319) multiplied by 5 ccf/acre, which is the average volume per acre removed from the Zuni Mountain Landscape.

- 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)?

Mount Taylor Manufacturing received a FY2023 Wood Innovation Grant (WIG) to Enhanced Sawmill Volume, Value, and Employment Zuni Mountains NM.

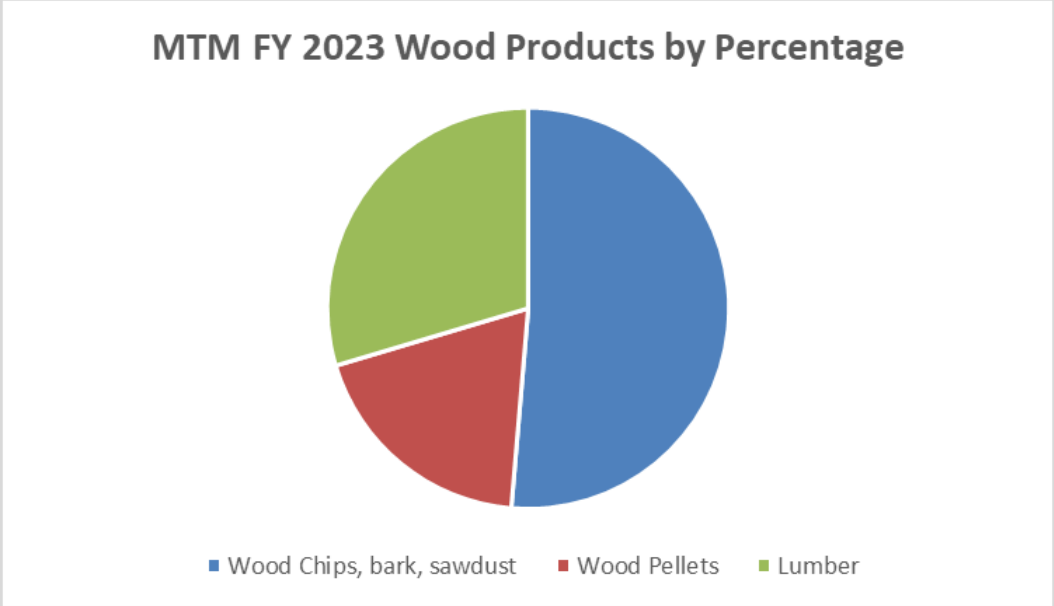
Project Goals

[10] Addresses Core Monitoring Question #10

- *Update/purchaser ring de-barker to accompany new Helle Scragg mill at the facility to increase production and efficiencies with removing bark before processing.*
- *Install sawdust conveyors to remove residue produced from Helle Scragg mill. This improvement will substantially lower electrical costs versus utilizing a blower system to remove waste.*
- *Replacement/upgrade of current C-Series ring de-barker components (de-barking head and pole peeling head). This upgrade will allow for more efficient processing of small diameter material.*
- *Purchase large disc chipper to convert waste slabs from Helle Scragg into usable byproducts/chips.*

Project Impacts

- *New components and facility equipment updates will create employment for Mount Taylor Manufacturing Navajo Crew in Milan, NM, an under-severed community.*
- *Mill upgrades will aid in forest restoration activities in the Zuni Mountains by having the capacity to utilize and receive more wood products from restoration activities.*



As you can see in the figure above, more than 50% of the wood going into Mount Taylor Manufacturing is used for products other than lumber. This represents the innovative product line of MTM and their ability to work with smaller diameter logs that may not be suitable for dimensional lumber.

8. Collaboration

Please include an up-to-date list of the core members of your collaborative if it has changed from your proposal/work plan (if it has not changed, note below).[11] For detailed guidance and resources, see materials here. Please document changes using the template from the CFLRP proposal and upload to Box. Briefly summarize and describe changes below.

We have had no significant change in core Collaborative membership. Organizations such as the Great Old Broads for Wilderness, New Mexico Native Plant Society, National Wild Turkey Federation, Cottonwood Gulch Expeditions, New Mexico Department of Game and Fish, New Mexico State Forestry, Ramah Navajo Forestry, Bááhááli Navajo Chapter, Pueblo of Laguna Forestry, Pueblo of Zuni Conservation Department, McKinley Soil and Water Conservation District, Lava Soil and Water Conservation District, New Mexico Council of Governments, and others continue to be involved and engaged.

[11] Addresses Core Monitoring Question #11

Meeting	Date	# Attendees
Annual Collaborative Meeting	*4/11/23*	*32*
Collaborative Site Visit	*5/30/23*	*20*
Monitoring Subgroup Meeting	*11/15/22*	*21*
Water Monitoring Site Visit	*11/21/22*	*7*
Monitoring Subgroup Meeting	*5/9/23*	*9*
Monitoring Subgroup Meeting	*7/19/23*	*14*
Monitoring Subgroup Meeting	*10/24/23*	*13*
Wood Utilization Subgroup Meeting	*6/14/23*	*7*
Wood Utilization Subgroup Meeting	*7/24/23*	*9*
Wood Utilization Subgroup Meeting	*9/27/23*	*7*
TOTAL		***139***

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 Forest Stewards Guild through a monitoring agreement with the Cibola National Forest. In this FY, the Guild partners with others to conduct the monitoring including the US Fish and Wildlife Service for Zuni Bluehead Sucker (T&E), RiverSource for hydrological monitoring, the Forest Stewards Youth Corps for tree marking and stand exams, the Navajo Nation, the Northwest NM Council of Governments.

The United States Geological Survey (USGS), Bureau of Land Management (BLM), and New Mexico Energy, Minerals and Natural Resource Department (EMNRD) supported inventory and data collection on the federally threated Zuni fleabane and its habitat to inform ongoing habitat modeling efforts. Several new meta-populations were discovered during the surveys.

We do not have a formal adaptive management process. However, the same individuals who design and plan management actions – namely Forest Silviculturist and Mt Taylor Fire Management Officer– are also the ones implementing these actions as well as monitoring.

Moving forward, community meetings are to include report outs from Collaborative subgroups including the monitoring subgroup. This presents an opportunity to disseminate monitoring results in the same forum where past management actions are being reflected upon and future management actions discussed and planned. This represents the community space where adaptive management can and does occur.

We have migrated all multi-party monitoring databases to Pinyon – Box Drive, a sharable file storage system. Partners such as US Fish and Wildlife Service have been invited to contribute to shared databases on Box.

<u>What has worked well:</u>

- *Building on previous and past efforts across the landscape.*
- *Establishing a participating agreement with Forest Steward's Guild for monitoring and facilitation.*
- *FSG Youth crew has been vital in supporting tree marking and Rx burn prep.*
- *Adding Community Fuels position to help assess fuelwood needs and supply.*

<u>Challenges:</u>

- *Attracting and creating more volunteer participation.*
- *Capacity - Encouraging USFS participation from other program areas beyond Forestry and Wildlife. USFS analysis of data has been hampered because the Forest Silviculturist is also the CFLRP Coordinator. However, a*

Silviculture Forester was hired this FY and will be able to assume some of these duties in time.

- *Modeling fire intensity (predicted flame lengths and crown fire) with IFTDSS. Without major manipulation, the program does not seem to accurately account for work completed on the ground. The IFTDSS Auto 97th Fire Behavior model was found to use extreme weather conditions that were not representative of the entire CFLRP landscape. Something to keep in mind when examining the results that these weather conditions are likely to occur only 3% of the time. There are also multiple assumptions built into IFTDSS such as uniform fuel type within the pixel, limited suppression, etc. and the person conducting the model must understand how to not only model fire behavior but how to change even the existing Landfire data in a relatively new database. This makes the results under extreme conditions, thus making it challenging to determine how effective the previous year's fuels treatments maybe on the landscape.*

10. Conclusion

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

We expect to have funded, or close to, virtually all the acres analyzed for commercial timber harvest in the Bluewater and Puerco Projects through the NWTF Stewardship Agreement by the time it expires in 2026. We anticipate creating another 10-year stewardship agreement and transitioning into funding mostly non-vegetation restoration treatments and monitoring towards the end of the extension period in 2031 (i.e. - watershed, range, and wildlife). There are also over 10,000 acres of pinyon-juniper thinning remaining in the Puerco Project that will be prioritized for public fuelwood gathering after mechanical treatments to restore historic densities and composition. In the meantime, we are pursuing opportunities for a more balanced restoration approach that includes utilizing new and existing agreements and contracts to accomplish that work, such as the Shush-Kin Fen in 2023.

Optional Prompts

FY 2023 Additional Accomplishment Narrative and/or Lessons Learned Highlights

Media Recap

Zuni Mountains Collaborative newsletter:

- Learning by Doing: the Next Decade of Monitoring — Zuni Mountains Collaborative
- Telling Stories Through Maps — Zuni Mountains Collaborative
- Tracking our management impact: vegetative monitoring updates — Zuni Mountains Collaborative
- Spring '23 Community Meeting — Zuni Mountains Collaborative
- Water monitoring in the upper Rio Nutria — Zuni Mountains Collaborative
- Riparian restoration in the heart of the Zuni Mountains — Zuni Mountains Collaborative
- Reconnecting Indigenous youth to their land — Zuni Mountains Collaborative
- Prescribed Broadcast Burn Planned for Autumn 2023 — Zuni Mountains Collaborative

Zuni Mountains CFLRP Storymaps:

- Zuni Mountains CFRLP Storymap
- Bluewater Showcase | Forest Visualization (arcgis.com)

Media Coverage:

- Heinrich Welcomes $4 Million In Investme... | Senator Martin Heinrich (senate.gov)

- How can we work together to protect our forests? A federal program provides a model. | The Wilderness Society
- Report: Existing Forest Service policy could have lessons for old-growth forest restoration | KUNC
- Wildfire Wednesdays #114: The Importance of Returning Fire to the Landscape — Greater Santa Fe Fireshed Coalition
- Cultivating Collaborative Resilience to Social and Ecological Change: An Assessment of Adaptive Capacity, Actions, and Barriers Among Collaborative Forest Restoration Groups in the United States | Journal of Forestry | Oxford Academic

Visuals

The following files were uploaded:

- ✓ *Zuni Mechanical Treatments Map 2023*
- ✓ *Zuni Prescribed Fire Treatments Map 2023*
- ✓ *Post-Fire Photo Series Bluewater Fire Salitre 4-26-2018: Shows post-fire photo points created by NM Forestry Division of a treated area affected by the Bluewater Fire (2018). Shows that thinning treatments helped to reduce fire effects and crown fire, even with 1-year old lopped and scattered slash on the ground.*
- ✓ *Collaborative Governance Assessment and CFLRP Zuni Brief*

Signatures

Recommended by (Project Coordinator(s)):

/s/ Shawn A. Martin
Forest Silviculturist/CFLRP Coordinator, Cibola National Forest

Approved by (Forest Supervisor(s)):

/s/ Kim Biddle
Forest Supervisor, Cibola National Forest & National Grasslands

Draft reviewed by (collaborative representative):

/s/ Eytan Krasilovsky
Deputy Director, Forest Stewards Guild

Attachment: CFLRP Common Monitoring Strategy Core Questions

The 2022 cohort will complete the Common Monitoring Strategy questions in FY23. The 2022 cohort includes:
Lakeview, Missouri Pine Oak Woodlands, North Yuba, North Central Washington, Northeast Washington, Rio Chama, Rogue Basin, Shortleaf Bluestem, Southern Blues, Southwest Colorado, Western Klamath, Zuni

2021 funded projects (Deschutes, Dinkey, Northern Blues) will only need to address the annual questions (Q1, Q5, Q7, Q10, Q11, Q13). For CFLRP projects awarded (or extended) in FY23, the Attachment is NOT required. However, please note it will be required in FY24.

The CFLRP Common Monitoring Strategy is designed to reflect lessons learned from the first ten years of the program, expand monitoring capacity, and improve landscape-scale monitoring. It is intended to strike a balance between standardization and local flexibility and to be responsive to feedback that more guidance and capacity are needed. Questions are standardized nationally and indicators are standardized regionally. Many CFLRP projects have been implementing restoration treatments and monitoring progress prior to the Common Monitoring Strategy. This effort may not capture the progress of every project over its lifetime but provides an opportunity for all projects to take a step together in a unified monitoring approach.

- Question 1: "What is the reduction in fuel hazard based on our treatments?"
- Question 2: "What is the effect of the treatments on moving the forest landscape toward a more sustainable condition?"
- Question 3: "What are the specific effects of restoration treatments on the habitat of at-risk species and/or the habitat of species of collaborative concern across the CFLRP project area"
- Question 4: "What is the status and trend of watershed conditions in the CFLR area, with a focus on the physical and biological conditions that support key soil, hydrologic and aquatic processes?"
- Question 5: "What is the trend in invasive species within the CFLRP project area?"
- Question 6: "How has the social and economic context changed, if at all?"
- Question 7: "How have CFLRP activities supported local jobs and labor income?"
- Question 8: "How do sales, contracts, and agreements associated with the CFLRP affect local communities?"
- Question 9: "Did CFLRP maintain or increase the number and/or diversity of wood products that can be processed locally?"
- Question 10: "Did CFLRP increase economic utilization of restoration byproducts?"
- Question 11: "Who is involved in the collaborative and if/how does that change over time?"
- Question 12: "How well is CFLRP encouraging an effective and meaningful collaborative approach?"
- Question 13: "If and to what extent have CFLRP investments attracted partner investments across the landscapes?"

The tables in the section below are copy/pasted from the suggested monitoring tracking templates to help organize data across CFLRP projects. Adapt the reporting tables as needed to align with regional monitoring indicators.

Monitoring Question #1: "What is the reduction in fuel hazard based on our treatments?" (Reported Annually)

For detailed guidance, training, and resources, see corresponding reporting template here. Use it to respond to the following prompts:

This contains summarized IFTDSS Fire Behavior modeling results for the Zuni Mountain CFLRP Models, which was initiated in 2012 and has been extended for another ten years through 2031. These were run using a landscape file built with unedited Landfire 2022 (LF 2022) data and don't have the FY23 correct fuel models.

The IFTDSS Auto 97th Fire Behavior model was found to use extreme weather conditions that were not representative of the entire CFLRP landscape. Something to keep in mind when examining the results that these weather conditions are likely to occur only 3% of the time. There are also multiple assumptions built into IFTDSS such as uniform fuel type within the pixel, limited suppression, etc. and the person conducting the model must understand how to not only model fire behavior but how to change even the existing Landfire data in a fairly new database. This makes the results under extreme conditions, thus making it challenging to determine how effective the previous year's fuels treatments maybe on the landscape.

Essentially this form of modeling is for fire behavior and likely will not be effective as it comes to actual fire on the ground based on environmental conditions posed in the model as well does not function as the same as typical monitoring that occurs to showcase the difference of fire on the landscape. But since it is a requirement, here is the data derived from the initial proposed process.

Flame length data is summarized for the entire project area and crown fire activity classes are summarized for each watershed within the project area. Analysis of IFTDSS outputs was performed in ArcGIS Pro, following instructions from Skye Greenler with the Southern Blues CFLRP. In addition, crown fire activity was summarized by HUC10 watershed.

Table 1. Fire intensity (predicted flame lengths) from IFTDSS

IFTDSS Auto-97th percentile flame length output	*Non-burnable*	*0 – 1ft. flame lengths*	*1 - 4 ft. flame lengths*	*>4 - 8 ft. flame lengths*	*>8 - 11 ft. flame lengths*	*>11 - 25 ft. flame lengths*	*>25 ft. flame lengths*
Initial landscape model (Baseline under CMS)	2,200	56,445	64,478	72,558	40,231	19,231	1,157
Landscape model 2 (Second year of CMS) N/A in first reporting year	X	X	X	X	X	X	X
Area treated in FY23				1,855	1,319		

- **Briefly describe monitoring results in table above – include an interpretation of the data provided and whether the indicator is trending toward or away from desired conditions for your landscape.** If the data above does not accurately reflect fire and fuel hazard on your landscape please note and provide context. While generally smaller flame lengths are desirable, this isn't the case in all ecosystems – please note if this applies.

Based on the run in IFTDSS using Landfire 2022 with no edits in the Zuni Mountain Footprint, the majority of flame lengths would be at the 4-foot threshold or greater (133,177 acres, Table 1 and Figure 1). This would make it challenging to do direct attack with crews on the landscape and would require either indirect attack and or heavy equipment. Often

potentially leading to fires getting larger and requiring more resources in this footprint. Though that supports the need for treatments, there have been in some areas already treated indicating further need to determine perhaps what would need to be done to showcase a difference.

Hopefully with more treatments and years of the next iteration of CFLRP the treatments will continue to reduce this number and have a better ability to update the Landfire data between year will be provided.

Figure 1. Fire intensity (predicted flame lengths) from IFTDSS Data source(s): IFTDSS, LandFire, FACTS

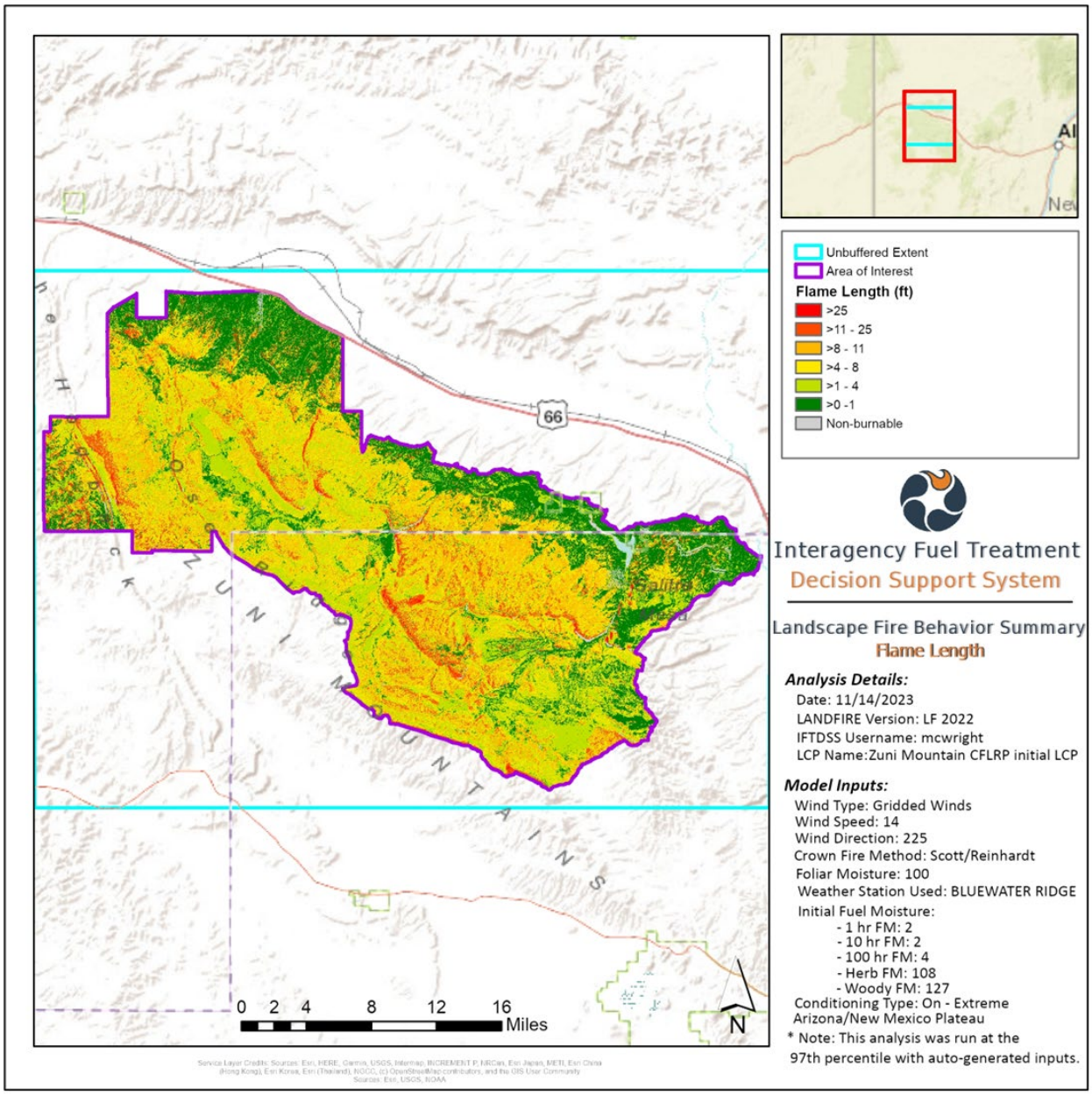


Table 2. Crown fire activity from IFTDSS - IFTDSS Auto-97th crown fire activity output by watershed - Initial landscape model (Baseline under CMS)

Watershed Name	Unburnable	Surface Fire	Passive Crown Fire	Active Crown Fire	Crown Fire (combined)
Bluewater Creek	1704.9 (1.2%)	58878.1 (40.5%)	84680.8 (58.2%)	201.7 (0.1%)	84882.5 (58.4%)

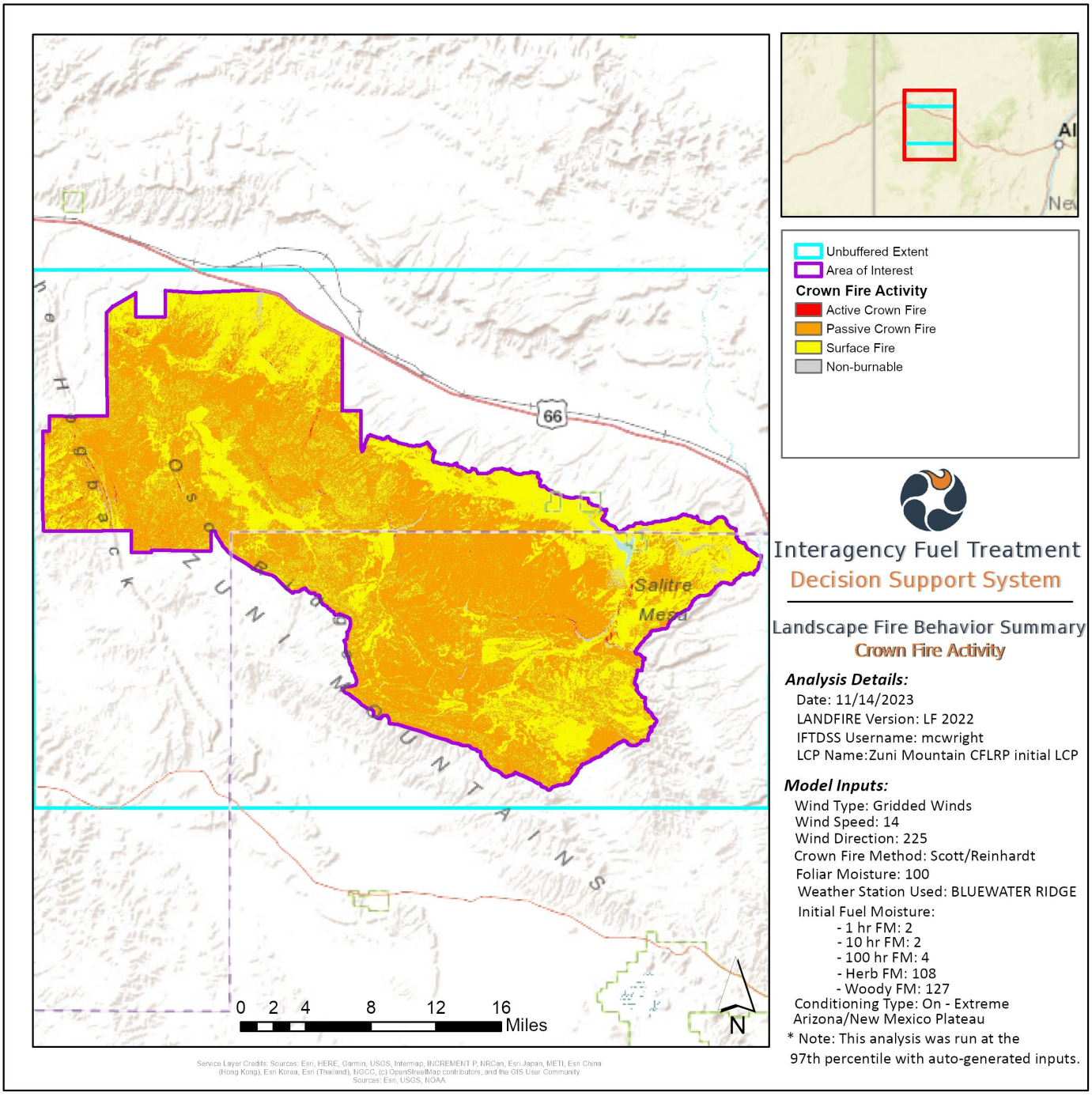
Rio Pescado	0.0 (0.0%)	5.1 (3.3%)	150.3 (96.7%)	0.0 (0.0%)	150.3 (96.7%)
Defiance Draw-Puerco River	0.4 (0.0%)	285.1 (30.0%)	659.2 (69.3%)	5.8 (0.6%)	665.0 (70.0%)
Log Cabin Canyon	0.0 (0.0%)	0.9 (4.5%)	18.7 (94.4%)	0.2 (1.1%)	18.9 (95.5%)
Mitchell Draw	0.2 (0.1%)	209.9 (90.1%)	22.9 (9.8%)	0.0 (0.0%)	22.9 (9.8%)
Upper Rio San Jose	11.8 (1.4%)	601.8 (70.7%)	237.7 (27.9%)	0.2 (0.0%)	238.0 (27.9%)
South Fork Puerco River	256.2 (0.5%)	24535.7 (45.0%)	29641.2 (54.3%)	144.1 (0.3%)	29785.3 (54.6%)
Cebolla Creek	0.2 (0.0%)	30.5 (4.1%)	705.9 (95.8%)	0.2 (0.0%)	706.1 (95.8%)
Rio Nutria	218.4 (0.4%)	19160.6 (37.7%)	31287.6 (61.5%)	191.5 (0.4%)	31479.1 (61.9%)
Whitewater Arroyo	8.5 (0.3%)	1001.4 (40.6%)	1437.3 (58.3%)	16.7 (0.7%)	1454.0 (59.0%)

- **Briefly describe monitoring results in table above – include an interpretation of the data provided, and whether the indicator is trending toward or away from desired conditions for your landscape.** If the data above does not accurately reflect fire and fuel hazard on your landscape please note and provide context.
- **Does your CFLRP project have additional hazardous-fuels related monitoring results to summarize and interpret?** If so, please provide that here.
- **Based on the information in this section, (and any other relevant monitoring information and discussion), what (if any) actions or changes are you considering?**

This is the first year of the new monitoring requirements i.e., using modeling as a form of monitoring. This has challenges since often there are built in assumptions through IFTDSS such as examples mentioned above. The results based on requirements for these questions showcase that despite being an extension project (previously occurred throughout the last 10 years on the landscape and having treatments), majority of watersheds in the CFLRP (eight of the ten watersheds listed) will be impacted by crown fire. Eight watersheds are projected to experience more than 50% crown fire (either passive or active) based on the modeling parameters indicating a need for more treatments (Table 2 and Figure 2).
The two remaining watersheds, that should not experience majority of crown fire, indicate that surface fire will be the largest impact. Thus, indicating less potential for negative impacts if fire remains on the surface rather than getting into the canopy, pending the soil fire severity that also occurs.

Overall, modeling outputs indicate that work will need to be done to reduce the risk on the majority of watersheds within the CFLRP Zuni Mountain footprint. However, the landscape appears to be missing several treatments that likely will alert these numbers. Do think that further development and discussion should be had as to if this is effectively capturing what the overall intent of this question is. Treatments, both prescribed burning and mechanical, do affect fire on the landscape by rearranging fuels, or reducing fuels depending on the type of treatment and if modeling is not accurately showcasing that especially with extension projects.

Figure 2. Crown fire activity from IFTDSS Data source(s): IFTDSS, LandFire, FACTS



Monitoring Question #2: "What is the effect of the treatments on moving the forest landscape toward a more sustainable condition?"

For detailed guidance, training, and resources, see corresponding reporting template here. Use it to respond to the following prompts:

Regions have standardized on one of the four following metrics to address Indicator 1 for ecological departure. For your region's chosen metric, please insert the matching table that corresponds with your indicator from the reporting template (abbreviated examples below).

The Southwest Region will report out on Vegetation Departure every 5 years and Missed Fire Cycle annually.

Table 1: Vegetation Departure

Succession Class Area (acres) & % total project area	**Early Development**	**Mid Closed**	**Mid Open**	**Late Open**	**Late Closed**
	36,058 (16%)	**124,387 (56%)**	**37,506 (17%)**	**2,130 (1%)**	**21,686 (10%)**

Table 2: Missed Fire Cycle

Fire Regime Group	**Fire Regime *I*** (*Frequent*: 0-35 years, Low Severity) **Fire Regime *II*** (*Frequent*: (0-35 years, Stand Replacement Severity) **Fire Regime *III*** (35-100+ years, Mixed Severity) **Fire Regime *IV*** (35-100+ years, Stand Replacement Severity) **Fire Regime *V*** (200+ years, Stand Replacement Severity)

If Region is reporting on indicator 2 (acres burned by wildfire and by prescribed burning annually), fill in this table:

Report in acres and % of total project area	**Fire Regime *I***	**Fire Regime *II***	**Fire Regime *III***	**Fire Regime *IV***	**Fire Regime *V***
Suppression only fires	**10**	**NA**	**NA**	**NA**	**NA**
Fires managed for multiple resource objectives	**NA**	**NA**	**NA**	**NA**	**NA**
Prescribed Fire	**1,855**	**NA**	**NA**	**NA**	**NA**
Total Acres Burned	**1,865**	**NA**	**NA**	**NA**	**NA**
Natural Range of Variation (NRV)	**FRCC2 1,855**	**NA**	**NA**	**NA**	**NA**
Departure	**(<1%)***	**NA**	**NA**	**NA**	**NA**

*Virtually all acres burned in FY23 had prior mechanical restoration treatments which moderately altered (i.e. – from FRCC2 or 3 to FRCC2) the condition class due to a century of fire suppression, despite mechanical treatments. After mechanical treatment and prior to the reintroduction of low-intensity prescribed fire, the Fire Regime Condition Class

(FRCC) went from FRCC 2 or 3 down to FRCC2. Once low-intensity prescribed fire was reintroduced, those acres returned to within the natural historic range (FRCC1).

- ***Briefly summarize how your landscape has departed from historic ecological conditions including disturbance.***

The Zuni Mountain Landscape has departed from historical conditions in several ways. Wildfires have been largely suppressed since European settlement and, along with introduction of grazing, has led to unnaturally dense, closed canopy stands. Additionally, railroad logging at the turn of the century high-graded most large and old trees and created even-aged conditions across the landscape, which reduced structural and age class diversity.

- **Briefly describe monitoring results – include an interpretation of the data provided above, and whether the indicator is trending toward or away from desired conditions for your landscape** (including resiliency to future disturbances and climate projections). If the data above does not accurately reflect condition on your landscape, please note and provide context.

Fire regime condition class (FRCC) is a classification of the amount of departure from the natural regime (Hann and Bunnell 2001). Coarse-scale FRCC classes have been defined and mapped by Hardy et al. (2001) and Schmidt et al. (2001) (FRCC). They include three condition classes for each fir regime. The classification is based on a relative measure describing the degree of departure from the historical natural fire regime. This departure results in changes to one (or more) of the following ecological components: vegetation characteristics (species composition, structural stages, stand age, canopy closure, and mosaic pattern); fuel composition; fire frequency, severity, and pattern; and other associated disturbances (e.g., insect and disease mortality, grazing, and drought).

Post treatment monitoring results show that basal area and trees per acre have been reduced to more historic levels that allow for the reintroduction of fire. The number of small trees (ladder fuels) have decreased, mature trees were preserved, and average diameter of ponderosa pine increased by 30% in treated areas.

The average crown height (distance from the ground to lowest live branches) increased, signaling a lowered probability of surface fire being able to burn into the living canopy and progress to active crown fires.

The prevalence of large and old trees on the landscape remained steady with 5-6 mature trees (greater than 18" DBH) per acre. Over time, and as treated stands release due to the reduction in competition and mid-aged trees start putting on more typical annual diameter growth, we will start to see an increase in the amount of large and old trees across the landscape.

Monitoring Questions #3: "What are the specific effects of restoration treatments on the habitat of at-risk species and/or the habitat of species of collaborative concern across the CFLRP project area?"

For detailed guidance, training, and resources, see corresponding reporting template here. Use it to respond to the following prompts:

If reporting on indicator 1 or 2 (wildlife habitat indicators), fill in this table:
*Common Monitoring Strategy (CMS)

The Southwest Region will report out on Indicator 1 (acres treated to move toward desired conditions for focal species at risk) annually and Indicator 2 (HSIs for focal species and species at risk identified through the Forest Monitoring Plan) every two years.

Wildlife Habitat Descrip.	Regional or Project-Specific Indicator?	Indicator and Unit of Measure	Target Range	Value in Initial Year of CMS*	Value in Next Reporting Year of CMS*	Desired or Undesired Change?	Percent Change	Acres of Habitat Treated to Improve this Indicator in this Fiscal Year
Pine-oak Habitat for the Mexican Spotted Owl	Regional	Density of large trees (18" + DBH)	12+	10	13	Desired	[13-10] = 3 3/10 = .3 **30%**	145
Mixed Conifer Habitat for the Mexican Spotted Owl	Regional	Density of large trees (18" + DBH)	12+	7	10	Desired	[10-7] = 3 3/10 = .3 **30%**	0
Northern Goshawk Foraging Habitat	Forest Species of Conservation Concern	Vegetation Structural Stage (VSS)	VSS4 = 20% VSS5 = 20% VSS6 = 20%	31% 15% 2%	45% 26% 9%	Desired	14/31 = **45%** 11/15 = **73%** 7/2 = **350%**	1,272[1]
Northern Goshawk Post-Fledging Family Area	Forest Species of Conservation Concern	Vegetation Structural Stage (VSS)	VSS4 = 20% VSS5 = 20% VSS6 = 20%	31% 15% 2%	45% 26% 9%	Desired	14/31 = **45%** 11/15 = **73%** 7/2 = **350%**	339[2]

*Values in the next reporting year of Common Monitoring Strategy (CMS) columns derived from post-treatment modeling using the Forest Vegetation Simulator (FVS).

[1]Includes 398 acres from Northwest Unit 1 – harvest finished in FY23, will be completed in FY24.

[2]Includes 267 acres from Northwest Unit 2 – harvest finished in FY23, will be completed in FY24.

If reporting on indicator 3 (wildlife populations and/or diversity indicators), fill in this table:
The Southwest Region is not reporting on Indicator 3.

Wildlife Species Name(s)	Indicator and Unit of Measure	Target Range	Value in Initial Year of CMS	Acres of Habitat Treated to Improve this Indicator

For the table or table(s) above:

- **Briefly interpret the monitoring results in the table above, including whether the indicator is trending toward or away from desired conditions for your landscape.**

  Restoration thinning treatments are moving large trees toward desired conditions for the Mexican spotted owl in the pine-oak habitat according to field observations and modeling results from the Forest Vegetation Simulator, according to the Final Recovery Plan for the Mexican Spotted Owl (USFWS 2012). Additionally, the vegetation structural stages (VSS) are trending toward a more balanced distribution in trees 12-17.9" DBH (VSS4), in trees 18-23.9" DBH (VSS5), and in trees 24"+ DBH (VSS6).

- **Does your CFLRP project have additional wildlife-related monitoring results to summarize and interpret?** If so, please provide that here.

In FY23, a water monitoring report was completed by the Forest Steward's Guild to document variance in physicochemical parameters such as water temperature, water level, dissolved oxygen, and pH in ZBS habitat within the Zuni Mountains Collaborative Forest Landscape Restoration Program (CFLRP) footprint. The study aims to define the ecological envelope within which the ZBS persists in the intermittent streams of the Rio Nutria watershed. This monitoring will also enable researchers to evaluate the impacts of future management actions taken in the surrounding forested watershed on the aquatic environment.

The Zuni bluehead sucker (Catostomus discobolus yarrowi) (ZBS) is a federally listed endangered (since 2014) subspecies of fish that was formerly widespread within the Little Colorado and San Juan River drainages of Arizona and New Mexico (Figure 1). In New Mexico, its populations have been reduced by 90% (USFWS 2019) and it is now restricted to isolated, shaded pools and riffle habitats with coarse substrates in the Zuni Mountains and Pueblo of Zuni. The Rio Nutria watershed, represented by two sites in this study, is among three strongholds for wild populations of the subspecies, the others being Agua Remora, represented by three sites in this study, and Rose Creek, the area of highest ZBS abundance among six New Mexico sub-populations surveyed in 2021 (Johnson 2021).

This study details the ecological envelope within which the Zuni bluehead sucker persists in the aquatic environment of the Rio Nutria watershed, one of its global strongholds. The Guild and its partners will continue to monitor physicochemical parameters with special attention to dynamism in water temperature and flow. Through tighter coupling (both temporally and spatially) of water monitoring and Zuni bluehead sucker population surveys, researchers may be able to link changing environmental conditions to Zuni bluehead sucker population dynamics such as demographic structure, reproductive rate, and - in the worst case - extirpation.

Monitoring Question #4: "What is the status and trend of watershed conditions in the CFLRP area?" (Reported every 5 years)

For detailed guidance, training, and resources, see corresponding reporting template here. Use it to respond to the following prompts:

Four watersheds are included in this report. These watersheds are subwatersheds, at the 12-digit hydrologic unit code (HUC) level. The watersheds are listed in the table W1 below with acres and an explanation of why they were chosen. The baseline condition of these watershed is listed in table W2.

Table W1. Selected Watersheds within the Zuni CFLRP

Watershed Name and HUC	Acres	Rationale
Bluewater Lake-Bluewater Creek (130202070206)	20,010	Priority watershed with WRAP within the CFLRP boundary
Milk Ranch Canyon (150200060103)	18,988	Priority watershed with WRAP in progress within the CFLRP boundary
Upper Rio Nutria (150200040201)	42,806	Priority watershed with WRAP in progress within the CFLRP boundary
Agua Medio-Bluewater Creek (130202070201)	23,816	Priority watershed with WRAP in progress within the CFLRP boundary

Figure W1. Map of Selected Watershed in Zuni CFLRP Area with Treatment and Disturbance

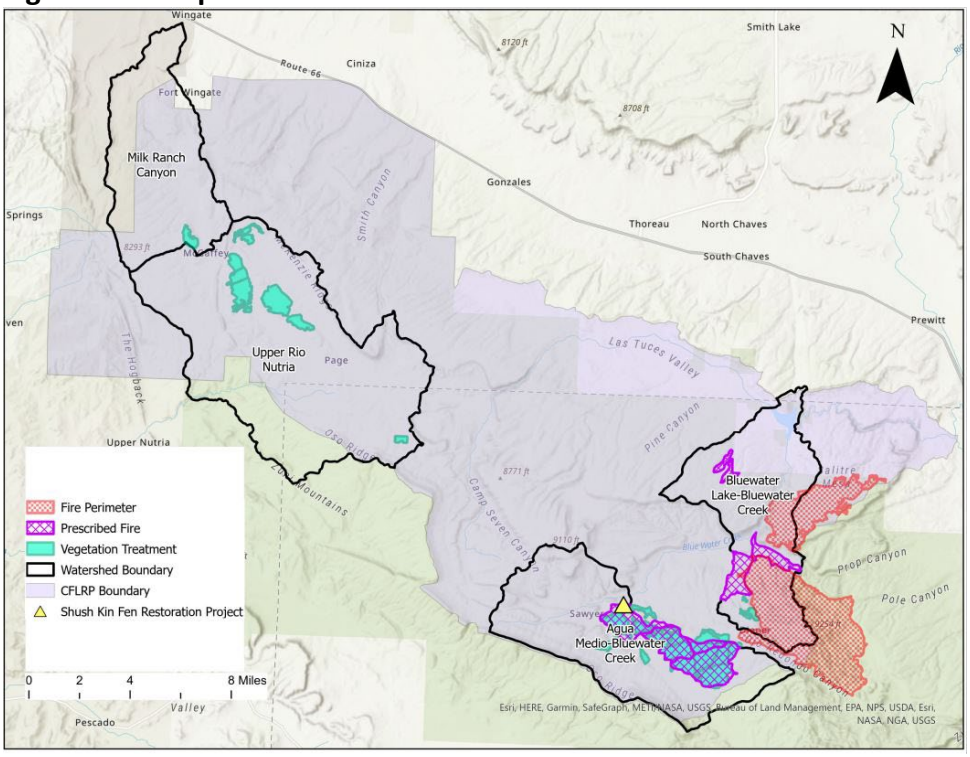


Table W2. Watersheds and baseline values for the 12 indicators in the Watershed Condition Framework (Indicator Values: Good = 1, Fair = 2, Poor = 3)

Indicator	Watersheds	Upper Rio Nutria	Milk Ranch Canyon	Agua Medio	Bluewater Creek	Average Rating for selected watersheds
Aquatic Physical	Water Quality	1	1	1	2	1.3
	Water Quantity	2	1	1	2	1.5
	Aquatic Habitat	3	2	2	3	2.5
Aquatic Biological	Aquatic Biota	2	1	1	2	1.5
	Riparian/Wetland Vegetation	2	2	2	2	2.0
Terrestrial Physical	Roads & Trails	3	3	3	3	3.0
	Soils	2	3	2	2	2.3
Terrestrial Biological	Fire Regime or Wildfire	3	3	3	3	3.0
	Forest Cover	1	1	3	2	1.8
	Rangeland Vegetation	2	2	2	2	2.0
	Terrestrial Invasive Species	1	1	1	1	1.0
	Forest Health	1	1	1	1	1.0
Overall Rating		At risk	At risk	At risk	At risk	

Table W3. Summary of Treatments and Disturbance for the selected HUC12 watersheds

HUC12 Watershed Name and 12-digit HUC	Affected by Treatment, Disturbance Events, or Both?	Date Before Treatment and/or Disturbance Event	Watershed Condition Score in Initial Year of CMS	Date After Treatment and/or Disturbance Event N/A in 2023	Watershed Condition Score in Year 5 of CMS* N/A in 2023
Milk Ranch Canyon (150200060103)	Vegetation treatment – 180 acres	2022	Functioning at Risk (1.8)	n/a	n/a
Milk Ranch Canyon (150200060103)	Prescribed Fire – none	n/a			
Milk Ranch Canyon (150200060103)	Wildfire – none	n/a			
Milk Ranch Canyon (150200060103)	Riparian/restoration - none	n/a			
Upper Rio Nutria (150200040201)	Vegetation treatment – 1845 acres	2017	Functioning at Risk (1.9)	n/a	n/a
Upper Rio Nutria (150200040201)	Prescribed Fire - none	n/a			
Upper Rio Nutria (150200040201)	Wildfire - none	n/a			
Upper Rio Nutria (150200040201)	Riparian/restoration - none	n/a			
Agua Medio-Bluewater Creek (130202070201)	Vegetation treatment – 4020 acres	2017 - 2023	Functioning at Risk (1.8)	n/a	n/a
Agua Medio-Bluewater Creek (130202070201)	Prescribed Fire - 7374 acres	2016- 2021			
Agua Medio-Bluewater Creek (130202070201)	Wildfire – none	n/a			
Agua Medio-Bluewater Creek (130202070201)	Riparian/restoration – 6 acres	2023			
Bluewater Lake-Bluewater Creek (130202070206)	Vegetation treatment – 130 acres	2018	Functioning at Risk (2.1)	n/a	n/a

HUC12 Watershed Name and 12-digit HUC	Affected by Treatment, Disturbance Events, or Both?	Date Before Treatment and/or Disturbance Event	Watershed Condition Score in Initial Year of CMS	Date After Treatment and/or Disturbance Event N/A in 2023	Watershed Condition Score in Year 5 of CMS* N/A in 2023
Bluewater Lake-Bluewater Creek (130202070206)	Prescribed Fire – 3456 acres	2015-2017			
Bluewater Lake-Bluewater Creek (130202070206)	Wildfire – 2106 acres	2018			
Bluewater Lake-Bluewater Creek (130202070206)	Riparian/restoration - none	n/a			

- **Briefly interpret the monitoring results in the table above, including whether the indicator is trending toward or away from desired conditions for your landscape.** If the data above does not accurately reflect watershed condition on your landscape, please note that and provide context.

Table W3 lists the activities (vegetation treatments, wildfire, prescribed fire, and riparian improvements) which have occurred in each watershed since 2012. These tables were developed using available data and may be revised in the future as needed. Figure W1 is a map showing the location of these treatments. There has been no change in the indicator ratings or overall rating since the beginning of the Zuni CFLRP activities as calculated using WCATT, the watershed condition activities tracking tool. The indicators will be reevaluated when the revised rating system for the Watershed Condition Framework is available or within 5 years, whichever comes first.

- **Does your CFLRP project have additional watershed condition-related monitoring results to summarize and interpret?** If so, please provide that here.

Monitoring Question #5: "What is the trend in invasive species within the CFLRP project area?" (Reported Annually)

For detailed guidance, training, and resources, see corresponding reporting template here. Use it to respond to the following prompts:

Treatment data for priority invasive species:

Common Name	Treatment Action	Acres Treated[1]	Acres Monitored	Avg. "Percent Efficacy"	Acres Restored[2]	Response of Desirable Species[3]
Cheatgrass	Na					
Musk thistle, bull thistle	Na					
Russian knapweed	Na					
Saltcedar	Na					
Russian olive	Na					

[1] "Treated" is defined as prevented, controlled or eradicated.

[2] Agency performance accomplishment code INVPLT-INVSPE-REST-FED-AC, which is calculated in FACTS.

[3] "Desirable Species" includes everything that is not an undesirable species or bare ground. If not monitored, write N/A.

Please insert table 2 from the reporting template if you are using field plots.

For reporting on plot-based field monitoring, please include a summary of the results here:

- **Briefly interpret the monitoring results in the table above, including whether the indicator is trending toward or away from desired conditions for your landscape.** If the data above does not accurately reflect the condition on your landscape, please note that and provide context. Beyond some inventory of populations completed in previous years, the District Range Program lacked the capacity to implement treatments in FY23.
- **Does your CFLRP project have additional invasives-related monitoring results to summarize and interpret?** If so, please provide that here.

The Forest Stewards Guild (FSG), in cooperation with the Cibola National Forest (CNF), was awarded with a Bipartisan Infrastructure Law (BIL) grant proposal for *A Holistic Approach to Invasive Species Detection and Eradication in the Zuni Mountains* for $180,000. Phase 1, which includes a baseline inventory of Class B and C invasives and an evaluation of local capacity and training needs, will be initiated in 2024 when the funds are provided to the CNF.

In phase two, we will treat priority infestations identified in the management plan while facilitating the certification of local pesticide applicators. Workforce development through training and employment is a key objective of this project, as Cibola and McKinley counties are two of the 50 poorest counties in America. We will also demo the selected crowd source detection and response platform and provide training for partners and communities.

In phase three, we will evaluate the effectiveness of control measures by re-monitoring areas surveyed in phase one and treated in phase two. We will expand workforce development by re-hiring applicators and certifying additional individuals while continuing community outreach efforts to raise awareness of invasive species impacts and

management options. We will also work towards a sustainable funding mechanism that allows the CNF, FSG, and ZMC partners to continue invasive species management well into the future.

The following questions apply across the topics addressed across Questions 1-5:

- Are there accomplishments towards long-term goals which may not be reflected in short-term monitoring? Are there short-term treatments that work towards long-term goals which may be reflected adversely in short-term monitoring? Briefly summarize short- & long-term tradeoffs of your landscape treatments and goals.

For invasive species, there have been few treated acres accomplished in the short term up to this point. However, we are excited about the BIL grant received in FY23 and look forward to working with partners and developing new relationships to treat infestations in the CFLRP landscape moving forward.

Monitoring Questions #6: "How has the social and economic context changed, if at all?" (Reported every 5 years)

Describe the current social and economic context for your CFLRP landscape. For detailed guidance, training, and resources, see corresponding reporting template here. Use it to respond to the following prompts:

Indicators	Response for Initial Year of Common Monitoring Strategy	Notes (Optional)
"Population" most recent year available (tab 1, Forest Service report)	**Cibola County =** 27,284 **McKinley County =** 72,946	2021 Population
"Percent of total, race & ethnicity" most recent year available (tab 11, Forest Service report)	**CIBOLA** / **McKinley** White alone – 44.4% / 11.5% Black or African American – 1.6% / 0.5% American Indian – 42.6% / 75.5% Hispanic ethnicity – 38.9% / 14.5% Non-Hispanic Ethnicity - 61.1% / 85.5%	2021
"Unemployment rate" most recent year available (tab 1, Forest Service report)	**Cibola County** 5.5% **McKinley County** 5.7%	2022
"Per capita income" most recent year available (tab 1, Forest Service report)	**Cibola County** $37,397 **McKinley County** $40,262	2021
"Wildfire Exposure, % of Total, Homes" most recent year available (see Wildfire Risk report)	**CIBOLA** / **McKinley** Homes Directly Exposed - 65% / 73% Homes Indirectly Exposed - 35% / 27% Homes Not Exposed - 0% / 0%	
Populations at Risk	**Cibola** / **McKinley** Families in Poverty 24.1% / 29% Families with children in poverty 16.4% / 20.3% Single mother families in poverty 10.2% / 11.1%	2021

- **Provide a brief, narrative context for the data provided above, including any other key socioeconomic conditions to highlight for your landscape.** If the data above does not accurately reflect socioeconomic conditions in/around your landscape please note and provide context.

Cibola and McKinley Counties are rural and highly diverse demographically with poverty levels among the highest in New Mexico, and far greater than the United States average. Per capita income in both counties is far lower than the

United States average of $69,275. In both counties, the number of homes directly exposed to wildfire from direct sources, such as adjacent flammable vegetation, is also far greater than the United States average of 33%.

- **Would you expect CFLRP activities to directly or indirectly impact any of these social and/or economic conditions?** If so, how?

Data from the 2023 Treatments for Restoration Economic Analysis Tool (TREAT) analysis indicate that the Zuni Mountains CFLRP contributed to 54 direct full and part time jobs and a total of 96 jobs. Direct labor income from the CFLRP is estimated at $3,155,662 and the total labor income amounts to $4,154,964. In these small, rural counties these numbers are huge. For instance, in Bernalillo County, the most populated county in New Mexico, this number of jobs would be equivalent to approximately 4,000 jobs. The CFLRP has contributed to improved social and/or economic conditions in Cibola and McKinley Counties.

- **Does your CFLRP project have additional socioeconomic monitoring results to summarize and interpret?** If so, please provide that here. **NA**
- **Based on the information reported, (and any other relevant monitoring information and discussion), what (if any) actions or changes are you considering?**

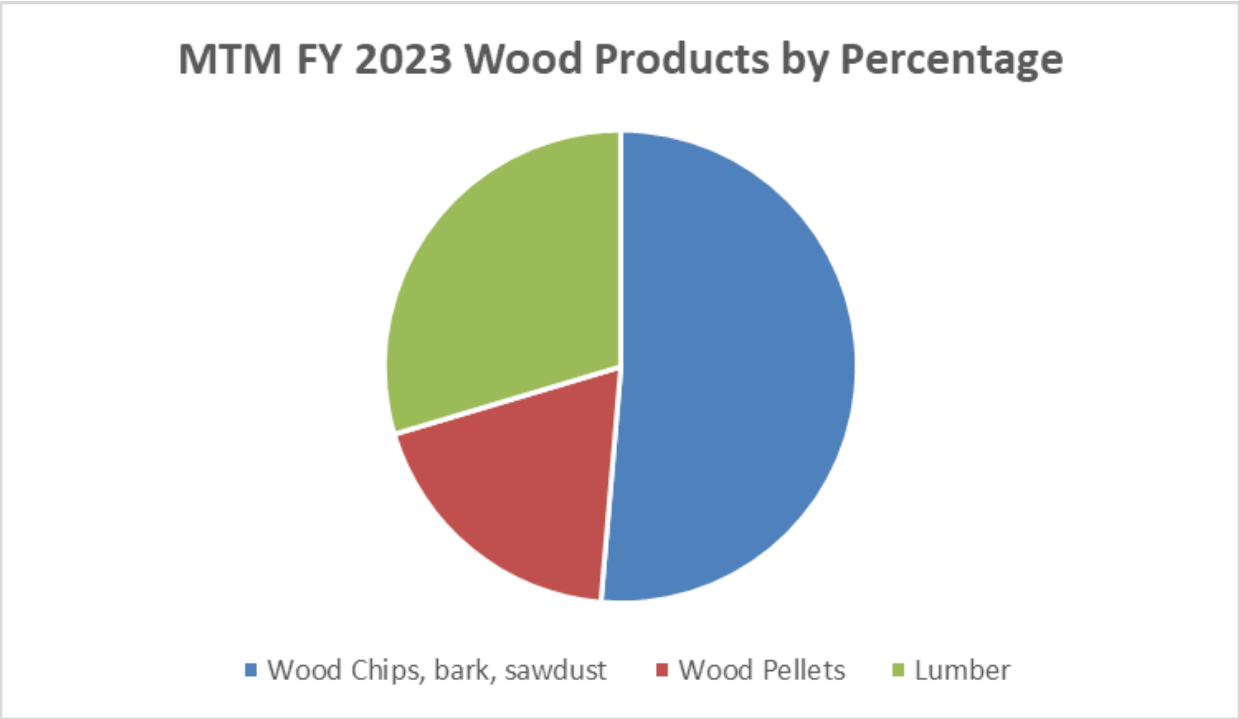
As the Zuni Mountains CFLRP moves into its second 10-year period, we are starting to expand into other restoration opportunities for non-vegetation resources, such as watershed restoration (Shush-Kin Fen) and invasive species (BIL Grant). These will increase opportunities for workforce development in the local population, as well as provide training and job skills.

(Monitoring Questions #7 & #8 covered earlier in annual report template)

Monitoring Questions #9 "Did CFLRP maintain or increase the number and/or diversity of wood products that can be processed locally?" (Reported every 5 years)

- Data will be provided to 2022 cohort projects to address this question in the FY23 report. If your CFLRP project has data available about the current timber harvest by county and/or product, the number of active processing facilities in the area, or other data about forest products infrastructure please provide here.

There is one primary commercial wood processing facility active in the area which receives raw wood material from thinning projects through the CFLRP and processes them into: sawn lumber, pellets, mulch, wood chips, bark, and sawdust. The CFLRP has made a notable contribution to maintaining the number of major processing facilities and has provided the foundation for an increase in the number of small locally owned businesses, organizations, and individuals who receive/purchase and process wood products. As you can see in the figure below, almost 50% of the wood going into Mount Taylor Manufacturing (MTM) is used for products other than lumber. This represents the innovative product line of MTM and their ability to work with smaller diameter logs that may not be suitable for dimensional lumber.



As stated above, Mount Taylor Manufacturing, the local wood mill and primary forest products processing plant for wood coming off the Mt. Taylor Ranger District, received a FY2023 Wood Innovation Grant (WIG) to Enhanced Sawmill Volume, Value, and Employment Zuni Mountains NM worth $300,000. This was one of only four funded projects in the state of New Mexico. This grant will help the mill expand their market access and process increased volumes of forest products coming from larger wildfire protection and forest health thinning projects.

Nonprofit and community-based organizations which harvest and haul wood products for household firewood and fuelwood use include Chiz for Cheii and NFF's Wood for Life program. Individual communities and Tribes also harvest or haul wood out of CFLRP treatment areas for personal use. In FY23, the Cibola National Forest implemented a fuelwood deck program in the CFLRP footprint which allows a thinning contractor to cut and deck logs from a contracted treatment area into smaller decks, providing specified areas intended for easy community harvest. Local small contractors and businesses purchase Cibola NF permits to harvest small diameter trees from the CFLRP footprint and produce commercially sold vigas and latillas, traditional wood products of the Southwest.

(Monitoring Questions #10 & #11 covered earlier in annual report template)

Monitoring Questions #12: "How well is CFLRP encouraging an effective and meaningful collaborative approach?" (Reported every 2-3 years)

Data will be provided to 2022 cohort projects to address this question in the FY23 report. For detailed guidance, training, and resources, see corresponding reporting template here. Please upload your completed assessment summary provided by the Southwestern Ecological Restoration Institutes here and use it to respond to the prompts below:

- Reflecting on the summary provided, do you have any additional context for the results to share?
- Do you have any feedback about the assessment process?

We are grateful for support by Niki and her team with this assessment. In the future, having more lead time and a bigger window for responses will allow us to gather more data from more Collaborative members.

- What have you done, or plan to do, in response to the challenges, needs, and recommendations identified in the collaboration assessment? Please provide up to 3 specific actions.

Increase stakeholder participation, engagement, and outreach:

As the Collaborative enters its second 10-year cycle of funding, it has already examined governance and participation closely. A FSG coordinator has reached out to former Collaborative members and asked why they no longer engage and if they have interest in returning to the Collaborative. At one of the in-person 2023 Collaborative meetings, time was set aside to explore how to make the Collaborative more inclusive through seeking more input from the Collaborative group and more participation from new partners. Participants in this meeting indicated that there were key groups who participated in the Collaborative (i.e., the Pueblo of Zuni) who did not answer the survey; thus, the low survey response rate may exclude some key voices or heterogeneity of responses.

In response for an expressed desire for increased participation from stakeholders on volunteering and monitoring, we hosted a Forest Monitoring Volunteer Day when doing Stand Exam surveys on the Forest in August.

Enhance understanding of restoration work:

Only a slight majority (54%) agreed that the Forest Service was clear with project participants about the decisions they made and why, and 63% of respondents thought that collaborative protocols were understood — lower agreement than many responses in the survey results. Providing greater transparency in the decision-making processes and education on how components of the collaborative process and forest management activity's function. More in-person meetings, field trips, and monitoring opportunities can play an important role in this communication.

In response to a desire expressed by Collaborative members for more transparency, communication, and decision-making power in the cross-boundary planning process, we created a Community Fuelwood and Wood Utilization subgroup of the Collaborative. The main goal of this group is to "matchmake" wood provisioning with community needs in the greater Zuni Mountains landscape, predominately in Tribal communities.

Increase collaborative personnel capacity:

Respondents noted the challenges of lack of time, personnel turnover, and limited capacity within the agency and the local wood products industry. Respondents recommended that leadership skills could be further developed for young staff leading the project. Another respondent argued that there should be more staff botanists and biologists for monitoring with the Forest Service and FSG. The CNF is working to encourage more participation in monitoring and development of interdisciplinary projects moving forward.

In response to an expressed need for more staff botanists and biologists for the USFS and/or FSG for monitoring, the USFS and Guild applied for and received $180,000 in IIJA funding for invasive detection and control, which will allow us to add additional staff with biology / botany knowledge.

Forest staff turnover is a challenge that was identified by several stakeholders within the Zuni Mountains Collaborative. If there is way for the Cibola NF and specifically the Mt. Taylor RD to retain staff, it would reduce the inevitable ground lost when turnover occurs.

- What types of support or guidance do you need to address any of the challenges, needs, and recommendations identified in the collaboration assessment?

The CFLRP Coordinator performs this function as a collateral duty. A Forest Partnership Coordinator was recently hired who will work with the FSG and CNF personnel on partnership opportunities and the less technical aspects of CFLRP coordination. The CNF is exploring other opportunities to reduce the burden involved with CFLRP coordination, such as hiring a retired USFS employee through the ACES program to assist.

(Monitoring Question #13 covered earlier in annual report template)

R3 Monitoring Question 14: How have CFLRP activities affected long-term trends in forest biomass density?

Frequency: Results will be reported every five years

Indicators:
Ecosystem projections using standard Region 3 analysis framework methods and carbon coefficients for projections of forest biomass (Anderson et al. 2021), with reference conditions as a benchmark for carbon stocks. The Region will provide modeling support and new datasets and best available science.

Training & resources: R3 Forests and RO Ecosystem Assessment & Planning staff have developed carbon reporting and state-and-transition modeling methods for estimating long-term carbon trends under different management scenarios. At present the Regional Analyst is leading ecosystem modeling work for the Region and integrating information on carbon.

What are the CFLRP project roles?
The CFLRP project will need to provide landscape project boundaries and map updates to changed vegetation conditions such as from fires and treatments. Provide information on treatments that alter forest structure to the Regional Analyst.

What are the Regional roles?
The Region provides ecosystem type mapping (Ecological Response Units), existing vegetation mapping (INREV), and will conduct departure analyses. Ecological Response Units (ERUs) are equivalent to LANDFIRE Biophysical Settings and are used to frame fire regimes. INREV is used to assign seral stages based on forest structure. The Regional Analyst and Regional Ecologist will support CFLRP teams and provide training to others. While the Region provides occasional map updates to INREV or Common Stand Exam data, a given CFLRP team may decide to provide for more timely updates or to augment INREV with local data sources such as Common Stand Exam and information on treatments that alter forest structure. The Region is also in the process of integrating available LiDAR information with INREV.

Through the National Wild Turkey Federation Stewardship Agreement harvested sawtimber (9” DBH and larger to an 8-foot length) up to a 6” top and pulpwood (7-8.9” DBH to a 10-foot length) up to a 4” top is removed. Because of past railroad logging and fire exclusion, biomass density was greater than historic conditions. Restoration treatments under the CFLRP have focused on reduction small diameter timber and reduce tree densities in saplings (<5” DBH) to sawtimber. Mount Taylor Manufacturing utilizes a substantial amount of small diameter timber to create non-

dimensional lumber products such as animal bedding and pellets for wood stoves. After harvesting is completed, personal use fuelwood permits are sold to the public, further reducing biomass retained in the woods.

In FY23, Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production BIO-NRG totaled 26,800 green tons.

Ecosystem projections using standard Region 3 analysis framework methods and carbon coefficients for projections of forest biomass (Anderson et al. 2021), with reference conditions as a benchmark for carbon stocks was not performed this year. The Region will provide modeling support and new datasets and best available science moving forward.