Grandfather Restoration Project (CFLR019)

National Forests in North Carolina, Pisgah National Forest

1. CFLRP Expenditures, Match, and Leveraged Funds:

a. FY21 CFLN and Matching Funds Documentation

Fund Source – (CFLN Funds Expended)	Total Funds Expended in Fiscal Year 2021
CFLN1920	$370,593
CFLN1921	$204,990
TOTAL	**$575,583**

This amount should match the amount of CFLN dollars spent in the FMMI CFLRP expenditure report. Include prior year CFLN dollars expended in this Fiscal Year. CFLN funds can only be spent on NFS lands.

Fund Source – (Forest Service Salary and Expense Match Expended)	Total Funds Expended in Fiscal Year 2021
NSCF1921	$179,052
TOTAL	**$179,052**

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

Fund Source – (Forest Service Discretionary Matching Funds)	Total Funds Expended in Fiscal Year 2021
CMRD	$29,373
CMTL	$3,422
FSLM	$307,976
NFRW	$9,868
NFVW	$135
WFPR	$133,788
TOTAL	**$484,562**

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 if aligned with CFLRP proposal implementation within the landscape.

Fund Source – (Partner Match)	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY21	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
The Nature Conservancy	**☒ In-kind contribution** **☐ Funding**	**$40,155**	**Prescribed burn implementation, data collection, Fire Adapted Community work**	**☒ National Forest System Lands** **☒ Other lands within CFLRP landscape**

Fund Source – (Partner Match)	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY21	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
North Carolina Forest Service	☒ In-kind contribution ☐ Funding	$28,000	Prescribed burn preparation and implementation, mechanical fuel reduction	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
North Carolina Wildlife Resources Commission	☒ In-kind contribution ☐ Funding	$90,450	Prescribed burn preparation and implementation, wildlife habitat improvement	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
Wild South	☒ In-kind contribution ☐ Funding	$277,591	Volunteer coordination, non-profit boards, partnerships, wilderness trail maintenance and construction	☒ National Forest System Lands ☐ Other lands within CFLRP landscape:
Backcountry Horsemen of the Blue Ridge	☒ In-kind contribution ☐ Funding	$11,416	Patrols, data analysis, developed and dispersed resource maintenance and improvement, and trail maintenance	☒ National Forest System Lands ☐ Other lands within CFLRP landscape:
A Clean Wilson Creek	☒ In-kind contribution	$17,181	Developed and dispersed resource maintenance and improvement	☒ National Forest System Lands
Northwest NC Mountain Bike Alliance	☒ In-kind contribution ☐ Funding	$28,919	Trail maintenance	☒ National Forest System Lands ☐ Other lands within CFLRP landscape:
Carolina Land & Lakes RC&D	☒ In-kind contribution ☐ Funding	$11,708	Fire-adapted community work, All Lands Strategy	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
Trout Unlimited	☒ In-kind contribution ☐ Funding	$5,873	Aquatic Organism Passage, habitat restoration	☒ National Forest System Lands

Fund Source – (Partner Match)	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY21	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
				☒ Other lands within CFLRP landscape:
Mountain Valleys RC&D	☒ In-kind contribution ☐ Funding	$40,761	Fire-adapted community work, Fuels mitigation and outreach	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
Mountains to the Sea Task Force	☒ In-kind contribution ☐ Funding	$100,489	Trail restoration, erosion control, monitoring	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
AmeriCorps	☒ In-kind contribution ☐ Funding	$48,547	Wild land/urban interface fuels management, Developed and dispersed resource maintenance and improvement	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
Youth Conservation Corps	☒ In-kind contribution ☐ Funding	$38,900	Trail maintenance and construction	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
Student Conservation Association	☒ In-kind contribution ☐ Funding	$7,106	Trail maintenance and construction, Developed and dispersed resource maintenance and improvement	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
American Conservation Experience	☒ In-kind contribution ☐ Funding	$28,654	Non-Native Invasive Inventory/Control	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:
G5 Trail Collective	☒ In-kind contribution ☐ Funding	$20,320	Trail maintenance and construction	☒ National Forest System Lands ☒ Other lands within CFLRP landscape:

Fund Source – (Partner Match)	In-Kind Contribution or Funding Provided?	Total Estimated Funds/Value for FY21	Description of CFLRP implementation or monitoring activity	Where activity/item is located or impacted area
Carolina Climbers Coalition	☒ **In-kind contribution** ☐ **Funding**	**$1,998**	**Education and outreach, monitoring, data management and analysis, rehabilitation and restoration, trail maintenance**	☒ **National Forest System Lands** ☒ **Other lands within CFLRP landscape:**
Southern Appalachian Wilderness Stewards	☒ **In-kind contribution** ☐ **Funding**	**$34,390**	**Wilderness monitoring, patrol, resource protection**	☒ **National Forest System Lands** ☒ **Other lands within CFLRP landscape:**
Western Carolina University	☒ **In-kind contribution** ☐ **Funding**	**$1,233**	**Monitoring**	☒ **National Forest System Lands** ☐ **Other lands within CFLRP landscape:**
TOTALS	**Total In-Kind Contributions: $833,691** **Total Funding: n/a**			

Total partner in-kind contributions for implementation and monitoring of a CFLR project across **all lands** within the CFLRP landscape. For CFLRP projects under the CFLRP Common Monitoring Strategy, note that this table addresses the core CFLRP common monitoring strategy question, "If and to what extent has CFLRP investments attracted partner investments across the landscapes?"

Service work accomplishment through goods-for services funding within a stewardship contract (for contracts awarded in FY21)	Totals
Total revised non-monetary credit limit for contracts awarded in FY21	$ **N/A**
Revenue generated through Good Neighbor Agreements	**Totals**
	$ **N/A**

Revised non-monetary credit limits should be the amount in contract's "Progress Report for Stewardship Credits, Integrated Resources Contracts or Agreements," the "Revised Non-Monetary Credit Limit," as of September 30. Additional information on the Progress Reports is available in CFLR Annual Report Instructions document.
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 project's proposed restoration strategies and in alignment with the CFLRP authorizing legislation

2. Please tell us about the CFLR **project's progress to date in restoring a more fire-adapted ecosystem as described in the project proposal** and **how it has contributed to wildfire risk reduction goals**.

To date, the Grandfather CFLRP project has made significant progress in restoring fire-adapted ecosystems. Since 2012, over 17,000 unique acres on the landscape have been treated with prescribed fire and numerous acres have been burned multiple times either through prescribed fire or wildfire occurrences within the footprint of the Grandfather Restoration Project (see attached image on page 6). Treatments that have been implemented since the initiation of the Grandfather Restoration Project (including mechanical, fire, and habitat enhancement practices) are making progress towards realizing forestland conditions that support natural fire regimes where applicable and increase the manageability of future fires. A brief recap of yearly fire progress since 2015 is as follows:

2015: FY2015 saw 30 wildfires within the project area, totaling 2,935 acres (26 were human caused). The human-caused wildfires (which mainly originated on non-FS lands) were immediately suppressed, while 3 of the 4 lightning-caused wildfires were managed for resource benefit using a "confine and contain" strategy (Blue Gravel- 521ac, Wolf Creek- 305ac, and Bald Knob- 1,200ac). Within established fire lines, these fires could grow gradually and consume fuels, reducing residual fuels and lessening the risk of a severe fire in the area in the future. This strategy was successful in part because prior fuels reduction treatments or fires had occurred in close proximity. Additionally, in FY2015 we reported 7,497 acres of treated fuels (inclusive of prescribed fire) in the annual accomplishments.

2016: FY2016 had a less active than average fire season. The first fire didn't occur until mid-March, beginning a short period of fire activity. In all, there were 12 wildfires (11 human-caused) covering 1,074 acres. The Upper Creek Fire (169 acres) was the only lightning-caused fire of the fiscal year and was managed for resource benefit. We also recorded 4,063 acres of WUI fuel reduction accomplishments, which includes prescribed burns for the year.

2017: FY2017 was a very active year for wildfires. There were 21 wildfires within the project area for a total of 11,172 acres. Dick's Creek Fire started on October 23rd on the Nantahala Ranger District. By Thanksgiving across Western North Carolina there were 383 fires covering 63,139 acres. Western North Carolina experienced extreme drought conditions through the fall of 2016, defining new maximums for KDBI. These widespread drought conditions led to significantly higher fire activity. During the intense and widespread outbreak of fires, 4 wildfires escaped initial attack within the CFLR boundary: the Paddy's Creek Fire (8 acres), the Buck Creek Gap Fire (8 acres), the Piney Mountain Fire (56 acres), and the Clear Creek Fire (3,163 acres). The largest and most complex, Clear Creek Fire, threatening 353 homes, was supported by 23 NC state and local departments, 18 neighboring state natural resource departments and 6 federal agencies. Of the four significant wildfires on the Grandfather Ranger District, two fell within prescribed burn units and two fell in previously unburned areas. The areas burned by the Paddy's Creek Fire (Dobson Knob unit burned in 2015) and the Buck Creek Gap Fire (Singecat unit burned in 2014) have both seen prescribed burning under the Grandfather Restoration Project. These areas had established containment lines that allowed managers to move quickly in suppression, and reduced fuel loads that slowed wildfire spread. In FY2017, 906 acres of prescribed fire were recorded in the annual accomplishments.

2018: FY2018 had significantly less wildfire than usual due to an excess of wet weather. In all, 9 wildfires ignited in the project area totaling 171 acres. Despite the light year for wildfire, we met targets for prescribed fire, burning 5,000 acres across 2 units.

2019: FY2019 saw the least wildfire of all years in the lifetime of the Grandfather project. There were 6 small wildfires within the project area for a total of 3.9 acres. The FY2019 wildfire season had approximately 22% of

the average number of fire starts and < 1% of the average fire acres. All the FY2019 wildfires were human caused, and no fires escaped initial attack. A short write up of a fire that began on April 28, 2019 in the Linville Gorge can be seen here: https://wildsouth.org/fighting-a-wildfire-in-the-linville-gorge/ as reported by Wild South on June 2, 2019.

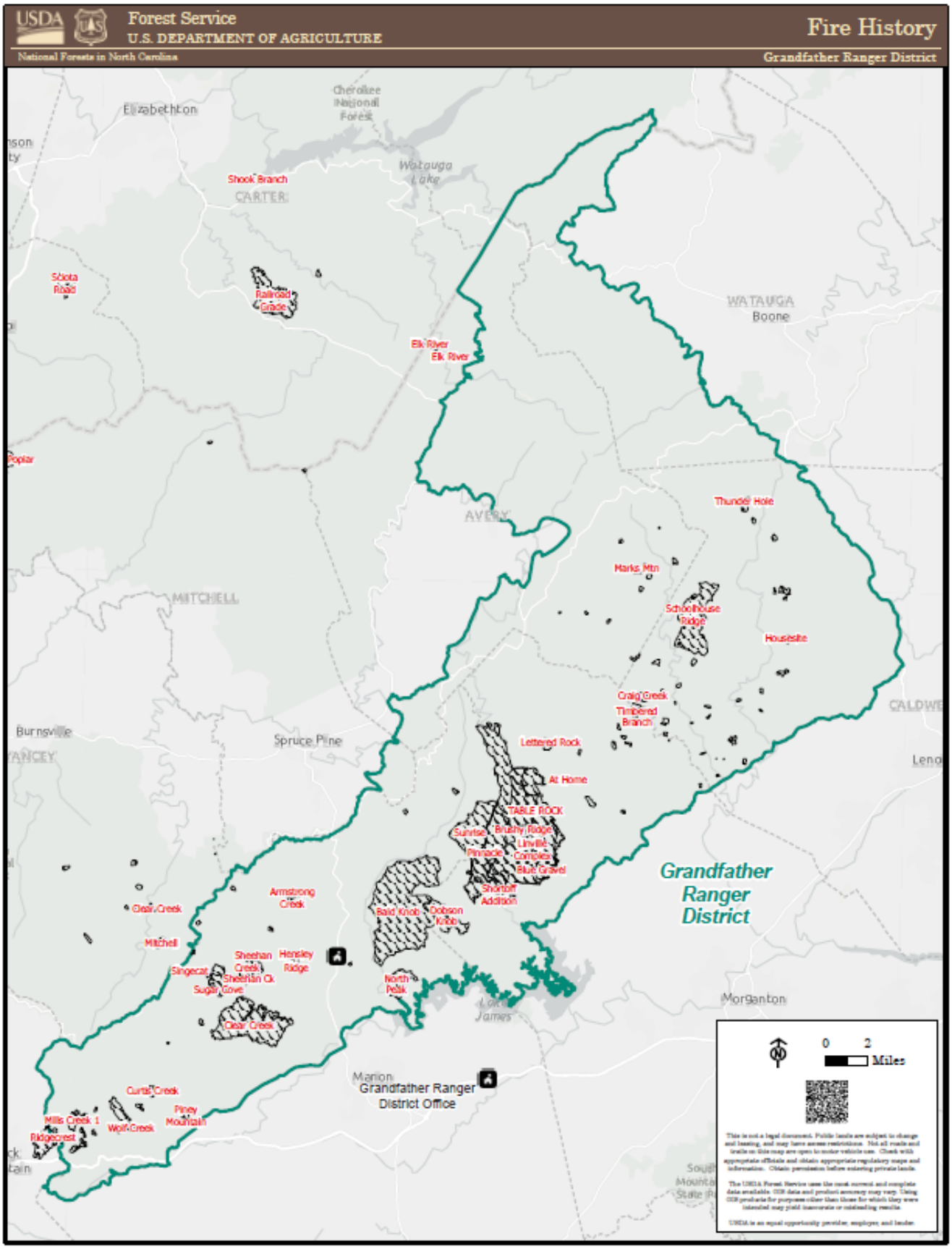
2020: FY2020 saw similar wildfire activity to FY2019. There were 10 total fires for 15.9 acres in the project area which were all human caused and contained during initial attack.

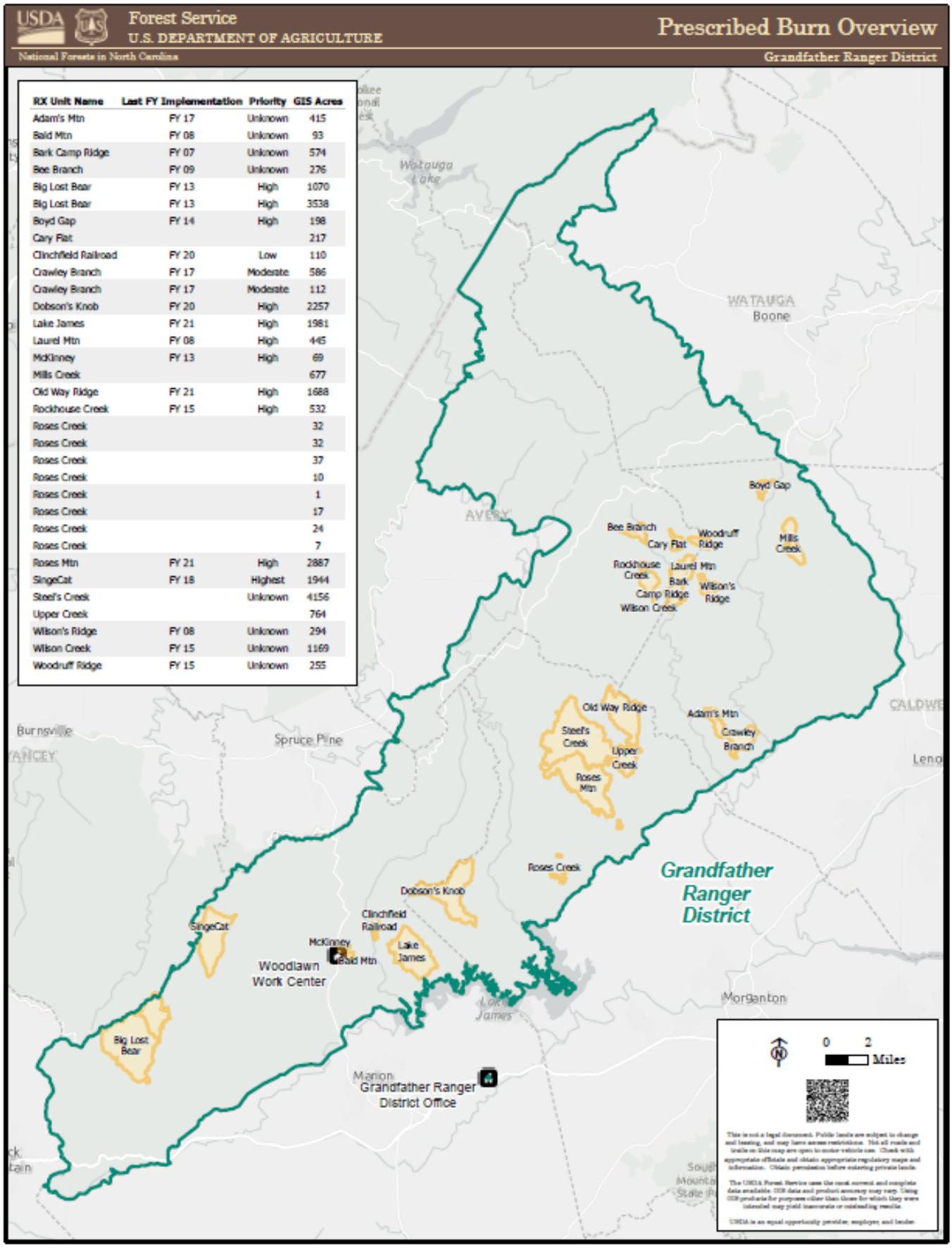
Lake James Prescribed Burn

To date, the Grandfather Restoration Project fuel treatments have been integral to restoring more fire-adapted ecosystems and allowing for the appropriate fire management response to wildfires, leading to more fires being managed for resource benefits while allowing for public and firefighter safety over the life of the project. Fuel treatments along with management of natural ignition wildfires have moved the fire-adapted vegetation closer towards the desired condition of fire resilient landscapes. The Grandfather Restoration Project is reducing risk and helping to create fire adapted communities through FS and partner support. The McDowell Community Wildfire Network is a prime example of that. https://www.mountainvalleysrcd.org/mcdowell-community- wildfire-network

Ignitions on Lakes James Rx Burn

Restoration on Old Way Ridge


USDA
Forest Service
U.S. DEPARTMENT OF AGRICULTURE
National Forests in North Carolina
Fire History
Grandfather Ranger District
Cherokee National Forest
Elizabethton
Watauga Lake
Shook Branch
CARTER
Sciota Road
Railroad Grade
Elk River
Elk River
WATAUGA
Boone
Poplar
AVERY
Thunder Hole
Marks Mtn
Schoolhouse Ridge
Housesite
MITCHELL
Craig Creek
Timbered Branch
Burnsville
Spruce Pine
YANCEY
Lettered Rock
At Home
TABLE ROCK
Sunrise
Brushy Ridge
Pinnacle
Linville Complex
Blue Gravel
Shortoff Addition
Grandfather Ranger District
Armstrong Creek
Clear Creek
Bald Knob
Dobson Knob
Mitchell
Sheehan Creek
Hensley Ridge
Slingercat
Sheehan Ck
Sugar Cove
Clear Creek
North Pelik
Lake James
Morganton
Marion
Grandfather Ranger District Office
Curtis Creek
Piney Mountain
Mills Creek 1
Ridgecrest
Wolf Creek
0
2
Miles



RX Unit Name	Last FY Implementation	Priority	GIS Acres
Adam's Mtn	FY 17	Unknown	415
Bald Mtn	FY 08	Unknown	93
Bark Camp Ridge	FY 07	Unknown	574
Bee Branch	FY 09	Unknown	276
Big Lost Bear	FY 13	High	1070
Big Lost Bear	FY 13	High	3538
Boyd Gap	FY 14	High	198
Cary Flat			217
Clinchfield Railroad	FY 20	Low	110
Crawley Branch	FY 17	Moderate	586
Crawley Branch	FY 17	Moderate	112
Dobson's Knob	FY 20	High	2257
Lake James	FY 21	High	1981
Laurel Mtn	FY 08	High	445
McKinney	FY 13	High	69
Mills Creek			677
Old Way Ridge	FY 21	High	1688
Rockhouse Creek	FY 15	High	532
Roses Creek			32
Roses Creek			32
Roses Creek			37
Roses Creek			10
Roses Creek			1
Roses Creek			17
Roses Creek			24
Roses Creek			7
Roses Mtn	FY 21	High	2887
SingeCat	FY 18	Highest	1944
Steel's Creek		Unknown	4156
Upper Creek			764
Wilson's Ridge	FY 08	Unknown	294
Wilson Creek	FY 15	Unknown	1169
Woodruff Ridge	FY 15	Unknown	255

FY2021 Overview

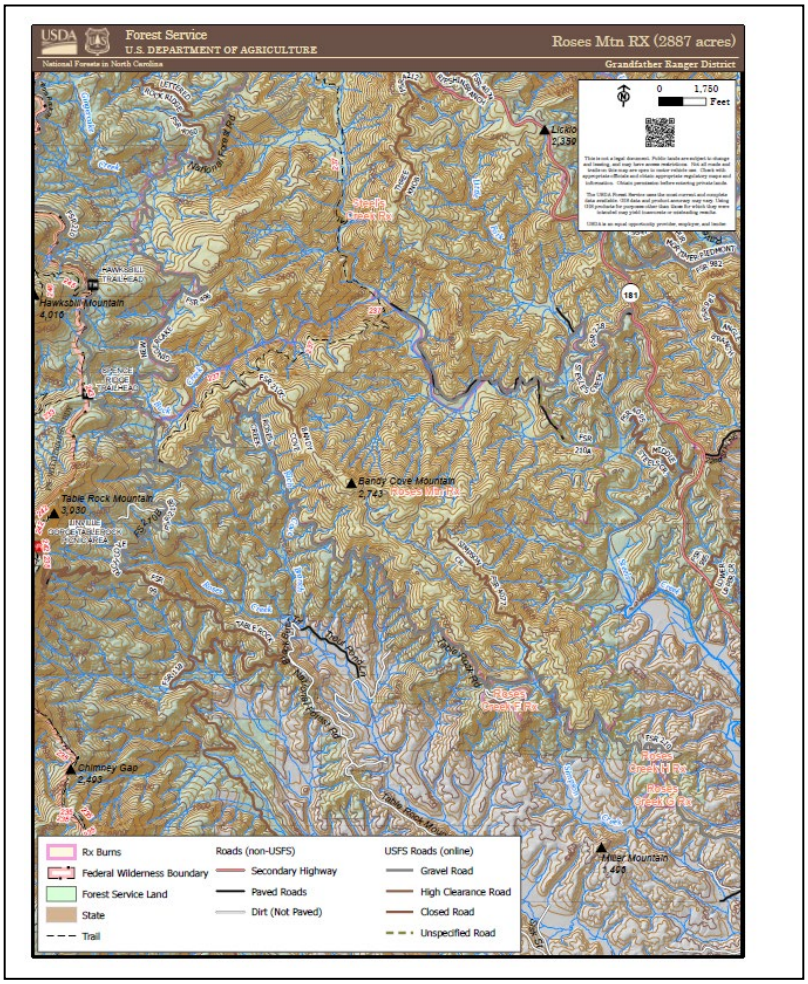
FY21 Activity Description (Agency performance measures)	**Acres**
Number of acres treated by prescribed fire	6,726
Number of acres treated by mechanical thinning	348
Number of acres of natural ignitions that are allowed to burn under strategies that result in desired conditions	0
Number of acres mitigated to reduce fire risk	8,734

Please provide a narrative overview of treatments completed in FY21, 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?

- **How was this area prioritized for treatment?** What kinds of information, input, and/or analyses were used to prioritize? Please provide a summary or links to any quantitative analyses completed.
- **Please tell us whether these treatments were in "high or very high wildfire hazard area** from the "wildfire hazard potential map" (https://www.firelab.org/project/wildfire-hazard-potential)
  - Were the treatments in **proximity to a highly valued resource** like a community, a WUI area, communications site, campground, etc.?
- **What did you learn** about the interaction between treatment prioritization, scale, and cost reduction? What didn't work? Please provide data and further context here.

Please provide visuals if available, including maps of the landscape and hazardous fuels treatments completed, before and after photos, and/or graphics from fire regime restoration analysis. You may copy and paste or provide a link.

2021: FY2021 was the most active prescribed burning year on record in Western North Carolina. Southern Blue Ridge Fire Learning Network partners burned over 60,000 acres across the Southern Appalachian Mountains. report Excellent conditions combined with a desire to break free from the COVID lockdown and be out of in the woods with each other contributed to the shared success across all lands. Relationships nurtured throughout the life of this project have spread and there is a real sense of "we are all in this together". Cross boundary burning, sharing resources across jurisdictions, and building skills and efficiencies through implementation have paid dividends in the realm of prescribed fire. Wildfire totals were low again relative to the past ten years, 6 fires for 59 acres. We implemented 3 multi-day burns for a total of 6,726 acres.

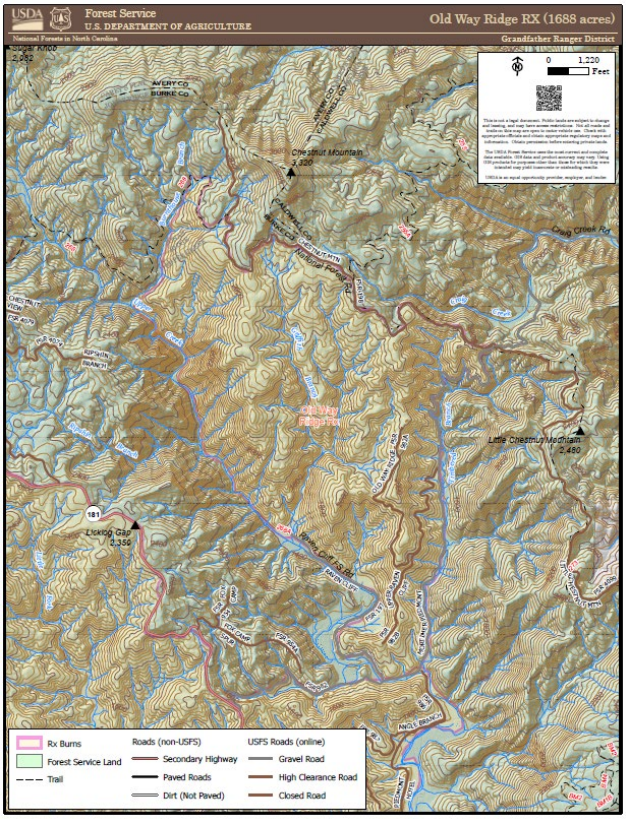


The Roses Mountain prescribed burn kicked off the season in mid-January which is the earliest start we've ever had. One reason is that this burn has been conducted twice before so the open canopy and south-facing slopes allowed for drying to occur to make the fuels available. This burn was prioritized through the ecomath burn prioritization process. The unit is loaded with table mountain pines, pitch pines and shortleaf pine. It is adjacent to the heavily visited Linville Gorge Wilderness area and provides a strategic buffer for large natural ignition fires.

Roses Mountain Rx Burn Briefing

The Lake James burn was treated for the third time this year. This is a joint burn with the NC Wildlife Resources Commission (NCWRC). This burn was prioritized through discussions with the NCWRC around the importance of burning this fire adapted landscape for wildlife habitat restoration and hazardous fuel reduction treatment in the WUI on the south end of the burn. This prescribed fire footprint stopped the Bald Knob wildfire in 2015. Structure, composition and function of the ecozone are moving towards desired future condition. Forecasted weather conditions were marginal but local experience and knowledge from working this piece of ground informed a go decision when it would have been easy to delay. Burn parameters were perfect and the burn was completed over two days. A black-line operation and burning fuels adjacent to control lines on the first day allowed for a helicopter to be moved to complete the burn on the second day. Efficiencies gained on this burn are the direct reason this burn was accomplished this year. The Lake James Burn along with our neighbors at Lake James State Park were recently highlighted as a virtual tour for the [Association of Fire Ecology's Annual Fire Congress](). (7:50)

Message board at Rx burn



The last burn of the season on the Grandfather was the Old Way Ridge burn. This unit was prioritized through the ecomath burn prioritization process. This same footprint has also seen several wildfires over the last 20 years. Old Way Ridge is steep and rugged land with heavy fuels and difficult to access. This is the first prescribed burn on the District. A highlight of this burn season was burning on all three Districts of the Pisgah National Forest and on partner lands. Prescribed burners from all agencies participated in the record setting year by supporting each other. The experience gained from 10 years of CFLRP burning has spread throughout the area and is encouraging further developments.

Expenditures

Category	**$**
FY21 Wildfire Preparedness[1]	$398,467
FY21 Wildfire Suppression[2]	$9,763
The cost of managing fires for resource benefit if appropriate (i.e. full suppression versus managing)	N/A
FY21 Hazardous Fuels Treatment Costs (CFLN)	$28,119
FY21 Hazardous Fuels Treatment Costs (other BLIs)	$63,872

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.

Fiscal year 2021 saw very little fire activity across WNC.

Have there been any assessments or reports conducted within your CFLRP landscape that provide information on cost reduction, cost avoidance, and/or other cost related data as it relates to fuels treatment and fires? If so, please summarize or provide links here:

No formal assessments of cost reduction or cost avoidance were conducted in FY21 or have been developed in prior years. However, the following attachments (included in prior year reports) address the benefits of prescribed fire program, efficiencies gained in wildfire management, and qualitatively address costs of wildfire management:

Fall 2016 Wildfire Season Brief Grandfather RD

Bald Knob Fire Briefing

Please include acres of fires contained and not contained by initial attack and acres of resource benefits achieved by unplanned ignitions within the landscape, and costs.

- Include expenses in wildfire preparedness and suppression, where relevant
- Include summary of BAER requests and authorized levels within the project landscape, where relevant

There were zero acres of resource benefit fires in FY21.

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

No significant wildfires occurred within the Grandfather Restoration Project boundary in FY21, and no additional assessments have been completed since the FY2017 CFLRP annual report on fires within the CFLRP area (note: FY18-21 did not have significant fires within the CFLR boundary). There were 6 total fires for 59 acres in the project area which were all human caused and contained during initial attack.

[1] 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).

[2] Include emergency fire suppression and BAER within the project landscape. Describe acres of fires contained and not contained by initial attack. Describe acres of resource benefits achieved by unplanned ignitions within the landscape. Where existing fuel treatments within the landscape are tested by wildfire, summary and reference the fuel treatment effectiveness report.

3. **What assumptions were used in generating the numbers and/or percentages you plugged into the TREAT tool**? Information about Treatment for Restoration Economic Analysis Tool (TREAT) inputs and assumptions available here.[3]

- 1 FTE for every (approximately) $60,000 in funding from force accounts.
- Proportions of contract funding and force accounts have been fairly consistent over the life of the project.
- Tables 3 and 4 were completed by Pisgah Zone TMA.

Looking at your CFLRP project's TREAT Data Entry "Full Project Details" Tab, what percent of funding was used for contracts within the local impact area? 15%. If you have data on what percent of funding was used for **agreements** within the local impact area, please note. 54%

Contract Funding Distributions ("Full Project Details" Tab):

Description	Project Percent
Equipment intensive work	25%
Labor-intensive work	25%
Material-intensive work	20%
Technical services	10%
Professional services	10%
Contracted Monitoring	10%
TOTALS:	**100%**

Please provide a brief description of the local businesses that benefited from CFLRP related contracts and agreements, if known. Consider characteristics such as tribally-owned firms, veteran-owned firms, women-owned firms, minority-owned firms, and business size.[4] **Unknown**

FY 2021 Modelled Jobs Supported/Maintained (CFLN and matching funding):

FY 2021 Jobs Supported/Maintained	Jobs (Full and Part-Time) (Direct)	Jobs (Full and Part-Time) (Total)	Labor Income (Direct)	Labor Income (Total)
Timber harvesting component	4	6	228,649	318,127
Forest and watershed restoration component	2	3	58,796	100,240
Mill processing component	10	22	564,596	1,062,842
Implementation and monitoring	8	9	262,364	303,207
Other Project Activities	0	0	8,980	13,186
TOTALS:	24	40	1,123,385	1,797,602

[3] *For CFLRP projects under the CFLRP Common Monitoring Strategy this and the responses below address the core CFLRP common monitoring strategy questions, "*How have CFLRP activities supported local jobs and labor income?" and "How do sales, contracts, and agreements associated with the CFLRP affect local communities?

[4] This information is publicly available through usaspending.gov, there are other firm characteristics that may be more relevant for your CFLRP project or important for tracking over time.

4. **Briefly describe community benefits that align with the CFLRP proposal and strategies socioeconomic goals**. **How has CFLR and related activities benefitted your community(ies) from a social and/or economic standpoint?**

Indicator	Brief Description of Impacts, Successes, and Challenges
Relationship building and interagency cooperation	We find ways to work together. We don't let administrative challenges stop us from doing the work we know we need to do. A challenge we work through is finding those mechanisms that are available if funds need to be exchanged or qualifications systems don't match up. The Grandfather District has historically worked tremendously hard to cultivate relationships. The CFLR project has really taken that to the next level with other federal, state, and local government agencies, to NGOs, VFDs, Municipal Fire Departments, County and State Emergency Management and most importantly community members and local businesses. It has taken time and will take more but it is a worthwhile investment. This impacts our communities positively in every way and the diversity of partners ensures the resilience of the collaborative.
Fire-Adapted Community Network	Fuel mitigation is taking place around homes in the WUI. The McDowell Community Fire Network has been expanded to the surrounding 9 counties. All cost share funding has been allocated. Momentum is building towards having true fire-adapted communities. The RC&D partners have been instrumental in taking on this difficult and time-consuming challenge. It will have impacts when we find ourselves in another major fire season like 2016 when the weather patterns shift back to dry in the Southern Appalachians.
Volunteer participation	The Grandfather Project is fortunate to be located in an area where numerous people value the land and the opportunities and the services it provides and are willing to donate their time for the betterment of the land and those valued resources. In FY2021, volunteers with Wild South, NW NC Mountain Bike Alliance, ACE, SCA, YCC, A Clean Wilson Creek, Friends of MST, Backcountry Horseman, SAWS, AmeriCorps, TU, G5 Trail Collective, and Climbers Coalition have collectively contributed over 18,000 hours of volunteer services. These parties have spent numerous hours on trail maintenance and improvements, litter clean up, public education and outreach, graffiti removal, invasive species removal, campsite inventory, and monitoring. Many of the successes recognized by the Grandfather Restoration Project are closely tied to the efforts of these organizations, individuals, and others who volunteer their time and resources on a regular basis.
% Locally retained contracts	A large proportion, if not all, of the timber products harvested in timber sales that are a part of the Grandfather Restoration Project have been sold to and processed in local mills. Selling and processing these products locally contributes income, jobs, and resources directly back to the communities around the project area (see TREAT table 3). Further, contributing products to these businesses helps to support continued forest management in the area which increases landscape diversity and complexity.

Contributions to local recreation/tourism economy.	Recreation is a major component of the multiple uses of the Pisgah National Forest and of the area that makes up the Grandfather Restoration Project CFLR footprint. In the project area and surrounding the project footprint there are active mountain biking, hiking, climbing, and horseback riding enthusiasts that use and help to maintain the wide assortment of available recreation trails as volunteers. Through internal work (FS) and collaborations with other groups, maintenance and improvements to system trails over the lifetime of this project have increased user satisfaction and contribute to drawing more users into the area. The availability and development of more recreation opportunities also increases revenue to local economies and helps to create jobs. Collectively, the counties where the Grandfather Restoration Project is located have experienced a 43% growth in travel and tourism industries between 1998 and 2016 (Headwaters Economics 2019, https://headwaterseconomics.org/dataviz/recreation-counties-us/).
Job training opportunities	The Grandfather Restoration Project CFLRP has afforded the opportunity for numerous people to get job training in natural resources work throughout the lifetime of this project including, but not limited to, students, recent graduates, and veterans. In FY21, 1039s helped support the CFLR project's mission by conducting trails improvements, engaging with the public, and supporting the recreation and fire programs. Additionally, one SCA fire and recreation intern (IFRI) gained experience in a multifaceted position for 14 weeks (plus 2 weeks training). During this time, the intern was trained for wildland firefighting, prescribed burning, and participated in trail maintenance. Following the completion of the internship, the intern is afforded the ability to apply for and received a permanent job with the US Forest Service.

5. Based on your project monitoring plan, **describe the multiparty monitoring process.** *Consider:*
   - *What parties (who) are involved in monitoring, and how?*
   - *What is being monitored? Please briefly share key broad monitoring results and how results received to date are informing subsequent management activities (e.g. adaptive management), if at all. What are the major positive and negative ecological, social and economic shifts observed through monitoring? Any modifications of subsequent treatment prescriptions and methods in response to these shifts?*
   - *What are the current weaknesses or shortcomings of the monitoring process? How might the CFLRP monitoring process be improved? (Please limit answer to one page.).*
   - *Please provide a link to your most up-to-date multi-party monitoring plan and any available monitoring results from FY21.*

Grandfather CFLR Fire Effects Monitoring – 2021 Update, link

The Grandfather Restoration Project Collaborative has a monitoring committee that is open to all participants in the collaborative. The collaborative at large has prioritized monitoring efforts to include forest restoration (focusing on restoration of fire regimes), invasive species treatments, fish and wildlife habitat, watershed, roads, trails, and social and economic impacts. The collaborative continues to follow the monitoring plan enacted in April 2014 when planning monitoring activities. The implementation of monitoring under the Grandfather CFLR focuses on determining the effectiveness of 2 key priorities – (1) prescribed fire treatments and (2) NNIS treatments. Monitoring in these areas is key to adaptive management under the CFLR.

The following monitoring efforts are in place through FY2021:

(1) In FY2015, an agreement was established with Western Carolina University (WCU) to monitor fire effects on vegetation. This agreement uses the vegetation monitoring methodology developed by the Southern Blue Ridge Fire Learning Network (SBRFLN) to monitor fire effects on vegetation. This methodology consists of installing 0.1 acre permanent plots that record all woody vegetation over 4" dbh, measuring sapling density in a nested sapling plot, recording percent cover of shrubs and herbs, and measuring fuels alongthree transects. The agreement also provides analysis of data to allow for adaptive management in prescribed fire implementation.

Monitoring plot on Rx burn

Fire effects monitoring has focused on characterizing target conditions for restoring fire adapted ecosystems. A question that often arises in adaptive management is "how many times must we burn on a frequent interval before we reach maintenance phase?" FY2018 monitoring looked deeper into that question, following field observations in FY2017 that necessitated the establishment of additional monitoring plots in burn units to better assess the effects of canopy openness. Three categories of openness (open canopy, canopy gaps, and closed canopy) and plots representative of each condition were established. The goal of the monitoring, led by Western North Carolina University, is to characterize a "restored" site and monitor regrowth over time. Of primary concern is the regrowth of *Kalmia sp.* (Mountain Laurel) and *Rhododendron sp.* in the shrub layer, which they are collecting data on through measurements of stem density and crown characteristics using a point-quarter sampling procedure (SBRFLN). Once this data is amassed and analyzed, the results will give insight into re-growth rates of target species to determine if the number of burns affected sprouting vigor.

Also in FY2018, Western Carolina University improved the monitoring of herbaceous species where they performed detailed botanical inventories in 5 plots representing each canopy class. A complete botanical census was performed for a 10m x 10m square within each plot using protocols adapted from the Carolina Vegetation Survey and for wildlife activity where they used paired cameras at 2 points within each canopy class and an additional 2 points located outside of the burn unit.

In FY2019, data was collected as in years past on all permanent plots, where overstory, tree and shrub regeneration, herbaceous sampling, and fuels transect measurements were conducted. Monitoring efforts in FY2019, initiated a stronger effort to quantify canopy openness using spherical densitometer readings at each monitoring plot in the Wilson Creek burn unit and in a selected sample of plots on the Lake James burn unit.

Data collection

The Blue Gravel burn unit was monitored for the first time in FY2019. Like the Wilson Creek burn unit (see 2018 report), Blue Gravel has been burned multiple times in the past several decades, and at least some portions of this burn unit are approaching a desired condition. In 2019, WCU established 10 standard fire-effects monitoring plots in the Blue Gravel unit to better assess stand conditions in a unit that has been burned multiple times. To supplement those data, they also collected the following:

1. Detailed botanical inventory: conducted detailed botanical inventories in all plots to provide more comprehensive data on species composition and assess the presence of fire adapted species.
2. Mountain laurel sprouting vigor: measured mountain laurel density and crown characteristics in all plots using the point-quarter sampling procedure.
3. Canopy openness: measured canopy openness with a spherical densitometer at all plots.

Data analysis for fire effects is still ongoing, so no conclusive results are yet available. Still WCU is seeing trends in the data that suggest that prescribed fire is creating a mosaic of forest conditions in burn units, reducing overstory density by increased mortality in smaller diameter stems, mortality in larger stems rising after multiple burns, regeneration density increases following burns, mountain laurel is readily top-killed by fire but resprouts vigorously, and litter and duff appear to be reduced. Further, WNC is noticing relationships between canopy openness and percent bare ground (lower where canopy is open), cover of grasses (higher where canopy is open), herbs (higher), and, although resprouted, mountain laurel height and cover is lower in all burned areas versus unburned areas regardless of canopy openness.

The 2019 botanical assessment found that total herb layer cover differed significantly between the canopy openness classes, with burned/open and burned/gap conditions having the greatest total cover. Relative cover of fire-adapted herbs also differed significantly, and the burned/open canopy class had greatest relative cover of fire-adapted species of the four condition classes. Relative cover of fire-intolerant species also differed significantly with the burned/closed and unburned classes having the greatest relative cover of fire-intolerant species

(2) In FY2015, an agreement was established with MountainTrue, a local non-profit organization, to monitor invasive plant species occurrence and treatment effectiveness. The agreement focuses on high priority areas identified as part of the CFLR. This agreement provides survey assistance in identifying new treatment areas as well as look at the effectiveness of existing treatments. Monitoring efforts allow specialists to test a variety of treatment methods to determine the most effective way to treat invasive plant species.

MountainTrue monitors invasive species in high priority areas across the district. One key target species to monitor is Japanese knotweed, which can be particularly aggressive along stream corridors within the Southern Appalachians. Within the Grandfather CFLR, chemical treatments have been implemented along a 3-mile stretch of the Wilson Creek Wild and Scenic River. Previous annual or semiannual treatments have been

marginally successful. For the past three years, more frequent treatments combined with including a mix of herbicides have been implemented and appear to be more effective than using the single herbicide.

In FY2019, MountainTrue monitored Japanese Knotweed (*Reynoutria japonica*) populations in Wilson Creek and on the Pritchett property and monitored multiple non-native, invasive species on the North Fork of the Catawba River. The results of these monitoring data are still being analyzed. MountainTrue also mapped 50 acres of invasive plant occurrences within the Lover's Branch Restoration Area in 2019. These newly mapped invasive species will be targeted for treatment in upcoming phases of the restoration project.

6. FY 2021 Agency performance measure accomplishments:

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost ($) *(Contract Costs)*
Acres mitigated FP-FUELS-ALL-MIT-NFS	Acres	8685	
Acres of forest vegetation improved FOR-VEG-IMP	Acres	214	
Manage noxious weeds and invasive plants INVPLT-NXWD-FED-AC	Acre	1263	
Acres of terrestrial habitat restored or enhanced HBT-ENH-TERR	Acres	348	
Miles of passenger car system roads receiving maintenance RD-PC-MAINT	Miles	30 **	
Miles of road decommissioned RD-DECOM	Miles	1.6 **	
Number of stream crossings constructed or reconstructed to provide for aquatic organism passage STRM-CROS-MTG-STD	Number	15 **	
Miles of system trail maintained to standard TL-MAINT-STD	Miles	220	
Miles of system trail improved to standard TL-IMP-STD	Miles	10	
Miles of property line marked/maintained to standard LND-BL-MRK-MAINT	Miles	11 **	
Acres of forestlands treated using timber sales TMBR-SALES-TRT-AC	Acres	134	
Volume of Timber Harvested TMBR-VOL-HVST*	MMBF	2.5 **	
Volume of timber sold TMBR-VOL-SLD*	CCF	49	
Acres of wildland/urban interface (WUI) high priority hazardous fuels treated to reduce the risk of catastrophic wildland fire FP-FUELS-WUI	Acres	6726	
Please also include the acres of prescribed fire accomplished	Acres	6726	

Units accomplished should match the accomplishments recorded in the Databases of Record. For CFLRP projects under the CFLRP Common Monitoring Strategy, items marked with a * help to address the core CFLRP common monitoring strategy question, "Did CFLRP increase economic utilization of restoration byproducts?"

**Program managers failed to report accomplishments in database of record in time for reporting. Actuals taken from communication with program managers.

7. **The Washington Office (Enterprise Data Warehouse) will use spatial data provided in the databases of record to estimate a treatment footprint for each CFLRP project's review and verification**. This information will be posted here on the internal SharePoint site for verification *after the databases of record close October 31*.

- **If the estimate is consistent and accurate**, please confirm that below and skip this question.
- **If the gPAS spatial information does NOT appear accurate**, note the total acres treated below.

Fiscal Year	**Footprint of Acres Treated** (without counting an acre of treatment on the land in more than one treatment category)
FY 2021	2030
Estimated Cumulative Footprint of Acres (CFLRP start year through 2021)	62,971 **Total is cumulative and includes re-entry acres across years 2012-2019*
	FY12 – 5,622 FY16 – 6,131 FY13 – 6,528 FY17 – 9,002 FY14 – 5,947 FY18 - 7,114 FY15 – 9,837 FY19 - 8,523 FY20 – 2,237 FY21 – 2,030

8. **Describe any reasons that the FY 2021 annual report does not reflect your project proposal, previously reported planned accomplishments, or work plan.** Did you face any unexpected challenges this year that caused you to change what was outlined in your proposal? **No**

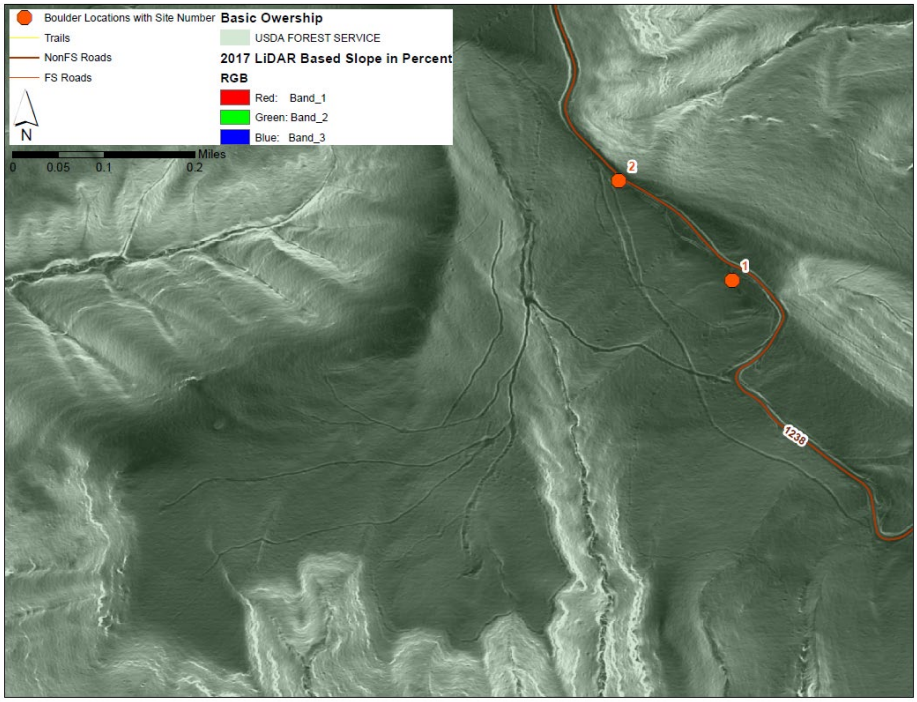
(*OPTIONAL*) FY 2021 Additional accomplishment narrative – If desired, please use this space to describe additional accomplishments the CFLRP project participants are proud of from FY21 *not already described elsewhere* in this report.

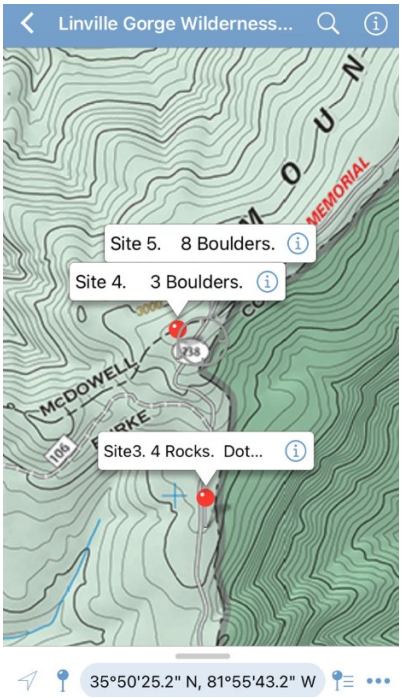
GIS staff assisted with building a story map to help showcase the accomplishments over the life of the CFLR project. https://storymaps.arcgis.com/stories/9acd59c26a0d415a88e2b6842fe5bdd3

The mountain bike and fishing community, and US Forest Service partnered on several projects restoring aquatic organism passages while repairing erosion issues and completing road to trail conversions. https://usfs.box.com/s/js66d6pniwxikbdjihx3fxvkwtubhseq

https://usfs.box.com/s/5dg2txy4pr7deshll5mkr7f7hmdpvoyu

We utilized LiDAR data to prioritize boulder placement to prevent access to user-created roads.





A major highlight for the Collaborative was participating in the 4th annual National Cohesive Wildland Fire Management Strategy workshop that was going to hosted here in Asheville but was changed to virtual. The agenda was full of CFLR partners telling the story of demonstrated successes working together on a common goal. The really fulfilling thing was seeing how many off-shoot efforts have grown out of this culture of working together that was refined during the Grandfather Restoration Project. The RC&Ds are taking on fire adapted communities, the Ruffed Grouse Society is applying for a grant for a Prescribed Burn Association coordinator to complement efforts by the US and NC Forest Service. The Nature Conservancy is sharing the call-when-needed burn crew model for interested parties all over the country (https://usfs.box.com/s/apvgfnyupa00ci2u0dm4gqns90qhlex9). The NC prescribed fire council remains active and many of the CFLR partners participate in that as well (http://www.ncprescribedfirecouncil.org/index.html). The Fire Learning Network, which was the catalyst for the Grandfather Restoration Project, is incredibly active and with new landscape leads they are poised to move us forward from here.

Lastly, I'll share an email that has been circulated and talked about trying to get at what makes the Southern Blue Ridge Fire Learning Network so special. There is no one thing and there is no one person. Its diversity in partners and perspectives and specialties is a part of it. The culture that allows people to contribute their thoughts and be heard is a part. The willingness to not only disagree with someone but to find a way to get to something you do agree on is a part. People put in the effort, they are there, they show up for each other no matter whose land it is. Not to be overlooked, we have a great safety record working together. I'm not aware of any accidents or injuries on prescribed burns during the life of this project. All of this momentum will absolutely drive the success of the Pisgah Restoration Initiative when it comes online (https://usfs.box.com/s/ufzve8ajxght2spgvvhscuotm2e8n6kw).

11. **Please include an up to date list of the members of your collaborative <u>if</u> it has changed from previous years**. If the information is available online, you can simply include the hyperlink here. If you have engaged new collaborative members this year, please provide a brief description of their engagement.[5] **No Change**

Signatures:

Recommended by (Project Coordinator(s)):____/s/ Greg Philipp_____

Approved by (Forest Supervisor(s)): JAMES MELONAS Digitally signed by JAMES MELONAS Date: 2021.12.15 20:51:07 -05'00'

Draft reviewed by (collaborative chair or representative): ____/s/ Megan Sutton_____