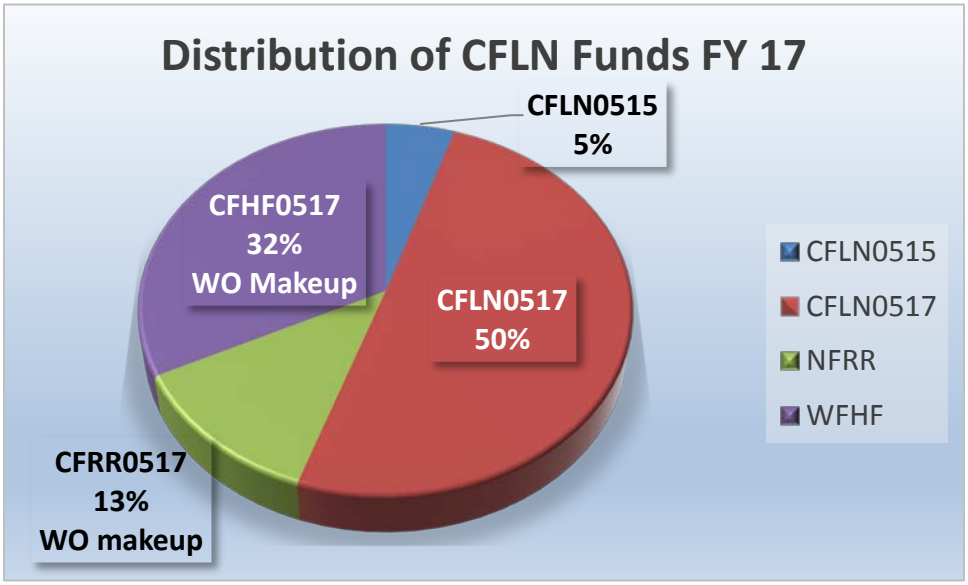
CFLR Project (Name/Number): Four Forest Restoration Initiative CFLR005

National Forest(s): Apache-Sitgreaves, Coconino, Kaibab, and Tonto National Forests

1. Match and Leveraged Funds:

a. FY17 Matching Funds Documentation

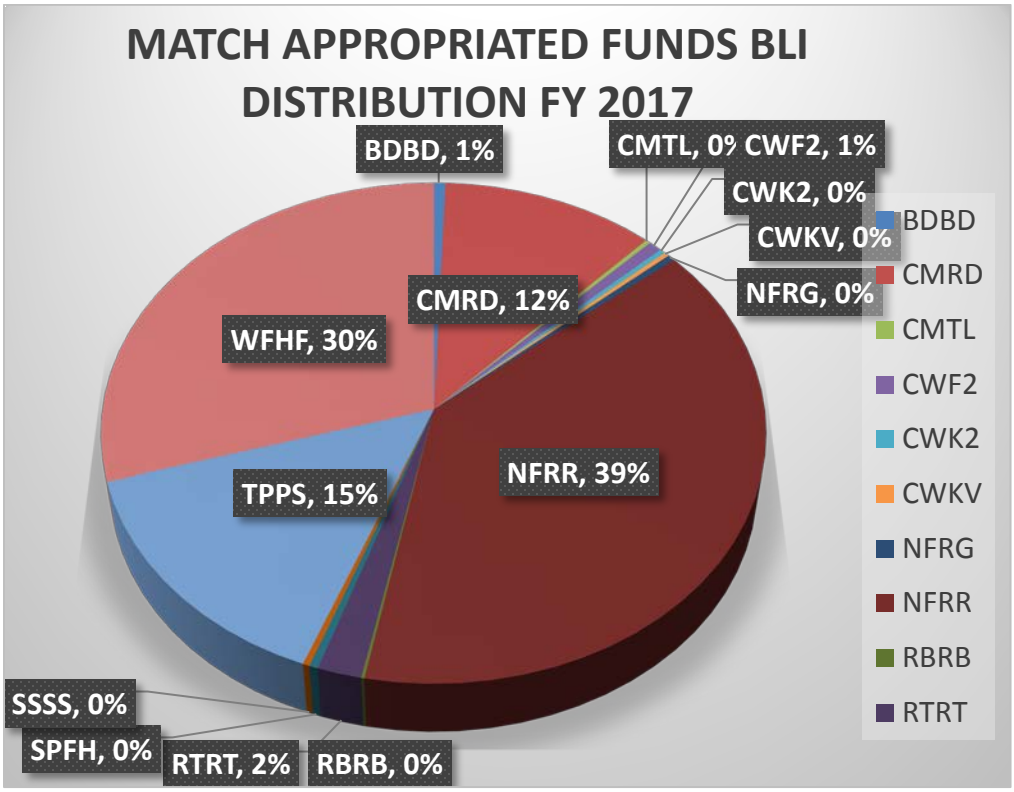


Fund Source – (CFLN/CFLR Funds Expended)	Total Funds Expended in Fiscal Year 2017 - $2,227,113
CFLN15	$200,824
CFLN17	$2,026,289

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

Fund Source – (Funds expended from Washington Office funds (in addition to CFLR/CFLN) (please include a new row for each BLI))	Total Funds Expended in Fiscal Year 2017-$1,802,000
NFRR	$500,000
WFHF	$1,302,000

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



Fund Source – (FS Matching Funds (please include a new row for each BLI)	**Total Funds Expended in Fiscal Year 2017 - $29,374,571**
BDBD	$178,231
CMRD	$3,351,344
CMTL	$75,680
CWF2	$210,000
CWK2	$89,773
CWKV	$80,335
NFRG	$115,648
NFRR	$11,481,039[1]
RBRB	$42,204
RTRT	$579,512
SPFH	$115,514
SSSS	$87,474
WFHF	$8,688,250

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

[1] The total in the PAS expenditure report of $11,981,039 includes $500,000 of WO CFLN makeup funds and $11,481,039 of appropriated NFRR

Fund Source – (Funds contributed through agreements)	Total Funds Expended in Fiscal Year 2017-$757,598
NFXN	$678,021
CWFS	$79,578

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

Fund Source – (Partner In-Kind Contributions)	Total Funds Expended in Fiscal Year 2017-$978,965
Arizona Elk Society	$45,866
Ecological Restoration Institute	$87,500
Friends of Northern Arizona Forests	$44,619
Grand Canyon Trust	$46,197
Greater Flagstaff Forest Partnership	$10,000
Mottek Consulting	$6,000
National Forest Foundation	$234,000
The Nature Conservancy	$194,150
TRACKS	$263,923
Trout Unlimited	$46,711

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

Service work accomplishment through goods-for services funding within a stewardship contract (for contracts awarded in FY17)	Totals
Total revised non-monetary credit limit for contracts awarded in FY17	$7,941,966

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

b. Please provide a narrative or table describing leveraged funds in your landscape in FY2017 (one page maximum).

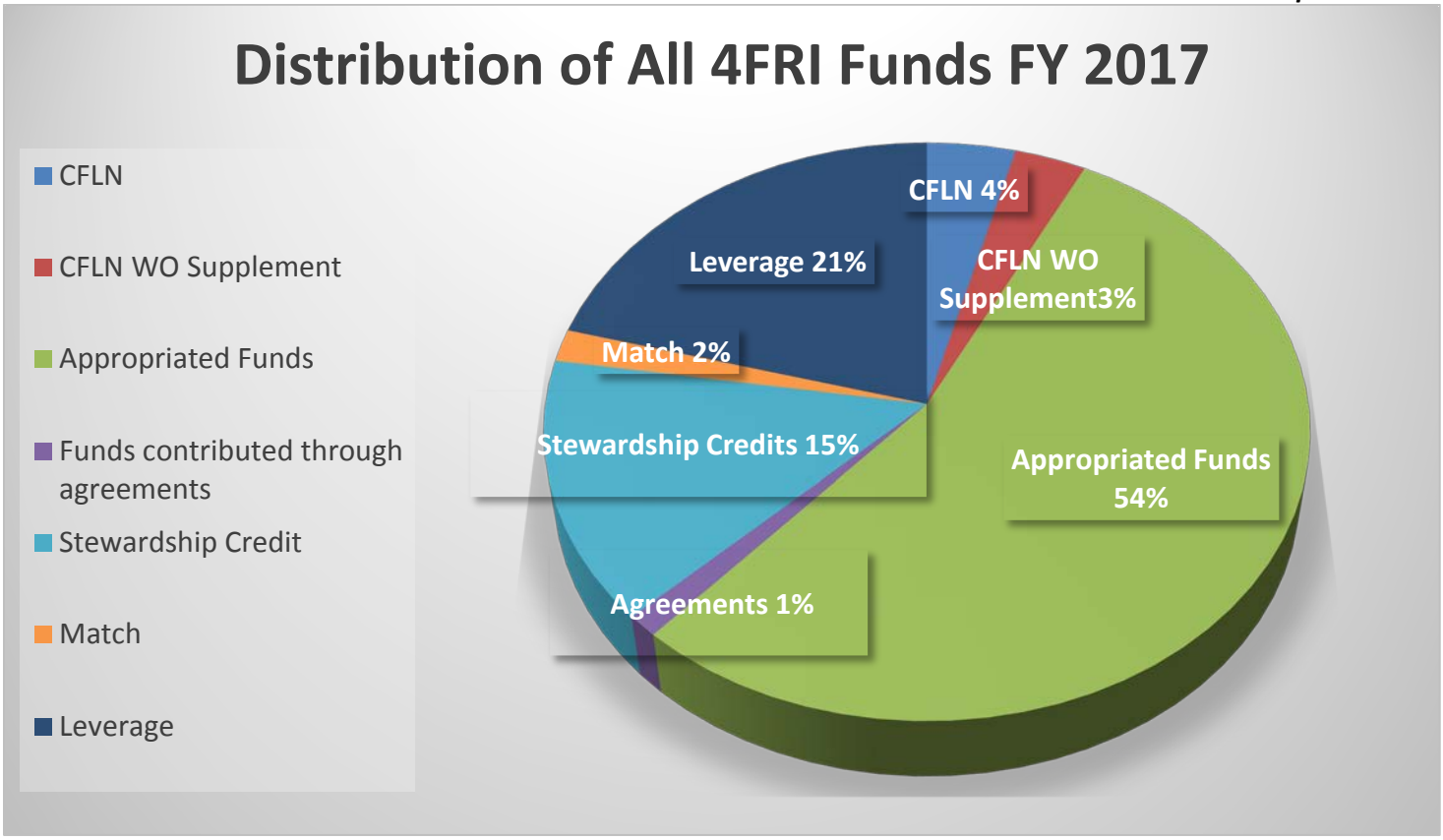
Leveraged funds for the 4FRI projects this year total **$11,281,377** dollars. The following table is a summary of the organizations and the amount of leveraged funds from each entity. Specifics about the funds and projects contributed are listed below the summary table.

Item Description	Where activity/item is located or impacted area	Estimated total amount	Forest Service or Partner Funds?	Source of funds
NEPA to support future restoration projects	Black River NEPA (A-S), CC Cragin Watershed EA (Coconino), Escudilla WRAP (A-S),Milligan and remainder Nutri WUI (A-S) Flagstaff RD CE's NEPA (Coconino), Rim Country EIS (A-S, Coconino, Tonto), Coconino TMR review (Coconino)Turkey Barney EA (Coconino), and Greens Peak CE (A-S)	$2,410,051	Forest Service	NFRR $1,741,957 WFHF $24,161 TPPS $643,933
Rebuild and upgrade of Lumberjack Sawmill	Lumberjack Sawmill, Heber, Arizona	$8,000,000	Partner	Private investors, NewLife Forest Products LLC
meeting for wood innovations	across 4FRI footprint	$1,200	Partner	David Old
other land projects	Arizona State Land and Coconino County	$27,900	Partner	The Nature Conservancy
City of Flagstaff Fire Department: Wildland Fire Management & Flagstaff Watershed Protection Project	Within & adjacent to the City: private, county, State, federal lands	$500,000	Partner	City of Flagstaff General Fund and FWPP Bond
WFHF grant	Greater Flagstaff (along Hwy 180 & Hart Prairie (near San Francisco Peaks)- The Nature Conservancy 170 acres, Coconino County 60 acres, Flagstaff Unified School District 10 acres, private parcels in and around Hart Prairie 30 ac.	$200,000	Partner	Arizona Department of Fire and Forest Management

Item Description	Where activity/item is located or impacted area	Estimated total amount	Forest Service or Partner Funds?	Source of funds
WFHF grant	Flagstaff and Ft Tuthill County Park	$133,200	Partner	Arizona Department of Fire and Forest Management
Harvesting Methods & Wildfire Preparedness Day Open House	Flagstaff	$2,500	Partner	Greater Flagstaff Forest Partnership Fire Adapted Community Learning Network
Harvesting Methods & Wildfire Preparedness Day Open House	Flagstaff	$500	Partner	Greater Flagstaff Forest Partnership
Landscape Contest & Awards Ceremony	Flagstaff	$4,400	Partner	Greater Flagstaff Forest Partnership Fire Adapted Community Learning Network
Landscape Contest & Awards Ceremony	Flagstaff	$880	Partner	Greater Flagstaff Forest Partnership
SAF Sponsor	Flagstaff	$250	Partner	Greater Flagstaff Forest Partnership
WUI Summit sponsor	Flagstaff	$496	Partner	Greater Flagstaff Forest Partnership

DISTRIBUTION OF ALL FUNDS FOUR FOREST RESTORATION INITIATIVE

FUND SOURCE	AMOUNT	% of funds
CFLN	$2,227,113	4%
CFLN WO Supplement	$1,802,000	3%
Appropriated Funds	$29,374,571	54%
Funds contributed through agreements	$757,598	1%
Stewardship Credit	$7,941,966	15%
Match	$978,965	2%
Leverage	$11,281,377	21%
TOTAL	**$54,363,590**	**100%**



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

The 4FRI project has implemented large-scale implementation of mechanical harvest. The table below displays the acres of mechanical harvest issued in contracts and the acres harvested since 2010. This combined effort to implement mechanical thinning treatments is moving these portions of the landscape toward desired conditions and the goals outlined in the 10-year strategy.

Summary by Fiscal Year	Acres awarded in all contracts	Acres completed in all contracts
Fiscal Year 2010	10,882	13,265[2]
Fiscal Year 2011	17,638	16,034
Fiscal Year 2012	10,063	8,653
Fiscal Year 2013	27,364	15,469
Fiscal Year 2014	26,399	13,585
Fiscal Year 2015	38,319	14,550
Fiscal Year 2016	22,720	11,569
Fiscal Year 2017	29,826	13,108
Totals	**183,211**	**106,233**

[2] Fiscal year 2010-2012 include acres awarded in contracts prior to 2010

Mechanical treatments meet the 10-year comprehensive strategy by achieving these objectives:

- Treatments meet the goal of reducing fire intensities and conform to the National Fire Management Plan by reducing hazardous fuels.
- Treatments are designed to restore fire-adapted ecosystems by restoring the structure, pattern, and composition of ponderosa pine forests.

The following photos are examples of the types of treatments that are moving the landscape towards a more resilient and fire adapted ecosystem and are summarized by the acres of harvest treatment in the table above. The photos display the change in structure pattern and composition from the harvest and subsequent prescribed fire that has changed fire behavior on the landscape at the Mountainaire project on the Coconino National Forest.

The pictures (from left to right) display the before harvest on in 2012, during harvest in 2012 and the post-harvest in 2013.

These pictures (from left to right) display the post-harvest in 2014, the post-harvest area immediately after a prescribed burn in 2015, and the final picture displays the area in the summer of 2015, post-harvest and post-prescribed fire.

Including the specific projects discussed above, other treatments implemented in Fiscal Year 2017 within the 4FRI area that address the 10-year strategy include:

- Fuels reduction treatments with prescribed burning, wildfires managed for resource benefits and mechanical thinning on approximately 105,753 acres, of which approximately 45,951 acres are in Wildland Urban Interface.
- Of the fuels treatments completed, 13,594 acres are Forest Service acres where fuels have effectively been mitigated to reduce wildfire risk.

- Prescribed fire and wildfires managed for resource benefits treatments designed to reduce fire intensities conform to the National Fire Management Plan by reducing hazardous fuels.

Fire Preparedness (WFPR)

The following table summarizes the costs for wildfire preparedness in the 4FRI project area. The total expenditures in WFPR were prorated by the relative area of the 4FRI project in relationship to the total forest acreage. The table displays, by forest, the total expenditures in WFPR for FY 2017, the percent of the forest covered by these expenditures, and the 4FRI expenditures allocated to WFPR. Approximately $11.3 million of wildfire preparedness funds were spent in FY 2017 in the 4FRI footprint.

FOREST	WFPR total	% of Forest	4FRI expenditures WFPR
Apache-Sitgreaves	$5,222,105	0.8	$4,177,684
Coconino	$4,741,421	0.8	$3,793,137
Kaibab	$3,871,634	0.5	$1,935,817
Tonto	$5,673,598	0.25	$1,418,400
TOTAL	**$19,508,758**		**$11,325,037**

Fire Suppression (WFSU)

The 4FRI project area had an active wildland fire year in 2017. The table below summarizes fire activity over 100 acres in the 4FRI area as reported in the Wildland Fire Decision Support System (WFDSS). There were 48,421 acres of wildfires over 100 acres in size within the 4FRI footprint. There were a mixture of suppression activities

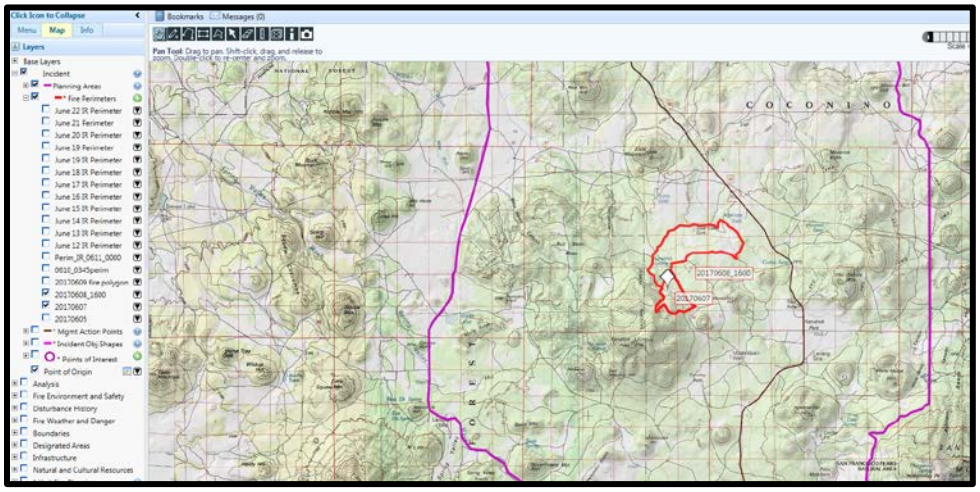
FOREST	FIRE NAME	ACRES	MANAGEMENT STRATEGY
Apache-Sitgreaves	Fisher	100	contain
Apache-Sitgreaves	Gentry	641	full suppression
Apache-Sitgreaves	SH Creek	3,074	monitor
Apache-Sitgreaves	Slim	3,241	full suppression
Coconino	Bear	2,040[3]	managed for multiple resource objectives
Coconino	Boundary	17,788	full suppression and manage for multiple resources
Coconino	Poverty	300	full suppression
Coconino	Snake Ridge	15,333	managed for multiple resource objectives
Coconino	Spur	595	full suppression
Kaibab	RAIN	151	full suppression
Tonto	Highline	7,198	full suppression
Total	**ACRES**	**48,421**	**MANAGEMENT STRATEGY**

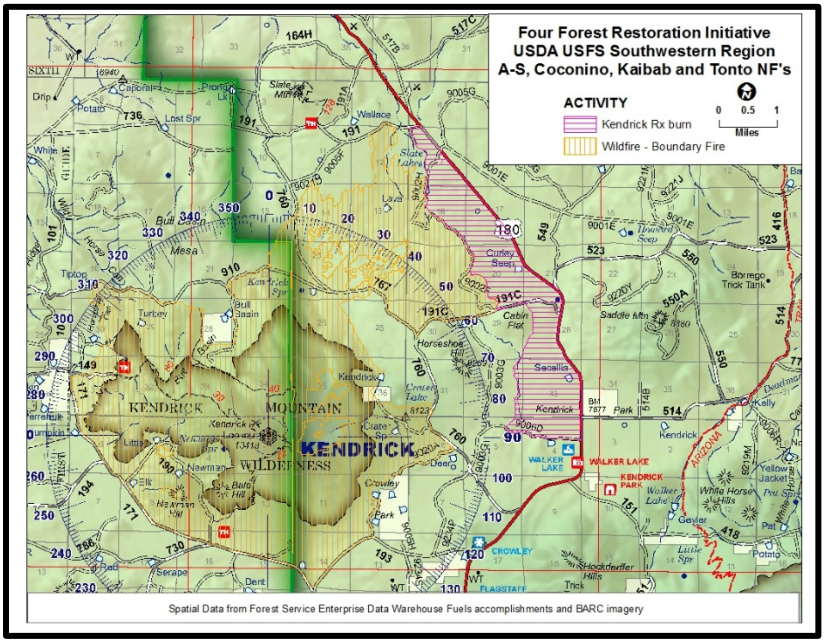
[3] Fire acreage is included in the Highline Fire

Three fires interacted with areas that were recently treated, each will be discussed separately.

Boundary Fire

The Boundary Fire on the Coconino and Kaibab National Forests was started by lightning on June 1, 2017 in the mid-slope of the Kendrick Mountain wilderness. The fire location was in the middle of the Pumpkin wildfire that burned in 2000. On June 8th, the fire made a run out of containment lines and was stopped by the 3,552 acres Kendrick prescribed burn (Kendrick Rx) on the Flagstaff Ranger District of the Coconino National Forest that was completed on April 24th, 2017 (see map from WFDSS displaying fire perimeter below). The Kendrick Rx fire also was used as a containment feature for the remainder of the fire, tying the run from June 10th to the southeast to Forest road 191. (See map of Boundary Fire and Kendrick Rx below). All told, between the Kendrick Rx burn and the Boundary Fire, 21,340 acres of landscape had fire. The management of the Boundary Fire was full suppression, however the fire tactics were designed to minimize the fire severity across the Kendrick Mountain wilderness, as well as the five Mexican spotted owl Protected Activity Centers within the fire boundary. In addition, there were multiple private inholdings that were within the fire boundary that would benefit from lower fire severity as well (see map).



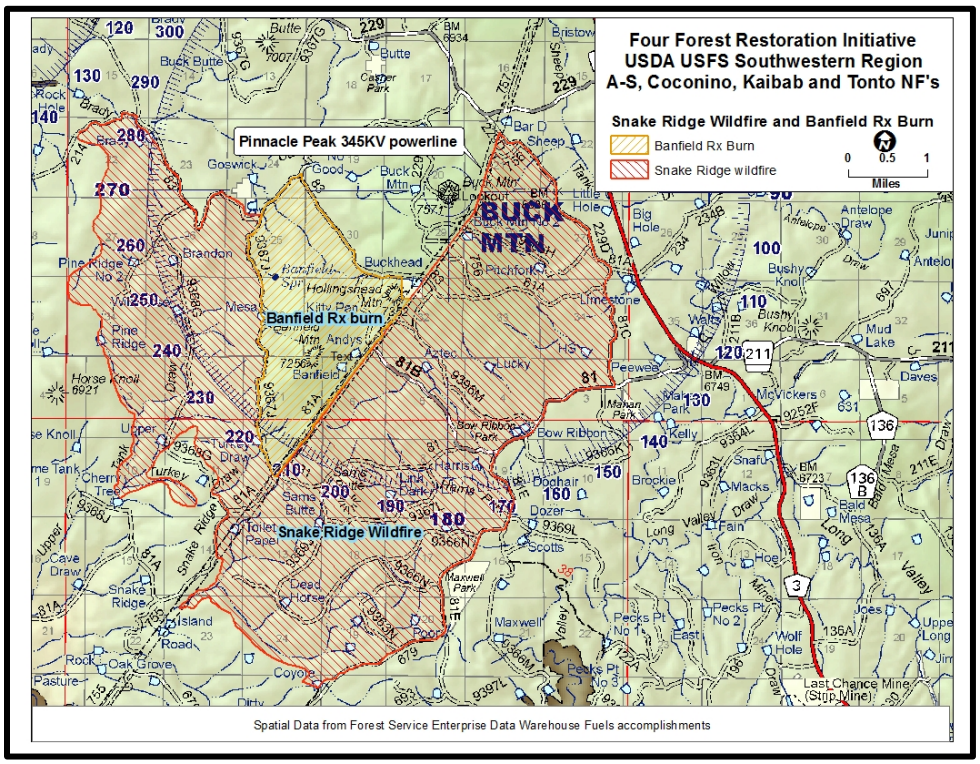


Funding for the Kendrick Rx fire was totally funded through the WFHF fund code and is tracked as match expenditures and accomplishment for 4FRI.

Snake Ridge Fire

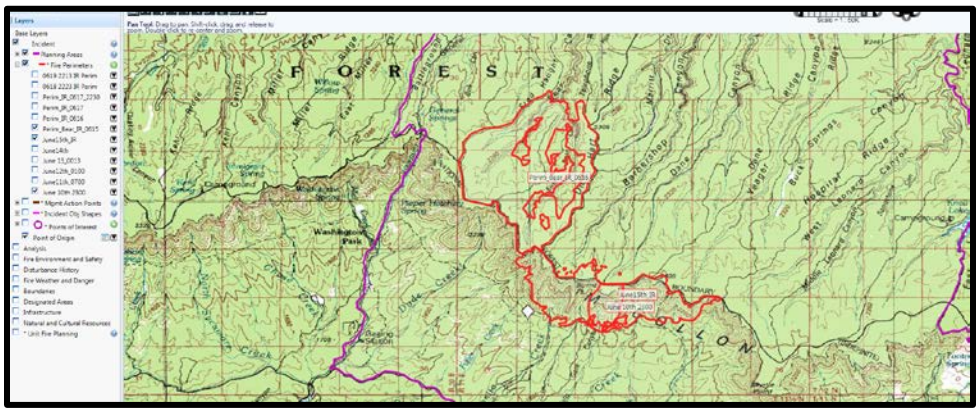
The Snake Ridge wildfire also was tied into a prescribed fire. On May 1st, the Mogollon Rim District of the Coconino National Forest completed the 3,550 acre Banfield Rx Burn. Part of the funding for this project was provided by the Northern Arizona Forest Fund ($35,000), with the remainder funds from the WFHF fund code. The prescribed fire burned adjacent to the Pinnacle Peak 345 KV powerline that provides power to the greater Phoenix area.

On May 19th, the lightning caused Snake Ridge fire was detected. The fire was managed for multiple resource benefits and ended burning a total of 15,333 acres. The Banfield Rx burn was integrated into the Snake Ridge wildfire management. It was key to have this portion burned on the west side of the 345KV powerline where normally the prevailing winds would take the smoke into the powerline and potentially causing either arcing or the necessity to de-energize the powerline (see map below). Altogether, 18,880 acres were treated with fire between the wildfire and the prescribed fire. The main value that these fires protected were the 345-KV Pinnacle peak powerline. In addition, these fires were able to provide protection to private inholding directly adjacent to the fire (see map).

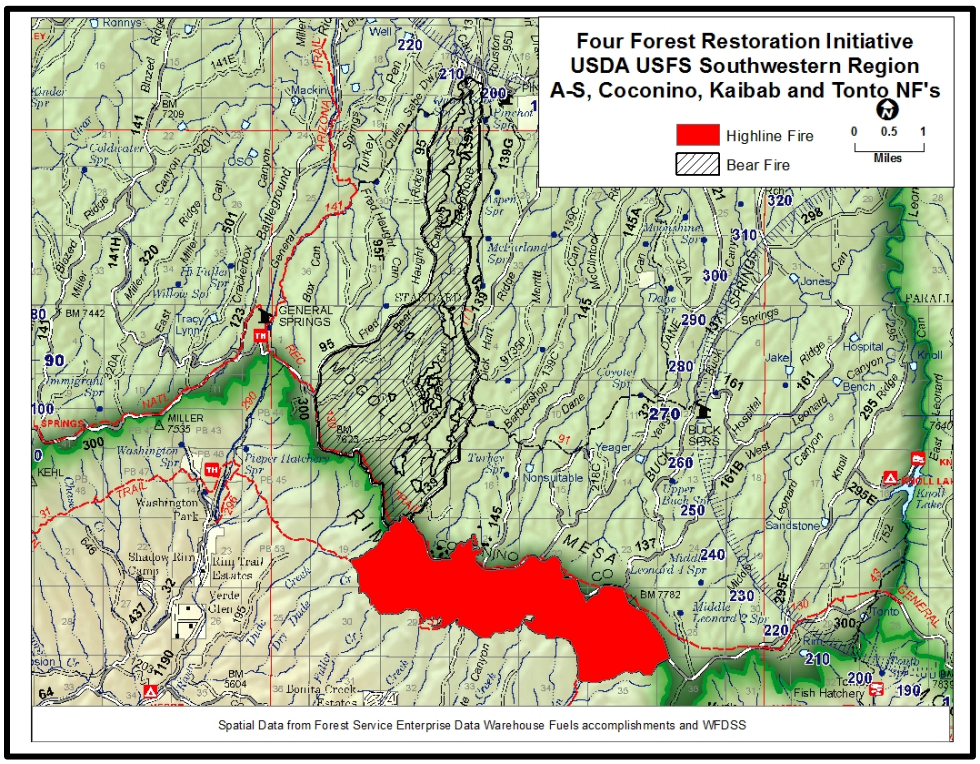


Bear and Highline Fires

The third fire where two separate wildfires interacted were the Bear Fire and the Highline Fire. On June 1st, the lightning caused Bear Fire was detected on the Mogollon Rim District of the Coconino National Forest. The decision was to manage the fire for multiple resource benefits. On June 10th, the Highline Fire was detected approximately 2 miles southeast of the Bear Fire on the Payson District of the Tonto National Forest. The Highline Fire was a full suppression fire due to close proximity to multiple private in-holdings as well as an elevated Preparedness Level in Region 3. On June 15th, the Highline Fire progressed burned into the Bear Fire (see map of boundary from WFDSS below).



The Bear Fire had checked the Highline fire spread to the northwest. The final acreage for the combined fires was 7,198 acre. The Bear Fire is within CC Cragin watershed that is a municipal water source for the City of Payson. All funding of the tow wildfires are in the WFSU fund code.



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

CFLN only

1) Total CFLR funding in Table 1 includes appropriated CFLN plus carryover from final expenditure report.
2) % contract in Table 1 is 53% from contracts let using CFLN and CFLN carryover--$2.14 million of the $4.03 million. % of contracts derived from Work Plan contract values.
3) % of contracting split in Table 2 in CFLR is based on the percentage that went to contracts out of the funds ($2.14 million), not out of the total ($4.03 million). % of contracts derived from Work Plan contract values.
4) Volume in Table 3 is from BIO-NRG performance measure for 4FRI from final gPAS report. Conversion of Green Tons in BIO-NRG to Dry Tons used 50% moisture content.
5) Volume in Table 3 for TMBR VOL HARVEST is from Timber Information Manager (TIM) database initiative summary report.
6) % manufacturing in Table 4 is from values produced by Arizona Department of Forestry and Fire Management Wood Utilization & Marketing Specialist. In this project, energy is comprised of cogeneration as well as wood pellets. Some biomass is going to soil amendments, decorative bark, horse bedding etc. that is not categorized and is actually manufactured outside of the project area in Maricopa County so the percentage is less than 100%.

FULL PROJECT

1) Total project funding in Table 1 from final funding report and includes CFLN plus carryover
2) % of contracting in Table 1 is the 33% ($11.27 million of the $34.16 million) that went to contracts. % of contracts derived from Work Plan contract values.
3) % of split in Table 2 is based on the percentage of the actual cost by bli, assigned to the categories in the table.

4) Volume in Table 3 is from BIO-NRG performance measure for 4FRI from final gPAS report. Conversion of Green Tons in BIO-NRG to Dry Tons used 50% moisture content.
5) Volume in Table 3 for TMBR VOL HARVEST is from Timber Information Manager (TIM) database initiative summary report.
6) % manufacturing in Table 4 is from values produced by Arizona Department of Forestry and Fire Management Wood Utilization & Marketing Specialist. In this project, energy is comprised of cogeneration as well as wood pellets. Some biomass is going to soil amendments, decorative bark, horse bedding etc. that is not categorized and is actually manufactured outside of the project area in Maricopa County so the percentage is less than 100%.

FY 2017 Jobs Supported/Maintained (FY17 CFLR/CFLN/ WO carryover funding):[4]

SUMMARY TABLE Average Annual Impacts - From CFLR/N Funds Only

Project Type	Jobs - Full and part-time Direct	Jobs - Full and part-time Total	Labor Income (2017 Dollars) Direct	Labor Income (2017 Dollars) Total
Timber harvesting component	124	245	$5,612,175	$6,655,857
Forest and watershed restoration component	9	14	$143,979	$334,686
Mill processing component	74	232	$2,310,857	$6,330,321
Implementation and monitoring	13	19	$1,265,550	$1,454,441
Other project activities (firewood and contracted monitoring)	2	3	$77,672	$115,099
TOTALS:	**222**	**513**	**$9,410,234**	**$14,890,404**

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

SUMMARY TABLE Average Annual Impacts - From All Project Funds

Project Type	Jobs - Full and part-time Direct	Jobs - Full and part-time Total	Labor Income (2017 Dollars) Direct	Labor Income (2017 Dollars) Total
Timber harvesting component	327	646	$14,792,706	$17,543,667
Forest and watershed restoration component	48	81	$805,313	$1,959,026
Mill processing component	185	578	$5,776,089	$15,790,273
Implementation and monitoring	331	400	$14,839,511	$17,054,393
Other project activities (firewood and contracted monitoring)	3	3	$82,008	$121,525
TOTALS:	**894**	**1,708**	**$36,295,627**	**$52,468,883**

[4] The full TREAT analysis is available on the TREAT share point site at 4FRI 2017 TREAT

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

The Four Forest Restoration Initiative (4FRI) achieved a number of community benefits over the last year. The table below highlights four areas.

Indicator	**Brief Description of Impacts, Successes, and Challenges**	**Links to reports or other published materials (if available)**
Economic dependency/sectors impacted/expanding market development	Key recommendations resulting from the assessment of the 10-year White Mountain Stewardship Project (WMSP) focus on contracting processes, industry capacity, and partnerships. Cohesive agency, industry, and stakeholder partnerships are critical to the success of forest restoration initiatives. Some project challenges detailed in the report include: Stewardship contracting barriers; the single contractor model; A limited supply of raw material; The economic downturn of the Great Recession; and Wallow Fire impacts. Many project successes are also captured, such as: Revitalized forest products industry in the White Mountains; Generational family businesses maintained; Benefits to forest health and ecosystem services; Meaningful collaboration among U.S. Forest Service, stakeholders, and citizens; wildfire risk reduction and increased community protection and paved the way for the nation's next largest collaborative restoration project, the Four Forest Restoration Initiative, or 4FRI.	The Social and Economic Contributions of the White Mountain Stewardship Project: Final 10-Year Assessment—Lessons Learned and Implications for Future Forest Management Initiatives The Social and Economic Contributions of the White Mountain Stewardship Project: White Mountain Stewardship Project Final 10-year Socioeconomic Assessment White Mountain Stewardship Project Final 10-year Socioeconomic Assessment

Indicator	Brief Description of Impacts, Successes, and Challenges	Links to reports or other published materials (if available)
Community support for relevant initiatives	The paper outline the community partnerships that were created or were in place to create the Flagstaff Watershed Protection Project> lessons learned include: Manage expectations regarding NEPA requirements and timelines; Be prepared to show immediate on-the-ground progress; Assure quality internal communication within the USFS; Convey project as an investment, not a cost and Keep the management structure simple.	Flagstaff Watershed Protection Project: Creating Solutions through Community Partnerships Flagstaff Watershed Protection
Public input in political processes	The White Paper provides collaborative organizations or groups with information about the Forest Service's administrative review process, as well as the judicial review process, and opportunities for engagement at both levels. The White Paper is a resource for collaborative groups to educate themselves on the laws and procedures surrounding administrative and judicial reviews of Forest Service projects.	Administrative and Legal Review Opportunities for Collaborative Groups Administrative and Legal Review
Job training opportunities/per capita normalize	Job gap analysis for private sector logging/field jobs completed in 2015 with ERI, TNC and FS. The paper outlined 9 different positions form mill worker to truck driver, the desired education outcome for each of the positions, and the training opportunities	4FRI share point site Job gap analysis

The forest products industry within the 4FRI project area continues to provide employment opportunities and community benefits across the 4FRI landscape. Two actions put in place the ability for more mill related positions—1) the $8 million dollar investment in the Lumberjack Mill near Heber, Arizona and 2) the signing of the Stewardship Agreement with the Nature Conservancy that will provide a stable source of raw materials for the New Pac mill in Williams, Arizona. In addition, Good Earth Power/NewLife Forest Products increased the in-woods logging capacity with four new logging contractors who relocated to Northern Arizona from East Texas.

Tribal youth engagement occurred through the partnership with Southwest Conservation Corp and the Hopi Ancestral Lands project. Youth from the Hopi Nation restored Elk Springs on the Kaibab National Forest (4FRi share point site Elk Springs project).

4FRI has also provided numerous public education/outreach opportunities, including the following:
1) The 4FRI stakeholders group hosted three public meetings for the Rim Country EIS.

2) The Forest Service and 4FRI Stakeholder Group presented a hands-on presentation of forest restoration at the Harvesting Methods and Firewise Preparedness Open House on May 6th in Flagstaff;
3) The FS created and distributed a monthly 4FRI update summarizing progress on planning and implementation (on 4FRI website at 4FRI monthly updates);
4) The 4FRI Stakeholder Group held monthly stakeholders meetings open to the and publishes a monthly new letter (the most recent copy of the newsletter can be found on the home page of the 4FRI stakeholders at 4FRI home page 4FRI.org).

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

The Multiparty Monitoring Board (MPMB) has collaborated with the Forest Service to design and implement data collection activities based on high priority stakeholder monitoring questions. Meetings are held on a monthly basis to develop study designs, review ongoing data collection efforts, and assess information needs. Recently, the MPMB developed a plan that will implement a long term strategic approach to data collection that will answer ecological and socioeconomic questions at landscape scales. They have also engaged a pool of subject matter experts who are available to review and consult on monitoring design and data analysis. A variety of stakeholders are active participants in the MPMB particularly in the development of monitoring question and study design. These include the Ecological Restoration Institute at Northern Arizona University, The Nature Conservancy, Arizona Department of Game and Fish, Campbell Global, Mottek Consulting, The Center for Biological Diversity, the Salt River Project, the Greater Flagstaff Forest Partnership, the Grand Canyon Trust, Trout Unlimited, the Rocky Mountain Research Station, and others listed below.

Ongoing Monitoring:
Data collection has begun on a number of fronts. The following monitoring projects will provide information on the short term and long term effects of some restoration activities.
Songbird occupancy bird data has continued to expand and continues to be collected in partnership with the Bird Conservancy of the Rockies across the treatment landscape. When complete, it will help identify the effects of landscape restoration on bird communities. This data will also leverage existing regional and national songbird data to separate treatment effects from climate driven changes to bird populations. Additional information is coming in the form of a local species colonization/extinction analysis to identify key bird species expected to be sensitive to the forest changes created by restoration treatments.

Mexican Spotted Owl occupancy and reproduction monitoring is occurring as part of a broader region-wide effort lead by U.S. Fish and Wildlife Service. Initial baseline occupancy monitoring of protected activity centers continues annually. The study design will explore the differences between paired mechanical and prescribed fire treatments and treatments that only use prescribed fire. This data will be aggregated with identical studies that are occurring throughout the state to increase the size of the dataset and the predictive power. This will ultimately improve our understanding of the effects of restoration on MSO populations. This year, initial fire treatments were implemented in select PACs. Occupancy monitoring will continue and vegetation will be re-surveyed in 2019 to document changes.

Landscape pattern analysis of remote sensing imagery is being conducted in partnership with Northern Arizona University to describe the pattern and distribution of canopy cover across the restoration landscape. Once treatments are underway, we will be able to measure residual canopy cover and describe the heterogeneity that is being created through restoration. This year, an initial interactive web service was delivered to view spatial patterns and quantify. Two additional larger scales of analysis are nearly complete and will be part of the final report.

In cooperation with Northern Arizona University, permanent vegetation plots were established across the ponderosa pine belt of the Coconino National Forest. These plots were established using a multi-scale sample design that will allow data collected at fine scales to support broader scale analyses. The sample design also dovetails with the permanent plots established on the Kaibab National Forest and will allow cross-boundary trend analysis. These plots will evaluate changes in vegetation composition and structure that occur as a result of restoration treatments. Tree structure, surface vegetation cover, and fuel components are quantified to not only describe residual vegetation structure, but also to model the effects of fire on the landscape. The effect will be to create a dataset that is more cost efficient and capable of answering questions that go beyond the scope of this restoration project. A power analysis for all metrics is being conducted and we expect to have post treatment data collected in FY18 to analyze changes.

We have continued to use our newly developed platform for data collection and citizen science engagement in partnership with the Grand Canyon Trust. Using the Collector for ArcGIS app, citizen science/volunteer groups collected critical information on the changing water flow in interrupted perennial streams.

We continued to leverage our productive partnership with the Grand Canyon Trust and the Springs Stewardship Institute, and surveyed approximately 30 springs across the project area and assessed restoration needs. This data will reside in a national database and will not only guide our restoration efforts, but will also provide to data to measure the effects of restoration treatments (Arizona Daily Sun monitoring article).

In response to requests from industry partners, we have initiated a monitoring program with Forest Health Protection and Northern Arizona University to evaluate the drying rate of logs left in the forest and the risk of insect outbreaks. This program will allow us to open the door to improving the economics of hauling low value wood to local mills while managing the risk to residual stands from wood beetle populations that can grow in drying logs. This two year monitoring program will culminate with a risk assessment and recommendations for best management practices.

As 4FRI begins another 1 million acre EIS (Rim Country) analysis covering the east side of the project area, the MPMB has begun developing new monitoring questions related to aquatic habitat quality as well as other related to water quantity and quality. This questions will be integrated into the monitoring plan and will become part of the Rim Country EIS.

Preliminary Data:

The vast majority of the monitoring information collected at this point describes the current condition. As the implementation of restoration treatments progresses, we will return to describe and document the changed condition. Some of the monitoring data will reveal important short-term changes in components such as tree structure, forest composition, diameter distribution, and canopy cover. Some of this data may be available as soon as next summer. Other components of the monitoring data will require time to mature and provide relevant information such as the response of the herbaceous layer in restored forests and the effect of changes in forest structure on MSO reproduction.

Our preliminary data on forest vegetation supports our understanding that mid-sized trees are overrepresented across the landscape while large trees and small trees are generally underrepresented. Forest canopy is far more continuous than historically occurred and forest pattern is less aggregated and heterogeneous than desired. In MSO protected activity centers designated for restoration, initial surveys indicate that occupancy is inconsistent. This is likely a reflection of the quality of the habitat. We hope that after restoration treatments are complete, the quality of the habitat will improve and the protected activity center will be more consistently occupied. Initial Rx burn treatments have been completed in the MSO PACs and mechanical treatments are occurring in surveyed stands. Post treatment analysis will begin this next year.

Weaknesses:
Our monitoring process is vibrant and provides additional confidence to a highly engaged stakeholder group. However, the greatest shortcoming of this process is that it takes time to collect and properly interpret the data. There is a genuine and reasonable desire to swiftly integrate new information into an adaptive management framework, but the most important questions are frequently those that cannot be quickly answered. So we collect both short-term and longer term-data and combine it with the best available science to inform our decisions and adapt our approaches to management.
Monitoring Plan: Multi-Party Monitoring Plan

6. FY 2017 accomplishments

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost ($) *(Contract Costs)*	Type of Funds	Acres
Acres of forest vegetation established FOR-VEG-EST	Acres	8,843	$486,365[5]	NFMP NFRR NFXN RTRT	493 172 96 8,082
Acres of forest vegetation improved FOR-VEG-IMP	Acres	11,189	$839,175[6]	CFLN CWKV NFRR NFXN RTRT SSCC WFHF WFPR WFSU	958 282 352 540 52 428 6,065 1,473 1,039
Manage noxious weeds and invasive plants INVPLT-NXWD-FED-AC	Acres	609	$140,070[7]	NFRR	609

[5] Locally derived average cost per acre $55.00/acre
[6] Locally derived average cost of $75.00/acre
[7] Locally derived average cost of $230.00/acre

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost ($) *(Contract Costs)*	Type of Funds	Acres
Highest priority acres treated for invasive terrestrial and aquatic species on NFS lands INVSPE-TERR-FED-AC	Acres	0	NA	NA	NA
Acres of water or soil resources protected, maintained or improved to achieve desired watershed conditions. S&W-RSRC-IMP	Acres	56,439	$6,779,560[8]	CFLN CWFS NFRR NFTM NFXN PTNR-N-KIND RTRT SSCC WFHF XXXX	3,586 1,747 9,917 2,279 872 236 851 1,507 32,468 2,975
Acres of lake habitat restored or enhanced HBT-ENH-LAK	Acres	0	NA	NA	NA
Miles of stream habitat restored or enhanced HBT-ENH-STRM	Miles	9	$11,800[9]	NFRR PTNR	8 miles 1 mile
Acres of terrestrial habitat restored or enhanced HBT-ENH-TERR	Acres	89,580	$21,171,670 [10]	CFLN CWFS NFRG NFRR NFRW NFTM NFXN PTNR PTR-N-KND RBRB RTRT TPPS WFHF WFSU XXX	4,833 286 2,004 7,633 1,197 2,279 2,193 25 348 502 819 2,218 36,237 26,485 2.521

[8] Average cost of $120.12/acre. Data from WIT database
[9] Average cost of $$1,306.76/acre. Data from WIT database
[10] Average cost of $236.34/acre. Data from WIT database

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost ($) *(Contract Costs)*	Type of Funds	Acres
Acres of rangeland vegetation improved RG-VEG-IMP	Acres	11,215	$336,450[11]	CFLN CWFS CWKV NFRR NFXF PTNR SSCC WFHF	754 286 92 703 517 206 277 8,380
Miles of high clearance system roads receiving maintenance RD-HC-MAIN	Miles	314.7	$125,880[12]	CMRD CWF2 NFRR	298.2 Miles 2.4 Miles 14.1 Miles
Miles of passenger car system roads receiving maintenance RD-PC-MAINT	Miles	240.5	$481,000[13]	CMRD CWF2 NFRR	201 Miles 227.7 Miles 14.1 Miles
Miles of road decommissioned RD-DECOM	Miles	1.8	$1,800[14]	NFRR	1.8 Miles
Miles of passenger car system roads improved RD-PC-IMP	Miles	59.4	$1,247,400[15]	CMRD NFRR OTHER	37.3 Miles 17 Miles 5.1 Miles
Miles of high clearance system road improved RD-HC-IMP	Miles	18.7	$18,700[16]	CMRD CWF2	11.6 Miles 7.2 Miles
Number of stream crossings constructed or reconstructed to provide for aquatic organism passage STRM-CROS-MTG-STD	Number	0	NA	NA	NA

[11] Locally derived average cost $30.00/acre
[12] Locally derived average cost $400.00/mile
[13] Locally derived average cost $2,000.00/mile
[14] Locally derived average cost $1,000.00/mile
[15] Locally derived average cost $21,000.00/mile
[16] Locally derived average cost $1,000.00/mile

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost ($) *(Contract Costs)*	Type of Funds	Acres
Miles of system trail maintained to standard TL-MAINT-STD	Miles	86.4	$267,840[17]	CMTL NONE PTNR	2.7 Miles 58.7 Miles 25.1 Miles
Miles of system trail improved to standard TL-IMP-STD	Miles	15.3	$172,890[18]	None PTNR	3.2 Miles 12.1 Miles
Miles of property line marked/maintained to standard LND-BL-MRK-MAINT	Miles	0	NA	NA	NA
Acres of forestlands treated using timber sales TMBR-SALES-TRT-AC	Acres	10,260	$1,385,100[19]	CFLN NFRR NFTM NFXF NFXN NONE PTNR SSCC SFHF	7,294 17 418 517 14 1,367 206 277 150
Volume of Timber Harvested TMBR-VOL-HVST	CCF	71,078	NA	NA	NA
Volume of timber sold TMBR-VOL-SLD	CCF	233,092	$14,456,366[20]	**CFLR** **NFTM**	74,900 CFF 158,192 CFF
Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production BIO-NRG	Green tons	111,493	NA	NA	NA

[17] Locally derived average cost $3,100.00/mile

[18] Locally derived average cost $11,300.00/mile

[19] Locally derived average cost $135.00/acre

[20] Cost from TIM cut and sold report $62.02/CCF

Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost ($) *(Contract Costs)*	Type of Funds	Acres
Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildland fire FP-FUELS-NON-WUI	Acre	45,951	$4,824,855[21]	CFLN NFRR NFXN NONE SPFH SSCC WFHF WFPR WFSU	1,223 497 75 1,041 288 2,810 15,163 20 24,834
Acres of wildland/urban interface (WUI) high priority hazardous fuels treated to reduce the risk of catastrophic wildland fire FP-FUELS-WUI	Acres	59,802	$12,558,420[22]	CFLN CWFS CWKV NFRR NFXN NONE PTNR RTRT SSCC SSSS WFHF WFPR WFSU	1,576 572 444 10,433 668 2,996 36 134 2,166 326 31,423 1,485 7,542
Number of priority acres treated annually for invasive species on Federal lands SP-INVSPE-FED-AC	Acres	0	NA	NA	NA
Number of priority acres treated annually for native pests on Federal lands SP-NATIVE-FED-AC	Acres	0	NA	NA	NA

[21] Locally derived average cost $105.00/acre

[22] Locally derived average cost $210.00/acre

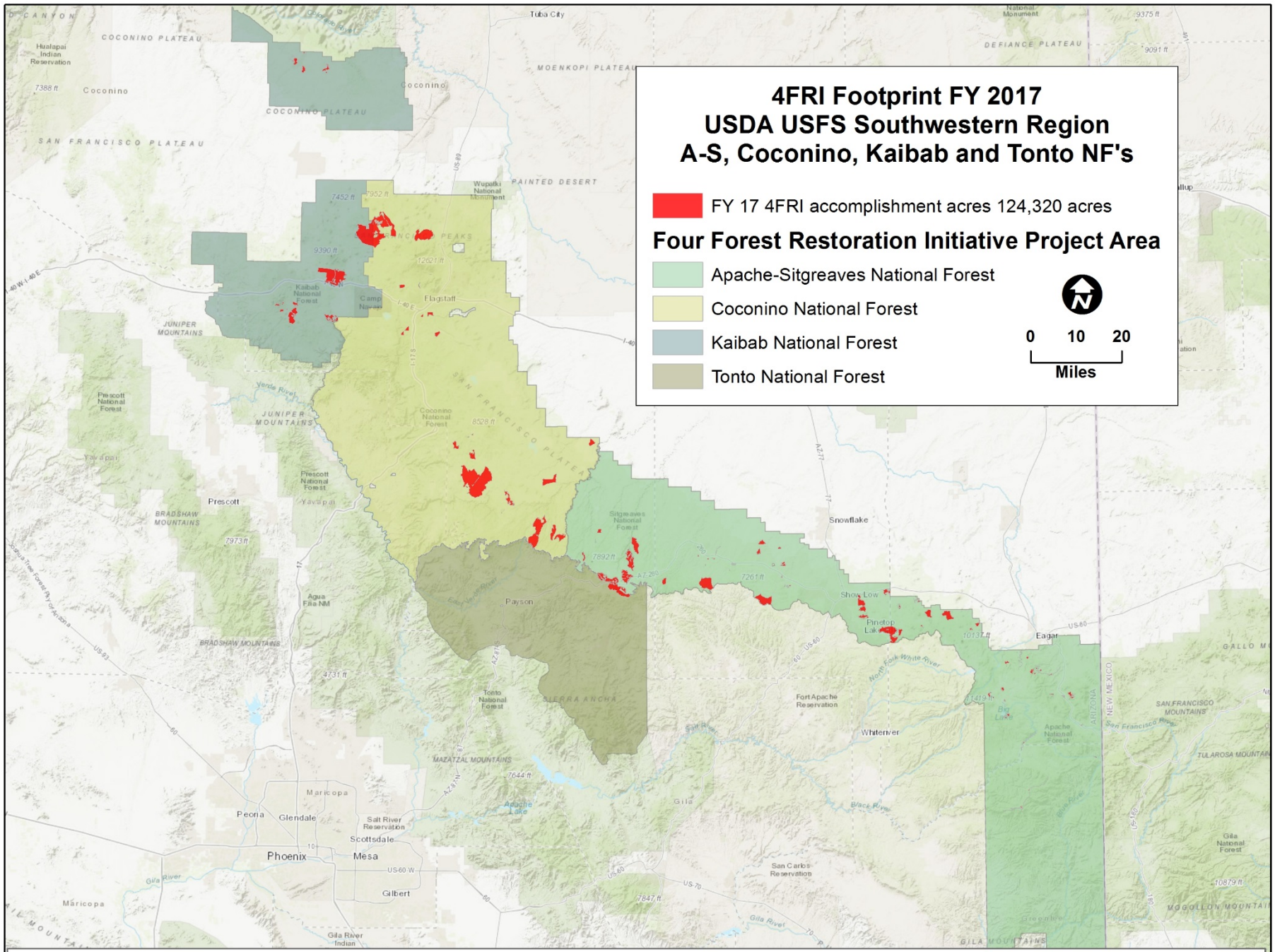
Performance Measure	Unit of measure	Total Units Accomplished	Total Treatment Cost ($) *(Contract Costs)*	Type of Funds	Acres
Acres mitigated FP-FUELS-ALL-MIT-NFS *(note: this performance measure will not show up in the WO gPAS reports – please use your own records)*	Acres	13,594[23]	NA	CFLN CWFS NFTM NFXM PTNR SPFH SSSS WFHF WFPR	158 286 44 14 36 288 350 12,405 12
Please also include the acres of prescribed fire accomplished *(note: this performance measure will not show up in the WO gPAS reports – please use your own records)*	Acres	66,420	NA	NA	NA

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

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

2017 saw another productive year, with the total footprint acres increasing by 124,320 acres (97,897 net footprint acres-see map below). There was an increase of mechanical acres harvested in 2017 versus 2016 (13,108 acres vs 11,569 acres) as well an increase of almost 10,000 acres of mechanical treatment contracts and agreements awarded contrasted with 2016 (32,514 acres in 2017 versus 22,720 acres of contracts awarded in 2016). This increase in acres awarded is tied directly to the signing of a Master Stewardship agreement with The Nature Conservancy (TNC) and the subsequent issuing of six separate Supplemental Project agreements that will mechanically treat 13,184 acres when completed. The agreement with TNC will also be a laboratory for testing efficiencies and cost saving measures such as

[23] Source: FACTS FP_Fuels_All_MIT-NFS report from NRM. Report ran 20171111.



Spatial Data from Forest Service Enterprise Data Warehouse Fuels accomplishments and Initiative accomplishments

the digital prescription guide, lengthened time to leave wood in the forest before hauling (which will lower log haul cost), and different log accountability measures.

In 2017 the Forest Service continued the accelerated timber offerings outside of the 4FRI phase 1 contract on the east side (a total of 14,863 acres were offered on the Apache-Sitgreaves National Forest to existing White Mountain industries (there was one no bid, so total acres sold were 14,219 acres)). The effect has partially stabilized biomass and wood products needs to White Mountain industries. Additional work needs to be done to stabilize all of the biomass industries in the White Mountains, but 2017 continued to make great strides towards that goal.

Another very positive sign for increase mechanical harvesting came with the formation of NewLife Forest Products LLC that has partnered with Good Earth Power to bring life to the 4FRI phase 1 integrated resource service contract. NewLife showed increases in both the manufacturing capacity and in woods logging capacity. Specifically, NewLife invested approximately $8,000,000 in the Lumberjack Mill in Heber, Arizona with a complete retrofit and upgrade of equipment. The last month of the fiscal year, NewLife brought in four new logging sides to get their capacity to 5 logging sides. Looking to the future availability of restoration byproducts for industry, the Forest Service issued a Request for Information (RFI) on a possible solicitation for a new 10-year contract through FEDBIZOPS. The Forest Service is currently synthesizing the responses to the RFI with an eye on a New Request for Proposal in winter/spring of 2018. Creating and stabilizing industry partners in a restoration economy will allow for the ability to get more acres treated through mechanical harvests, thus increasing forest resiliency across the initiative.

Additional work on the east side of the initiative includes the extension of the Healthy Forest Pilot Program designed by Eastern Arizona Counties for one year in order to continue data collection on the effect of increasing the logging trucks maximum weight from 80,000 pounds to 90,800 pounds on certain designated Arizona highways in the White Mountains. This pilot project is moving toward a permanent change with a bill be worked on to codify the change permanently. This is an encouraging success and a very significant contribution to the economic viability of forest restoration treatments on the Apache-Sitgreaves National Forest.

The partnership between the National Forest Foundation and Salt River Project, the Northern Arizona Forest Fund (NAFF) continued in FY 17. The NAFF provides an opportunity for Arizona businesses and residents to invest in restoration projects on national forest lands in the Salt and Verde River watersheds. During FY17, the NAFF contributed $234,000 to on-the-ground restoration in the 4FRI footprint in the Salt and Verde watersheds. Projects funded this year in the 4FRI footprint include the Jacks Canyon Banfield Spring Forest Health Project on the Coconino National Forest, the Upper Hell Canyon Forest Restoration Project on the Kaibab National Forest, and the Black River Stream and Riparian Protection Project on the Apache-Sitgreaves National Forest. A summary of these projects can be found at Northern Arizona Forest Fund. The NAFF increases the ability of the Forest Service to implement more restoration projects and increases resiliency across the landscape. This can also be a model for other collaboratives to look at alternative funding sources to meet restoration goals.

Work continued on the 1.2 million acre Rim Country EIS that covers portions of the Coconino, Tonto and Apache-Sitgreaves National Forests. Two public comments scoping / alternatives meetings hosted by the 4FRI stakeholders group for the Rim Country EIS were held in both Payson and Show Low. On the Apache-Sitgreaves NF, the Green's Peak Farm Bill CE and West Escudilla EA were completed and signed in FY 2017.

The Forest Service and the 4FRI Stakeholders collaboratively developed a Strategic Plan to guide work in 2017-18 and into the future. The plan is available at 4FRI Strategic Plan.

2017 also provided opportunities for innovation across the landscape. The Nature Conservancy (TNC) and the Forest Service continued to explore and expand upon using tablet technology to improve layout efficiency, decrease costs and attain a better outcome on-the-ground for designation by prescription. The Forest Service and TNC co-presented to multiple national Forest Service trainings, including the National Check Cruisers workshop and the National Silviculture workshop. The 4FRI team also presented tablet technology to the Forest Service's National Interregional Timber Sale Administration cadre. Additionally, TNC, the City of Flagstaff, and the Arizona State Forestry and Fire Management worked together to layout with tablets and harvest a 500-acre mechanized sale on the City of Flagstaff's Observatory Mesa Natural Area. For more information on tablet technology, please refer to the link to the CFLRP share point site listed here 4FRI-TNC-FS tablet technology.

Volunteer work across the project area was strong again in 2017. The Arizona Elk Society again put together impressive numbers of volunteers and project accomplishments completing the first phase of the Long Valley Meadow Restoration project Long Valley meadow restoration. TRACKS continued with their impressive contribution of nearly 11,000 volunteer hours of trail maintenance and stewardship on the trail systems on the Apache-Sitgreaves National Forest. The Grand Canyon Trust continued to lead the way in marshalling volunteers for citizen science projects using a phone app to gather ephemeral stream course and wet/dry stream course data across the Coconino Forests. Trout Unlimited continued being a major contributor of volunteer hours to gather stream temperature monitoring data across the 4FRI footprint, primarily on the Apache-Sitgreaves and Tonto National Forests. In addition, Trout Unlimited volunteers provided the work force to plant woody riparian vegetation on the Black River Stream and Riparian Restoration Project on the Apache-Sitgreaves NF. The Friends of Northern Arizona Forests continue their impressive work providing the workforce to construct and maintain ungulate proof fencing around 70+ aspen or riparian areas on the Coconino National Forest.

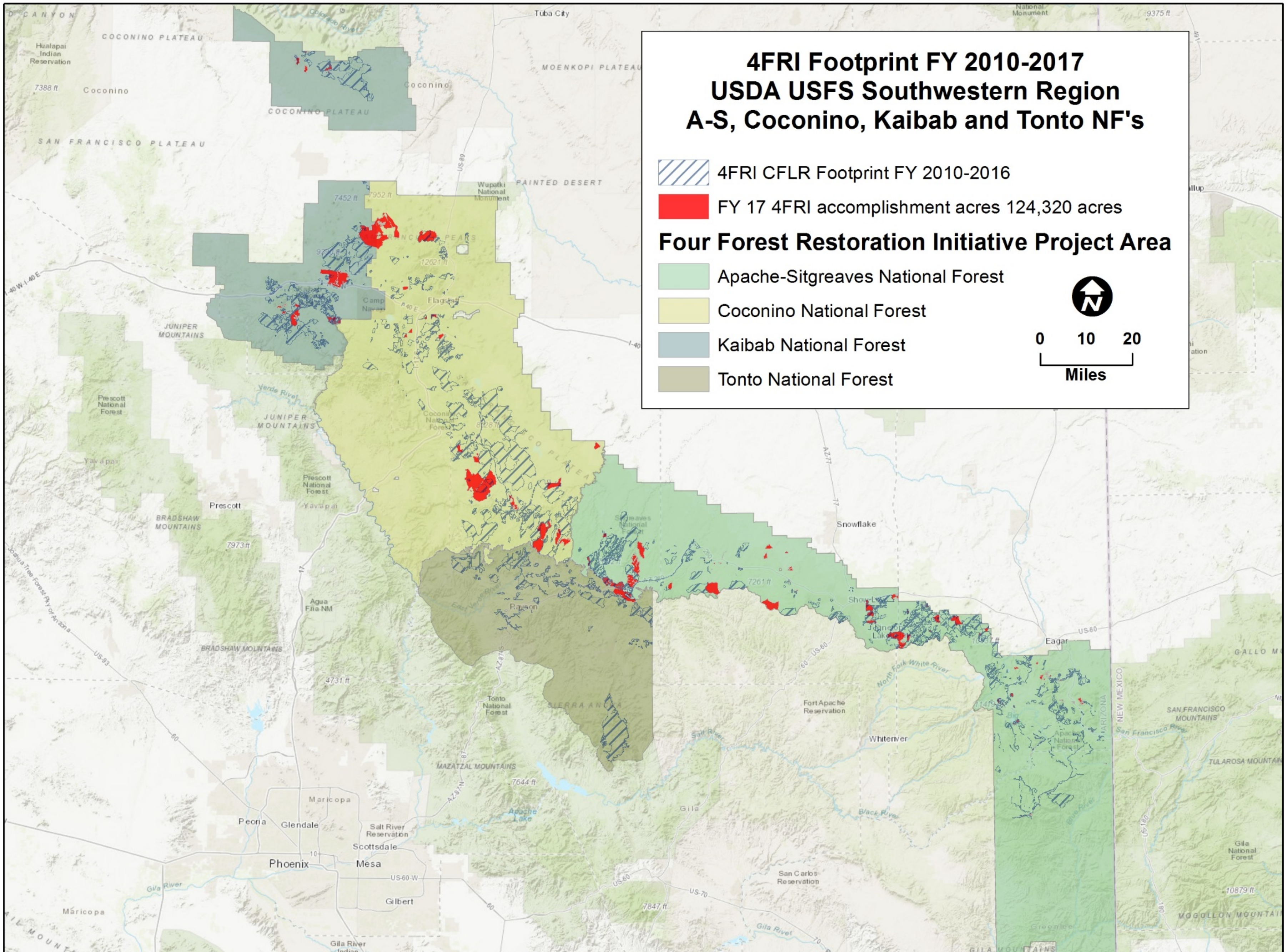
Tribal engagement projects on the Kaibab National Forest was able to complete the Elk Springs restoration project using youth from the Hopi Tribe in a partnership with the Southwest Conservation Corps Hopi Ancestral Lands project.

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

Fiscal Year	Footprint of Acres Treated (without counting an acre of treatment on the land in more than one treatment category)
FY 2010	75,255
FY 2011	57,684
FY 2012	37,079
FY 2013	46,655
FY 2014	84,841
Fy 2015	84,997
FY 2016	144,443
FY 2017	124,320[24]
4FRIEstimated Cumulative Footprint of Acres (2010 through 2017)	628,851

If you did not use the EDW estimate, please briefly describe how you arrived at the total number of footprint acres: what approach did you use to calculate the footprint?The calculated Enterprise Data Warehouse acres of footprint s appeared to be overstated when compared to FACTS activities layers (many of the WIT accomplishments are integrated targets off of core FACTS data, in checking WIT

[24] Net treatment acres that are 97,897 acres. There are 26,423 acres that were treated on areas that have had previous 4FRI treatment.



Spatial Data from Forest Service Enterprise Data Warehouse Fuels accomplishments and Initiative accomplishments

accomplishments we saw examples of WIT double counting acres when there where multiple funding sources, and also in looking at the data it appeared to include activity codes that were not on the ground accomplishments, such as stand prescription (FACTS activity code 4331). The acreage is derived from the spatial and tabular FACTS fuels accomplishments across four forests from the geospatial interface application in ARCMAP©. The accomplishments for 2010 are direct from FY 2010 accomplishments that are in the database (there was not a CFLRP identifier in the database in 2010). The accomplishments include all of the spatial extent within the ponderosa pine. Each year after that is a GIS exercise of adding the next year's accomplishments to the spatial extent, dissolving the solution, and then subtracting the previous year's accomplishments to get the footprint acres for the actual year. This was repeated for each year to get footprint acres by fiscal year. See the map above for the footprint acres FY 2010-2017.

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

In FY 17, The Four Forest Restoration Initiative (4FRI) continued receiving an additional influx off funding to accelerate restoration efforts across the landscape that is not reflected in the original work plan. As such, restoration activities in nine performance measures of the 23 that are tracked in the revised 4FRI work plan are at or over the expected outcome. The fuels accomplishments were at the expected output for FP-FUELS-WUI (96% of expected) and FP-FUEULS-NON-WUI (126% of expected). There are several reasons for the successful accomplishment in the fuels arena---first, there were additional WFHF funds added to the initiative. Second, there were about 33,000 acres of wildfires that were managed for resource benefits. While the expenditures for wildfire managed for resource benefits do not count as 4FRI match, the accomplishments associated with these wildfires are appropriate to track as accomplishments and boosted the total accomplishments for FY 17. The integrated accomplishments for wildlife and watershed also show an increase over the 4FRI work plan due to the increased WFHF funding and wildfire for resource benefits accomplishments.

The timber volume sold and bio-energy portions did not meet expectations due to the lack of performance of the 4FRI phase 1 contract that was expected to have occurred by 2017 when the revised work plan was updated in 2017. The lifetime goals for 4FRI was created in 2013 with the assumption that the 4FRI phase 1 contract would be performing at nearly 34,000 acres of treatment in 2017, and contracts outside of 4FRI phase 1 would be adding an additional 20,000 acres of accomplishment. This did not occur. In addition, the BIO-NRG from the revised 4FRI work plan assumes that all acres are having biomass removed, which is not the case currently with approximately ½ of the acres harvested having biomass removed. The remaining acres are having biomass piled at the landing and subsequently burned. The issue related to 4FRI phase 1 contract performance issue will be further exacerbated in 2018-2020 when the expectation that is portrayed in the 2013 update work plan was that the 4FRI phase 1 contract would accelerate to harvesting 50,000 acres per year (the assumption was that these years would be an attempt to make up the acres that were not occurring in the early half of the contract) and that outside industry will be at 20,000 acres per year.

The road accomplishments are also lower than what was expected for the 2017 outputs. When compared to previous years accomplishments, this may be an under reporting issue rather than actual drop in accomplishment (for example, 2016 all of the roads performance measures except road decommissioning were at or greatly exceeded the expected outputs). The expected outputs for all roads performance measures in 2017 are exactly the same as 2016, yet reporting is under on all performance measures except RD-PC-IMP. The following table summarizes actual outputs for FY 17compared to the FY 16 work plan expected outcomes.

Performance Measure	Unit of measure	Total Units Accomplished 2017	4FRI work plan 2017	% difference from work plan
Acres of forest vegetation established FOR-VEG-EST	Acres	8,843	4,467	198%
Acres of forest vegetation improved FOR-VEG-IMP	Acres	11,189	65,260	17%
Manage noxious weeds and invasive plants INVPLT-NXWD-FED-AC	Acre	609	3,350	18%
Highest priority acres treated for invasive terrestrial and aquatic species on NFS lands INVSPE-TERR-FED-AC	Acres	0	n/a	n/a
Acres of water or soil resources protected, maintained or improved to achieve desired watershed conditions. S&W-RSRC-IMP	Acres	56,439	38,739	146%
Acres of lake habitat restored or enhanced HBT-ENH-LAK	Acres	0	1	0%
Miles of stream habitat restored or enhanced HBT-ENH-STRM	Miles	9	2	450%
Acres of terrestrial habitat restored or enhanced HBT-ENH-TERR	Acres	89,580	84,734	106%
Acres of rangeland vegetation improved RG-VEG-IMP	Acres	11,215	11,531	97%
Miles of high clearance system roads receiving maintenance RD-HC-MAIN	Miles	314.7	394	80%
Miles of passenger car system roads receiving maintenance RD-PC-MAINT	Miles	240.5	508	47%
Miles of road decommissioned RD-DECOM	Miles	1.8	17	11%
Miles of passenger car system roads improved RD-PC-IMP	Miles	59.4	41	145%
Miles of high clearance system road improved RD-HC-IMP	Miles	18.7	28	67%
Number of stream crossings constructed or reconstructed to provide for aquatic organism passage STRM-CROS-MTG-STD	Number	0	0	0%

Performance Measure	Unit of measure	Total Units Accomplished 2017	4FRI work plan 2017	% difference from work plan
Miles of system trail maintained to standard TL-MAINT-STD	Miles	86.4	167	52%
Miles of system trail improved to standard TL-IMP-STD	Miles	15.3	30	51%
Miles of property line marked/maintained to standard LND-BL-MRK-MAINT	Miles	0	10	0%
Acres of forestlands treated using timber sales TMBR-SALES-TRT-AC	Acres	10,260	10,000	103%
Volume of Timber Harvested TMBR-VOL-HVST	CCF	71,078	n/a	n/a
Volume of timber sold TMBR-VOL-SLD	CCF	233,092	430,040	54%
Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production BIO-NRG	Green tons	111,493	752,570	15%
Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildland fire FP-FUELS-NON-WUI	Acre	45,951	36,539	126%
Acres of wildland/urban interface (WUI) high priority hazardous fuels treated to reduce the risk of catastrophic wildland fire FP-FUELS-WUI	Acres	59,802	62,216	96%
Number of priority acres treated annually for invasive species on Federal lands SP-INVSPE-FED-AC	Acres	0	n/a	n/a
Number of priority acres treated annually for native pests on Federal lands SP-NATIVE-FED-AC	Acres	0	200	0%

10. **Planned FY 2019 Accomplishments** please see the revised work plan submittal for 2019 planned accomplishments.

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

There will be shortfall in FY 2019 in the TMBR-VOL-SOLD and BIO-NRG due to the underperformance of the 4FRI Phase 1 IRSC with Good Earth Power AZ LLC/NewLife Forest Products and the lack of infrastructure and mill capacity on the west side of the project area, both for sawtimber and especially for biomass. The eastside (A-S and Tonto) will continue with their approximately 15,000 acres per year of timber offerings per year that has carried the bulk of the accomplishment to date.

In 2013 when the lifetime goals were updated, the assumptions for performance of the 4FRI phase 1 contract and other industry, as well as the acres of prescribed fire, are displayed in the table below. The assumption was the 4FRI phase 1 contract and existing industries would show increases in acres needed for production

and that the 4FRI phase 1 contract would be awarded over 50,000 acres in the last two years of the contract to try and make up for the slow start of the contract. The Forest Service was also interested in getting as many acres as possible treated under this contract.

4FRI	2014	2015	2016	2017	2018	2019
4FRI phase I contract	15,219	22,166	30,937	33,755	56,480	51,691
4FRI White Mountain and other Industry	13,000	13,000	18,000	20,000	20,000	20,000
4FRI total harvest	28,219	35,166	48,937	53,755	76,480	71,691
4FRI estimated rx burn	20,000	25,000	30,000	45,000	50,000	60,000
4FRI total hazard fuel treated	48,219	60,166	78,937	98,755	126,480	131,691

The lack of performance of the 4FRI phase 1 contract from 2013-2015 prompted a contract modification in 2015 that award of additional task orders are based on an acre-for-acre performance in the following contract year. The result of this was one task order was issued for just under 5,000 acres in 2016 and no acres were issued in 2017---this has created a shortfall of accomplishment of nearly 59,000 acres in 2016-17. The outputs in 2018 and 2019 are expected to be significantly under the 107,000 acres of awarded task orders that the revised work plan was built on. In addition, the assumption for the sales in the table would be primarily 4FRI phase 1 contracts that require biomass removal, hence a very large BIO-NRG component was also projected that will not be met in 2019. In addition, the ability to expand acres in the White Mountains that is displayed in the table is limited by the amount of available acres of completed NEPA on the Apache-Sitgreaves.

We are expecting the mill capacity on the west side of the project expands with The Nature Conservancy stewardship agreement supporting west side contract areas and the re-invigoration of the 4FRI phase 1 contract and subsequent soon to be announced mill location on the west side (Coconino/Kaibab) from NewLife Power LLC. Looking at expected industry capacity in 2019, we are expecting to offer approximately 49,000 acres of mechanical harvest in 2019. The expected output reduction is based on the mill capacity of existing industry. We expect out prescribed fire acres to increase to 70,000 acres in 2019, and the revised 4FRI work plan had 60,000 acres of prescribed fire in 2019. Again, the prescribed fire acreage may be larger or smaller than expected based on weather and fuel conditions. If FY 2016 is an indication, when weather and fuel conditions are favorable for prescribed and wildfires to be managed to meet resource objectives, the acreage output is greater than planned. The corresponding reduction in HAB-ENH-TERR and FP-FUELS-WUI and NON-WUI from the work plan to the FY 18 outputs are the corresponding reduction in acres treated using mechanical thinning

The influx of additional WFHF funds of $10,000,000 and $1,600,000 in NFTM and WFHF for accelerated restoration efforts are not in the existing 4FRI work plan. These funds will allow for FP fuels prescribed fire and hand thinning projects to continue to be able to occur at an accelerated level as long as weather and fuels conditions allows for burning. See above for the total reduction in expected FP fuels outputs due to the reduction of expected harvested acres.

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

Membership in the 4FRI collaborative remained the same as 2016.

Organization Name	Organization Name
Apache County	Arizona Elk Society
Arizona Game and Fish Department	Arizona State Forestry
Arizona Wildlife Federation	Bejac Corp
Campbell Global	Canyon Creek Logging
Center for Biological Diversity	Coconino County Board of Supervisors
Coconino Natural Resources Conservation District	Coconino Rural Environment Corps
Eastern Arizona Counties Organization	Ecological Restoration Institute
Empire Machinery	Flagstaff Fire Department
Grand Canyon Trust	Forest Energy Corporation
Great Old Broads for Wilderness	Gila County
Life in the Forest	Greenlee County
Navajo County and Natural Resources Working Group	Mottek Consulting
Northern Arizona University Forest Ecosystem Restoration Analysis	Navajo County
Northland Pioneer College	Northern Arizona Loggers Association
Novo Star Wood Products	Northern Arizona Wood Products Association
Pine Strawberry Fuel Reduction Inc. Pioneer Forest Products	Novo BioPower
Real Arizona Development Corridor	Southwest Forest Little Colorado NRCD
The Nature Conservancy	Southwest Forestry Inc.
Tri Star Logging Inc.	Town of Pinetop - Lakeside
U.S. Fish and Wildlife Service	Town of Snowflake
University of Arizona Cooperative Extension	TRACKS
White Mountain Stewardship - Monitoring Board	Trout Unlimited
White Mountain Conservation League	Governor's Forest Health Council
Wildwood Consulting	

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

The Forest Service and The Nature Conservancy entered into a Master Stewardship agreement and six Supplemental Project Agreements that brought additional capacity to treat up to 20,000 acres with mechanical harvest across the Coconino and Kaibab National Forests. The Forest Service and the Arizona State Department of Forestry and Fire Management extended the Good Neighbor Authority agreement with Dr. Patrick Rappold through the entire fiscal year that was reported on in the 2016 Annual Report.

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

MEDIA ARTICLES

SRP biomass burn

NPR story on biomass
http://www.srpnet.com/newsroom/releases/102416.aspx

Arizona Biomass energy Team video biomass and restoration
http://knau.org/post/az-coal-plant-experiments-burning-wood-forest-restoration#stream/0

FSEEE article 4FRI sued
https://www.youtube.com/watch?v=nigGslVSvVQ

4FRI looks to reboot (main article – includes a small sidebar story on the tablet tech and the stewardship agreement with TNC)
https://www.fseee.org/2017/05/08/good-earth-power-sued-again/

Good Earth Power AZ gets new leadership (interview with Jay Smith and Bill Dyer)
http://azdailysun.com/news/local/fri-looks-to-reboot/article_5021acd2-2764-5142-a1e0-dfe4bd264c02.html

Listening In: Downtown tourism lifts Williams
http://azdailysun.com/news/local/good-earth-power-az-gets-new-leadership/article_6f43e5be-5d54-5a68-8e14-0da81adbfffa.html

APS to study forest bioenergy as potential electricity source
http://azdailysun.com/news/local/listening-in-downtown-tourism-lifts-williams/article_1b0cfa41-74fc-58f3-a2df-2ac623e90a19.html

Construction of logging roads begin for dry lake hills
http://nophonews.com/aps-to-study-forest-bioenergy-as-potential-electricity-source/

Construction of logging roads begin for dry lake hills
http://azdailysun.com/news/local/construction-of-logging-roads-begins-for-dry-lake-hills-thinning/article_0c3e23db-0cba-544c-8b9d-748bbe15e413.html

4FRI composter goes for commercial composting
http://azdailysun.com/news/local/logging-around-flagstaff-ramps-up-for-summer/article_95147073-a8a2-5d11-acb5-c900823bd695.html

Years later forest thinning not happening
http://azdailysun.com/news/local/fri-contractor-goes-for-commercial-composting/article_3de2a8d1-b14f-5ac0-8c3e-4cfc0fa4af35.html

SRP Forest Thinning Project Ramps Up in Northern Arizona
http://www.azcentral.com/story/news/local/arizona/2016/06/20/years-later-arizona-forest-thinning-just-not-happening/85706310/

The painful riddle of forest thinning plan
http://knau.org/post/srp-forest-thinning-project-ramps-northern-arizona

Fires, thinning create healthier forests
http://www.wmicentral.com/news/heber_overgaard/the-painful-riddle-of-forest-thinning-plan/article_26613d84-bf55-5db8-b762-c8b901256876.html

Rodeo-chediski fire underscored need to thin forest
http://www.wmicentral.com/news/latest_news/fires-thinning-create-healthier-forests/article_94c27313-7f6c-55bb-b527-cf90a5837144.html

Fire series will review progress since rodeo-chediski fire

http://www.wmicentral.com/news/apache_county/rodeo-chediski-fire-underscored-need-to-thin-forest/article_b86b09ae-b995-555a-b3af-d072dc7e6e17.html

What went wrong?
http://www.wmicentral.com/opinion/editorials/fire-series-will-review-progress-since-rodeo-chediski-fire/article_218a324c-47e0-508f-a05c-98911431b48e.html

Planning to mitigate disasters
http://www.wmicentral.com/what-went-wrong/article_8142d966-cb9a-5e05-9f36-e5040b846532.html

Jack central.org news planning
http://www.jackcentral.org/news/planing-to-mitigate-disasters/article_f0d9f142-b391-11e7-b186-5b700916f000.html

VIDEOS

Fire and Water: Restoring Arizona's Forest—this video played on PBS Channel 8 in the Phoenix market on December 8, 2016
https://www.bing.com/videos/search?q=salt+river+project+fire+and+water+video&view=detail&mid=3BBAED73997BCDA1F7613BBAED73997BCDA1F761&FORM=VIRE

Arizona Elk Society Long Valley Meadow Restoration—this video was posted on October 20, 2017, but the work took place in May of 2017.
https://www.bing.com/videos/search?q=arizona+elk+society+long+valley+draw&&view=detail&mid=2966779B3EF4E972E4CD2966779B3EF4E972E4CD&FORM=VRDGAR

JOURNAL ARTICLES

Mottek Lucas, A., Y-S Kim, B. Greco, D.R. Becker, E.E Hjerpe, and J. Abrams. The Social and Economic Contributions of the White Mountain Stewardship Project: Final 10-Year Assessment-Lessons Learned and implications for Future Forest Management Initiatives *Journal of Forestry*, DOI 10.5849/jof.2016-008R3Huffman, D.W., J.E. Crouse, A.J. Sánchez Meador, J.D. Springer, and M.T. Stoddard. 2017. Restoration benefits of re-entry with resource objective wildfire on a ponderosa pine landscape in northern Arizona, USA. *Forest Ecology and Management*, 408: 16-24.

Owen, S.M., C.H. Sieg, A.J. Sánchez Meador, P.Z. Fule, J.M. Iniguez, L.S. Baggett, P.J. Fornwalt, M.A. Battaglia. 2017. Spatial patterns of ponderosa pine regeneration in high-severity burn patches. *Forest Ecology and Management*, 405: 134-149.

Rodman, K.C., A.J. Sánchez Meador, M.M. Moore, and D.W. Huffman. 2017. Reference conditions are influenced by the physical template and vary by forest type: A synthesis of *Pinus ponderosa*-dominated sites in the southwestern United States. *Forest Ecology and Management*, 404: 316-329.

Sánchez Meador, A.J., J.D. Springer, D.W. Huffman, M.A. Bowker, and J.E. Crouse. 2017. Soil functional responses to ecological restoration treatments in frequent-fire forests of the western United States: a systematic review. *Restoration Ecology*, DOI: 10.1111/rec.12535

FACT SHEETS

ERI. 2017. A Meta-Analysis of Management Effects on Forest Carbon Storage. ERI Fact Sheet. Ecological Restoration Institute, Northern Arizona University. 2 p.

Huffman, D.W. 2017. Reference Conditions and Restoration of Transitional Ponderosa Pine Forests in the Southwest. ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 2 p.

Huffman, D.W. 2017. Understory Responses to Tree Thinning and Seeding Indicate Stability of Degraded Pinyon Juniper Woodlands. ERI Fact Sheet. Ecological Restoration Institute, Northern Arizona University. 2 p.

Sánchez Meador, A.J. 2017. Ecological Restoration and Fine-Scale Structural Regulation in Southwestern Ponderosa Pine Forests. ERI Fact Sheets. Ecological Restoration Institute, Northern Arizona University. 2 p.

GENERAL AND TECHNICAL REPORTS

Dubay, C.T. 2017. Restoration for Homeowners: A Guide to Fire Safety and Native Landscaping in Southwestern Ponderosa Pine Forests. ERI General Report. Ecological Restoration Institute, Northern Arizona University.

Signatures:

Recommended by (Project Coordinator(s)): _/s/ Dick Fleishman_____

Approved by (Forest Supervisor Apache-Sitgreaves NF): _/s/ Steve Best_____

Approved by (Forest Supervisor Coconino National Forest): _/s/ Laura Jo West_____

Approved by (Forest Supervisor Kaibab National Forest): _/s/ Heather Provencio_____

Approved by (Forest Supervisor Tonto National Forest): _/s/ Neil Bosworth_____

(OPTIONAL) Reviewed by (collaborative chair or representative): _____