2019 CFLRP Ecological Indicator Progress Report

OVERVIEW

Introduction

In 2011, the National Forest Foundation convened CFLRP participants to develop a set of national indicators. The resulting five indicators are economic impacts, fire risk and costs, collaboration, leveraged funds, and ecological condition. Data to support these five indicators comes from a number of sources, including the Treatment for Restoration Economic Analysis Toolkit, collaboration surveys conducted by NFF, and the Annual Reports.

Projects first reported on ecological indicators in 2014. Since then, the CFLRP staff in the US Forest Service Washington Office have worked with colleagues and partners to review and update to template to make improvements while maintaining a consistent protocol to 2014. The intent of the 2019 CFLRP Ecological Indicator Progress Report is to better understand your progress in advancing ecological outcomes. It is not intended to capture everything about your monitoring activities.

To aid you in filling out this report, we recommend that you read the new 2019 Guidance Document. We also recommend that you reference your past Annual Reports and your 2014 Ecological Indicator Progress Reports. For additional help, please email CFLRP@fs.fed.us.

We appreciate the time and energy you dedicate to completing this progress report. This information is critical for understanding the ecological outcomes of your work, telling the national story, supporting communication and transparency, and sharing successful approaches and practices across the nation.

Thank you!

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2019 CFLRP Ecological Indicator Progress Report

Project Name: Zuni Mountain State: NM

FIRE REGIME

Narrative - *Note: All boxes in this template will scroll, so you have as much space as you need.*

1. Did you make any changes to your desired condition(s) for fire regime as compared to the 2014 Ecological Indicator Report?
Please briefly describe: **Yes** ☐ **No** ☑

2. Did you make any changes to your monitoring methodologies for fire regime as compared to the 2014 Ecological Indicator Report? Please briefly describe: **Yes** ☐ **No** ☑

3. Did you use any new or updated baseline data for evaluating your fire regime progress for the purposes of this report?
Please briefly describe: **Yes** ☐ **No** ☑

4. Did your projects experience any unanticipated developments that positively or negatively affected expected progress towards your desired conditions for fire regime? (e.g. wildfire in the project area, litigation outcome, change in collaborative participation, etc.)

Bluewater-Diener Fire escape and arson resulted in high severity and worse fire effects on portions of the CFLR. Use of aerial ignitions has allowed for more acres to be treated with desired effects. Zuni Mountain CFRP Collaborative Crew (Guild). Slash amounts reduced burn windows early in the project. Opening up treated areas to public fuel-wooding has made burning easier and expanded burn windows.

5. What were the most difficult barriers or challenges you experienced in progressing towards your desired conditions for fire regime? If you adapted to address these challenges please provide a brief description of how.

Short windows for implementation due to drought conditions over much of the past decade. Seasonal personnel during times when conditions are favorable. We have a CFRP with the Forest Stewards Guild to provide personnel during the shoulder season(s).

6. Did you include the effects of treatments on areas adjacent to the active treatment area? Yes ☑ No ☐

If yes, please briefly describe your methodology for including these adjacent acres, and describe any work conducted across land ownership in support of desired conditions for fire regime.

Cottonwood Gulch Rx Burn. State of NM Forestry treatments in P-J adjacent to Forest treatments.

Desired Conditions

*In this report, the term "**desired conditions**" refers to landscape and resource conditions (as defined collaboratively by stakeholders and land managers) that you are seeking to achieve and maintain for your CFLRP landscape over the next 10+ years. Desired conditions are outcome-driven not output-driven, and should link to your project's CFLRP proposal while being measurable. (Note: The term "desired condition" is used somewhat differently in the Forest Service's Land Management Planning Process. In that context, it is not time bound, and often represents long-term social, economic and ecological goals, while the term "objective" is used to represent specific, measurable and time-bound benchmarks to be achieved while working toward desired conditions in a forest plan area.) In this report, the term "**landscape**" refers to the landscape identified in your CFRLP project proposal or in subsequently-approved proposal edits. See cover page for links to guidance.*

7. Project-scale Desired Conditions Target for Fire Regime:

85	% change (relative to the desired condition) occurs across	22	% of the project areas by	09/30/2019
	% change (relative to the desired condition) occurs across		% of the project areas by	

Please include 1-5 *quantifiable* desired condition statements upon which the above target is based:

85% change in reduced likelihood of supporting a stand replacing fire in the Bluewater Project Area (21,600 acres (21.7%)) of ponderosa pine forest type analyzed for restoration under the Bluewater Ecosystem Management Project ROD (2003)). Project Area = 99,413 acres.

Example: Treatments in the project area result in a 23% reduction in potential flame length.
Example: 75% of all prescribed burn projects meet prescription objectives as quantified in burn plan.

8. Landscape-scale Desired Conditions Target for Fire Regime:

85	% change (relative to the desired condition) occurs across	12	% of the landscape area by	09/30/2019
	% change (relative to the desired condition) occurs across		% of the landscape area by	

Please include 1-5 *quantifiable* desired condition statements upon which the above target is based:

Target for fire regime restoration at the landscape scale: Fuel models indicate reduced likelihood of supporting a stand replacing fire across 12.3% of the CFLR landscape (21,600 acres out of 174,953 acres).

Examples: Modeled ecological departure indicates that forest vegetation is restored to Vegetation Condition Class 1 with low fire hazard across 51% (105,183 acres) of the CFLR landscape; Fuel models indicate reduced likelihood of supporting a stand replacing fire across 8.5% of the CFLR landscape (73,000 acres); Fire-adapted landscapes transition from shrub-dominant understory fuel model to a grass/forb dominant understory fuel model across 50% of the CFLR landscape.

9. Please select the broader goals that are central to your desired condition(s) for fire regime for the Project-scale (P) and Landscape-scale (L) :

P	L	
☑	☑	Reduced risk/likelihood of uncharacteristic wildfires (high severity, widespread, high mortality, active crown fire/crown fire initiation)
☑	☑	Re-establish natural fire regimes and move landscape to historical range of variability and/or natural range of variability
☑	☑	Restore/maintain fire dependent and tolerant species
☑	☑	Restore/maintain native species
☑	☑	Restore/maintain heterogeneity (species, size classes)
☑	☑	Increase use of prescribed fires
☐	☐	Other. Please describe:

10. Please select the key outcomes you are hoping to achieve on the landscape through attainment of the broader goals you selected above:

- ☑ Increase options/opportunities for managers to control/manage wildfires
- ☑ Protect communities and high valued resources/reduce risk of loss
- ☑ Protection of water quality/supply
- ☑ Public and firefighter safety
- ☑ Reduced fire supression costs and avoided costs
- ☑ Other. Please describe: Increased resiliency to disturbances (i.e. - insects and disease, wildfire)

11. Given these goals, please state the evaluation metric(s) you are using to monitor progress towards your desired conditions for fire regime for this report. Note: This evaluation metric is something you are measuring or counting to monitor fire regime change. It has a unit of measurement attached to it.

Basal area, QMD, Percent Canopy Cover, Stand Density Index

Examples of fire regime evaluation metrics: basal area in square feet per acre (for tree density), quadratic mean diameter in inches (for tree sizes), litter and duff depths in centimeters (for fire hazard), percent canopy cover (for openness), fuels treatment effectiveness, tons of fuel loads removed (for fire hazard), avoided costs

Data and Methodology

12. Select the type(s) of monitoring you used to assess Project-scale (P) and Landscape-scale (L) progress towards fire regime desired conditions for this report. Select all that apply:

P	L	
☑	☑	**Baseline Data Collection** (i.e. was data collected prior to treatment to be used for later comparison?)
☑	☑	**Accomplishment Reporting** (i.e. was progress tracked using acres and miles reported?)
☑	☑	**Implementation Monitoring** (i.e. were the treatments implemented as prescribed?)
☑	☑	**Effectiveness Monitoring** (i.e. were treatments effective at meeting the stated objectives?)
☐	☐	**Effectiveness Monitoring Pilot Study** (i.e. was a trial run conducted to assess considerations of crafting an effectiveness monitoring plan?)
☑	☐	**Ecological Impacts Monitoring** (i.e. were there any unforeseen ecological consequences that could compromise treatment success?
☐	☐	**Other.** Please describe:

13. Select the methodologies used to assess Project-scale (P) and Landscape-scale (L) progress towards fire regime desired conditions for this report. Select all that apply and provide a brief description for each:

P	L	
☑	☑	Field-based sampling/plots: CSE and permanent plots
☑	☑	Remote sensing: LiDar done for the Zuni Mountains in 2018 ☑LiDAR ☑Aerial photography ☑ NAIP ☐ Landsat ☐Other:
☑	☑	Treatments implemented (e.g. acres or miles accomplished):
☑	☑	Modeling (include type and indicators used): FVS
☑	☐	Measuring a reduction in the fire risk index: FVS
☑	☑	Observation/expert opinion: Field trip/tours
☑	☐	Fuels treatment effectiveness: Reporting within IFTDSS
☐	☐	GIS analysis:
☐	☐	Other:

14. Where is the data that is being used for monitoring Project-scale (P) and Landscape-scale (L) progress toward fire regime desired conditions being stored? Select the databases categories that apply and provide a description of the specific datasets being used. Include links if available:

P	L	
☑	☑	FSVeg:
☑	☑	Forest Inventory and Analysis (FIA):
☑	☐	Fuels Treatment Effectiveness Report Database:
☐	☐	GNN:
☐	☐	VMap:
☐	☐	Feat-Firemon Integrated Database:
☑	☐	FACTS (please select performance measure): ☑ FP-FUELS-NON-WUI ☑ FP-FUELS-WUI ☑ FOR-VEG-EST ☑ FOR-VEG-IMP ☐OTHER:
☐	☐	Local database:
☑	☐	Inspection reports/contract record:
☐	☐	Other:

Project-scale scoring

From the beginning, CFLRP intended to shift towards desired conditions at the landscape-scale. As the disturbances and processes of interest occur at a landscape-scale, we need a landscape-scale assessment. It's a challenge to look at the impacts at that scale, given the scale itself as well as time delays (e.g. it takes more time to shift outcomes at landscape-scale than project-scale). While landscape-scale is the focus, project-scale assessments allow projects to bring in their monitoring data and look at treatment outcomes.

Each management action funded through CFLRP will have its own project-level objectives that are designed to contribute to achieving desired conditions at larger scales. Project-scale scoring should reflect how well the results of an individual management activity met the objectives for that project. Individual projects may not meet every desired condition of the CFLRP project. Project-scale scoring is conducted by the multi-party monitoring group following completed management activities.

An individual activity might not need to lead to a fully restored acre, but if it sets the landscape up for the next treatment it may still get a good rating. For example if a successful thinning doesn't restore a fire regime, but it sets up landscape for subsequent burns that might, it could still receive a "Green" rating. There may be many reasons for not scoring a "Green," including ecological and sociological considerations beyond the scope of the CFLRP project as well as recognition of unanticipated barriers or challenges. Note that scoring a "Yellow" or "Red" does not necessarily mean that work was not accomplished.

If you need to summarize scores across different desired condition targets, please refer to Guidance Document for additional instruction.

- **Green** = Expected progress is being made towards desired conditions across 75% or more of our CFLRP project areas.
- **Yellow** = Expected progress is being made towards desired conditions across 26% - 74% of our CFLRP project areas.
- **Red** = Expected progress is being made towards desired conditions across 25% or less of our CFLRP project areas.

Ecological Indicator	Green, Yellow, or Red score and % of the CFLRP project areas resulting in measurable progress as defined above	Are you achieving your CFLRP objectives? Yes or No? If "no", briefly describe why in the box below and use the narrative section as needed.
Fire Regime	Green - 98.8%	Yes

Please briefly describe how you calculated your score.

Approximately 17,065 acres have been treated within the Bluewater Project Area of the Zuni Mountain CFLRP out of 99,413 = 17.2%. Desired condition is to have 22% of the project area completed after 10 years. After 8 years (80%), the desired % of the project area treated is 17.4%, or 17,280 acres. The 17,065 acres treated is 98.8% of the desired 17,280 acres after 8 years. The treated areas have reduced, basal area, trees per acre and crown cover, and are left with a spatial

Scoring for National Reporting

Landscape-scale scoring

Few (if any) CFLRP-funded Landscapes propose to meet every proposed desired condition on every acre or achieve landscape-scale objectives through the mechanical treatment of every acre within their landscape boundary. Rather, multiple projects with multiple objectives (fire risk reduction, wildlife habitat improvement, stream restoration, etc.) should facilitate meeting these broader objectives. Scoring at the landscape-scale reflects the degree to which individual Landscapes are moving towards Desired Conditions at broader spatial extent. Landscape-scale scoring is conducted by the multi -party monitoring group at each Landscape.

"Expected progress" will be defined using 10-year benchmarks for FY 2010 projects and 8-year benchmarks for FY 2012 projects for each desired condition based on a percentage of the lifetime outcome specified for the landscape in each proposal. There may be many reasons for not scoring a "Green," including ecological and sociological considerations beyond the scope of the CFLRP project as well as recognition of unanticipated barriers or challenges. Note that scoring a "Yellow" or "Red" does not necessarily mean that work was not accomplished.

If you need to summarize scores across different desired condition targets, please refer to Guidance Document for additional instruction.

- **Green** = Expected progress is being made towards desired conditions across 7.4 % of our CFLRP landscape area.
- **Yellow** = Expected progress is being made towards desired conditions across 4.9 % of our CFLRP landscape area.
- **Red** = Expected progress is being made towards desired conditions across 2.5 % of our CFLRP landscape area.

Ecological Indicator	Green, Yellow, or Red score and % of the landscape across which progress is being made towards desired conditions	Are you achieving your CFLRP objectives? Yes or No? If "no", briefly describe why in the box below and use the narrative section as needed.
Fire Regime	Green - 9.8%	Yes

Please briefly describe how you decided on the percentage thresholds used above for the scoring categories and how you calculated your score.

The 10-year goal is to treat 21,600 acres (12.3% of the 174,953 acre landscape). The Zuni Mountain CFLR is a 2012 project, so the goal for the end of 2019 is reduced to 17,280 acres (80% of 10-year goal). Approximately 17,065 acres of restoration treatments were accomplished in ponderosa pine forest types (9.8% of the landscape). The Green threshold range for progress is 7.4% - 12.3%, the Yellow threshold range for progress is 2.6% - 7.3%, and the Red threshold range for progress is 2.5% or less.

2019 CFLRP Ecological Indicator Progress Report

Project Name: Zuni Mountain State: NM

WATERSHED CONDITION

Narrative - *Note: All boxes in this template will scroll, so you have as much space as you need.*

☐ If watershed condition is not part of your CFLRP proposal and landscape restoration strategy, please let us know by checking this box.

1. Did you make any changes to your desired condition(s) for watershed condition as compared to the 2014 Ecological Indicator Report? Please briefly describe: **Yes** ☑ **No** ☐

In addition to the 2014 Desired Conditions, we added a desired condition that improves the Fire Regime, as measured by FRCC, in each of the 12 digit HUC watershed that intersect the CFLR Landscape. This measurement will better inform positive change at a landscape scale.

2. Did you make any changes to your monitoring methodologies for watershed condition as compared to the 2014 Ecological Indicator Report? Please briefly describe: **Yes** ☑ **No** ☐

Will assess FRCC in each 12 Digit HUC and compare baseline conditions in 2012 to current conditions.

3. Did you use any new or updated baseline data for evaluating your watershed condition progress for the purposes of this report? Please briefly describe: **Yes** ☐ **No** ☑

4. Did your projects experience any unanticipated developments that positively or negatively affected expected progress towards your desired conditions for watershed condition? (e.g. wildfire in the project area, litigation outcome, change in collaborative participation, etc.)

The Diener and Bluewater Fires in 2018 have created greater opportunities for the introduction and spread of invasive species, but also improved the overall FRCC. Addressing location and closure of temporary roads in a timely manner can be challenging.

5. What were the most difficult barriers or challenges you experienced in progressing towards your desired conditions for watershed condition? If you adapted to address these challenges please provide a brief description of how.

Improved mitigation for temp roads, and resource protection language in the Stewardship Agreement with the National Wild Turkey Federation.

6. Are you using the Priority Watershed(s) identified through the Watershed Condition Framework to focus CFLRP watershed restoration work and monitoring for this report? Yes ☑ **No** ☐ **Our CFLRP does not have Priority Watersheds** ☐

If no, please briefly describe why you are not using the Priority Watersheds:

If yes, is there a Watershed Restoration Action Plan (WRAP) developed for the Priority Watershed(s)? Yes ☑ No ☐

7. Our Priority Watershed(s)of focus for this report cover 8 % of the CFLRP landscape

8. Please select up to three conditions in each category for why it was chosen as a Priority (these are available in the WCATT entry):

Category 1: Resource Values
- ☐ Wilderness
- ☐ Wild and Scenic River
- ☐ Experimental Watershed
- ☐ Municipal Watershed
- ☐ Outstanding Resource Water
- ☐ Species protection area
- ☐ Class 1 Air Shed
- ☐ Other:

Category 2: Concerns and Threats
- ☑ Water Quality
- ☐ Water Quantity
- ☑ Riparian Structure and Function
- ☐ Species Habitat
- ☑ Wildfire Risk
- ☐ Invasive Species
- ☐ Other:

Category 3: Opportunities
- ☑ Improve Condition
- ☐ Maintain Condition
- ☑ Potential Partnership
- ☑ Non-NFS Land Collaboration
- ☐ Larger Scale Restoration
- ☐ Leverage FS funds
- ☐ Socio-economic
- ☐ Other:

Desired Conditions

*In this report, the term "**desired conditions**" refers to landscape and resource conditions (as defined collaboratively by stakeholders and land managers) that you are seeking to achieve and maintain for your CFLRP landscape over the next 10+ years. Desired conditions are outcome-driven not output-driven, and should link to your project's CFLRP proposal while being measurable. (Note: The term "desired condition" is used somewhat differently in the Forest Service's Land Management Planning Process. In that context, it is not time bound, and often represents long-term social, economic and ecological goals, while the term "objective" is used to represent specific, measurable and time-bound benchmarks to be achieved while working toward desired conditions in a forest plan area.) In this report, the term "**landscape**" refers to the landscape identified in your CFRLP project proposal or in subsequently-approved proposal edits. See cover page for links to guidance.*

9. Project-scale Desired Conditions Target for Watershed Condition:

50	% change (relative to the desired condition) occurs across	12	% of the project areas by	09/30/2019
	% change (relative to the desired condition) occurs across		% of the project areas by	

Please include 1-5 *quantifiable* desired condition statements upon which the above target is based:

Reduce FRCC 3 to 2 on 12,000 acres and improve overall resilience to climate change in 6.8% of the project area (99,413).
Assumption: For all areas a 2nd prescribed burn will be required to move the area to FRCC 2. By moving the area to FRCC 2 it will become more resilient to climate change, therefore during the CFLR it is expected that treatments will move the area 50% towards this desired condition

Examples: Over 50% of roads that will be used for activities in project areas have received or are planned for BMPs; Over 170 acres of riparian area are improved and floodplain reconnected, 2 miles of stream are restored, and dam removal results in 13 miles of fish passage.

10. Landscape-scale Desired Conditions Target for Watershed Condition:

50	% change (relative to the desired condition) occurs across	7	% of the landscape area by	09/30/2019
	% change (relative to the desired condition) occurs across		% of the landscape area by	

Please include 1-5 *quantifiable* desired condition statements upon which the above target is based:

Reduce FRCC 3 to 2 on 12,000 acres and improve overall resilience to climate change in 6.8% of the landscape (174,953 acres).

Examples: 50% of the essential projects identified in the watershed WRAP are implemented; Watershed Condition Classification indicates that 14 of the 17 subwatersheds (82% of the CFLRP Landscape Area) are in Condition Class 1 (Properly Functioning); The Watershed Condition Classification for the fire regime and wildfire indicators are improved for 17% of the landscape (30% of the expected treatment area).

11. Please select the indicator(s) below related to watershed condition that you are trying to affect to achieve your quantifiable desired condition(s):

- ☑ Water quality
- ☐ Water quantity
- ☐ Aquatic habitat (fragmentation, woody debris, channel shape and function)
- ☐ Aquatic biota (life-form presence, native species, exotic/invasive species)
- ☑ Improve riparian/wetland vegetation condition
- ☑ Roads and trails (road density, road maintenance, proximity to water, mass wasting)
- ☑ Soils (erosion, productivity, contamination)
- ☑ Fire regime and wildfire (fire condition class, wildfire effects)
- ☑ Forest cover
- ☐ Rangeland vegetation
- ☐ Terrestrial invasive species (extent and rate of spread)
- ☐ Forest health (insects and disease, ozone)
- ☐ Other. Please describe:

12. **Please select the actions you are implementing to work towards your desired condition(s):**

- ☑ Road decommissioning
- ☑ Road maintenance and/or improvement
- ☑ Trail maintenance and/or improvement
- ☑ Mechanical thinning
- ☑ Prescribed fire/controlled burn
- ☑ Culvert replacement
- ☐ Reintroduction of native species
- ☑ Removal of exotic/invasive species
- ☐ Other. Please describe:

13. Please state the evaluation metric(s) you are using to monitor progress towards your desired conditions for watershed condition.
Note: This evaluation metric is something you are measuring or counting to monitor watershed condition. It has a unit of measurement attached to it.

Watershed Condition Framework, using the 12 indicators, with a focus on improving Fire Regime Condition Class (FRCC). Compare habitat and water quality monitoring at selected sites, including Agua Remora.

Examples of evaluation metrics: Fine sediment volume (mL), fine sediment weight (g), basal area in square feet per acre (for tree density), number of woody debris pieces in a specific size class per stream mile (for fish habitat), stream flow rate (liters/sec), miles of road decommissioned (miles), fish population (number of fish per sweep).

Data and Methodology

14. Select the methodologies used to assess Project-scale (P) and Landscape-scale (L) progress towards watershed condition desired conditions in this report. Select all that apply and provide a brief description for each:

P	L		
☑	☐	National BMP monitoring (protect water quality):	Using BMP protocol.
☐	☐	Streambed coring:	
☐	☐	Float method (water flow):	
☑	☐	Current meter (water flow):	Inculded in water quality and habitat monitoring through an agreement with UNM
☑	☐	Fish occupancy/use surveys:	NMG&F Dept. and R3
☑	☐	Ground-based photo points or photo plots:	
☑	☑	Aerial surveys, aerial photography, or remote sensing:	
☑	☑	GIS analysis:	
☑	☑	Treatments implemented (e.g. acres or miles accomplished) used as proxy for monitoring outcomes:	
☐	☐	Modelling used as proxy for monitoring outcomes:	
☐	☐	Other:	

15. Where is the the data that is being used for monitoring Project-scale (P) and Landscape-scale (L) progress toward watershed condition being stored? Select the database categories that apply and provide a description of the specific datasets being used. Include links if available:

P	L		
☑	☑	GIS database:	
☐	☐	County database:	
☐	☐	State database:	
☐	☐	Tribal database:	
☐	☐	Citizen Science database:	
☑	☑	Watershed Classification and Assessment Tracking Tool (WCATT):	
☑	☑	USFS database of record (e.g. FACTS, WIT, WorkPlan, etc.):	*please select performance measure from the table below*
☐	☐	Other:	

Performance Measure Shorthand	Description	Database	P	L
BIO-NRG	Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production	TIM	✔	
FOR-VEG-EST	Acres of forest vegetation established	FACTS		
FOR-VEG-IMP	Acres of forestland vegetation improved	FACTS	✔	
FP-FUELS-NON-WUI	Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildand fire	FACTS		
FP-FUELS-WUI	Acres wildland/urban interface (WUI) high-priority hazardous fuels treated to reduce the risk of catastrophic wildland fire	FACTS	✔	
HBT-ENH-LAK	Acres of lake habitat restored or enhanced	WIT		
HBT-ENH-STRM	Miles of stream habitat restored or enhanced	WIT	✔	
HBT-ENH-TERR	Acres of terrestrial habitat restored or enhanced	WIT		
INVPLT-NXWD-FED-AC	Highest priority acres treated annually for noxious weeds and invasive plants on NFS lands	FACTS		
INVSPE-TERR-FED-AC	Highest priority acres treated for invasive terrestrial & aquatic species on NFS lands	FACTS		
RD-DECOM-NON-SYS	Miles of road decommissioned (non-system)	WIT	✔	
RD-DECOM-SYS	Miles of road decommissioned (system)	ROADS		
RD-HC-IMP	Miles of high clearance system roads improved	ROADS		

Performance Measure Shorthand	Description	Database	P	L
RD-HC-MAIN	Miles of high clearance system roads receiving maintenance	ROADS		
RD-PC-IMP	Miles of road reconstruction and capital improvement	ROADS		
RD-PC-MAIN	Miles of system roads receiving maintenance	ROADS		
RG-VEG-IMP	Acres of rangeland vegetation improved	FACTS		
S&W-RSRC-IMP	Acres of water or soil resources protected, maintained or improved to achieve desired watershed conditions	WIT	✔	
SP-NATIVE-FED-AC	Number of priority acres treated annually for native pests on Federal lands	FAD		
STRM-CROS-MITG-STD	Number of stream crossings constructed or reconstructed to provide for aquatic organism passage	WIT		
TL-IMP-STD	Miles of system trail improved	TRAILS		
TL-MAINT-STD	Miles of system trail maintained	TRAILS		
TMBR-SALES-TRT-AC	Acres of forestlands treated using timber sales	FACTS		
TMBR-TRT	Acres of forestlands treated to achieve healthier conditions	FACTS		
WTRSHD-CLS-IMP-NUM	# of watersheds moved to an improved condition class or sustained in properly functioning condition (Class 1)	WCATT		

16. Please describe why the datasets or performance measures you selected in Question 15 above are <u>appropriate for assessing progress</u> towards your watershed desired conditions.

S&W-RSRC-IMP, RD-DECOM, and HBT-ENH-STRM are all appropriate indicators for assessing progress toward watershed desired conditions. Approximately 12,797 acres of water and soil resources have been improved, 25 miles of road have been decommissioned, and 1 mile of stream habitat has been restored or improved since 2012. These accomplishments reduce erosion, sedimentation, and restore watershed health &

Project-scale scoring

From the beginning, CFLRP intended to shift towards desired conditions at the landscape-scale. As the disturbances and processes of interest occur at a landscape-scale, we need a landscape-scale assessment. It's a challenge to look at the impacts at that scale, given the scale itself as well as time delays (e.g. it takes more time to shift outcomes at landscape-scale than project-scale). While landscape-scale is the focus, project-scale assessments allow projects to bring in their monitoring data and look at treatment outcomes.

Each management action funded through CFLRP will have its own project-level objectives that are designed to contribute to achieving desired conditions at larger scales. Project-scale scoring should reflect how well the results of an individual management activity met the objectives for that project. Individual projects may not meet every desired condition of the CFLRP project. Project-scale scoring is conducted by the multi-party monitoring group following completed management activities.

An individual activity might not need to lead to a fully restored acre, but if it sets the landscape up for the next treatment it may still get a good rating. For example if a successful thinning doesn't restore a fire regime, but it sets up landscape for subsequent burns that might, it could still receive a "Green" rating. There may be many reasons for not scoring a "Green," including ecological and sociological considerations beyond the scope of the CFLRP project as well as recognition of unanticipated barriers or challenges. Note that scoring a "Yellow" or "Red" does not necessarily mean that work was not accomplished.

If you need to summarize scores across different desired condition targets, please refer to Guidance Document for additional instruction.

- **Green** = Expected progress is being made towards desired conditions across 75% or more of our CFLRP project areas.
- **Yellow** = Expected progress is being made towards desired conditions across 26% - 74% of our CFLRP project areas.
- **Red** = Expected progress is being made towards desired conditions across 25% or less of our CFLRP project areas.

Ecological Indicator	Green, Yellow, or Red score and % of the CFLRP project areas resulting in measurable progress as defined above	Are you achieving your CFLRP objectives? Yes or No? If "no", briefly describe why in the box below and use the narrative section as needed.
Watershed Condition	Green - 85.4	Yes

Please briefly describe how you calculated your score.

Approximately 8,200 acres have been treated with prescribed fire in the Bluewater Project Area of the Zuni Mountain CFLRP out of 99,413 = 8.2%. Desired condition is to have 12.1% of the project area completed after 10 years. After 8 years (80%), the desired % of the project area treated is 9.7%, or 9,600 acres. The 8,200 acres treated is 85.4% of the desired 9,600 acres after 8 years. The 8,200 acres of first-entry Rx Burning has improved resiliency through reduction of

Scoring for National Reporting

Landscape-scale scoring

Few (if any) CFLRP-funded Landscapes propose to meet every proposed desired condition on every acre or achieve landscape-scale objectives through the mechanical treatment of every acre within their landscape boundary. Rather, multiple projects with multiple objectives (fire risk reduction, wildlife habitat improvement, stream restoration, etc.) should facilitate meeting these broader objectives. Scoring at the landscape-scale reflects the degree to which individual Landscapes are moving towards Desired Conditions at broader spatial extent. Landscape-scale scoring is conducted by the multi - party monitoring group at each Landscape.

"Expected progress" will be defined using 10-year benchmarks for FY 2010 projects and 8-year benchmarks for FY 2012 projects for each desired condition based on a percentage of the lifetime outcome specified for the landscape in each proposal. There may be many reasons for not scoring a "Green," including ecological and sociological considerations beyond the scope of the CFLRP project as well as recognition of unanticipated barriers or challenges. Note that scoring a "Yellow" or "Red" does not necessarily mean that work was not accomplished.

If you need to summarize scores across different desired condition targets, please refer to Guidance Document for additional instruction.

- **Green** = Expected progress is being made towards desired conditions across 4.1 % of our CFLRP landscape area.
- **Yellow** = Expected progress is being made towards desired conditions across 2.7 % of our CFLRP landscape area.
- **Red** = Expected progress is being made towards desired conditions across 1.4 % of our CFLRP landscape area.

Ecological Indicator	Green, Yellow, or Red score and % of the landscape across which progress is being made towards desired conditions	Are you achieving your CFLRP objectives? Yes or No? If "no", briefly describe why in the box below and use the narrative section as needed.
Watershed Condition	Green - 4.7%	Yes

Please briefly describe how you decided on the percentage thresholds used above for the scoring categories and how you calculated your score.

The 10-year goal is to treat 12,000 acres (6.9% of the 174,953 acre landscape). The Zuni Mountain CFLR is a 2012 project, so the goal for the end of 2019 is reduced to 9,600 acres (80% of 10-year goal). Approximately 8,200 acres of prescribed burning treatments have been accomplished (4.7% of the landscape). The Green threshold range for progress is 4.1% - 6.9%, the Yellow threshold range for progress is 1.4% - 4.0%, and the Red threshold range for progress is 1.4% or less.

2019 CFLRP Ecological Indicator Progress Report

Project Name: Zuni Mountain State: NM

FISH & WILDLIFE HABITAT

Narrative - *Note: All boxes in this template will scroll, so you have as much space as you need.*

☐ If wildlife habitat is not part of your CFLRP proposal and landscape restoration strategy, please let us know by checking this box.
☑ If fish habitat is not part of your CFLRP proposal and landscape restoration strategy, please let us know by checking this box.

1. Did you make any changes to your desired condition(s) for fish & wildlife habitat as compared to the 2014 Ecological Indicator Report? Please briefly describe: **Yes** ☐ **No** ☑

2. Did you make any changes to your monitoring methodologies for fish & wildlife habitat as compared to the 2014 Ecological Indicator Report? Please briefly describe: **Yes** ☐ **No** ☑

3. Did you use any new or updated baseline data for evaluating your fish & wildlife habitat progress for the purposes of this report? Please briefly describe: **Yes** ☐ **No** ☑

4. Did your projects experience any unanticipated developments that positively or negatively affected expected progress towards your desired conditions for fish and wildlife habitat? (e.g. wildfire in the project area, litigation outcome, change in collaborative participation, etc.)

5. What were the most difficult barriers or challenges you experienced in progressing towards your desired conditions for fish and wildlife habitat? If you adapted to address these challenges please provide a brief description of how.

6. Did you include the effects of treatments on areas adjacent to the active treatment area? Yes ☐ No ☐
If yes, please briefly describe your methodology for including these adjacent acres, and describe any work conducted across land ownership in support of fish & wildlife habitat.

Desired Conditions

*In this report, the term "**desired conditions**" refers to landscape and resource conditions (as defined collaboratively by stakeholders and land managers) that you are seeking to achieve and maintain for your CFLRP landscape over the next 10+ years. Desired conditions are outcome-driven not output-driven, and should link to your project's CFLRP proposal while being measurable. (Note: The term "desired condition" is used somewhat differently in the Forest Service's Land Management Planning Process. In that context, it is not time bound, and often represents long-term social, economic and ecological goals, while the term "objective" is used to represent specific, measurable and time-bound benchmarks to be achieved while working toward desired conditions in a forest plan area.) In this report, the term "**landscape**" refers to the landscape identified in your CFRLP project proposal or in subsequently-approved proposal edits. See cover page for links to guidance.*

7. Project-scale Desired Conditions Target for Fish & Wildlife Habitat:

99	% change (relative to the desired condition) occurs across	15	% of the project areas by	09/30/2019		
	% change (relative to the desired condition) occurs across		% of the project areas by		*(OPTIONAL. Use if separate, additional target is needed for aquatic habitat)*	

Please include 1-5 *quantifiable* desired condition statements upon which the above target is based:

Increase wildlife habitat by creating uneven aged and multi-stories stand structures that accelerate stand transition to old growth by increasing vigor of old and large tree component across 15.1% of the landscape (15,000 acres).

Example: 50 miles of inaccessible salmon spawning habitat is made accessible by removing one dam.
Example: Stands have a basal area of 50-80 square feet/acre, which is ideal for red-cockaded woodpecker.
Example: Stands between 5,000-8,000 ft elevation are dominated by ponderosa pine, with 5-10 trees per group, and openings 0.25- 1 acre.

8. Landscape-scale Desired Conditions Target for Fish & Wildlife Habitat:

99	% change (relative to the desired condition) occurs across	9	% of the landscape area by	12/31/2019		
	% change (relative to the desired condition) occurs across		% of the landscape area by		*(OPTIONAL. Use if separate, additional target is needed for aquatic habitat)*	

Please include 1-5 *quantifiable* desired condition statements upon which the above target is based:

Increase wildlife habitat by creating uneven aged and multi-stories stand structures that accelerate stand transition to old growth by increasing vigor of old and large tree component across 8.6% of the landscape (15,000 acres).

Example: Slash pine is replaced by longleaf pine ecosystem across 5,000 acres of our CFLRP landscape.
Example: Coniferous forests across the CFLRP landscape have an average canopy cover at or above 50%.
Example: All identified inventoried aquatic organism passages at road/stream crossings that were found to be a barrier (10) are accessible for identified aquatic species at all life stages.

Habitat

9. Please select the categories of the broader goals related to fish & wildlife habitat that you are trying to achieve through your quantifiable desired condition(s):

- ☑ Open forest habitat (e.g. wider tree spacing, less mid-story vegetation)
- ☑ Grass/forb/shrub abundance and/or diversity (e.g. native or desired)
- ☐ Wildlife security (e.g. reduced disturbance and/or mortality to fish or wildlife)
- ☑ Rare or sensitive ecosystem protection and/or restoration (e.g. longleaf, bluestem, riparian, meadow, aspen or wetland habitat)
- ☑ Horizontal Complexity (e.g. "mosaic"/diversity of habitat types, patch sizes, and/or patterns)
- ☑ Vertical complexity (e.g. number of canopy layers)
- ☑ Forest structures (e.g. snags, downed wood, den trees)
- ☑ Mast-producing plant abundance and/or diversity (e.g. acorns, nuts, fruits, or berries eaten by wildlife)
- ☑ Sustainable flow of habitat age-classes through time (e.g. planning the proportion of early-, mid-, and late-seral stands)
- ☐ Habitat connectivity/availability (e.g. increased access to or availability of desired habitat)
- ☐ Aquatic habitat connectivity (e.g. culverts are passable to all aquatic organisms, no dams, stream diversions)
- ☐ Aquatic habitat complexity (e.g. downed wood, pools, riffles, etc)
- ☐ Aquatic sedimentation levels (e.g. suspended sediment or fine sediment in spawning gravels)
- ☐ Other. Please describe:

10. Please state the evaluation metric(s) you are using to monitor progress towards your desired conditions for fish & wildlife habitat for this report. Note: This evaluation metric is something you are measuring or counting to monitor habitat change. It has a unit of measurement attached to it.

Basal area, Canopy cover, average tree diameter, stand structure - acres moving toward uneven-aged condition, and increasing average stand diameter (QMD).

Examples of habitat evaluation metrcs: basal area in square feet per acre (for tree density), number of trees per acre (for tree density), quadratic mean diameter in inches (for tree sizes), litter and duff depths in centimeters (for fire hazard), percent canopy cover (for openness), percent ground cover (for forage), seedling survival per acre per year (for reforestation), number of woody debris pieces in a specific size class per stream mile (for fish habitat), grass dry weight clippings used to calculate grass pounds per acre (for forage abundance)

Populations

11. Please select the categories of broader goals related to fish & wildlife populations that you are trying to achieve through your quantifiable desired condition(s). Then list the specific species of interest related to each category you select.

- ☑ Maintain abundance/density: Protected Activity Centers, Recovery Habitat for Mexican spotted owl, Zuni Bluehead Sucker
- ☑ Increase abundance/density: Gambel oak
- ☑ Decrease abundance/density: Basal area, trees per acre, and canopy cover in the ponderosa pine type.
- ☐ Maintain native species diversity:
- ☐ Increase native species diversity:
- ☐ Translocation/reintroduction:
- ☐ Optimal sustained yield of game species:
- ☐ Ecosystem function/food webs: Northern Goshawk
- ☐ Spatial extent of population:
- ☐ Other. Please describe:

12. If relevant for your CFLRP project, please state the evaluation metric(s) you are using to monitor progress towards your desired conditions for fish & wildlife populations. Note: This evaluation metric is something you are measuring or counting to monitor population change. It has a unit of measurement attached to it.

Basal Area, canopy cover, stand structure, average tree diameter, and number of large, old trees (QMD).

Examples of population evaluation metrics: number of wildlife encounter events per unit area via point counts or remote cameras (for wildlife usage), number of pellet groups along transects used to calculate animal density per unit area (for mammal usage), presence/absence of a plant community-associated wildlife species in the project area, presence of aquatic species as indicated by eDNA

☐ Please check this box if you are not evaluating fish & wildlife populations.

Data and Methodology

13. Select the type(s) of monitoring you used to assess Project-scale (P) and Landscape-scale (L) progress towards fish & wildlife habitat desired conditions for this report. Select all that apply.

P	L	
☑	☑	**Baseline Data Collection** (i.e. was data collected prior to treatment to be used for later comparison?)
☑	☑	**Accomplishment Reporting** (i.e. was progress tracked using acres and miles reported?)
☑	☑	**Implementation Monitoring** (i.e. were the treatments implemented as prescribed?)
☑	☑	**Effectiveness Monitoring Pilot Study** (i.e. was a trial run conducted to assess considerations of crafting an effectiveness monitoring plan?)
☑	☑	**Effectiveness Monitoring** (i.e. were treatments effective at meeting the stated objectives?)
☑	☑	**Ecological Impacts Monitoring** (i.e. were there any unforeseen ecological consequences that could compromise treatment success?)
☐	☐	**Other.** Please describe:

14. Select the methodologies used to assess Project-scale (P) and Landscape-scale (L) progress towards fish & wildlife habitat desired conditions for this report. Select all that apply and provide a brief description for each:

P	L	
☑	☑	Common Stand Exams (USFS procedures): Intensive stand exams
☑	☑	Understory vegetation plots or transects: Vegetation cover was taken on CSE plots, pre and post
☑	☑	Fish or Wildlife occupancy/use surveys: Northern goshawk and Mexican spotted owl surveys
☑	☑	Stream surveys: Agua Remora, Tampico Draw
☐	☐	Remote motion-capture cameras:
☑	☑	Ground-based photo points or photo plots: 120 permanent monitoring plots were installed with photo points in each cardinal direction
☑	☑	Aerial surveys, aerial photography, or remote sensing: LiDar was done in 2018
☑	☑	Treatments implemented (e.g. acres or miles accomplished):
☑	☑	Modeling (include type and whether ground-truthed): Nearest neighbor and FVS, both ground-truthed.
☐	☐	GIS analysis: Stands analyzed for treatment access and operability
☐	☐	Other:

15. Where is the the data that is being used for monitoring Project-scale (P) and Landscape-scale (L) progress toward fish & wildlife habitat desired conditions being stored? Select the database categories that apply and provide a description of the specific datasets being used. Include links if available:

P	L	
☑	☑	GIS database:
☐	☐	County database:
☐	☐	State database:
☐	☐	Tribal database:
☐	☐	Citizen Science database:
☑	☑	FSVeg:
☑	☑	NRIS:
☑	☑	Other USFS database of record: *please select performance measure from the table below*
☐	☐	Other:

Performance Measure Shorthand	Description	Database	P	L
BIO-NRG	Green tons from small diameter and low value trees removed from NFS lands and made available for bio-energy production	TIM	✔	
FOR-VEG-EST	Acres of forest vegetation established	FACTS		
FOR-VEG-IMP	Acres of forestland vegetation improved	FACTS	✔	
FP-FUELS-NON-WUI	Acres of hazardous fuels treated outside the wildland/urban interface (WUI) to reduce the risk of catastrophic wildand fire	FACTS		
FP-FUELS-WUI	Acres wildland/urban interface (WUI) high-priority hazardous fuels treated to reduce the risk of catastrophic wildland fire	FACTS	✔	
HBT-ENH-LAK	Acres of lake habitat restored or enhanced	WIT		
HBT-ENH-STRM	Miles of stream habitat restored or enhanced	WIT	✔	
HBT-ENH-TERR	Acres of terrestrial habitat restored or enhanced	WIT	✔	
INVPLT-NXWD-FED-AC	Highest priority acres treated annually for noxious weeds and invasive plants on NFS lands	FACTS		
INVSPE-TERR-FED-AC	Highest priority acres treated for invasive terrestrial & aquatic species on NFS lands	FACTS		
RD-DECOM-NON-SYS	Miles of road decommissioned (non-system)	WIT		
RD-DECOM-SYS	Miles of road decommissioned (system)	ROADS		
RD-HC-IMP	Miles of high clearance system roads improved	ROADS		

Performance Measure Shorthand	Description	Database	P	L
RD-HC-MAIN	Miles of high clearance system roads receiving maintenance	ROADS		
RD-PC-IMP	Miles of road reconstruction and capital improvement	ROADS		
RD-PC-MAIN	Miles of system roads receiving maintenance	ROADS		
RG-VEG-IMP	Acres of rangeland vegetation improved	FACTS	✔	
S&W-RSRC-IMP	Acres of water or soil resources protected, maintained or improved to achieve desired watershed conditions	WIT		
SP-NATIVE-FED-AC	Number of priority acres treated annually for native pests on Federal lands	FAD		
STRM-CROS-MITG-STD	Number of stream crossings constructed or reconstructed to provide for aquatic organism passage	WIT		
TL-IMP-STD	Miles of system trail improved	TRAILS		
TL-MAINT-STD	Miles of system trail maintained	TRAILS		
TMBR-SALES-TRT-AC	Acres of forestlands treated using timber sales	FACTS		
TMBR-TRT	Acres of forestlands treated to achieve healthier conditions	FACTS		
Other:				
Other:				

16. Please describe why the datasets or performance measures you selected in Question 15 above are <u>appropriate for assessing progress</u> towards your fish & wildlife habitat desired condition(s).

HBT-ENH-TERR, HBT-ENH-STRM, and RG-VEG-IMP are all appropriate indicators for assessing progress toward wildlife habitat desired conditions. Approximately 10,000 acres of terrestrial habitat have been improved or enhanced, 1 mile of stream habitat has been restored or improved, and 14,000 acres of rangeland have been improved since 2012. These accomplishments improve stand structure, provide for increased forage, and

Project-scale scoring

From the beginning, CFLRP intended to shift towards desired conditions at the landscape-scale. As the disturbances and processes of interest occur at a landscape-scale, we need a landscape-scale assessment. It's a challenge to look at the impacts at that scale, given the scale itself as well as time delays (e.g. it takes more time to shift outcomes at landscape-scale than project-scale). While landscape-scale is the focus, project-scale assessments allow projects to bring in their monitoring data and look at treatment outcomes.

Each management action funded through CFLRP will have its own project-level objectives that are designed to contribute to achieving desired conditions at larger scales. Project-scale scoring should reflect how well the results of an individual management activity met the objectives for that project. Individual projects may not meet every desired condition of the CFLRP project. Project-scale scoring is conducted by the multi-party monitoring group following completed management activities.

An individual activity might not need to lead to a fully restored acre, but if it sets the landscape up for the next treatment it may still get a good rating. For example if a successful thinning doesn't restore a fire regime, but it sets up landscape for subsequent burns that might, it could still receive a "Green" rating. There may be many reasons for not scoring a "Green," including ecological and sociological considerations beyond the scope of the CFLRP project as well as recognition of unanticipated barriers or challenges. Note that scoring a "Yellow" or "Red" does not necessarily mean that work was not accomplished.

If you need to summarize scores across different desired condition targets, please refer to Guidance Document for additional instruction.

- **Green** = Expected progress is being made towards desired conditions across 75% or more of our CFLRP project areas.
- **Yellow** = Expected progress is being made towards desired conditions across 26% - 74% of our CFLRP project areas.
- **Red** = Expected progress is being made towards desired conditions across 25% or less of our CFLRP project areas.

Ecological Indicator	Green, Yellow, or Red score and % of the CFLRP project areas resulting in measurable progress as defined above	Are you achieving your CFLRP objectives? Yes or No? If "no", briefly describe why in the box below and use the narrative section as needed.
Fish and Wildlife Habitat	Green 17.2%	Yes

Please briefly describe how you calculated your score.

Approximately 17,065 acres have been treated with uneven-aged silvicultural prescriptions in the Bluewater Project Area of the Zuni Mountain CFLRP out of 99,413 = 17.2%. Desired condition is to have 15.1% of the project area completed after 10 years. After 8 years (80%), the desired % of the project area treated is 12.1%, or 12,000 acres. The 17,065 acres treated is 142% of the desired 12,000 acres after 8 years. The 17,065 acres of uneven-aged treatments have improved

Scoring for National Reporting

Landscape-scale scoring

Few (if any) CFLRP-funded Landscapes propose to meet every proposed desired condition on every acre or achieve landscape-scale objectives through the mechanical treatment of every acre within their landscape boundary. Rather, multiple projects with multiple objectives (fire risk reduction, wildlife habitat improvement, stream restoration, etc.) should facilitate meeting these broader objectives. Scoring at the landscape-scale reflects the degree to which individual Landscapes are moving towards Desired Conditions at broader spatial extent. Landscape-scale scoring is conducted by the multi -party monitoring group at each Landscape.

"Expected progress" will be defined using 10-year benchmarks for FY 2010 projects and 8-year benchmarks for FY 2012 projects for each desired condition based on a percentage of the lifetime outcome specified for the landscape in each proposal. There may be many reasons for not scoring a "Green," including ecological and sociological considerations beyond the scope of the CFLRP project as well as recognition of unanticipated barriers or challenges. Note that scoring a "Yellow" or "Red" does not necessarily mean that work was not accomplished.

If you need to summarize scores across different desired condition targets, please refer to Guidance Document for additional instruction.

- **Green** = Expected progress is being made towards desired conditions across [5.1] % of our CFLRP landscape area.
- **Yellow** = Expected progress is being made towards desired conditions across [3.4] % of our CFLRP landscape area.
- **Red** = Expected progress is being made towards desired conditions across [1.7] % of our CFLRP landscape area.

Ecological Indicator	Green, Yellow, or Red score and % of the landscape across which progress is being made towards desired conditions	Are you achieving your CFLRP objectives? Yes or No? If "no", briefly describe why in the box below and use the narrative section as needed.
Fish and Wildlife Habitat	Green - 9.8%	Yes

Please briefly describe how you decided on the percentage thresholds used above for the scoring categories and how you calculated your score.

The 10-year goal is to treat 15,000 acres (8.6% of the 174,953 acre landscape). The Zuni Mountain CFLR is a 2012 project, so the goal for the end of 2019 is reduced to 12,000 acres (80% of 10-year goal). Approximately 17,065 acres of uneven-aged treatments have been accomplished (9.8% of the landscape). The Green threshold range for progress is 5.1% - 8.6%, the Yellow threshold range for progress is 1.8% - 5.0%, and the Red threshold range for progress is 1.7% or less.

2019 CFLRP Ecological Indicator Progress Report

Project Name: Zuni Mountain State: NM

INVASIVE SPECIES

Narrative - *Note: All boxes in this template will scroll, so you have as much space as you need*

☐ If invasive species is not part of your CFLRP proposal and landscape restoration strategy, please let us know by checking this box.

1. Did you make any changes to your desired condition(s) for invasive species as compared to the 2014 Ecological Indicator Report? Please briefly describe: **Yes** ☐ **No** ☑

2. Did you make any changes to your monitoring methodologies for invasive species as compared to the 2014 Ecological Indicator Report? Please briefly describe: **Yes** ☐ **No** ☑

3. Did you use any new or updated baseline data for evaluating your invasive species progress for the purposes of this report? Please briefly describe: **Yes** ☐ **No** ☑

4. Did your projects experience any unanticipated developments that positively or negatively affected expected progress towards your desired conditions for invasive species? (e.g. wildfire in the project area, litigation outcome, change in collaborative participation, etc.)

The Diener and Bluewater Fires in 2018 have have created greater opportunities for the introduction and spread of invasive species.

5. What were the most difficult barriers or challenges you experienced in progressing towards your desired conditions for invasive species? If you adapted to address these challenges please provide a brief description of how.

Limited personnel due to declining budgets and inability to hire a seasonal workforce. Have been able to utilize a YCC crew to accomplish some treatments.

Desired Conditions

*In this report, the term "**desired conditions**" refers to landscape and resource conditions (as defined collaboratively by stakeholders and land managers) that you are seeking to achieve and maintain for your CFLRP landscape over the next 10+ years. Desired conditions are outcome-driven not output-driven, and should link to your project's CFLRP proposal while being measurable. (Note: The term "desired condition" is used somewhat differently in the Forest Service's Land Management Planning Process. In that context, it is not time bound, and often represents long-term social, economic and ecological goals, while the term "objective" is used to represent specific, measurable and time-bound benchmarks to be achieved while working toward desired conditions in a forest plan area.) In this report, the term "**landscape**" refers to the landscape identified in your CFRLP project proposal or in subsequently-approved proposal edits. See cover page for links to guidance.*

6. Project-scale Desired Conditions Target for Invasive Species

99	% change (relative to the desired condition) occurs across	15	% of the project areas by	09/30/2019
	% change (relative to the desired condition) occurs across		% of the project areas by	

Please include 1-5 *quantifiable* desired condition statements upon which the above target is based:

Invasive species establishment will be made less likely by increasing control of populations and reducing spread across less than 1% of the landscape.

Example: Cogongrass is reduced to less than 25% cover.
Example: Using the prevention protocols on all projects, no new invasive species infestations are established.

7. Landscape-scale Desired Conditions Target for Invasive Species:

99	% change (relative to the desired condition) occurs across	9	% of the landscape area by	09/30/2019
	% change (relative to the desired condition) occurs across		% of the landscape area by	

Please include 1-5 *quantifiable* desired condition statements upon which the above target is based:

Invasive species establishment will be made less likely by increasing control of populations and reducing spread across less than 1% of the landscape.

Example: The increase in coverage of Leafy Spurge and Rush Skeletonweed is prevented on 500 acres of sensitive botanical habitat within our CFLRP landscape.
Example: All known populations of Yellow Star Thistle are contained along 100 miles of FS roads and trails within our CFLRP landscape.
Example: The presence of feral swine is surveyed and mapped on 500 acres within our CFLRP landscape.

8. Please select the categories of the broader goals related to invasive species that you are trying to achieve through your quantifiable desired condition(s):

- ☑ Inventory and Mapping
- ☐ Risk Assessment
- ☐ Prevention
- ☑ Maintenance at current levels
- ☐ Containment below thresholds
- ☑ Reduction
- ☐ Eradication
- ☐ Increased resilience. Recognizing *invasive species are not constrained to disturbed areas*, please describe your definition of resilience in an invasive species context:
- ☐ Other. Please describe:

9. For each invasive species you have addressed within your CFRLP landscape, please list the action(s)[1] you have taken to work towards your invasive species desired conditions, the acres and/or miles you have accomplished, and the efficacy of each action*:*
(All of the following data is reported in FACTS.)

Target Invasive Species	Action Taken	Land Ownership	Acres	Efficacy (%)
Bull thistle	Hand treatment, grubbing	USFS	5.6	80

[1] Actions taken to address an invasive species might include inventory & mapping, hand removal, mechanical removal, release of a biological control agent (an organism that kills the target species), ground-based herbicide application, aerial herbicide application, tarping, grazing, preventative weed wash stations, trapping invasive animals, etc.

10. Please briefly describe the specific negative impacts each of your target invasive species causes that you are trying to avoid.
These impacts can be environmental, economic, cultural, or human/animal health-related.

Out-competing native vegetation, reducing forage for wildlife and livestock.

Data and Methodology

11. Select the methodologies used to assess Project-scale (P) and Landscape-scale (L) progress towards invasive species desired conditions for this report. Select all that apply and provide a brief description of each:

P	L	
☐	☐	Aerial surveys/inventories/mapping:
☑	☐	Ground surveys/inventories/mapping:
☐	☐	Environmental sampling (wood, soil, water, infected tissue, etc.):
☑	☐	Observations of individuals: YCC Crews and Forest Range Management employees
☐	☐	Observations of damage:
☐	☐	Observation of tracks, scat, nests, etc.:
☐	☐	Trap samples:
☐	☐	eDNA:
☐	☐	Other:

12. Where is the the data that is being used for monitoring Project-scale (P) and Landscape-scale (L) progress toward invasive species desired conditions being stored? Select the databases categories that apply and provide a description of the specific datasets being used. Include links if available:

P	L	
☑	☑	GIS database:
☐	☐	County database:
☐	☐	State database:
☐	☐	Tribal database:
☐	☐	Citizen Science database:
☑	☑	Forest Inventory and Analysis (FIA) database:
☑	☑	USFS database of record (FACTS - *select performance measures*):

☑ INVPLT-NXWD-FED-AC Highest priority acres treated for noxious weeds and invasive pests ☐ INVSPE-TERR-FED-AC Highest priority acres treated for invasive terrestrial & aquatic species

☐ ☐ Other:

Project-scale scoring

From the beginning, CFLRP intended to shift towards desired conditions at the landscape-scale. As the disturbances and processes of interest occur at a landscape-scale, we need a landscape-scale assessment. It's a challenge to look at the impacts at that scale, given the scale itself as well as time delays (e.g. it takes more time to shift outcomes at landscape-scale than project-scale). While landscape-scale is the focus, project-scale assessments allow projects to bring in their monitoring data and look at treatment outcomes.

Each management action funded through CFLRP will have its own project-level objectives that are designed to contribute to achieving desired conditions at larger scales. Project-scale scoring should reflect how well the results of an individual management activity met the objectives for that project. Individual projects may not meet every desired condition of the CFLRP project. Project-scale scoring is conducted by the multi-party monitoring group following completed management activities.

An individual activity might not need to lead to a fully restored acre, but if it sets the landscape up for the next treatment it may still get a good rating. For example if a successful thinning doesn't restore a fire regime, but it sets up landscape for subsequent burns that might, it could still receive a "Green" rating. There may be many reasons for not scoring a "Green," including ecological and sociological considerations beyond the scope of the CFLRP project as well as recognition of unanticipated barriers or challenges. Note that scoring a "Yellow" or "Red" does not necessarily mean that work was not accomplished.

If you need to summarize scores across different desired condition targets, please refer to Guidance Document for additional instruction.

- **Green** = Expected progress is being made towards desired conditions across 75% or more of our CFLRP project areas.
- **Yellow** = Expected progress is being made towards desired conditions across 26% - 74% of our CFLRP project areas.
- **Red** = Expected progress is being made towards desired conditions across 25% or less of our CFLRP project areas.

Ecological Indicator	Green, Yellow, or Red score and % of the CFLRP project areas resulting in measurable progress as defined above	Are you achieving your CFLRP objectives? Yes or No? If "no", briefly describe why in the box below and use the narrative section as needed.
Invasive Species	Red - <0.01%	No

Please briefly describe how you calculated your score.

Original proposal stated that 400 acres would have initial treatment within the 8-year time frame. The average efficacy of control among the 3 northern forests in New Mexico, on average, is 80%. Therefore it was assumed that 1 acre treated amounted to 0.8 acre of increased resilience to invasive species: 400 acres * .80 = 320 acres. Green = 75% of 400 = 300 acres. Yellow = 50% of 400 = 200 acres, and Red = less than 25% of 400 acres = <100 acres. Acres accomplished in

Scoring for National Reporting

Landscape-scale scoring

Few (if any) CFLRP-funded Landscapes propose to meet every proposed desired condition on every acre or achieve landscape-scale objectives through the mechanical treatment of every acre within their landscape boundary. Rather, multiple projects with multiple objectives (fire risk reduction, wildlife habitat improvement, stream restoration, etc.) should facilitate meeting these broader objectives. Scoring at the landscape-scale reflects the degree to which individual Landscapes are moving towards Desired Conditions at broader spatial extent. Landscape-scale scoring is conducted by the multi -party monitoring group at each Landscape.

"Expected progress" will be defined using 10-year benchmarks for FY 2010 projects and 8-year benchmarks for FY 2012 projects for each desired condition based on a percentage of the lifetime outcome specified for the landscape in each proposal. There may be many reasons for not scoring a "Green," including ecological and sociological considerations beyond the scope of the CFLRP project as well as recognition of unanticipated barriers or challenges. Note that scoring a "Yellow" or "Red" does not necessarily mean that work was not accomplished.

If you need to summarize scores across different desired condition targets, please refer to Guidance Document for additional instruction.

- **Green** = Expected progress is being made towards desired conditions across .17 % of our CFLRP landscape area.
- **Yellow** = Expected progress is being made towards desired conditions across .11 % of our CFLRP landscape area.
- **Red** = Expected progress is being made towards desired conditions across .06 % of our CFLRP landscape area.

Ecological Indicator	Green, Yellow, or Red score and % of the landscape across which progress is being made towards desired conditions	Are you achieving your CFLRP objectives? Yes or No? If "no", briefly describe why in the box below and use the narrative section as needed.
Invasive Species	Red - <.06	No

Please briefly describe how you decided on the percentage thresholds used above for the scoring categories and how you calculated your score.

Green = 75% of 400 = 300 acres (.17% of landscape). Yellow = 50% of 400 = 200 acres (.11% of landscape), and Red = less than 25% of 400 acres (.11% of landscape) = <100 acres. Acres accomplished in FACTS is only 5.6, but there have been additional treatments not recorded. Even with unrecorded accomplishments the total is <100 acres. Although not achieving acres treated objectives at this point, surveys have been completed to focus future treatments.

Monitoring References and Resources

1. Briefly describe any key lessons learned about integration across these 4 ecological sub-indicators.
For example, if you planned fuels reduction treatments (Fire Regime) strategically around a Priority Watershed (Watershed Condition).

The 4 ecological sub-indicators are all interconnected and closely tied to forest condition. The Zuni Mountains are a priority landscape for the Cibola National Forest, as well as for the state of New Mexico (Forestry and Game & Fish Departments). Bluewater Lake-Bluewater Creek is a priority watershed. There are 14 watersheds in the Zuni Mountains that are rated as functioning at risk according to the Watershed Condition

2. Briefly describe the roles of the parties involved in setting the desired conditions, and collecting, assessing, and sharing the data used in this report:

Desired Conditions were derived from the best available science and evolved through adaptive management and monitoring. Monitoring data was collected by partners and contractors through volunteer and participating agreements and contracts. Contributors include The Forest Stewards Guild (data collection, assessment, contracting, facilitation and dissemination of data and information), Great Old Broads for

3. Please acknowledge the people who assisted with completing this 2019 CFLRP Ecological Indicator Report:

Forest Stewards Guild, Cibola National Forest

4. Please provide links to your past CFLRP monitoring reports developed by the USFS, partners, etc.:

http://www.zunimountainscollaborative.org/documents,
https://static1.squarespace.com/static/57a36192f5e231c1eb0805f4/t/586c36dcbebafbc7475447e4/1483486942025/CFRI-B-1609_Zuni_Treatm

Examples: Uncompahgre CFLRP Monitoring of Forest Spatial Patterns; Four Forest Restoration Initiative Bird Survey Report 2015

5. Please provide links to your CFLRP monitoring plans and any approved revisions (or include as an attachment):

http://www.zunimountainscollaborative.org/documents

Examples: Colorado Front Range Multi-Party Monitoring Plan; Dinkey Landscape Ecological Monitoring Plan

6. Please provide links to technical reports or other literature utilized in determining and assessing the desired conditions used in this report:

https://www.fs.fed.us/rm/pubs/rmrs_gtr310.pdf, http://digitalcommons.usu.edu/cgi/viewcontent.cgi?article=1293&context=barkbeetles,
https://www.nationalforests.org/assets/pdfs/Resource-New-Mexico-Forest-Restoration-Principles.pdf,

Examples: Historical Forest Attributes of the Western Blue Mountains of Oregon; Restoring Ponderosa Pine Forests of the Colorado Front Range