Appendix H – Response to Comments

Contents

Introduction

Starting October 18, 2019, the Rim Country Project DEIS was available for a 90-day comment period, ending on January 16, 2020. The Forest Service received 52 comment letters and emails from individuals; Tribal governments; Federal, State, and local agencies; organized interest groups; and businesses. Comments were received from several government agencies including Coconino County, Arizona Department of Environmental Quality, U.S. Environmental Protection Agency, and Arizona Game and Fish Department, which is a cooperating agency for the project.

All comments received on the DEIS from Federal, State, and local agencies and the public are included in this summary. This satisfies section 102 (c) of National Environmental Policy Act (NEPA), which states, "…comments and views of the appropriate Federal, State and local agencies, which are authorized to develop and enforce environmental standards, shall be made available to the President, the Council on Environmental Quality and to the public…."

The Forest Service analyzes comments to identify issues that required further or updated analysis and to identify analyses that required further clarification. All comments received were reviewed and concern statements were developed to capture the primary concerns regarding the analysis in the draft environmental impact statement. The Forest Service considered all substantive comments and used many to make changes or clarifications to the final environmental impact statement (FEIS).

How to Navigate This Appendix

All comments received on the DEIS are available for public review at: https://cara.ecosystem-management.org/Public/Letter/172405?project=34857. Per 40 CFR 1503.4, summarized responses to comments received on the DEIS are included in this appendix. The format of this document is as follows (notice formatting for each):

Resource Area: Identifies the comments main resource concern and groups comments accordingly.

Comment theme: Typically broken up by themes of clarification, general concern, best available science, etc. Unitalicized text with underline.

> **Concern Statement:** Summarizes the comments in the section. Directly under the comment theme with Bold "General Concern" label and unitalicized text.
>
> *Comments with commenter numbers: Verbatim comments. Italicized text.*
>
> Response to Comments: Forest Service responses that are directly underneath the italicized comment. Unitalicized text.

Table H-1 shows a record of all the comments received during the formal comment period on the Rim Country draft environmental impact statement.

Table H-1. Commenter names and affiliation for the draft environmental impact statement

Letter Number	First Name	Last Name	Organization
1	Duke	Grant	None
2	Avelina	Bardwell	None
3	Linda	Coleman	U-Haul
4	Carl	Ramsey	None
5	Jean	Publee	None
6	Carl	Ramsey	None
7	Carl	Ramsey	None
8	William	Griffin	None
9	Randy	Mynard	None
10	Ted	Paulk	None
11	Jay	Smith	Coconino County
12	Jim	Strogen	None
13	Jean	Publiee	None
14	Jason	Tibbitts	None
15	Michael	Pavelek	None
16	Bonnie	Boone	None
17	Tim	Hayden	Big Bug Mining District
18	Bryan	Pennington	None
19	Chris	Carl	None
20	Dorothy	Holasek	None
21	Marsha	Honn	None
22	Ryan	Bailey	LIA
23	Satkowski	Christopher	None
24	Wyman	Smith	None
25	George	Vance	None
26	Fred	Gaudet	Arizona Trail Association (ATA)
27	Delbert	Briley	None
28	Clay	Crowder	Arizona Game and Fish Department (AGFD)
29	Edwin	Slade	Arizona Department of Environmental Quality (ADEQ)
30	Anonymous	Anonymous	None
31	John	Hamill	Arizona Wildlife Federation
32	Greg	Smith	4FRI Stakeholder Group (SHG)
33	Hanna	Steadman	None
34	Abraham	Springer	Northern Arizona University Hydrogeology Research Group

Letter Number	First Name	Last Name	Organization
35	Edwin	Slade	Arizona Department of Environmental Quality (ADEQ)
36	B. Ka'imiloa	Chrisman	None
37	Edward	Smith	None
38	Vashti "Tice"	Supplee	Audubon Arizona
39	Pascal	Berlioux	Eastern Arizona Counties Organization (ECO)
40	Bruce	Hallin	Salt River Project (Salt River Project)
41	Wally	Covington	Ecological Restoration Institute (ERI)
42	Sandy	Bahr	Sierra Club - Grand Canyon Chapter
43	Michael	Spicher	None
44	Jean	Prijatel	U.S. Environmental Protection Agency (EPA)
45	Frank	Schettino	Desert Fly Casters
46	Steve	Reiter	Arizona Trout Unlimited (TU)
47	Steve	Rosenstock	Grand Canyon Trust (GCT)
48	Joe	Trudeau	Center for Biological Diversity (CBD)
49	Joseph	Trudeau	Center for Biological Diversity (CBD)
50	Ben	Burr	Blue Ribbon Coalition/Share Trails
51	Travis	Woolley	The Nature Conservancy (TNC)
52	Robin	Silver	Center for Biological Diversity (CBD)

Resource Areas

There are 41 different resource areas within this document. The table of contents above lists them with hyperlinks to each resource area section. Comments were filtered into these resource areas based on the topic of the comment. Many times, the resources are broken into specific resources (aquatics, fire, GIS). Other times, the resource area is broken into two different resource areas, for example, fire and recreation; in these instances, the comments contained information related to two or more resource areas.

Aquatics

Clarification Comments

General Concern: Commenters requested further clarification in the document. The topics of clarification include National Environmental Policy Act analysis in the future; threatened and endangered species within watersheds; and a concern regarding aquatic systems.

1. *The DEIS even admits that aquatic and watershed "Treatments …may cause effects potentially beyond the sideboards or limitations described in the original NEPA analysis" and therefore "would require subsequent NEPA analysis." Again, what's the rush, given that subsequent NEPA is foreseeable? 42.60*

   The statement is located within the aquatics and watershed condition-based management document in appendix D. The FEIS analyses aquatic and watershed restoration treatments within the bounds of the project design features and definitions for general and heavy mechanical treatments. Any implementation outside the scope of the FEIS analysis would require subsequent environmental analysis.

2. *Will watersheds with threatened and endangered species be given preferential treatment schedules to ensure that there is less risk to these species or recovery efforts of protected species? If so, do aquatic or water dependent species have the same status in this plan as other well-known endangered species? 12.17*

   Benefits to federally listed or candidate species is one of eleven items listed as considerations for prioritization of aquatic and watershed restoration treatments. Guidance for prioritization of treatments is included in the implementation plan in volume 2 of the FEIS, appendix D, Table D-3. In addition, Arizona Game and Fish Department developed a list of priority streams and springs for aquatic restoration in collaboration with the Forest Service, Trout Unlimited, and U.S. Fish and Wildlife Service to identify aquatic restoration needs and priorities within the Rim Country project area. The recommendations are based on field knowledge of site-specific conditions and goals from Arizona Game and Fish Department's applicable watershed management plans. The streams and springs are not ranked in any order but identify streams and springs to consider for restoration.

3. *Concern: restoration efforts in aquatic systems and proximate uplands must be effectively integrated. 47.43*

   Based on multiple comments to integrate aquatic and nearby upland restoration, a separate, stand-alone section in the updated implementation plan in appendix D of the FEIS was developed collaboratively with the stakeholder group specifying where and how to integrate these treatments. This section provides guidance on the spatial interpretation of where to integrate, considerations and identifies key resource areas to be involved.

4. *Prescribed burning …would be a direct alteration of garter snake critical habitat as well as potentially impacting some aquatic macroinvertebrate species." Adverse modification of critical habitat is "take" and violates the ESA. 42.224*

   Determinations for 14 aquatic federally listed or proposed species and associated critical habitat were made (if applicable) in the aquatic determination of effects section of the Aquatic Specialist report (USDA FS 2022, pgs. 111-118), biological assessment, and FEIS Volume 1 Aquatics

section. The aquatic effects included three No Effect, four May Affect, Not Likely to Adversely Affect, six May Affect, Likely to Adversely Affect, and one Not Likely to Adversely Modify determinations. Taking is determined by the U.S. Fish and Wildlife Service during Section 7 consultation under the Endangered Species Act.

5. *There doesn't seem to be a survey protocol included, which would prevent "take." 42.226*

   Surveys following guidelines in the 2012 Chiricahua leopard frog recovery plan are included in the project design criteria in appendix C of the FEIS. Taking is determined by the U.S. Fish and Wildlife Service during Section 7 consultation under the Endangered Species Act.

Analysis Comments

General Concern: Commenters requested that the Rim Country analysis fully analyze impacts to aquatic resources such as management indicator species and hydrologic impacts.

1. *The DEIS doesn't acknowledge or analyze aquatic MIS, such as native fish. Macroinvertebrates in aquatic ecosystems are also well documented indicator species. Benthic macroinvertebrates should be utilized for overall indicators of watershed health and should be included in monitoring protocols. 42.167*

   The aquatics analysis includes federally listed and sensitive species that are listed in table 5 of the Aquatic Specialist report (USDA FS 2022) and table 61 in volume 1 of the FEIS for all three forests. Under the 2012 Planning Rule, "ecological conditions" are monitored for ecosystems and at-risk species (FSH 1909.12, 32.13b). In the 2012 rule, focal species monitoring at the land management plan level replaced monitoring for MIS (management indicator species) as indicators of ecological integrity (FSH 109.12, 32. 13c). The Apache-Sitgreaves and Coconino National Forests have moved to focal species under their new land management plans. The Tonto National Forest does include management indicator species for aquatic macroinvertebrates as a combined group, the Aquatic Specialist report (pgs. 52-23, 120-121) and FEIS volume 1 Aquatics section has been updated to include the management indicator species analysis for the Tonto NF.

2. *It is important to us that prior to mechanical or fire restoration treatments on adjacent or surrounding areas, the potential hydrologic impacts of those treatments to streams, aquatic ecosystems, and riparian areas should be formally evaluated. Surrounding Treatments should be adjusted to avoid or mitigate potential adverse impacts. 45.5*

   Hydrologic effects of proposed treatments are analyzed in the Water and Riparian Resources Specialist report (USDA FS 2022) and the FEIS. The Rim Country analysis includes design features (appendix C of the FEIS) that specifically address reducing risk of adverse watershed effects through an evaluation process to be completed prior to implementation. There is also a design feature with the maximum percentage of a watershed to be treated with prescribed fire or mechanical harvest for any given year and cumulatively over 5 years.

3. *All waterways – perennial, ephemeral, or intermittent – as well as upland dry drainages, should be eligible under the EIS to receive restoration and or improvements. 46.6*

   Aquatic and watershed stream restoration treatments would occur on 402 to 694 miles of streams within the Rim Country project area. The actual stream restoration treatments would occur on fewer than the 777 total stream miles proposed within the project area based on high stream

gradient, reaches to far from a road for heavy equipment access, and project design criteria for slope restrictions. The various methods proposed are not generally used in high gradient stream reaches, therefore both general and heavy mechanical stream restoration would be limited to low and moderate gradient reaches. Distance from a road is a limiting factor for heavy mechanical stream treatments to reduce potential impacts or degradation to resources from getting heavy equipment to a site. The Rim Country analysis includes project design criteria limiting the percent slope mechanical equipment can operate on, and that criteria were also applied to clearly portray where stream restoration could occur. Based on those filters/criteria, general stream restoration can occur on 694 miles of stream and heavy mechanical restoration on 612 miles. Therefore, if stream restoration in high gradient reaches, further than one-quarter mile from a road or on steep slopes (confined canyons) would require a separate analysis.

4. *Evaluation of the hydrologic impacts of forest treatments to streams, aquatic ecosystems, and riparian areas should be done (Prioritizing and formalizing treatment plans) prior to finalizing mechanical or fire restoration prescriptions in their watersheds. 46.7*

   See response to aquatics analysis 2.

5. *"Several of the aquatic invertebrate sensitive species were not quantitatively analyzed using the resource indicators and measures. This was not possible primarily due to the species limited or unknown distributions…" This doesn't make sense, given the species' status as "Sensitive." The EIS should explain why species are listed as Sensitive (or under the ESA for that matter). 42.221*

   Resource indicators and measures were used to analyze effects to all aquatic species in chapter 3 of the FEIS and the Aquatic Specialist report. Designation of sensitive species is the responsibility of the regional forester (FSM 2670.44.4) as is recommendation of research needs (FSM 2670.44.6). Endangered Species Act listings are referenced and cited for all federally listed species; individual listing rules in the Federal Register provide U.S. Fish and Wildlife Service explanation of why particular species are listed.

6. *The DEIS does not take a hard look at the condition of the streams and water bodies in the affected watersheds and explain how those conditions contribute to fish or other aquatic species' population and trends. The DEIS does not disclose populations and population trends of Sensitive and ESA-listed aquatic species in specific analysis area streams and compare those numbers to viable populations. The DEIS doesn't disclose the existing conditions of site-specific stream reaches and activity effects on water quality, fish and other aquatic resources. The DEIS doesn't disclose information regarding the existence and effects of bed load and accumulated sediment. The DEIS doesn't analyze and disclose channel stability for specific stream reaches. The DEIS doesn't disclose the amount of existing accumulated fine and bedload sediment that remains from previous logging, road construction, livestock grazing, and other human activities. 42.240*

   The existing condition and affected environment for aquatics, water, and riparian areas are described using information that relates to the resource indicators and measures used in the analysis to provide a basis for comparison. This information includes any accumulated fine and bedload sediment in streams or riparian areas and is in the Aquatic Specialist report (pgs. 73-107) and impaired waterbodies within the project area Water and Riparian Resources Specialist report (pgs. 49-54). Extent of species and habitat presence and stream indicators as well as effects mechanisms are described in the Aquatic Specialist report (table 1 and Affected Environment pgs. 16–53) chapter 3 of the FEIS. Population viability is analyzed under the National Forest Management Act for all three land management plans. Riparian condition (proper functioning

condition) in the project area is described on pages 55-58 of the Water and Riparian Resources Specialist report.

7. *The analysis of opening ML-1 roads and associated impacts provides basic, textbook style cause-and-effect information, but doesn't suffice for analyses of impacts on gartersnake critical habitat as well as some aquatic macroinvertebrate species habitat 42.222*

   Effects to aquatic species are analyzed in chapter 3 of the FEIS volume 1 and the Aquatic Specialist report (Environmental Consequences pgs. 75-81, 115). The methodology and assumptions of the analysis area are explained along with the resource indicators and measures utilized.

8. *There is no analysis quantifying such effects [of increased sedimentation] on, for example, the ESA-listed Gila trout. 42.223*

   See response to aquatics analysis 7.

9. *There is no quantitative analysis of direct, indirect, or cumulative effects to aquatic macroinvertebrates or species. Nothing addressing metrics relating to population viability appears in the DEIS. 42.225*

   See response to aquatics analysis 7.

Cumulative Effects Comment

General Concern: Commenters requested that the EIS recognize cumulative impacts of restoration work in downstream watersheds.

1. *All drainages have an impact downstream and cumulative effects are greater moving down a watershed. The EIS and future action planning should recognize this increasing effectiveness and cumulative impact of restoration work (and the cumulative downstream risk and impact of not including protective actions on the upper reaches of any stream) moving downstream in a watershed. 46.8*

   The cumulative effects for watershed and hydrology are analyzed in the Water and Riparian Specialist report and the Water and Riparian section in chapter 3, volume 1 of the FEIS and includes design features that specifically address reducing risk of adverse watershed and downstream effects through an evaluation process to be completed prior to implementation.

Condition-Based Management Comments

General Concern: Commenters provided comments regarding the flexible toolbox approach, now called condition-based management within the DEIS. These comments consist of creating a functional relationship between the mechanical and aquatic condition-based management; a request for additional information related to streams, springs, and aquatic features; and a request for necessary compliance through the condition-based management. Integration of the mechanical treatment and aquatics and watershed condition-based management is not evident in the DEIS and is needed for balanced prioritization, review, and decision-making in planning and implementation. Watershed health may be at risk and therefore effects to aquatic resources must be disclosed.

1. *The functional relationship between the mechanical and aquatic Flexible Toolbox Approaches (FTAs) is unclear. Any subsequent NEPA document should provide an explanation of how the Aquatic and Watershed toolbox will maximize efficiencies by coordinating with mechanical treatments. 48.166*

   See response to aquatics clarification 3.

2. *Key details are missing regarding the Aquatic/Watershed Restoration FTA. Any subsequent NEPA document should provide a list of specific streams, springs, or other aquatic features that need restoration and documentation to support that need, and list and describe Watershed Restoration Action Plans and priority watershed areas. 48.167*

   Arizona Game and Fish Department developed a list of priority streams and springs for aquatic restoration in collaboration with the Forest Service, Trout Unlimited, and U.S. Fish and Wildlife Service to identify aquatic restoration needs and priorities within the Rim Country project area. The streams and springs are not ranked in any order but identify streams and springs to consider for restoration and is included in the implementation plan. Priority watersheds that occur within Rim Country are listed in Water and Riparian Specialist report. The list of priority areas for aquatic and watershed restoration provided by Arizona Game and Fish Department are included in Aquatic and Watershed Condition-Based Management (appendix D) and implementation plan (appendix D) of the FEIS.

3. *Not all streams or all stream reaches may need restoration or special treatment, but the EIS should provide the necessary compliance, through that flexible "Toolbox" approach, if restoration or special treatment on any aquatics resource in the RCP footprint is deemed appropriate over the next 20 year duration of the FEIS and ROD…45.4*

   The proposed stream restoration treatments are reduced from the 777 total stream miles to 647 miles within the project area based on high stream gradient, distance from roads for heavy equipment access, and project design criteria for slope restrictions. Rim Country analyzes 647 miles of general stream restoration and 401 of those same miles for heavy mechanical stream restoration. See responses to Aquatics, Condition-based Management, 2, and Aquatics, Clarification, 2.

4. *The DEIS does not provide for balanced review, decision making, prioritization and integration of the Aquatics and Watershed Flexible Toolbox Approach and the Mechanical Toolbox Approach for implementation planning and actions. Given the stated purpose and needs for the EIS, the impact of Mechanical treatments on aquatics resources at all levels and for all geographic areas should be an integral part of all implementation planning. An additional aspect of this concern is that a large scale and accelerated pace of mechanical operations may pose further risk to watershed health if not properly planned. 46.14*

   See response to Aquatics, Analysis, 3.

Recommendations Comments

General Concern: Commenters provided recommendations related to aquatics and watershed resources.

1. *The SHG recommends that this list of prioritized restoration projects (Appendix II) be included in the FEIS. 32.09, 39.18, 39.19*

   See response to Aquatics, Condition-based Management, 2.

2. *The SHG recommends establishing a formal coordination process between the Forest Service and stakeholders that occurs when planning watershed/aquatic restoration projects. 32.11*

   The 4FRI planning team has engaged with the Arizona Game and Fish Department in many aspects of development of condition-based management. This would continue as the project is implemented.

3. *Site specific restoration recommendations from AGFD (AGFD Aquatic Restoration Priority Treatment Table for the Rim Country DEIS (2019)) should be included in a tabular form in appendix D or as a separate appendix in the DEIS for future reference to aid implementation. 28.33*

   See response to Aquatics, Condition-based Management, 2.

4. *The Department recommends the inclusion of the AGFD Aquatic Restoration Priority Treatment Table for the Rim Country DEIS (2019) into the DEIS to minimize confusion on whether additional National Environmental Policy Act will be required in the future to accomplish priority projects. 28.4*

   See response to Aquatics, Condition-based Management, 2.

General Concern: Commenters provided comments related to compilation for potential priority aquatic projects and an agreement for the inclusion of the Arizona Game and Fish Department compilation table.

5. *The Arizona Game and Fish Department compilation table for potential priority aquatic restoration projects and stream reaches provided during the DEIS development period should be included in the EIS, as requested in the 4FRI SHG comments. All projects on that compilation table should clearly not be subject to additional NEPA to address those projects. 46.18, 47.2*

   See response to Aquatics, Condition-based Management, 2 and Aquatics, Analysis 3.

6. *Even with our agreement on the inclusion of the AZGFD Compilation table in the EIS as stated above, we continue to request, as in our scoping comments, that the restoration and improvement of all drainages, stream reaches and watersheds within the 4FRI RCP be covered for NEPA clearance regardless of classification or form of implementation, subject to consistency with the AQWFTA. 46.19*

   See response to Aquatics, Condition-based Management, 2 and Aquatics, Analysis 3.

Botany

Clarification Comments

General concern: Commenters requested clarification related to the lack of flexibility in seed mix; weed wash for contractors, species of concern; a request for scientific names; and more clarity on the use of Bebb's willow as a key monitoring need and surveys of rare plants.

1. *USFS should allow for flexibility during restoration if native seed mix is not available and provide reasonable alternatives. 40.83*

   The use of native plant materials is regulated by Forest Service Manual Direction FSM 2070 Part FSM 2070.2 which outlines the objectives for the use of native plant materials in revegetation, rehabilitation, and restoration of both aquatic and terrestrial ecosystems. There are four objectives in the section that would be followed during implementation.

Objective number 1 focuses on maintaining, restoring or rehabilitating native ecosystems so that they are self-sustaining, resistant to invasion by non-native invasive species and/or provide habitat for a broad range of species including, threatened, endangered, and rare species. Objective number 2 seeks to maintain adequate protection for soil and water resources, through timely and effective revegetation of disturbed sites that could not be restored naturally. Objective number 3 specifically addresses the use of native plant materials in restoration which is the driving force of this project. It states, "Promote the use of native plant materials for the revegetation, rehabilitation and restoration of native ecosystems." Objective number 4 goes on to promote the use of appropriate use and availability of both native and non-native plant materials. Collectively this direction seeks to assure that plant materials that are appropriate for the conditions of the site are used but does not rule out the use of non-native species if native materials are not available. The Forest Service recognizes that native seed may cost more but is usually more appropriate for restoration. More information can be found at this link including regulation and policy https://www.fs.fed.us/wildflowers/Native_Plant_Materials/policy.shtml.

2. *We would like to see that the description match the purpose and that contractors are only required to wash equipment when that equipment initially enters into NFS land and not be required to wash equipment when moving from one cutting unit to another. 11.2*

   The purpose of this mitigation is to prevent the introduction of noxious or invasive weeds into the Rim Country project area from soil, plant fragments and seeds that may be transported on equipment entering the area. The interdisciplinary team reviewed the resources listed in the comment and agree that the mitigation cited in the comment can be rewritten to allow the movement between units without washing on site unless the area is infested with weeds. This mitigation applies only to species listed in tables 17, 18, and 19 in the Botany Specialist report and does not apply to common weedy species.

   Guidance for vehicle washing on the Coconino National Forest can be found in appendix B of the FEIS for Integrated Treatment of Noxious or Invasive Weeds Coconino, Kaibab, and Prescott National Forests within Coconino, Gila, Mojave, and Yavapai Counties, Arizona (2005), Best Management Practices. Objective 2 in the table seeks to avoid or remove sources of weed seed and propagules to prevent new weed infestations and the spread of existing weeds. Best management practice 2.3 states that mud, dirt, and plant parts will be removed from project equipment before moving it into a new project area. It does not apply to service vehicles traveling in and out of the project area that will remain on clean roadways. Best management practice 2.4 states that equipment should be cleaned if it has been operating in an area infested with weeds before moving from the unit.

   Guidance for vehicle cleaning is similar on the Apache Sitgreaves Environmental Assessment for the A-SNFs Integrated Forest-Wide Noxious or Invasive Weed Management Program (2008) appendix A table 1, objective 2-part b states "Plan operating areas and access routes to avoid heavy infestation areas, plan closure of access routes at finish of project, and/or begin project operations in uninfested areas before operating in noxious and invasive weed-infested areas. Locate and use noxious and invasive weed-free project staging areas. Avoid or minimize all types of travel through noxious and invasive weed-infested areas or restrict to those periods when spread of seed or propagules are least likely." Objective 2-part c directs cleaning of project equipment before entering National Forest System lands. It states "Remove mud, dirt and plant parts from project equipment before moving it into a project area. Determine the need for and

when appropriate, identify sites where equipment can be cleaned. Clean all equipment before entering National Forest System lands."

The Tonto National Forest Environmental Assessment for Integrated Treatment of Noxious or Invasive Plants (2008), appendix A uses a toolbox approach and uses contract provisions to guide vehicle cleaning on timber sale activities.

NW002	Prevent spread of potential and existing noxious or invasive weeds by vehicles and equipment used in management activities by washing vehicles and equipment to remove seeds, soil, vegetative matter, and other debris that could contain or hold seeds prior to entering the project area and when moving from one treatment unit to another. For example, see timber sale contract provision 2400-6/6T B/BT6.35.

3. *Additionally, are there any agreements with USFWS on the species of concern that should be addressed in the Botany Specialist report? 41.21*

   There have been past agreements for some species that are currently expired, and there are no current agreements for plant species within the project area that need to be addressed in this analysis. Arizona bugbane (*Cimicifuga arizonica*) and Blumer's dock (*Rumex orthoneurus*) had conservation agreements and strategies in the past but all are expired. Blumer's Dock was proposed for listing as a threatened species, but the action was withdrawn in 1999.

4. *For future review, please add plant scientific names. 41.22*

   Traditionally, scientific names are used only at the beginning of the document or discussion. After that the plant is mentioned by common name only.

5. *The ERI seeks clarity on the use of Bebb's willow as a key monitoring need. There is the Arizona willow (Salix arizonica) that is G2 (imperiled) and S2 in Arizona, and may warrant extra monitoring; however, Bebb's willow is more stable. 41.23*

   The interdisciplinary team found no records of Arizona willow occurring in the Rim Country project area, so it was not considered. Bebb's willow is a Southwestern Region sensitive species for the Coconino and Apache Sitgreaves National Forests and was included in the analysis. Management actions in the Rim Country project provide opportunities to restore riparian woody species especially in spring and stream restoration areas. The Apache-Sitgreaves National Forest has implemented localized restoration of willows and other species. See the existing condition section of the Botany Specialist Report (table 9) for specific areas where restoration activities have been initiated in the past. Many of these areas are suitable for partnership involvement, especially in areas where fence repair and maintenance are problematic.

6. *The DEIS does not indicate how surveys of rare plants would be conducted. It has no analysis of population trends. And analysis of the cumulative effects of past management actions is missing.42.328*

   Surveys are described on pages 36–37 of the Botany/Weeds Specialist report. To understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects and

is consistent with National Environmental Policy Act (NEPA) Regulations (36 CFR 220.4(f)) (July 24, 2008).

Analysis Comment

General concern: Commenters requested that analysis be done on adverse ecological impacts of herbicide treatments as well as an analysis on the species of concern.

7. *The DEIS does not analyze and disclose adverse ecological impacts of herbicides treatments on native species. 42.333*

   Herbicide treatments in the Rim Country project would not target native plant species, and mitigation measures in appendix C of the FEIS (NW001-NW008) are designed to focus treatments on target species. The effects of herbicide treatments on native plants and animals have been addressed in each Forest's authorization for the control of noxious or invasive weeds. Guidance and mitigation from those documents, as mentioned in clarification comment 2 above, have been incorporated by reference and there are several mitigation measures and design features included in this project. Herbicides used in treatments on national forest lands in Arizona must be approved for use by the Environmental Protection Agency and State of Arizona and must be used according to direction provided on the chemical label.

Best Available Science and Reference Comment

General concern: Commenters requested that the paper MR-R3-01-2 be cited in the EIS as it is pertinent to the Apache-Sitgreaves National Forest.

1. *This paper is not cited but is specific to the Apache-Sitgreaves National Forest: White, M. 2008. Field guide to noxious and invasive weeds known to occur or are potentially occurring on the Apache-Sitgreaves National Forest. USDA Forest Service. MR-R3-01-2. 41.24*

   The recommended publication MR-R3-01-2 was not used by the botany specialist for this analysis. Instead, the specialist used information from the Apache-Sitgreaves Forest Land Management Plan (2016) and current survey data to determine the species that are present in the project area on the Apache-Sitgreaves National Forest. This publication has been added as a reference for the Botany Specialist Report as it supports the list of plant species currently included in the analysis.

Recommendations Comments

General concern: Commenters provided recommendations for the EIS regarding re-wording a sentence in the EIS and more rationale for selection species for evaluation in the EIS.

1. *U.S. Forest Service states that "Any negative effects on these species from management actions will be mitigated and plant numbers will remain the same or increase." SRP recommends that USFS slightly revise the statement to state that "Negative effects on these species from management actions will be mitigated and that the goal is for plant numbers to remain the same or increase." 40.15*

   The specific sentence within the FEIS has been revised as requested by the commenter.

2. *The ERI recommends a more careful evaluation of rare plant species for the RC EIS, in particular on the Apache-Sitgreaves National Forest. We recommend including in the specialist report the rationale for selecting species pp. 44-46. We recommend utilizing the AZ Game and Fish Department Heritage Database and include additional resources here to help understand the rare listings that are known in the project area. 41.19*

   The Rim Country analysis is limited to those species that are on the Southwestern Regional Forester's sensitive species list and are required to be analyzed. Species of concern will eventually become part of all the land management plans for the three forests but are not yet incorporated.

3. *Included here are species of concern based on ERI research on the Apache-Sitgreaves*

   a. *Allium gooddingii*
   b. *Castilleja mogollonica – Endemic to southern Apache Co.*
   c. *Brickellia rusbyi*
   d. *Gentianella wislizeni – 3 collections in state. One in Greenlee Co.*
   e. *Hieracium bryipilum*
   f. *Heuchera glomerulata – Several from Greenlee Co.*
   g. *Packera cardamine*
   h. *Senecio quarens*
   i. *Trifolium neurphyllum 41.20*

   The project botanist reviewed the latest version of the Heritage Database and found no occurrences of the species mentioned by the commenter. These data were collected from other sources including SEINet, USDA Plants, and NatureServe and the following is the information gathered on the species mentioned in the comment:

   a. *Allium gooddingii* – The botanist reviewed the literature and occurrence records and found no records to support its existence in the project area. There could be suitable habitat for the species within the project area; however, most populations are distributed in eastern Arizona with a few disjunct sites in southern and northern Arizona.

   b. *Castilleja mogollonica* – Endemic to southern Apache County. This species has been combined with several others to become *Castilleja sulphurea* so it would have appeared more common when the interdisciplinary team was screening species for the Botany Report. Sources of data are SEINet, USDA Plants and NatureServe. NatureServe ranking is G5SNR, so it is considered a common plant.

   c. *Brickellia rusbyi* – There are no records for this species within the project area. However, there is a potential occurrence as there have been records in other parts of the Sierra Anchas on the Tonto National Forest.

   d. *Gentianella wislizeni* – There are no records for this species within the project area. However, there are known occurrences on the Apache-Sitgreaves NF so there is a potential for occurrence.

e. *Hieracium bryipilum* – The Forest Service assumes the commenter was referring to *Hieracium brevipilum* syn. *Hieracium fendleri* var. *mogollense*. There are no records for this species within the project area.

f. *Heuchera glomerulata* – There are no records for this species within the project area. This species is unlikely to occur within the project area, as this species is more or less geographically restricted to central and southeastern Arizona, the most northern distribution of this species on the Tonto is located within the Superstition Mountains.

g. *Packera cardamine* – There are no records for this species within the project area. There is low likelihood for undocumented occurrences of this species within the project area – most plants are restricted to eastern Arizona, White Mountains, and in to New Mexico.

h. *Senecio quaerens* – We assume that the commenter is referring to *Packera quaerens*. Many of the species in the genus *Senecio* have been combined with the genus *Packera* including this one. Additionally, *Packera quaerens* is now included in *Packera hartiana*, a more common and widespread species (Robert Sivinski in New Mexico Rare Plants online). There are numerous collections of *P. hartiana* within the Rim Country project boundary. The species is rated as G3S3 in NatureServe (vulnerable) but does not have status as a Southwestern Regional Forester's sensitive species for the forests within the project area.

i. *Trifolium neurophyllum* – This species occurs within the project area in one location. This is the only documented occurrence in the project area, all other occurrences are in eastern Arizona at the White Mountains.

Climate Change

Clarification Comments

General Concern: Commenters requested clarification on several items. The DEIS fails to quantify greenhouse gas emissions and carbon storage effects resulting from project implementation. There is no disclosure of climate changes effects to the existing conditions and how climate change may affect the proposed activities, nor how this project would affect climate change.

1. *The DEIS fails to quantify CO2 and other greenhouse gas emissions from other common human activities related to forest management and recreational uses. These include emissions associated with machines used for logging and associated activities, vehicle use for administrative action, recreation motor vehicles, and emissions associated with livestock grazing. The FS is simply ignoring the climate impacts of these management and other authorized or allowed activities. 42.277*

   The potential effect climate change to proposed activities are addressed throughout chapter 3 of the FEIS. In 2009, the Forest Service established policy direction for climate change considerations in project-level National Environmental Policy Act analysis (Climate Change Considerations in Project Level National Environmental Policy Act Analysis January 13, 2009). The policy calls for addressing climate change through two types of climate change effects analysis in National Environmental Policy Act documentation when appropriate.

   a. The effect of a proposed project on climate change (greenhouse gas emissions and carbon cycling). Examples include short-term greenhouse gas emissions and alteration to the carbon cycle caused by hazardous fuels reduction projects and avoiding large greenhouse gas

emissions pulses and effects to the carbon cycle by thinning overstocked stands to increase forest resilience and decrease the potential for large scale wildfire. In the FEIS the effects of the project on the climate are primarily discussed in the Chapter 3 Climate Change - Carbon Storage section. Emissions from equipment use is discussed in chapter 3 of the FEIS, Air Quality, Environmental Consequences Alternative 1 – No Action: "Equipment use over the approximately twenty-year implementation timeframe of the project would include only tens of gasoline or diesel fuel-powered vehicles and specialized tree harvesting equipment on any given day, spread out over a large area. Therefore, the amount of emissions the equipment would produce would be insignificantly small and generally unknowable because it is not known at this time exactly where, when and how many acres would be treated on any given day, and the number of and types of vehicles or equipment that would be used, and their hours of operation. In most circumstances vehicle and equipment emissions disperse rapidly and in the potential concentrations caused by only tens of vehicles or equipment would not cause NAAQS exceedances." Concerning emissions from recreational vehicle use and the permitting of livestock grazing on National Forest System lands, management decisions about these topics have already been decided that cover or include the proposed project area and are addressed in the land management plans and National Environmental Policy Act documentation outside the scope of the Rim Country project analysis.

b. The effect of climate change on a proposed project. Example: effects of expected shifts in rainfall and temperature patterns on the seed stock selection for reforestation after timber harvest and effects of decreased snowfall and increasing earlier snow run-off. In the FEIS the effects of climate change to natural resources are addressed under various resource areas effects analysis.

2. *The DEIS fails to analyze how proposed management actions would be affected by likely climate change scenarios. The FS doesn't quantify all human-caused CO2 emissions for all management activities. The FS doesn't quantify carbon sequestration for each alternative. The FS doesn't disclose how climate change has affected ecological conditions in the analysis area and include an analysis of these conditions under climate change scenarios. 42.287*

   The FEIS Chapter 3 Air Quality section shows the analysis of potential project produced greenhouse gases under various *scenarios.* The FEIS Chapter 3 Climate Change - Carbon Storage section shows a comparison between the alternatives of total above and below ground carbon stores in 2019, 2029, 2039 and 2049. In the FEIS, the effects of climate change to natural resources are addressed under various resource areas effects analysis.

3. *Despite the magnitude of the climate change problem, the DEIS provides practically no analysis on the subject. And as with its analyses for most other resources, science that disagrees with FS conclusions are ignored or misrepresented 42.274*

   The FEIS Chapter 3 Air Quality section shows the analysis of potential project produced greenhouse gases under various scenarios. The FEIS Chapter 3 Climate Change - Carbon Storage section shows a comparison between the alternatives of total above and below ground carbon stores in 2019, 2029, 2039 and 2049. In the FEIS, the effects of climate change to natural resources are addressed under various resource areas effects analysis.

4. *Furthermore, there's absolutely no cumulative effects analysis in this DEIS section. The DEIS includes no cumulative effects analysis of Rim Country carbon sequestration over time. We request the FS create line graphs with carbon storage on the vertical axis, time on the horizontal access—one*

graph for each combination of forest type, biophysical setting, age class, size class etc., and also for the entire analysis area, for each alternative, extending out for 100 years or so—based upon best available science. 42.274

The FEIS Chapter 3 Climate Change - Carbon Storage section shows a comparison between the alternatives of total above and below ground carbon stores in 2019, 2029, 2039 and 2049.

5. *Nitrous oxide, a by-product generated by the microbial breakdown of nitrogen in livestock manure, is a potent greenhouse gas completely ignored by the FS. Also, the digestion of organic materials by livestock is a large source of methane emission—another greenhouse gas not even mentioned. Methane is a far more potent substance than CO2 causing climate change 42.278*

   Concerning emissions from the permitting of livestock grazing on National Forest System lands, management decisions about this topic have already been decided that cover or include the proposed project area and are addressed in the land management plans and National Environmental Policy Act documentation outside the scope of the Rim Country project analysis.

General concern: Commenters requested recent literature be included in regarding temporal carbon outcomes and spatial scale prioritization.

6. *Specific concerns are that combined with the lack of detail there is mention of "concerns" around mistletoe, resilience, and climate change without scientific citations. In addition, the Silviculture Specialist report focuses a fair bit on carbon stocks, recent literature (e.g., McCauley et al. 2019) should be reviewed and included, particularly with relation to temporal carbon outcomes, as well as spatial scale and prioritization. 51.4*

   Moisture stress may be more common under a changing climate due to an increase in temperatures and/or drought. Literature associated with the effects of dwarf mistletoe on resilience to drought and insects has been incorporated into the silviculture section, chapter 3, of the FEIS. Additionally, McCauley et al. (2019) has been incorporated into literature reviewed.

General concern: Commenters requested re-wording of a sentence in the EIS.

7. *USFS states that "Future Climate models for the southwestern United States predict warmer and drier conditions (Seager et al. 2007)." While most climate models predict warmer conditions, it does not necessarily indicate drier conditions for the entire southwest (possibly changing when precipitation is received). USFS should revise the statement to stated that "Future Climate models for the southwestern United states predict warmer conditions and varying precipitation." SRP has included statements from more recent and more regional information that USFS could include. 40.10*

   The FEIS Chapter 3 Terrestrial Wildlife and the effects analysis report discusses the Climate Change Vulnerability Assessment for the Coconino National Forest and Rim Country project area (USDA FS 2017).

<u>Analysis Comments</u>

General concern: Commenters requested analysis around climate change effects in the EIS.

1. *The DEIS provides practically no analysis on the subject of climate change and science that disagrees with FS conclusions are ignored or misrepresented. 42.274*

The FEIS Chapter 3 Air Quality section shows the analysis of potential project produced greenhouse gases under various scenarios. The FEIS Chapter 3 Climate Change - Carbon Storage section shows a comparison between the alternatives of total above and below ground carbon stores in 2019, 2029, 2039 and 2049. In the FEIS the effects of climate change to natural resources are addressed under various resource areas effects analysis.

2. *Within the document we believe there is an opportunity to enhance the analysis, discussion, and integration of climate change effects at different scales with regards to tree growth, tree mortality, and overall resilience of forested systems. 51.2*

   In the FEIS, the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the FEIS Vegetation, Fire Ecology and Terrestrial Wildlife sections for more discussion. The vegetation modeling used FVS-Climate to simulate the effects of climate change on tree growth and mortality.

3. *The DEIS Natural Range of Variability analysis ignores climate change effects. 42.275*

   In the FEIS the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the Vegetation, Fire Ecology and Terrestrial Wildlife sections for more discussion.

4. *The FS fails to analyze and disclose conditions we can realistically expect as heat trapped by increasing greenhouse gas concentrations steadily tightens its grip—and impacts on forests accrue locally, regionally, nationally, and globally. 42.283*

   In the FEIS the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the Vegetation, Fire Ecology and Terrestrial Wildlife sections for more discussion. The vegetation modeling used FVS-Climate to simulate the effects of climate change on tree growth and mortality.

5. *The desired conditions approach fails to consider climate change. The DEIS states, "climatic models for the southwestern U.S. predict continued warming, greater variability in precipitation, and increased drought. ...A changing climate may lead to large shifts and contractions in the range of dominant trees throughout much of the region (Kane et al, 2014)." However, the DEIS fails to consider the effects of climate change likely means many of the vegetation desired conditions will not be achievable or sustainable, and therefore provide invalid and unwise direction for management actions. The DEIS dismisses this key issue, stating "These climatic changes would likely contribute to some level of tree mortality; however, considerably less than the No Action Alt." The DEIS simply fails to provide any credible analysis as to how realistic and achievable its desired conditions are in the context of a rapidly changing climate, along an unpredictable but changing trajectory. 42.132*

   In the FEIS, the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the Climate Change, Silviculture, Fire Ecology, and Terrestrial Wildlife sections for more discussion. In addition, the desired conditions for vegetation are built upon data and modeling that incorporates impacts from stressors (such as climate change). ERUs and PNVTs are the spatial output of this information and represent where these desired conditions should occur. For that reason, the multiple scales for vegetation desired conditions are designed to be achievable over the life of the project.

6. *Clearly, the FS is not considering best available science on this topic. 42.280 The FS has not reexamined assumptions in the relating to timber suitability, resilience and sustainability as a result of recent fires, past regeneration success/failures, and climate-risk science. 42.281*

   In the FEIS the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the Climate Change, Vegetation and Fire Ecology sections for more discussion.

7. *The definition of resilience changed between the Proposed Action and iterations within the DEIS. The most important discrepancy is the elimination of climate change as a natural disturbance that is buffered by increased resiliency. This reference to climate change was removed from the DEIS in the opening summary but is still present in Chapter 1. The Proposed Action cites the Forest Service Manual which states that "[r]esilient ecosystems have greater capacity to survive disturbances and large-scale threats, especially under changing and uncertain future environmental conditions, such as those driven by climate change and human uses."…Consistent with FSM 2020.5, and the best available science on restoration ecology, reference to climate change should be returned to the initial discussion of resilience in the DEIS's opening summary, consistent with the definition in Chapter 1. 48.3, 48.4*

   In the FEIS the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the Climate Change, Vegetation and Fire Ecology sections for more discussion.

<u>Recommendation Comments</u>

General concern: Commenters provided recommendations related to climate change throughout the EIS analysis.

1. *SRP recommends that USFS revise this section to provide an analysis for each alternative (or include statements that compare alternatives). 40.68*

   The FEIS Chapter 3 Air Quality section shows the analysis of potential project produced greenhouse gases under various scenarios. The FEIS Chapter 3 Climate Change - Carbon Storage section shows a comparison between the alternatives of total above and below ground carbon stores in 2019, 2029, 2039 and 2049. In the FEIS the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the Climate Change, Vegetation, Fire Ecology and Terrestrial Wildlife sections for more discussion.

2. *SRP suggests USFS include a statement in the beginning of the section to explain to the public that resource specific climate change analysis is included in the resource sections and that this section addresses carbon sequestration. 40.67*

   The FEIS Chapter 3 Air Quality section shows the analysis of potential project produced greenhouse gases under various scenarios. The FEIS Chapter 3 Climate Change - Carbon Storage section shows a comparison between the alternatives of total above and below ground carbon stores in 2019, 2029, 2039 and 2049. In the FEIS, the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the Climate Change, Vegetation, Fire Ecology and Terrestrial Wildlife sections for more discussion.

3. *USFS should include a section on the affected environment and current conditions related to carbon sequestration. 40.71, 40.70*

The FEIS Chapter 3 Climate Change - Carbon Storage section shows a comparison between the alternatives of total above and below ground carbon stores in 2019, 2029, 2039 and 2049.

4. *The existing discussion revolves around bark beetles, old-trees, mistletoe, and carbon stocks in the Silviculture Specialist report, with some references to specific wildlife habitat and species effects. This could be brought more into the language in Vol 1 and Vol 2 to summarize the overall risks associated with climate change, as well as the various outcomes of the alternatives, as much of this is only found in various specialist reports. 51.3*

   The FEIS Chapter 3 Climate Change - Carbon Storage section shows a comparison between the alternatives of total above and below ground carbon stores in 2019, 2029, 2039 and 2049. In the FEIS the effects of climate change to natural resources are addressed under various resource areas effects analysis. See the Climate Change, Vegetation, Fire Ecology and Terrestrial Wildlife sections for more discussion.

5. *USFS states that "Future Climate models for the southwestern United States predict warmer and drier conditions (Seager et al. 2007)". While most climate models predict warmer conditions, it does not necessarily indicate drier conditions for the entire southwest (possibly changing when precipitation is received). USFS should revise the statement to states that "Future Climate mode ls for the southwestern United States predict warmer conditions and varying precipitation." SRP has included statements from more recent and more regional information that USFS could include. 40.101*

   The FEIS Chapter 3 Terrestrial Wildlife and the effects analysis report discusses the Climate Change Vulnerability Assessment for the Coconino National Forest and Rim Country project area (USDA FS 2017).

6. *The FS can best address climate change through minimizing development of forest stands, especially stands that have not been previously logged, by allowing natural processes to function.42.288*

   In the FEIS Chapter 3, see the Climate Change, Vegetation, and Fire Ecology sections.

Cumulative Effects Comment

General concern: Commenters requested cumulative impacts be further considered. A commenter also requests that the citations be updated.

1. *This section also lacked analysis of cumulative impacts of other projects outside of the DEIS but are within the project footprint. Update citations and address comments provided. Ensure section is in accordance with USFS guidance on climate change analysis (https://www.fs.usda.gov/ccrc/topics/environmental-analysis- NEPA). 28.12*

   The FEIS discloses project-level estimated greenhouse emissions and changes to stored carbon over time.

References Comment

General concern: Commenters requested citations be added to the sentence stated below.

1. *Summarize and provide references to climate change-related discussions, methods, and assumptions discussed elsewhere in the EIS. Provide a citation for the following statement - "High severity fire in ponderosa pine forests releases large quantities of CO2 to the atmosphere. The emissions below are*

associated with ponderosa within an existing, healthy fire regime. Far more carbon is stored in the healthy ponderosa pine forest than the area recovering from a high severity fire." 28.18

The FEIS Chapter 3 Air Quality section shows the analysis of potential project-produced greenhouse gases under various scenarios.

Climate Change and Fire

Analysis Comments

General Concern: Commenters indicated items they would like to see in the environmental impact statement analysis. These comments are related to uncharacteristic fires; lack of information regarding fire regimes changing; and the effects of climate change impacts on recent fire and vegetation imbalance.

1. *The draft environmental impact statement at p. 218 uses the 2002 Rodeo-Chedeski Fire as an example of "an uncharacteristic fire." Apparently, the draft environmental impact statement doesn't consider that climate change was already affecting the landscape, or what seasonal weather variables might have been factors. And the draft environmental impact statement doesn't even provide an analysis of the pre-Rodeo-Chedeski Fire landscape, which the narrative implicates in these "uncharacteristic" effects. 42.101*

   The FEIS and Fire Ecology Specialist report have been updated to reflect the impacts of contemporary climates on uncharacteristic fire including the Rodeo-Chedeski Fire. The area of the Rodeo-Chedeski Fire in the Rim Country project boundary is part of the existing conditions for the Rim Country analysis.

2. *And it would be reasonable to inquire if the effects of climate change, seasonal weather variation or simply the temperature and wind had any influence on the extent, severity, and impacts of the recent fires as much or more than the alleged imbalance in vegetation. Lacking any mention in the draft environmental impact statement, it appears the Forest Service has not investigated such effects on recent fires in and around the analysis area. 42.113*

   Additional information has been added to the FEIS and Fire Ecology Specialist report to clarify the role of climate change in contributing to the extent, severity and impacts of recent fires. Recent fires in the Rim Country project boundary are part of the existing conditions for the Rim Country analysis.

3. *The DEIS also fails to recognize the implications of how the fire regime is changing due to climate change…So their endorsement of approaches such as found in this CFLR Plan is weak at best, mainly "with respect to sustaining these forests through the near-term…while research and management develop options for whatever the future might bring." It's the recognition of this uncertainty that should have tempered the draft environmental impact statement's overly authoritarian stance on "increasing resilience to wildland fire" 42.114*

   Additional clarifying language has been added to better describe the resilience goals of the management actions and the role and value of historically derived range of variation estimates as measures of ecological integrity.

Climate Change and Silviculture

Analysis Comments

General concern: Commenters requested inconsistencies throughout the analysis be addressed.

1. *The DEIS provides inadequate information and analysis on climate change effects on analysis area vegetation. 42.276*

   The vegetation analysis incorporated FVS-Climate to simulate the effects of climate change on vegetation. This is disclosed in the Vegetation section of the FEIS.

2. *The DEIS fails to assess and disclose all risks associated with vegetative-manipulation as proposed. 42.284*

   The FEIS incorporates the best scientific information available including many publications that suggest the risks of vegetation manipulation including Allen et al. (2007). Not all risks are reasonable to analyze and the FEIS included those determined reasonable.

Clarification Comment

General concern: Commenters provided a statement that may require clarification to be added to the EIS.

1. *Extensive deforestation and bulldozing roads exacerbate climate change effects—causing hotter, drier, windier local site conditions, changing local microclimate conditions. Cleared areas lose protective vegetation cover to buffer extreme rainfall or other weather events. With earlier snowmelt and runoff predicted under climate change, watersheds dry out earlier, lengthening the fire season, and perennial flows are reduced. Cattle cause soil and microbiotic crust disturbance, accelerating site drying and erosion, soil compaction, and other impacts. This reduces the capacity of the watershed and drainage networks to absorb and slowly release water in sustainable perennial flows. Soils disturbed by logging, skidding, road bulldozing, and burning, considered cumulatively with ongoing cattle grazing and trampling disturbances, will be prone to rapid snowmelt runoff and erosion into drainage networks. Drainages subject to these kinds of cumulative ecological stressors increasingly erode, downcut, suffer accelerated runoff, and lose water holding capacity. With the advent of climate change, air temperature increases, altered precipitation patterns, and drought periods are expected to become more frequent. One effective means of ameliorating the effects of climate change on ecosystems is to reduce environmental stressors under management control, such as land and water uses (Beschta et al. 2012). Climate change and ungulates, singly and in concert, influence ecosystems at the most fundamental levels by affecting soils and hydrologic processes. These effects, in turn, influence many other ecosystem components and processes—nutrient and energy cycles; reproduction, survival, and abundance of terrestrial and aquatic species; and community structure and composition. Moreover, by altering so many factors crucial to ecosystem functioning, the combined effects of a changing climate and ungulate use can affect biodiversity at scales ranging from species to ecosystems and limit the capability of large areas to supply ecosystem services (Christensen and others, 1996; Millennium Ecosystem Assessment, 2005b; Beschta et al. 2012). 42.79*

   The project does not propose to implement any long-term deforestation, with proposed activities favoring long-term maintenance of forest cover. The FEIS Chapter 3 discusses the effects of climate change to natural resources and are addressed under various resource areas effects

analysis. See the Climate Change, Vegetation, Fire Ecology and Terrestrial Wildlife sections for more discussion.

Collaboration

General Comments

General Concern: Commenters provided comments related to specialist reports and the request for continued collaboration regarding adaptive management and monitoring efforts.

1. *According to the various specialist reports and the Adaptive Management and Monitoring Plan, no physical stream measurements will be taken to determine the impacts of management actions or the effectiveness of these restoration activities on water quality… we encourage the 4FRI Collaborative Stakeholder Group and its Multi-party Monitoring Board to continue seeking out collaborations with non-member stakeholders to gather quantitative water quality data to document treatment effectiveness and inform adaptive management. 29.7*

   The 4FRI monitoring program works closely with the stakeholder group and the multi-party monitoring board to gather various types of data to document treatment effectiveness and inform adaptive management.

General Concern: Commenters provided a comment related to collaboration and the Arizona Game and Fish Department's role as a cooperating agency.

2. *Consistent with the CFLRP and the Department's Cooperating Agency status, the Department also requests to be engaged in all aspects of 4FRI to assist with planning and implementing treatments. 28.12*

   The Arizona Game and Fish Department has a memorandum of understanding with the Forest Service to serve as a cooperating agency and has been actively engaged with the interdisciplinary team on the Rim Country Project regarding planning and implementing treatments. Future engagement and assistance would continue.

General Concern: One commenter requests development and adoption of a collaboration framework for implementation to ensure stakeholder expectations are addressed.

3. *There is uncertainty about the degree to which treatment outcomes will comport with CFLRP requirements and stakeholder expectations… The SHG feels this need is best addressed by more effective coordination among Forest Service staff on the Planning Team and at Forest/District level, and by creating a formal mechanism for collaborative engagement during implementation… The SHG recommends that the Forest Service work with stakeholders to develop an appropriate framework for this. A recent, informative example is attached in Appendix V (Spruce Beetle Epidemic-Aspen Decline EIS, Grand Mesa, Uncompahgre, and Gunnison National Forest). 32.31*

   The 4FRI forests and the interdisciplinary team have been working closely with the stakeholder group regarding implementation and meeting Collaborative Forest Landscape Restoration Act requirements. The 4FRI planning team has worked extensively with the stakeholder working group regarding updates for the FEIS, including the implementation and monitoring plans, which includes collaborative engagement when the project is implemented. The Forest Service is willing to update the memorandum of understanding with the stakeholder group based on the request in the comment, and this would occur outside of the National Environmental Policy Act process.

4. *The framework for stakeholder engagement should be memorialized in a manner that is binding and ensures follow-through. The Forest Service agreed to research this question and provide appropriate guidance, that the SHG recommends be carried forward with appropriate placement in the FEIS. 32.32*

   See response to Collaboration, General, 3.

5. *Collaborative implementation should be bolstered by mechanisms outside the RC DEIS. It was suggested that the 4FRI Memorandum of Understanding could be revised to meet this need. The SHG concurs and commits to working with the Forest Service and other partners on a potential revision of the MOU. 32.33*

   See response to Collaboration General, 3.

General Concern: Collaboration should be formalized in a framework for stakeholder engagement and occur such that stakeholders are supportive of mechanical treatment locations, design, and effects analyses, and modifications for large tree retention be made if needed to meet stakeholder expectations. The stakeholder engagement process during implementation must meet Collaborative Forest Landscape Restoration Act requirements and stakeholder expectations.

6. *Early iterations of the Rim Country Proposed Action included proposals for extremely aggressive mechanical thinning treatments outside the WUI -- aka "Full Restoration," "Extended Duration Restoration," etc. These were developed independently by the Forest Service and added to the Proposed Action without stakeholder concurrence, which in itself created considerable consternation. 47.45, 47.46*

   The 4FRI planning team addressed comments received on the proposed action during the scoping period. Modifications to the proposed action such as changing the intensity of mechanical thinning treatments were developed in response to scoping comments. The 4FRI planning team shared these updates during collaborative work sessions with the stakeholder working group. Neither the DEIS nor the FEIS includes the use of treatments such as “Extended Duration Restoration” treatments. See the Alternative Development section, Chapter 2 in the FEIS for more information.

7. *Concern: mechanical treatment designs and associated analyses of their effects must be clearly interpretable and supported by stakeholders. 47.50*

   Mechanical treatment designs and the effects analysis were provided to the stakeholder group prior to the DEIS comment period. The 4FRI planning team coordinated this information with the stakeholder group and had multiple meetings to discuss these aspects of the project. The planning working group, a chartered committee within the stakeholders group worked closely with the Forest Service to develop these mechanical treatments.

8. *The Department recommends the USFS create a formal coordination process between the USFS and stakeholders that occurs when planning restoration projects. 28.5*

   See response to Collaboration, General, 3.

9. *TNC has participated in the Stakeholder (SHG) process from the beginning of the Four Forest Restoration Initiative (4FRI) and have co-led the development and vetting of the most recent 4FRI-SHG comments for the Rim Country Draft Environmental Impact Statement (DEIS) delivered to the USFS. As such, the following comments do not cover those topics, but as a Stakeholder we fully*

support those comments and would like to reiterate their importance to guiding us to a final product. 51.1

The Forest Service appreciates the support, dedication and participation The Nature Conservancy has committed to the 4FRI project.

10. *CONCERN #1: There is uncertainty about the degree to which treatment outcomes will comport with CFLRP requirements and stakeholder expectations. As articulated in these comments, ECO is concerned with various aspects of implementation on Rim Country…ECO feels this need is best addressed by more effective coordination among Forest Service staff on the Planning Team and at Forest/District level, and by creating a formal mechanism for collaborative engagement during implementation. RECOMMENDATION #1: ECO recommends that the Forest Service work with stakeholders to develop an appropriate framework for this. A recent, informative example is attached in Appendix V (Spruce Beetle Epidemic-Aspen Decline EIS, Grand Mesa, Uncompahgre, and Gunnison National Forest). 39.42*

    See responses to Collaboration, General, 2 and 3. Also see, National Environmental Policy Act, CFLRP, 1, 2, and 3.

11. *CONCERN #2: The framework for stakeholder engagement should be memorialized in a manner that is binding and ensures follow-through. The DEIS WG and 4FRI Planning Team have discussed and concur on this need. RECOMMENDATION #2: The Forest Service agreed to research this question and provide appropriate guidance, that ECO recommends be carried forward with appropriate placement in the FEIS. 39.43*

    See response to Collaboration, General, 3.

12. *CONCERN #3: Collaborative implementation should be bolstered by mechanisms outside the RC DEIS. It was suggested that the 4FRI Memorandum of Understanding could be revised to meet this need. RECOMMENDATION #3: ECO concurs and commits to working with the Forest Service and other partners on a potential revision of the MOU. 39.44*

    See response to Collaboration, General, 3.

13. *We also ask the USFS to work collaboratively with us and other members of the 4FRI SHG as called for in the Collaborative Forest Landscape Restoration Program (CFLRP) guidelines which governed the 4FRI Projects, and as discussed in the 4FRI SHG comments submitted separately. Those collaborations should be clearly provided for in the EIS as they should be an integral part of the detailed Implementation Planning and treatment execution, and the comprehensive monitoring actions for Adaptive Management in the RCP over its expected 20 year lifetime. 46.5, 47.4, 47.6, 47.6, 47.7*

    See response to Collaboration, General, 3.

14. *The Department would like to be engaged on toolbox implementation as early as possible to share the latest wildlife site-specific information (e.g., turkey roosts, wildlife corridors, etc.) that can assist in the decision-making process to determine treatment prescriptions for restoration projects. 28.6*

    The 4FRI planning team has engaged with the Arizona Game and Fish Department in many aspects of development of condition-based management. This would continue as the project is implemented.

15. *Unfortunately, because almost no monitoring data is available to address this uncertainty, we can't say if the LTIP is accomplishing its mission, at least as far as the Center's concerns for large tree retention are addressed, so we cannot offer a firm recommendation. However, we request continued Forest Service collaboration in assessing the effectiveness of the LTIP, and request that modifications may be made if it is not meeting our objectives of large tree retention. 48.25*

    The 4FRI planning team will continue its collaboration with the stakeholder group including the Center for Biological Diversity during implementation of this project. This includes assessing the effectiveness of the large tree implementation plan, and adaptive responses if implementation is not meeting objectives of the large tree implementation plan.

Condition-Based Management

Recommendation Comments

General Concern: Commenters provided recommendations related to condition-based management.

1. *If this were a normal planning process instead of a CFLRPlan process, these small scale decisions would be open for public review during the NEPA process, meaning the public (and decision maker) would be informed so the analysis of environmental impacts could be understood, and so an informed choice can be made among a reasonable range of alternatives in the NEPA document. All this is precluded when these FTAs are the mechanism for implementing the CFLRPlan. 42.51*

    When project implementation occurs in areas appropriate for this approach, the stakeholder group would be included in review of treatments proposed for these sites. If the stakeholder group wishes to update the current memorandum of understanding with a framework for their expectations, they are welcome and encouraged to explore this option with the Forest Service outside of the National Environmental Policy Act process. The treatment assignment process is described in Appendix D, the Implementation Plan, and includes the treatment tracking process as well as the use of the implementation checklist. The Rim Country analysis considers the best scientific information available and provides a reasonable assessment of the effects of the proposed actions including any of the treatments within the condition-based management approach. Condition-based management provides for an adaptive framework to more thoroughly assure that the most appropriate treatment is implemented places in the most appropriate location for the proposed action to best meet the desired conditions.

2. *As can be understood from the DEIS, the Flexible Toolbox Approach (FTA) is a set of procedures for assessing existing conditions in the analysis area, and then based upon those conditions deciding what active management actions to apply. A big problem with this approach is the public is left out of the process of making these small scale decisions. There are no legally mandated procedures for involving the public, since all this would happen after the NEPA process has been completed. The administrative review process known as the Objection process would also be in the rear view mirror. If the FS were to err in making these small-scale decisions, such as by implementing management bias based upon the false Narrative, there would be no way to hold decision makers accountable. 42.50*

    The Rim Country analysis considers the best scientific information available and provides a reasonable assessment of the effects of the proposed actions. Condition-based management provides for an adaptive framework to more thoroughly assure that the most appropriate treatment is placed in the most appropriate location for the proposed action to best meet the desired conditions. Additionally, the Forest Service continues to engage with the stakeholder

group to identify the appropriate role of stakeholders in the implementation process, which would include an opportunity to provide input into the implementation process and would occur outside of the planning process. The 4FRI Stakeholder Group is not exclusive. New individuals and groups may join at any time, and members of the public have the same rights and opportunities for access to information and input into the process whether or not they choose to join the collaborative.

If the stakeholder group wishes to update the current memorandum of understanding with a framework for their expectations, they are welcome and encouraged to explore this option with the Forest Service outside of the National Environmental Policy Act process.

Appendix D, the Implementation Plan and includes the treatment tracking process as well as the use of the implementation checklist, this checklist will be filled out before implementation and signed by the line officer. The checklist includes completing required surveys, completing the Regional MSO Recovery Strategy Pre-implementation check list, reviewing for compliance with the land management plans, applying applicable design features, etc. Appendix E, the Monitoring and Adaptive Management Plan (see "Adaptive Management Process" section), describes the collaborative process by which adaptive management actions would be developed, recommended, reviewed, and implemented if monitoring data suggested that treatments were moving the project area away from desired conditions.

3. *Graphics illustrating FTA decision flow (e.g., DEIS Figures 95-97) in any subsequent NEPA document prepared as part of the Rim Country analysis should encompass the entire decision process and range of potential outcomes. 47.35*

   Through discussions with the 4FRI stakeholder group, the interdisciplinary team was able to develop a more comprehensive diagram that combines the strategies and tools into a single diagram and adds clarity to the condition-based management decision making process. An updated graphic describing the condition-based management process has been developed collaboratively and incorporated into the FEIS in chapter 2 and within Appendix D, Implementation Plan. The updated graphic more thoroughly visualizes condition-based management including pre-implementation planning, initial project resource review, management considerations, decision trees, decision modifiers, and treatment intensity ranges. Post-decision adaptive management would be addressed as described in Appendix E, the Monitoring and Adaptive Management Plan (see "Adaptive Management Process" section and Table E-2"4FRI Rim Country Adaptive Management Process").

General Concern: Commenters note that the condition-based management is complex, confusing, has not been scientifically evaluated, and is not fully supported by stakeholders. They question and request:

4. *For stakeholders to be comfortable with the FTA, there is a need for a predictable, reliable and repeatable process of FTA implementation. This process does not exist at the current stage of the Rim Country DEIS. Considerable efforts have been invested by the USFS 4FRI Team and the DEIS Workgroup to develop a decision matrix for the selection of treatments, but the operationalization of this matrix has so far not been addressed. RECOMMENDATION #2: as part of recommendation #1 (above) that the FTA / condition-based management implementation process be developed in parallel to the NEPA analysis, ECO believe that cross training between the USFS 4FRI Team, the various Districts (implementers) and the stakeholders is absolutely crucial for a consistent interpretation of*

the 4FRI documents across administrative boundaries and a consistent implementation of the FTA. 39.7, 48.162

The condition-based management process, as described in Appendix D, the Implementation Plan, has been clarified in the FEIS to be more predictable, reliable, and repeatable. A checklist in the Implementation Plan (appendix D) has been updated to provide more thorough review of the condition-based management approach and provide more consistent interpretation of management direction of Rim Country projects. Additionally, the Forest Service continues to engage with the stakeholder group to identify the appropriate role of stakeholders for implementation which would include an opportunity to provide input and would occur outside of the planning process. An implementation plan (appendix D) has been developed to provide guidance for condition-based management and provide a more consistent interpretation during implementation. For all projects covered under aquatic and watershed restoration, a restoration review team would be established to guide restoration priorities and review both general and heavy mechanical project proposals. See response to condition-based management, recommendation, 3.

5. *Clear understanding and consistent use with low variance of decisions resulting from using the toolboxes, and engaging collaboratively when decisions are reached. 48.142, 48.147, 48.148, 48.150*

   See responses to Condition-Based Management Recommendation 2 and 4.

6. *Sideboards and thresholds that are essential for stakeholder support and will identify effects beyond those disclosed in the EIS, and a process to address that situation. 48.148, 48.149, 48.197*

   Additional information has been provided in the implementation plan to identify the anticipated effects that are within the ranges of basal area and trees per acre identified in the FEIS. Collaboratively developed treatment intensity ranges identify these anticipated effects and thresholds and are captured in the project design features in appendix C of the FEIS. To ensure that the acreage and intensity of implemented treatments would be within the scope of the effects analysis, a robust treatment tracking system would be necessary and summarized at the forest scale. A system would be put in place that would track several key elements of the proposed treatment from the planning process through to implementation and would be maintained at the administrative unit scale and in as close to real time as feasible. Key elements of the tracking process appear in the Rim Country Treatment Tracking Process section of Appendix D, the Implementation Plan. Appendix E, the Monitoring and Adaptive Management Plan, describes desired conditions and associated monitoring indicators, metrics, and thresholds/triggers that could lead to adaptive management actions (see “Monitoring: Desired Conditions, Indicators, Thresholds, and Triggers” section and the Table E-3 “Suggested Indicators: Forest Service and multiparty monitoring needed for adaptive management”). The 4FRI Multi-Party Monitoring Board and Forest Service recognize that there are cases in which the best available scientific information available at the time the Monitoring and Adaptive Management Plan was developed is insufficient for identifying quantitative thresholds. In some of these cases, qualitative thresholds have been identified, and in other cases, we will collaboratively evaluate monitoring data as they are collected to look for trends and will review new scientific studies to reassess whether appropriate thresholds can be identified. Where there is sufficient information to develop a threshold that suggests a trend away from the desired conditions, this plan goes on to suggest potential adaptive management actions. The adaptive management process is described in more detail in the “Adaptive Management Process” section of appendix E. identified in the FEIS. Using

basal area and trees per acre provide more effective sideboards during implementation. Additionally, other sideboards appear in the design features (appendix C) to ensure effective implementation. Collaboratively developed treatment intensity ranges identify these anticipated effects and thresholds and are captured in the project design features in appendix C of the FEIS.

More information has been provided in the Rim Country Treatment Tracking Process section of the implementation plan (appendix D) of the FEIS regarding the treatment allocation and tracking processes.

The intent of a tracking system and details have been added to the Rim Country Treatment Tracking Process section of the implementation plan in appendix D of the FEIS. To ensure that the acreage and intensity of implemented treatments would be within the scope of the effects analysis, a robust treatment tracking system would be necessary and summarized at the forest scale. A system would be put in place that would track several key elements of the proposed treatment from the planning process through to implementation and would be maintained at the administrative unit scale and in as close to real time as feasible. These key elements are provided in the Implementation Plan.

7. *Develop a process to integrate implementation of the aquatic and mechanical treatment toolboxes for efficient use of resources, project prioritization, and successful outcomes. 32.02*

   The Forest Service has worked collaboratively with the stakeholder group to provide additional information on the integration of the aquatic restoration treatments and the upland vegetation focused treatments. A more thorough description appears in the Implementation Plan (appendix D).

   The intent of a tracking system and details have been added to the Rim Country Treatment Tracking Process section of the implementation plan in appendix D of the FEIS. To ensure that the acreage and intensity of implemented treatments would be within the scope of the effects analysis, a robust treatment tracking system would be necessary and summarized at the forest scale. A system would be put in place that would track several key elements of the proposed treatment from the planning process through to implementation and would be maintained at the administrative unit scale and in as close to real time as feasible. These key elements are provided in the Implementation Plan.

8. *It's unclear how acreages assigned to each treatment type will be allocated across multiple forests or districts, and tracked over time, and still remain within boundaries of the final ROD. 48.157*

   The implementation plan has been modified in a collaborative fashion with the stakeholder group. The implementation checklist has been updated and a signature line for a line officer has been provided to increase accountability. The figure describing the process has been updated and the text describing the process has been reorganized. See response to condition-based management recommendation 2. The Forest Service continues to engage with the stakeholder group to identify the appropriate role of stakeholders in the implementation process, which would include an opportunity to provide input into the implementation process and would occur outside of the planning process. If the stakeholder group wishes to update the current memorandum of understanding with a framework for their expectations, they are welcome and encouraged to explore this option with the Forest Service outside of the National Environmental Policy Act process. Post-decision adaptive management would be addressed as described in Appendix E, the

Monitoring and Adaptive Management Plan (see "Adaptive Management Process" section and Table E-2 "4FRI Rim Country Adaptive Management Process").

9. *Does the FTA apply with vegetation types other than ponderosa pine, or in stands with partly SPLYT structure? 48.159, 48.160*

   The condition-based management approach has been more thoroughly described in the Implementation Plan (appendix D). The FEIS has been clarified to add additional detail about cover types other than ponderosa pine that occur within the Rim Country footprint. Activities on all cover types have been more thoroughly described. The condition-based management framework has been collaboratively designed to address all cover types within the Rim Country project area.

10. *Scope of use – where will the FTA be used?*

    The condition-based management approach has been more thoroughly described in the Implementation Plan (appendix D) to demonstrate that it will be used to assign all treatments in Rim County project area. The condition-based management framework has been collaboratively designed to address all cover types within the Rim Country project area.

11. *Any subsequent NEPA document prepared as part of the Rim Country analysis should provide a thorough explanation of how the condition-based management framework used in the Flexible Toolbox Approach satisfies NEPA's "hard look" mandates for analysis of site-specific impacts, 48.138*

    Condition-based management uses a suite of treatments (tools) as options to respond to specific resource conditions and recognizes the environment is dynamic and ecosystems respond to changes caused by natural or human events. It allows the implementer to apply a higher quality treatment that would be most effective for moving toward desired conditions. Any treatment from the suite may be selected if the effects of the treatment have been analyzed. Condition-based management is defined as a system of management practices based on implementation of specific design elements from a broader proposed action, where the design elements vary according to a range of on-the-ground conditions to meet intended outcomes. Condition-based management is not a new management approach for the Forest Service. The condition-based management approach does not assign specific treatments to specific acres, but rather assigns treatments to a set of conditions that occur on the landscape. Once these conditions are identified by an interdisciplinary team, they can use this implementation plan to identify the appropriate treatment. Three forest supervisors will sign the record of decision. If an action alternative is chosen, this would give the implementation team the authority to use condition-based management within the Rim Country footprint and would follow the guidelines within the analysis. Post-decision adaptive management would be addressed as described in appendix E, the Monitoring and Adaptive Management Plan (see "Adaptive Management Process" section and Table E-2 "4FRI Rim Country Adaptive Management Process").

12. *The FTA steps and process are time-consuming and may result in short cuts to save time during project implementation.*

    The implementation plan outlines a clear process for treatment assignment that was developed in a collaborative process with the stakeholder group. Appendix D, the Implementation Plan includes the treatment tracking process as well as the use of the implementation checklist, this

checklist will be filled out and signed by the line officer on the specific forest district before implementation.

13. *The DEIS states that "[t]he flexible toolbox approach is a condition-based management strategy that allows predetermined treatments to be aligned, prior to implementation, with current conditions on the ground." It should be reiterated that the Stakeholders have commented that the "Conditions-based Management approach is complex, controversial among 4FRI stakeholders, and, to our knowledge, has yet to be evaluated in a rigorous scientific framework." We stand by that statement. 48.134*

    The Forest Service has worked closely with the stakeholder group to develop a condition-based management process using a collaborative approach. Condition-based management has been clarified in Appendix D, the Implementation Plan of the FEIS. See response to Condition-Based Management Recommendation 2.

14. *What is the process to addresses spatial and temporal components of FTA? 48.139*

    See response to Condition-Based Management Recommendation 2. This engagement would consider the role of optimization during implementation. The optimization process would address spatial and temporal components of the condition-based management process. This will occur outside the planning process and during implementation. The nature of the relationship between the stakeholder group and the Forest Service is described in the MOU, which defines the role of the stakeholder group during implementation. The Forest Service along with the stakeholder group is defining the stakeholder group role during implementation.

15. *What is the process that insures that FTA is implemented spatially and temporally in a consistent manner? 48.139*

    See response to Condition-Based Management, Recommendation 2.

16. *What are the feedback mechanisms to report stands being reclassified and treatment modified? 48.140*

    The implementation plan has been modified to clarify the process by which treatments would be tracked across the landscape. This process is described in the Rim Country Treatment Tracking Process section of Appendix D, the Implementation Plan

17. *Will there be a database of record for the reclassification and treatments modifications? 48.141*

    See response to Condition-Based Management, Recommendation 16.

18. *How will FTA be applied consistently across the landscape and over the duration of the project? 48.142*

    The implementation plan has been modified to ensure consistency across the landscape. See response to Condition-Based Management, Recommendation 2.

19. *What is the Forest Service's quantitative process to characterize how FTA will be implemented? 48.143*

    Decision criteria for treatment assignment and treatment metrics (basal area and trees per acre) have been clarified from the draft environmental impact statement in a collaborative manner with

the stakeholder group to be more quantitative and predictable. These provide for a clarified quantitative process for implementation. This process is described in the Rim Country Treatment Tracking Process section of Appendix D, the Implementation Plan.

20. *What do we do when the cap or quota of acres for a specific type of treatment is reached? 48.144a*

    The implementation plan has been updated with collaborative input from the stakeholder group to clarify the process by which treatments would be tracked across the landscape. There are many project design criteria that define thresholds for limiting project activities as well as to minimize effects. For all projects covered under aquatic and watershed restoration, a restoration review team would be established to help guide restoration priorities and review both general and heavy mechanical project proposals as described in the pertinent section of the implementation plan.

21. *Is the FTA a process of management by exception or a standard operating process to be applied to all stands? 48.144b*

    Condition-based management provides for an adaptive framework to more thoroughly assure that the most appropriate treatment is implemented places in the most appropriate location for the proposed action to best meet the desired conditions.

22. *Does the FTA stop applying if a number of acres is reached for each treatment type, without offsetting acres? 48.144c*

    More intensive treatment types would have acreage caps to ensure that implementation is within the effects analyzed. The implementation plan has been modified with collaborative input from the stakeholder group to clarify the process by which treatments will be tracked across the landscape. This process is described in the Rim Country Treatment Tracking Process section of Appendix D, the Implementation Plan.

23. *Who will have what authority to reclassify acres? 48.145*

    Identification of the appropriate treatments would occur in an interdisciplinary fashion. See response to Condition-Based Management 22.

24. *What authority is delegated to whom in the FTA implementation? 48.146*

    Authorities are delegated according to Forest Service handbook and Forest Service manual policies. See response to Condition-Based Management, Recommendation, 12. Appendix D, the Implementation Plan and includes the treatment tracking process as well as the use of the implementation checklist, this checklist will be filled out and signed by the line officer on the specific forest district before implementation.

25. *How do we insure that the process is predictable and has a high consistency and low variance, i.e., different people examining the same stand will come to identical conclusions regarding validation, classification, and if appropriate, treatment modification? 48.147*

    The condition-based management process has been clarified in Appendix D, the Implementation Plan in the FEIS to be more predictable, reliable, and repeatable in collaboration with the stakeholder group. See response to Condition-Based Management, Recommendation, 2.

26. *What are the sideboards / processes that insure that the FTA is a low deviation / low variance process? 48.148*

The Forest Service has worked collaboratively with the stakeholder group to develop a process designed to be predictable and repeatable with a low level of deviation and a high level of predictability of outcomes. The condition-based management process has been clarified in Appendix D, the Implementation Plan of the FEIS to be more predictable, reliable, and repeatable.

27. What sideboards operate for the FTA? 48.149

Sideboards for use of the Condition-based management approach include the direction located in Appendix D, the Implementation Plan as well as Appendix C, Project Design features. Also, see response to Condition-Based Management, Recommendation, 26.

28. How are FTA decisions made by implementers fed back into the collaborative process? 48.150

The stakeholder group played a large collaborative role in the development of the conditions-based management process. See response to Condition-Based Management, Recommendation 2 Additionally the tracking process identified in Appendix D, the Implementation Plan, and Appendix E, Monitoring and Adaptive Management Plan, both provide feedback to the collaborative process.

29. How is the FTA approach not a "carte blanche" given to implementers? 48.151

Condition-based management has specific thresholds, treatment ranges, and decision points to guide implementers that were developed in a collaborative fashion with the stakeholder group. Appendix D, the Implementation Plan has been updated to describe the treatment assignment process. Appendix C, Project Design Features, has additional sideboards to provide the most appropriate treatment to meet desired conditions.

30. Are there thresholds to determine when the FTA changes the scope of the NEPA analysis? How are these thresholds identified? By whom? When? 48.152

Rim Country condition-based management describes sideboards and thresholds for treatment intensities and treatment acres and does not change the scope of the National Environmental Policy Act analysis. The description of the condition-based management approach, acreage limits, treatment intensity ranges, design features work together to ensure that the effects of the proposed action are within those disclosed in the analysis. As a result, the scope of the analysis does not change if this collaboratively developed approach is used This condition-based management approach was developed in a collaborative manner with the stakeholder group. The Silviculture Specialist report analyzes the most intense anticipated effects so that the effects for the alternatives are within those analyzed.

31. What happens if/when the thresholds are met? 48.153

Appendix D, the Implementation Plan of the FEIS has been clarified to better describe what happens when treatment thresholds are met. The Rim Country EIS Tracking Process described in Appendix D, the Implementation Plan "…would be used to track the acres of particular treatments implemented and ensure that treatments are not applied on a greater number of acres than were analyzed in the EIS." More treatments above what is included in the preferred alternative may trigger supplemental analysis. The condition-based management process has been designed to stay within the analysis.

32. Is it realistic / desirable to expect a reanalysis or supplemental analysis? 48.154

The Rim Country EIS Tracking Process described in Appendix D, the Implementation Plan "…would be used to track the acres of particular treatments implemented and ensure that treatments are not applied on a greater number of acres than were analyzed in the EIS." The description of the condition-based management approach, acreage limits, treatment intensity ranges, design features work together to ensure that the effects of the proposed action are within those disclosed in the effects analysis. As a result, there is no need for a supplementary analysis, if this collaboratively developed approach is used.

33. Is it appropriate to stop the FTA if/when thresholds are met? 48.155

The use of some treatments may stop when thresholds are met in order to stay with the effects analyzed. See response to Condition-Based Management 32.

34. What are the feedback mechanisms to ensure that reclassifications and treatments modification are reported and integrated in the monitoring plan and adaptive management plan? 48.156

The treatment tracking process in the implementation plan (appendix D) has been clarified in the FEIS, and the monitoring plan will refer to this treatment tracking process.

35. It's unclear how acreages assigned to each treatment type will be allocated across multiple forests or districts, and tracked over time, and still remain within boundaries of the final ROD. 48.157

See response to Condition-Based Management Recommendation 4 and 7. This process is described in the Rim Country Treatment Tracking Process section of Appendix D, the Implementation Plan.

36. It seems like the FTA does not allow horizontal movement between vegetation types, as if it's written purely for ponderosa pine. How does the FTA respond when a stand is found to be a different vegetation type? 48.159

Condition-based management has been collaboratively designed to include all vegetation types and has been clarified in the FEIS.

37. What happens when ground inspection indicates that a stand not classified as SPLYT turns out to be SPLYT during ground inspection, or how does FTA address portions of stands which have SPLYT structure? 48.160

The collaboratively developed condition-based management approach describes the appropriate course of action in this case. Direction for SALT stands, including those determined to meet SALT criteria upon field verification is provided in Appendix D, the Implementation Plan. Additionally, implementers would have discretion to split or merge stands to better identify stands with a preponderance of large trees or now called stands with an abundance of large trees structure.

38. *Even if the ground verification approach is simple and relatively idiot-proof, it adds work (measurements of some sort) which is another layer of complexity that District Staff will likely resent and apply inconsistently, if at all. How do we ensure that district staff implement the FTA consistently? 48.161*

    The ground verification approach has been described in Appendix D, the Implementation Plan of the FEIS and has been designed to be simple and repeatable. An implementation checklist has been provided in Appendix D, the Implementation Plan to ensure consistency.

39. *Some FTA modifiers are inconsistently described. 48.163*

    Condition-based management has been clarified in the FEIS to consistently describe modifiers and consider integration of aquatic areas and uplands.

40. *An important need for interdependence that is not evident in the document is the coordinated implementation of the aquatic toolbox and the mechanical toolbox. They must interface and support the desired results of a healthy forest from both perspectives. 12.6*

    During implementation, the Forest Service would coordinate condition-based management from both an aquatics and watershed perspective with the mechanical treatment perspective. Balancing these perspectives in condition-based management would be essential for success of treatments.

41. *An important economical consideration would benefit from this coordination of both toolboxes with regard to heavy equipment, temporary roads, and available timber. Work done that supports mechanical removal, could be used to provide resources and placement of stream improvement devices (including timber) at the same time. 12.7*

    A mechanism for the integration of the aquatic and upland components has been incorporated into a figure describing the condition-based management (appendix D) and in the implementation plan as described in the Integration of Aquatic and Upland Management activities section (appendix D). It would occur during the initial project review. Restoration treatments for mechanical harvest and aquatic/watershed condition-based management inherently overlap in riparian areas and associated upland/riparian transition zones. The need to integrate the two processes was identified to ensure riparian and aquatic values are part of the overall timber and fuels restoration designs. Integration also provides for efficient use of resources, project prioritization, and successful ecological outcomes.

42. *We also note that the Conditions-based Management approach is complex, controversial among 4FRI stakeholders, and, to our knowledge, has yet to be evaluated in a rigorous scientific framework. Under these circumstances, ECO feels that the Forest Service must proceed cautiously, articulating the RC DEIS Flexible Toolboxes as clearly as possible, with inclusion of appropriate sideboards to maintain stakeholder support. 39.8*

    The Rim Country approach is a collaboratively developed condition-based management, designed to address concerns, reduce controversy, and enhance stakeholder support and engagement throughout the process.

43. *CONCERN #1: Restoration efforts in aquatic systems and terrestrial uplands (through the two Flexible Toolboxes) should be effectively integrated. The RC DEIS treats the two Flexible Toolboxes as discrete entities and decision processes, which may complicate prioritization/implementation of projects, decrease efficiency, and potentially compromise outcomes on the ground. For example, there are situations where needed or planned restoration of an aquatic system will influence treatment selection in the adjacent uplands and vice versa; however, the RC DEIS lacks a mechanism to address this. RECOMMENDATION #1: ECO recommends that the Forest Service work with stakeholders to develop an effective bridge between aquatic and terrestrial restoration efforts and their respective Flexible Toolboxes, and include this in the Final EIS. 39.9 and 32.02*

    See responses to Condition-Based Management Recommendation 40 and 41. Aquatics Clarification 3.

44. *The proposed FTA approach for Rim Country - particularly the toolbox for mechanical treatments - is rife with uncertainties. As currently presented, it is complex, confusing, incomplete, and open to broad interpretation -- thereby creating significant potential for controversy, not to mention inconsistent application with the inevitable turnover of field personnel. Given these circumstances, full disclosure and robust sideboards are essential to ensure stakeholder support for the final Record of Decision (ROD). 47.31*

    See response to Condition-Based Management Recommendation 27, 39.

45. *Concern: the treatment assignment process for the Mechanical Treatments FTA must be clearly articulated and understandable to stakeholders, the public, and implementers. 47.33*

    The treatment assignment process for condition-based management has been collaboratively developed to be clearly articulated and understandable to stakeholders, the public, and implementers. The process is thoroughly described in Appendix D, the Implementation Plan, as well as in an attached figure. The process includes an initial project resource review, evaluation of special management considerations, application of a decision tree and application of decision tree modifiers to determine appropriate treatment.

46. *The implementation of the FTA for even a single subwatershed would involve on-the-ground data gathering to document conditions, followed by data analysis, coordination among specialists, following FTA "Decision Matrices" while considering "land-use constraints" biological timing issues, "prioritization considerations" and finally after hundreds of hours—a decision. And this characterization is an oversimplification of the complexities of the FTAs as described in the DEIS. All this is to occur before implementation begins. The DEIS doesn't explain how procrastinating all these actions until after the ROD is signed speeds anything up. If they are reasonable and mandatory, it is arbitrary to alter the timing so drastically, to a time that is post-NEPA. If "acceleration" is indeed for accomplishment, we suspect there will be a lot of process shortcutting, arbitrary decision making, and consequently unanalyzed negative environmental consequences. 42.59*

    Appendix D, the Implementation Plan contains an implementation checklist that will be filled out and signed by the line officer before implementation. The checklist includes completing required surveys, completing the Regional MSO Recovery Strategy Pre-implementation check list, reviewing for compliance with the land management plans, applying applicable design features, etc. All steps on the checklist must be completed before project implementation.

47. *The ERI recommends that potential impacts of the mechanical treatments FTA be clearly explained and quantified in the FEIS. With maximum effects analyses accomplished, we understand there won't be more than the most intense treatments implemented. But would more acres of the less intense treatments be realized? Figures 17 - 41 quantify the change in forest structural attributes with proposed alternatives, but the graph figures include no error bars or range of responses. What is the variability that the FTA will create? How will you prioritize changes in treatment, and how would changes be spatially prioritized? 41.12*

    Post-treatment conditions will represent the entire range of treatments as proposed. Treatment modifiers will help ensure that treatments are applied throughout the range of the proposed treatment.

48. *The ERI recommends that the implementation check list include records of when and how the FTA was utilized. 41.13.*

    The implementation plan has been updated to include a checklist summary document (Table D-1 in volume 2 of the FEIS) that will be filled out for each project and signed by the line officer before implementation. This document will record compliance with law, regulation, and policy as well as compliance with the record of decision and the condition-based management approach

49. *As we established in our Stakeholder comments, there are substantial concerns with the Flexible Toolbox Approach (FTA). We strongly support the concerns and recommendations described in the Stakeholders comments and incorporate those by reference into our organizations comments additional comments presented here. 48.132.*

    See Condition-Based Management, Recommendations, Response 4.

50. *The FTA uses a legally questionable Condition-based Management approach. 48.133.*

    See Condition-Based Management, Recommendations, Response 4.

51. *The Forest Service risks potential legal complications by pursuing a Conditions-based Management approach in Rim Country. On September 23, the U.S. District Court for the District of Alaska issued a preliminary injunction halting implementation of the Prince of Wales Landscape Level Analysis Project. The court did so because the Forest Service's failure to disclose the site-specific impacts of that logging proposal raised "serious questions" about whether that approach violated NEPA. 42.24, 48.135*

    Each alternative contains maps that provide an informed site-specific assessment of where treatments would be assigned and provides acreages of each. A combination of stand exam data and GIS layers were used to identify stand characteristics that were used in the treatment assignment process. Verification of those treatment types would occur on the ground to ensure the right treatment is placed in the right area.

    Before implementation, a review of the forest conditions and site-specific conditions would occur to inform the condition-based management approach. This process would include the consideration of the vegetation-focused strategies, the aquatic and watershed strategies as well as the integration of the two approaches. The area would then be evaluated for special management considerations that would result in a specific treatment assignment, such as protected activity centers, Mexican spotted owl recovery nest/roost habitat, WUI, severe disturbance areas, inventoried roadless areas, and others. Areas that do not fall within the special management

considerations would be limited to the ponderosa pine, ponderosa pine/evergreen oak cover type as well as Mexican spotted owl foraging non-breeding ponderosa pine oak and dry mixed conifer habitat. These areas would be assigned a treatment using a decision tree. Finally, a set of decision tree modifiers would be used to identify an appropriate treatment intensity within the ranges describe by the decision tree. The result will be an ecologically appropriate treatment that will best meet the desired condition across the landscape. This treatment assignment process is described in chapter 2 and figure 8 in the FEIS as well as Appendix D, the Implementation Plan

A robust tracking system would ensure that acreage and intensity of implemented treatments is within the scope of the effects analysis. The tracking process would show the following at a minimum: (1) Spatially, area covered proposed for treatment under the Rim Country EIS, including stand ID and treatment type, (2) Actual assigned treatment post-IDT walkthrough, from the prescription, and (3)Actual cut unit polygon, post layout, including stand ID and treatment type. Appendix D, the Implementation Plan contains an implementation checklist that will be filled out and signed by the line officer before implementation. The checklist includes completing required surveys, completing the Regional Mexican Spotted Owl Recovery Strategy Pre-implementation check list, reviewing for compliance with the land management plans, applying applicable design features, etc. All steps on the checklist must be completed before project implementation.

The impacts of these treatments has been analyzed using a maximum implementation scenario that captures the maximum effects to all resources even if the timing and location of treatments is not known. Modeling of vegetation effects was performed using the Forest Vegetation Simulator, the nationally supported software platform for this type of analysis. For more information on treatment modeling and data validation, consult the Silviculture Specialist report (USDA FS 2022). The Forest Service has worked extensively with the 4FRI Stakeholder Group to ensure that the condition-based management approach is predictable, reliable, and repeatable. All treatments would be conducted within the scope of the analysis. Condition-based management allows for ensuring that the right treatment is placed in the right area. Conditions on the ground are dynamic and unpredictable, standard NEPA treatment identification would not allow for the ability to ensure treatments are appropriate.

52. *This decision demonstrates that the Forest Service's condition-based management approach conflicts with NEPA's "hard look" mandate, and that where the Forest Service employs it, the agency risks projects being set aside and subject to further, compliant NEPA review. The Forest Service is in just that precarious position with respect to the Rim Country Project, which is proposed to follow the Flexible Toolbox Approach 48.137.*

    See Condition-Based Management Clarification 51 above.

53. *"The flexible toolbox approach is used to … Estimate the number of acres of each type of treatment proposed in each of the action alternatives. Proposed treatments, each with a defined range of openness, are analyzed at the higher end of openness or intensity, in order to analyze the maximum potential effects from these treatments." This makes no sense, because Table 10 includes no defined range of openness for the various treatments. 42.62a*

    Ranges of treatments appear in the Implementation Plan, a reference to their location has been added to the FEIS in Chapter 2 "Elements and Activities Common to Alternatives 2 and 3" section. The FEIS uses the phrase "up to" to identify the maximum number of acres that each treatment type would be applied.

54. The Rim Country Project risks violating NEPA and could be enjoined. We therefore urge the Forest Service to modify its approach for the Rim Country Project and ensure that it discloses site-specific details about road use, road construction and decommissioning, locations of proposed mechanical thinning activities, and locations of other proposed, but thus far undefined watershed and landscape restoration activities such as exclosures, riparian and spring restoration, and other comprehensive restoration activities. To do otherwise risks violating the law and squandering significant agency resources. 48.136

The Rim Country project's use of condition-based management is consistent with the NEPA. See Condition-based Management, recommendations, comments 11 and 51 for additional information.

The implementation plan and monitoring plan outline a process for review of treatments at a site-specific manner once the specific action is proposed on the ground. The treatment assignment process for condition-based management has been collaboratively developed to be clearly articulated and understandable to stakeholders, the public, and implementers. The process is thoroughly described in Appendix D, the Implementation Plan, as well as in the "Condition-based Management Approach for Rim Country" (figure D-4) in the appendix. Each alternative contains maps that provide an informed assessment of where treatments would be assigned based on stand exams and GIS data and provides acreages of each treatment. Verification of those treatment types would occur on the ground to ensure the right treatment is placed in the right area.

As outlined in appendix D, before implementation, a review of the forest conditions and site-specific conditions would occur to inform the condition-based management approach. This process would include the consideration of the vegetation-focused strategies, the aquatic and watershed strategies, as well as the integration of the two approaches. Each treatment would require completion of an initial project resource review, evaluation of special management considerations, application of a decision tree, and application of decision tree modifiers to determine appropriate treatment. Field reviews will review how project specifics, such as road use, temporary road construction, road decommissioning, mechanical treatments, and comprehensive restoration activities would impact resources and ensure they are within the effects analyzed. The implementation plan pre-implementation checklist provides early identification of whether roads packages may be needed, if the project is consistent with desired conditions, the Land Management Plans, etc. The implementation checklist also requires field review of treatment areas, including temporary road construction areas, if applicable, and line officer approval. The Monitoring and Adaptive Management Plan (appendix E) requires pre- and post- monitoring of temporary road construction, channel restoration, Mexican spotted owls, etc. Design features (appendix C) include mechanisms to minimize the effects of treatments including temporary road construction, mechanical thinning, and comprehensive restoration activities.

The FEIS analyzed the maximum possible effects from activities including road use, temporary road construction, road decommissioning, mechanical treatments, and comprehensive restoration.

<u>Clarification Comments</u>

General Concern: Commenters requested clarification of the sequencing of treatments and how changed conditions would be addressed throughout the implementation timeframe. The range of flexibility in the condition-based management approach should be better defined to ensure the actions are covered by the

National Environmental Policy Act analysis and will meet the desired outcomes, and not left for a later implementation plan. Therefore, the condition-based management implementation process should be developed in parallel to the National Environmental Policy Act analysis. Training for all 4FRI planners, implementers, and stakeholders should occur to ensure consistent interpretation and implementation of the approach.

1. *There is a lack of projected long term sequencing of work planning by treatment area with adaptive management guidelines. 46.15*

   Regarding the aquatic and watershed condition-based management approach, consideration for prioritizing where and when treatments are implemented is presented in Table D-3 "Considerations for prioritizing where and when treatments are implemented" in appendix D of volume 2 of the FEIS.

2. *Given that the RCP EIS will be in force for a 20 year period, it is only to be expected that there will likely be substantial changes in conditions on the ground and in the watersheds before actions on specific areas are planned and implemented. Some of these changes will be due simply to the passage of time, some due to climate change, others due to natural occurring or man caused wildfires, and others due to the impact of treatments already conducted on adjacent areas or in upstream reaches of a watershed. They will in effect establish a new set of "Current Conditions" at the time of specific implementation planning. The EIS should clearly address these issues early and provide a clear understanding of how they will be addressed during the overall implementation period. 46.16*

   An implementation guide has been developed to provide guidance for condition-based management and provide a more consistent interpretation during implementation. For all projects covered under aquatic and watershed restoration, a restoration review team would be established to guide restoration priorities and review both general and heavy mechanical project proposals. Additionally, the Forest Service is engaging with the stakeholder group in identifying the role of stakeholders in the implementation process which would include an opportunity to provide input into the implementation process and would occur outside of the planning process.

3. *We are concerned that at the DEIS stage the Rim Country NEPA is not providing the mechanisms necessary to insure that potential flexible toolbox decisions will fit inside the NEPA analysis. There is the distinct possibility that the FTA could result in treatments acreage exceeding the analyzed acreage. To summarize, the concern is to ensure that the implementation of the FTA is flexible enough so that it can accomplish its purpose, but organized enough so that the implementation of the project is not open to litigation for violation of the ROD. RECOMMENDATION #1: ECO does not believe that this issue should be postponed to a subsequent Implementation Plan, as it is likely that some of the flexibility of the FTA implementation tool must be incorporated in a level of NEPA flexibility. We recommend that the FTA / condition-based management implementation process be developed in parallel to the NEPA analysis, and we are willing to participate in this work. 39.6*

   See response to condition-based management clarification 1. The aquatic and watershed condition-based management approach (formerly known as a flexible toolbox approach) described in section F of appendix D of the DEIS was specifically developed to address the concerns presented in this comment. The treatment tracking process has been modified in the FEIS and appears in the Rim Country FEIS volume 2, Appendix D- Implementation Plan, Tracking Process section.

4. *The aquatics toolbox is a tremendous tool that I fully support However, it is dependent on a significant knowledge base of the managers and crews in the field to make decisions about the*

appropriate tool to utilize under conditions that appear over the entire forest environment. This requires a great deal of training and coordination. 12.4

The Rim Country project includes condition-based management which would be applied throughout project implementation. This addresses changes in conditions on the ground and in the watersheds before actions on specific areas are planned and implemented regardless of if they are a result of the passage of time, climate change, wildfires, or implementation of other projects near or within the boundary of Rim Country. There are many project design criteria that define thresholds for limiting project activities as well as to minimize effects. Chapter 3 of the FEIS discloses the effects analysis for all resource areas.

5. *What training and coordination strategies have you developed to ensure that the best tool is consistently selected, and that if there are questions about which tool or set of tools to employ that there is a strategy in place to protect the wildlife and aquatic resources that might be adversely impacted? 12.5*

   For projects covered under aquatic and watershed restoration, a restoration review team would be established to help guide restoration priorities and review both general and heavy mechanical project proposals as described in the pertinent section of the implementation plan. The review team would also ensure adequate supporting information, design, and experience is commensurate with the proposed restoration.

6. *CONCERN: There is uncertainty about the "Open Reference Condition" modifier included in the Mechanical Treatments Flexible Toolbox. In meetings with the DEIS WG, the Forest Service has explained the process for using this modifier, which we understand applies solely to mollic-intergrade soils where savanna treatments are not proposed. However, the RC DEIS presents minimal information on this treatment, consisting of a brief footnote in the Mechanical Treatments Flexible Toolbox (RC DEIS Appendix D) and definition in the Glossary (RC DEIS Appendix F). We are also concerned that the proposed approach appears subjective and open to various interpretations by implementers. For example, how would suspected mollic-intergrade soils be identified on areas where not previously mapped? Would field personnel be required to conduct standardized soil assessments (e.g., dig soil pits)? This modifier is further complicated by issues of scale, as it can be applied to "portions of a stand." RECOMMENDATION: The SHG recommends that the Forest Service provide a clear rationale for this modifier, including supporting science. The FEIS and Implementation Plan should also specify the process for identifying unmapped units of mollic-intergrade soils and the minimum size unit to which the modifier can apply. 32.14, 39.24, 47.29, 47.55 49.30*

   See Condition-based Management, Clarification, response 4. Additional information on open reference conditions and mollic intergrade soils has been included in Appendix D, the Implementation Plan of the EIS. In ponderosa pine stands outside of other special management considerations listed above, terrestrial ecological units indicating an open reference condition will be used to target treatments toward the lower end of the natural range of variability. While these ecological units are relatively abundant on the far west and far east sides of the project area, further considerations would limit these savanna treatments to those stands or portions of stands that are adjacent to grasslands or currently exhibiting forest densities near the lower end of the natural range of variability with less than 25 percent of maximum SDI for ponderosa pine. Savanna restoration includes a mechanical treatment that restores pre-settlement tree density and pattern and manages for a range of 70 to 90 percent interspace between groups or individual trees, using pre-settlement evidence as guidance. Inclusion of savanna based on soils that are not

identified in the analysis may be treated as savanna upon field verification. Remaining stands or portions of stands that overlap with terrestrial ecological units indicating an open reference condition that do not meet the criteria above will be assigned the treatment in the open reference condition column on the decision matrix. These stands would have desired residual tree densities higher than the ecological units would indicate are appropriate and lower than other similar stands across the project area based on the stand site index alone.

7. *Condition-based management is presented in the Rim Country DEIS with the flexible toolbox approach (FTA) to better account for variability and changes in the landscape. The ERI is supportive of ways to incorporate change across a million acre landscape with a 20 - year implementation cycle. However, designing flexibility with a large stakeholder group, while following National Environmental Policy Act planning guidance is complicated, and does require careful presentation, explanation and clearly stated trigger points and measurable metrics. The ERI recommends the following to increase the clarity and accountability of the proposed Condition-based Management: The ERI recommends adding clarity to the mechanical treatments FTA description in the DEIS Vol 1, including specifically Figure 9 in DEIS Vol 1 (also Fig 95 in Section F of the Implementation Plan) and associated text. It is recommended to clearly identify the cover types, or treatment types that are not eligible for Flexible Toolbox, and the cover types and treatment areas that are available for flexible application. There were different levels of flexibility explained during small group sessions, but this is not clear in this diagram or the text. Please define decision matrix, decision matrix modifiers. The diagram chosen to represent this doesn't add clarity; a flow chart divides scenarios, but then lumps them back together. 41.11*

   The description of the condition-based management approach has been modified for clarity and figure 6 in volume 1 of the FEIS as well as Appendix D, the Implementation Plan has been updated in collaboration with the stakeholder group.

8. *However, our concern that the DEIS prescribes overly intense treatments is not limited to these categories. Silvicultural modelling suggests that the preferred alternative pushes stand density below desired conditions and on a trajectory to stay below in a large amount of the project area. 48.73*

   Treatments were modeled at the most intense end of the treatment intensity spectrum to ensure that the effects of treatments will be within the effects analyzed and disclosed. Treatment modifiers and specific direction to treat across the intensity spectrum will ensure that treatments will be within the effects analyzed.

9. *Rim Country treatments push large areas below desired conditions for stand density. Figure 29 shows that the proposed action treats the landscape too intensively, with SDI dipping below the stated desired conditions range of 25-45% of SDI Max in 65% of acres in 2029 and increasing to 73% of acres below desired conditions in 2039. We have plotted generic trend lines onto Fig. 29 to show this. Collectively, with 694,734 acres below desired conditions in 2039, these trends suggest that treatments are too intense, and conflict with the statement that "[t]he number of trees per acre, basal area, and SDI would decrease considerably, trending toward desired conditions within NRV." 48.81*

   The proposed action would increase the number of acres meeting desired conditions over time. Treatments were modeled at the most intense end of the treatment intensity spectrum to ensure that the effects of treatments will be within the effects analyzed and disclosed. It should be noted that the treatments were modeled to represent the most intense end of the range of proposed treatments to ensure that post-treatment densities are within the effects analyzed. During implementation, the implementation plan directs treatments to represent the entire range of

treatment intensities and will result in considerably more acres meeting the desired condition. Additionally, prescribed fires with lower severity effects (e.g., burning under cooler and/or wetter conditions) from 2029 to 2039 could be implemented to maintain a higher SDI if desired. Additional information has been provided in the Chapter 3, Silviculture section of the FEIS.

10. *The full description of the Flexible Toolbox Approach in Section F of Appendix D does not mention sensitive soils at all. In fact, the term sensitive soil is not used once in the entirety of Appendix D. 48.164*

    Mention of sensitive soils has been removed from the condition-based management approach. The soil resource will be protected with the use of project design features in the Soil and Watershed section of Appendix C, Design Features, Best Management Practices, and Mitigation and Conservation Measures.

11. *The massive scale of the proposal complicates and frustrates cumulative effects analyses. The DEIS cannot properly analyze direct and indirect impacts of the proposal because of the use of the FTA. 42.82*

    Condition-based management begins with an initial review of forest conditions and site-specific considerations to guide the process as the area is evaluated for special management considerations that would result in a specific treatment assignment. Condition-based management assigns treatments to a set of conditions including information from activities and considers cumulative effects. Once these conditions are identified by an interdisciplinary team, the implementation plan is applied to identify the appropriate treatment. By using existing site-specific stand exam and GIS data, current conditions and criteria which includes information from the cumulative effects analysis activities, acreages, and types of treatments can be quantifiably defined. As with any other project, site specific data is informing an assessment of the existing condition and the departure from the desired condition. The treatments have been collaboratively designed to close the gap between the existing condition and desired condition. The Rim Country Tracking process as described in Appendix D, the Implementation Plan, would ensure that direct and indirect effects are within those disclosed in the analysis. The result would be an ecologically appropriate treatment that would best meet the desired conditions.

Economics

Clarification Comments

General Concern: Commenters requested information about anticipated cost savings and cost of removal of biomass.

1. *How does this CFLR Plan analyze anticipated cost savings [Sec. 4003 (b)(4)]? 42.48*

    The FEIS qualitatively discusses the cost savings of the action alternatives. Cost savings would result from a reduction in the risk and hazard of uncharacteristic wildfire, reducing both wildfire suppression costs, on average, and avoiding other direct costs, such as property damage, evacuation, cleanup, and ecosystem service destruction. The per-acre administrative burden (cost of time and other resources) of planning, implementing, and monitoring forest restoration activities would be lower. The Rim Country project benefits from economies of scale – a single environmental compliance document addresses more than 1 million acres. Furthermore, the large treatment area reduces cost to government through increased private sector interest in engaging in

harvesting and restoration activities on the forests. This analysis can be found in the socioeconomic environmental consequences section of the DEIS, starting on page 283.

2. *SRP suggests revising the following sentence "Engaging industry would offer the opportunity to cover all, or nearly all, of the cost of removal of forest restoration byproducts by the value of the products removed." SRP believes that industry engagement alone may not create the opportunity for costs to be covered or nearly covered. SRP suggests that USFS include language that supports a cooperative relationship between USFS and industry that promotes business friendly processes in order to create an opportunity for industry to conduct the activities being evaluated in this EIS. USFS should also recognize that there are some areas, even with industry engagement or a more cooperative industry relationship, that the costs will still greatly outweigh the value of the products being removed. 40.17*

   The purpose and need of the FEIS now states that engaging industry through the sale of forest products would reduce treatment costs. The potential costs of the restoration activities are addressed in the Socioeconomic section of the FEIS where a straightforward economic efficiency analysis is presented. The net costs are assumed to be positive across the Rim Country project area.

3. *SRP recommends that USFS provide a map of all the existing forest product industry instead of only providing two examples of forest product industry businesses. This map could replace the third and fourth paragraphs. 40.32*

   The FEIS proposed action description for the in-woods processing sites has been updated and the reference to existing forest product industry has been removed, this information is within the project record.

4. *Also, USFS should revise the 40,000 board feet of green logs because it is an inaccurate number and probably should be 4,000 board feet. 40.34*

   The FEIS proposed action description for the in-woods processing sites has been updated to the recommended number.

5. *SRP recommends that the USFS cite the 60-daydrying time or research and include a range of drying times in the analysis up to 120 days. SRP suggests expanding the drying time because it improves the economic viability of the project (lower transportation costs), which would address Issue 5 - economic viability. The Final EIS should include an analysis among all affected resources of additional drying time coupled with project design features or best management practices that would minimize or mitigate any potential impacts. 40.35*

   The FEIS addresses the impacts of in-wood processing across all affected resources. Variable drying time is allowed within the existing analysis. The 60 days of drying is used as an example of the potential haul cost savings with in-woods drying time but does not limit drying time to 60 days.

6. *The DEIS claims the economics of restoring the Rim Country landscape are such that the sale of logs and biomass is necessary, implying restoration can't happen otherwise. The DEIS simply doesn't present enough financial analysis of the alternatives to support that premise.42.345*

   The Purpose and Need of the FEIS states that engaging industry through the sale of forest products could reduce treatment costs. Similarly, the Socioeconomic section of the FEIS presents a straightforward economic efficiency analysis. Assumption 7 states that net costs can vary based on the many things, including the value of timber removed. The FEIS does not assume that sale

of logs and biomass is a necessary condition, but rather that sales would help to offset costs of restoration activities and support industries which play a key role in performing restoration activities creating conditions for a more successful and economically viable projects.

7. *The DEIS fails to disclose a huge indirect effect of having all these industries with its newly expanded infrastructure, which is to create an expectation that the FS would continue to maintain such opportunities indefinitely, after the CFLRPlan is completed. 42.346*

   The FEIS discloses the expected scope and time frame of the project. Projects beyond this expected scope and time frame would be analyzed in separate decisions. The Rim Country project was reviewed for consistency with the direction in the Land Management Plans of Apache-Sitgreaves, Coconino, and Tonto National Forests. These plans generally proposed desired conditions of a sustainable provision of forest products. In addition, the Rim Country project aims to support a sustainable forest product industry and through restoration work, more sustainable and resilient vegetation conditions.

8. *The DEIS omits an analysis of costs that would be picked up by the counties and other governments, due to increased road maintenance and improvement costs. 42.347*

   An analysis of costs for road maintenance and improvement by counties or other government agencies is outside the scope of this project.

9. *A troubling feature of the CFLRPlan is the proposal to construct "In-woods Processing and Storage Sites (Processing Sites)." The premise is, there are not enough lumber mills in the area to process all the logs in a timely manner. 42.348 However, the DEIS fails to present enough economic analysis to support this aspect of the CFLRPlan. 42.349*

   - *The DEIS presents no numbers for the costs of those actions and infrastructure, so we are wondering how the FS accounts for them in its analyses. 42.350*
   - *The DEIS fails to present enough economic analysis to demonstrate this huge subsidy would be, on balance, a good investment of taxpayer dollars. 42.351*

   In-woods processing and storage sites are introduced in the Elements Common to Alternative 2 and 3 section in chapter 2 of the FEIS. Here it is stated that these sites would facilitate more utilization of forest resources, increase transportation efficiencies, reduce implementation costs, and generally make it easier to complete implementation. Mill capacity is not discussed in relation to the in-woods processing sites.

10. *The DEIS does not disclose estimated costs of actions that don't themselves generate funds, which would therefore require appropriated taxpayer dollars to carry out. Without itemized costs, the feasibility of these actions is in doubt. 42.354*

    - *Decommission up to 200 miles of existing system roads on the Coconino and Apache- Sitgreaves National Forests, and up to 290 miles on the Tonto National Forest.*
    - *Decommission up to 800 miles of unauthorized roads on the Apache-Sitgreaves, Coconino, and Tonto National Forests.*
    - *Construct or improve approximately 330 miles of temporary roads (new and/or occurring on existing unauthorized roads) to facilitate mechanical treatments; decommission all temporary roads when restoration treatments are completed.*

- *Construct up to 200 miles of protective barriers around springs, aspen, native willows, and big-tooth maples, as needed for restoration.*
- *Approximately 58,730 acres of prescribed fire only*
- *Facilitative Operations (FO) – Prescribed Fire Only*
- *Severe Disturbance Area Treatment*
- *Restore function and habitat in up to 777 miles of streams, including stream reaches with habitat for threatened, endangered, and sensitive aquatic species.*
- *Relocate and reconstruct existing open roads adversely affecting water quality and natural resources, or of concern to human safety.*
- *Re-plumbing the spring improvements to conserve water*
- *Upland soil stabilization*
- *Noxious/invasive weed treatments*

The FEIS does not present any financial efficiency of these sites. Prior to issuance of timber sales, appraisals are completed by the Forest Service which include haul costs to processing facilities. Depending on many variables such as sale volume, road maintenance costs, and timber value, sales may come out above or below cost. Processing facilities could be used to help reduce costs associated with hauling; however, if existing or new offsite processing facilities are created by private investment, in-woods processing sites may not be required. The FEIS discloses short- and long-term effects associated with these processing facilities.

11. *The DEIS states, "Reasonably foreseeable actions on private, state, and other federally-managed lands include mechanical treatments, fuels treatments, and prescribed fire." Yet it provides no details on the economic contributions or costs associated with those actions. 42.355*

Project funding and annual budgets are outside the scope of the analysis. The types of activities listed, from road decommissioning to prescribed fire to stream restoration, are common treatments the FS conducts and we have a long history of successfully implementing these types of projects. We would anticipate that these types of projects would be implemented over time, as funding is appropriated. In addition, the FS welcomes opportunities to partner with other organizations, such as NGOs, to help us accomplish this important work.

Temporary roads are required to be decommissioned prior to complete contract closeout. See Transportation, Clarification, 17. See Aquatics, Clarification, 3 for information on integration of aquatic restoration and upland treatments.

General Concern: Commenters provided a comment related to the stakeholder group's financial interest in the outcome of the project. The commenter feels this will lead to hidden costs from the public.

12. *In this CFLRPlan process, members of the Stakeholder Group are not required to disclose their financial interest in the outcome of the CFLRPlan—which they will influence after the Record of Decision is signed. In this process, the true costs to the taxpayer/owners are obfuscated and hidden from those same taxpayer/owners. So, the CFLRPlan begins to essentially privatize public land and resources on the national forests of the Rim Country analysis area. 42.16, 42.353*

The economic contributions or costs of actions on private, state and other Federal lands are outside the scope of this analysis. The financial interests of the stakeholder group is outside the scope of this analysis. The 4FRI Multi-Party Monitoring Board and Stakeholder Group, including State agencies, have worked collaboratively throughout the planning process. The Forest Service continually engages with the stakeholder group to identify the appropriate role of stakeholders in the implementation process. This would provide an opportunity for input and will occur outside of the planning process.

Analysis Comments

General Concern: Commenters requested the EIS to have an estimate of the economic impacts of weed treatments.

1. *The DEIS does not have an estimate of the economic impacts of increased weed treatments due to the proposed management actions, nor of the loss of ecosystem services attributed to noxious weeds being increased by management activities. 42.329*

   The DEIS discusses the effects of weed infestations and spread across alternatives qualitatively. Any increased risk of spread of noxious weeds can only be described in general terms because of the large number of unknown variables. Observed infestations would be managed in accordance with the FEIS for Integrated Treatment of Noxious or Invasive Weeds Coconino, Kaibab, and Prescott National Forests (2005), Environmental Assessment for the A-SNFs Integrated Forest-Wide Noxious or Invasive Weed Management Program (2008) or the Environmental Assessment for Integrated Treatment of Noxious or Invasive Plants (2012) depending on the forest on which the activities occur. The Forest Service does not anticipate losses of ecosystem services attributed to increases in noxious weeds due to management activities. Appendix C includes best management practices and mitigations designed to minimize increases in noxious weeds. Weed treatments are only one tool in a suite of tools available.

Condition-Based Management Comment

General Concern: Commenters requested clarification on why condition-based management addresses the economic viability.

1. *USFS states that "Alternative 2 provides for treating the most acres in the project area as identified by the Mechanical Treatments Flexible Toolbox Approach and determined during implementation." USFS should provide additional explanation of why the Flexible Toolbox Approach addresses the economic viability that is brought up in Issue 5. 40.21*

   This statement is updated in the FEIS. Condition-based management does not directly address economic viability and this statement has been clarified. Condition-based management is a pre-treatment process to determine, analyze, verify, and then allow implementation of the most appropriate treatment for a given set of environmental and resource conditions. Both implementation and effectiveness monitoring occur after treatments have been implemented, and adaptive management actions may be taken based on monitoring results. If implementation monitoring shows that treatments were not implemented as planned, adaptive management actions would be taken to ensure that future treatments were implemented as planned. If effectiveness monitoring reveals treatments are not having the intended/desired effects, the Forest Service would evaluate and implement changes as needed, following National Environmental

Policy Act requirements. The statement now reads: "Alternative 2 contributes to economic viability because it treats the most acres." The socioeconomic section addresses this aspect of economic viability.

Recommendations Comments

General Concern: Commenters provided recommendations for the EIS regarding including a statement explaining in-woods processing and a range of costs for mechanical treatments.

1. *SRP recommends that USFS include a statement explaining how in-woods processing sites provide for economic viability. In addition, USFS should also include further explanation on whether they considered any other economic factors and, if so, why they were dismissed. 40.20*

   In-woods processing sites' contribution to economic viability is addressed in volume 2 of the FEIS (Socio-economics section). This was included based on discussions with industry. The Forest Service considers economic factors that are within the standards and guidelines for the land management plans.

2. *SRP recommends that USFS include a range of costs for mechanical treatment to understand the full range of costs associated with restoration. USFS uses an avoided cost to demonstrate the net benefit to taxpayers. To understand the full range of costs and benefits, SRP recommends that USFS calculate the total costs to implement all the treatments in each of the Alternatives, report the net costs (total costs - timber value = net costs), and compare the net costs to avoided costs. Using total costs would provide for a robust and comprehensive view of the all the costs and benefits associated with the Alternatives. 40.72*

   The FEIS presents some costs in quantitative measures while other are presented more qualitatively. There are many variables that will go into project implementation and impact actual costs, including location, timing, acreage and stand conditions, for example. The mix of qualitative and quantitative approach used presents how costs will be impacted and suggests the general direction they will move. The socioeconomic section lays out the assumptions used and presents this discussion. Timber valuation was not included as there are too many unknowns to undertake a meaningful appraisal. Timber sale appraisals will be done during the implementation stage of this project. No attempt was made at valuing timber at this stage in project planning.

3. *Also missing from the CFLRPlan is an economic analysis, which would disclose how much this continuous active management, manipulate-and-control regime will cost on an annual basis—and therefore how likely such a regime could actually be implemented in order to achieve or maintain the "desired" vegetation conditions. 42.18*

   The Forest Service is committed to the 4FRI projects. Project funding and annual budgets are outside the scope of the analysis. See Implementation General Concern 21.

4. *SRP suggests that USFS include a statement that reflect the average annual salary for the 1,890 jobs that are used in the analysis. The inclusion of this data point would provide a deeper understanding of the economic benefits in the analysis. 40.44*

   The average annual salary per job has been added to the FEIS. This is calculated as the average annual labor income divided by the average annual jobs. Alternative 2 is estimated to support approximately 1,890 jobs and $78 million in labor income, or approximately $41,000 per job, on an average annual basis over the life of the Rim Country project. Alternative 3 is estimated to

support approximately 1,280 jobs and $53 million in labor income, also averaging approximately $41,000 per job, on an average annual basis over the life of the Rim Country project.

General Concern: Commenters provided a general comment about water resources and the impacts to thousands of people in mountain communities.

5. *The importance of these watersheds as water-sources for thousands of people in a few mountain communities like Payson but also as perhaps the major water-source for millions of people in the Phoenix metropolitan area... In addition to the economic values these watersheds offer for the water itself they offer great recreational values. 46.12*

    The water resource conditions are addressed within the soils section of the DEIS. The FEIS has been updated to more explicitly state these watersheds hold values as both a water source and for recreation. The purpose and need for the Rim Country project is to restore and maintain the structure, pattern, health, function, and vegetation composition and diversity in ponderosa pine ecosystems to conditions within the natural range of variation, thus moving the project area toward the desired conditions in the land management plans. Restoration in the Rim Country project area would directly and indirectly improve the condition of watersheds supporting the great recreational values that local communities and visitors enjoy.

Economics and Logging Systems

General Concern Comment

General Concern: Commenters showed concern for the excessive prioritization on logging and burning.

1. *We are concerned an excessive prioritization on logging and burning (and the associated road construction) could compromise the restoration actions we fully support. Further, the DEIS does not explain how Collaborative Forest Landscape Restoration Program funds or other sources of money will be allocated for dealing with the various landscape restoration needs. It fails to explain how the various restoration actions will be prioritized, leaving us skeptical that the Rim Country analysis area would be restored in a truly holistic manner. 42.5*

    The Forest Service engages with the stakeholder group to identify the appropriate role of stakeholders in the implementation process. This provides an opportunity for input and will occur outside of the planning process. Under all action alternatives, temporary roads would be closed, stabilized and either seeded or allowed to re-vegetate naturally once implementation is completed. See response to economics recommendations 3. The 4FRI Rim Country Project is no longer a CFLRP project, funding through the CFLRP ended in 2019.

Analysis Comment

General Concern: Further analysis of the feasibility of skidding for economic efficiency and operationally is requested.

1. *We recommend the final EIS be updated to assure the range of distances is analyzed and available during implementation. Additionally, it should be noted that skid trails that are 1,250 feet are neither operationally nor economically efficient. 40.45*

    A maximum skidding distance of 1,250 feet is assumed by all resource specialists within their analysis. This assures that shorter distances are available for use when 1,250 feet is neither

necessary, feasible, for example, due to landscape conditions, or economical. The actual distance of skid trails will be in compliance with each land management plan and balanced with existing and temporary roads.

2. *While the FS not only ignores the real cost to society, they simultaneously reject no-burn strategies for remediation of our forests such as petitioning Congress through the Secretary of Agriculture to change our outdated log export laws. These laws prohibit the export of logs in their unmilled form from public lands west of the 100th meridian, encompassing the entire western US. Changing these laws would provide a viable market, the FS does not have now, for the small diameter low value trees to the orient. Such a change would cost the taxpayer nothing and would exponentially accelerate the thinning process and provide jobs and infrastructure for the surrounding communities. 20.6*

   This is an act of Congress and outside the scope of this analysis and decision. The existing low market value of the wood products to be removed from the project area for example, small diameter trees, is thoroughly acknowledged throughout the analysis. The economic analysis addressed keeping operating costs low to improve the financial feasibility of forest treatments. Analysis of in-woods processing and storage sites were included to provide an implementation option to offset haul costs.

Fire

General Concerns Comments

General Concern: Commenters provided a comment related to the lack of disclosure around using fire in the immediate vicinity of homes and taking Firewise steps.

1. *The risks of fire are best dealt with in the immediate vicinity of homes, and by focusing on routes for egress during fire events—not by logging national forest lands well away from human occupied neighborhoods. The DEIS fails to disclose that, to prevent structure damage, managing the fuels in the immediate vicinity of those structures, and taking other Firewise steps, is mandatory. 42.119*

   The value of treatment to mitigate risk due to fire loss in the wildland-urban interface is included in the design of the action alternatives and associated effects analysis presented in chapter 3 of the draft environmental impact statement (for example, table 33, page 224 of the draft environmental impact statement). Additional clarifying information relating to the role of proposed treatments in the wildland-urban interface and adjacent to critical infrastructure has been added to the existing information presented in chapter 3 in volume 1 of the FEIS and the associated Fire Ecology Specialist report in the project record. This clarification also expands on the discussion of risk to varied highly valued resources and assets across the landscape, in addition to those found in the wildland-urban interface areas.

2. *In the ever changing (not subject to delineation under NEPA) boundaries of the WUI, the FTA is biased toward even "more open treatments that will result in up to 70% interspace" using vague "site specific considerations identified with Community Wildfire Protection Plans and local FS ranger districts." 42.62*

   The terms interspace has been removed from the Rim Country analysis as a treatment metric. These terms have been replaced with basal area and trees per acre as treatment metrics. This approach was developed in a collaborative manner and has been incorporated into the analysis throughout. The WUIs may be treated to a post-treatment basal area of 30 to 60 square feet per acre to modify fire behavior.

General Concern: Commenters provided a comment regarding facilitative operations in the DEIS.

3. *The discussions under "Facilitative Operations" DEIS p. 43 item 1) and Figures 10 and 11 show how the presence of roads and trails influences the choice of where to burn, which means we have prescribed fire for prescribed fire's sake rather than FTA decisions based upon existing vegetation conditions. 42.110*

    As described in volume 1 of the FEIS on pages 43–45, the facilitative operations prescribed fire treatments are necessary to improve treatment effectiveness for adjacent target vegetation types where existing vegetation types are the drivers of treatments. This section of the FEIS also explains the value of the facilitative operations in increasing firefighter safety and in decreasing the associated disturbance of building prescribed fire control features across the vegetation type boundaries.

Best Available Science and References Comments

General Concern: Commenters provided information from Baker regarding a fire modeling tool.

1. *Baker states," The Proposed Action needs to revise the historical fire regime and forest structure." Baker also cites and presents scientific research that identifies limitations of the FS's fire modeling tool, FlamMap. The DEIS fails to acknowledge this in the slightest. 42.38, 42.39*

    Additional information regarding the use, utility and limitations of the fire modeling used in the analysis, including FlamMap and other fire modeling tools has been added to the Fire Ecology Specialist report.

General Concern: Commenters provided a request for more scientific evidence.

2. *Much scientific research finds that drier forests did in fact experience stand-replacing fires (Baker and Williams 2015, Williams and Baker 2014, Baker et al. 2006, Pierce et al. 2004, Baker and Ehle 2001, Sherriff et al. 2014). The DEIS's representations that the proposed treatments will result in likely or predictable later wildland fire effects is of considerable scientific doubt (Rhodes and Baker, 2008). 42.98*

    Additional information regarding the science of pre-settlement stand-replacing fire has been added to chapter 3 of volume 1 of the FEIS and the Fire Ecology Specialist report. This includes a more in-depth discussion of the scientific controversy and use of best available scientific information in this analysis.

General Comments

1. *The USFS already is conducting too many prescribed burns, managed wildfires and pile burning. They need to look toward methods that preserve our water sheds, sustain wildlife and protect the public's health. Logging for fire breaks, thinning the forests, mulching and grazing are far safer for all these matters. 21.1*

    As outlined in the draft environmental impact statement, the use of prescribed fire is consistent with the protection of watersheds, sustaining wildlife, and protecting public health. The effects analysis presented in chapter 3 reflects the relative value and impacts of conducting prescribed fire in comparison to the no action alternative and consequences of wildfire in terms of air quality. Updated analysis has been included in the FEIS and the Fire Ecology Specialist report

highlighting the importance of prescribed fire in reducing the risks of wildfire to threatened and endangered species and achieving the project's stated objectives.

2. *DCs do not provide enough strong, binding direction as to compel managers to accomplish measurable outcomes in any specified timetable, nor could managers be held accountable for not accomplishing the DCs. "Desired conditions are for no more than 15 percent of the ponderosa pine (under conditions modeled) in the treatment area to be prone to crown fire or high-severity fire…". What is the empirical basis for that 15% figure? And has the FS determined an acceptable range of percentages? 42.128*

   Desired conditions come from the respective national forest's land management plan, and are plan components that are timeless and there is no specific date by which they are to be completed or achieved. The Rim Country project is intended to move the project area toward desired conditions, and anticipated progress toward those ends are presented in chapter 3 and are estimated based on full project implementation.

Clarification Comments

General Concern: Commenters provided concerns regarding; false narrative about fire; data and modelling related to fires, request for more "story" of successful reintroduction of fire on the landscape; questions regarding natural ignitions, locations of treatments and reduction of landscape scale crown fire; a concern about the Collaborative Forest Landscape Restoration Act statements indicating logging and fire suppression are key components of restoration; lack of information regarding natural ignitions; request for locations where fire is not allowed; what the criteria is for wildland fire and not meeting management objectives; catastrophic fire; scientific evidence needed to determine low, moderate, and high fire severity determinations; request for analysis regarding rate of fire spread; scientific references; fire hazard index; manipulation of language in the DEIS regarding fire; health consequences; use of the term "adapt to change"; and a request for how alternative 2 addressed issue 6 in the DEIS.

1. *The DEIS seems to tell a confusing story about fire. On one hand, the written narrative tells a tale of imminent threat of stand replacing fire destroying the landscape…On the other hand, the reported data tells the story of the expansion of ecologically appropriate fires burning at predominantly low severity. 48.114*

   As outlined in the draft environmental impact statement, chapter 3 and the accompanying Fire Ecology Specialist report (USDA FS 2022), there is a demonstrated risk across much of the Rim Country project area of stand-replacing fire. The restoration of the project area is intended in part to allow fire to burn with more ecologically appropriate low severity. The FEIS Chapter 3 Fire Ecology Affected Environment and Environmental Consequences sections include descriptions of these management objectives as they relate to fire severity and effects.

2. *Of added significance are the trends shown in Figure 46…This data, made clear in graphical form, contrasts with the claim in the DEIS that "[c]urrent conditions inhibit the survival and recruitment of large trees by fueling increasingly extensive high severity fires." If it's true that "[c]onditions across 80% of the project area would be capable of supporting active or passive crown fire under extreme fire weather conditions," then why don't actual observations of actual fires over the past 25+ years support that modelling result? And 69% of the project area would still support active and passive crown fire? 48.116*

   The statements regarding percent of the landscape capable of supporting high severity fires are predicated on the condition of extreme fire weather conditions. While an increase in the

occurrence of extreme fire weather conditions has been observed over the preceding quarter century, not all wildfires in that time period burned under these conditions. Because many large fires burn for multiple, consecutive days, day-to-day variance in fire weather conditions as well as seasonality of the burn both contribute to the gradient of fire severity observed. The analysis (chapter 3 of the FEIS and Fire Ecology Specialist report) has been updated to include a more robust description of observed trends in fire severity in the vicinity of the project area and how the metrics and indicators used in the analysis relate to observed fire effects.

3. *The DEIS states that "[o]verall, the annual acres burned by large fires has increased since 1992 (Figure 45), while the proportion of acres burned in each severity class has remained about the same (Figure 46). If these patterns continue into the near future (10 years), the total acres of high severity fire is likely to increase proportional to fire size increases." We strongly contest the conclusions drawn in this statement. 48.117*

   The data presented in the DEIS, chapter 3, Fire Ecology section, including the information presented in figures 44, 45 and 46 indicate that observed trends in fire occurrence and severity show that the increase in area burned has not changed the proportion of fires burned in each severity class. As stated in the DEIS, if these trends continue, then an increase in area burned would also lead to a corresponding increase in acres burned with high severity (as indicated under the no-action alternative). The analysis (chapter 3 of the FEIS and Fire Ecology Specialist report) has been updated to include a more robust description of observed trends in fire severity in the vicinity of the project area with linkages to assumptions about these trends into the future.

4. *The DEIS largely fails to tell the more important story, the story of the successful reintroduction of fire across a tremendous amount of the landscape, and with predominantly good results within the NRV. 48.118*

   It is correct there has been successful reintroduction of fire across the area and this project would with the implementation of wildland fire policies including the use of prescribed fire and management of naturally occurring wildfires. Additional analysis has been added to chapter 3 in the FEIS and the Fire Ecology Specialist report illustrating the relative success of fire's reintroduction and associated effects across the landscape.

5. *Sierra Club comments posed questions that the EIS should answer:*

   a. *Where and under what conditions can natural ignitions be managed for resource benefit under current Fire Management Plans?*

   b. *Where can treatments be located to facilitate containment and management of planned or unplanned ignitions within firescapes or subsets thereof?*

   c. *How can treatments be positioned and sequenced to most efficiently reduce the potential for landscape-scale crown fire? 42.90*

   Updates in the FEIS:

   a. The Fire Ecology Specialist report, Land Management Plan Direction has been updated with this information. The Coconino National Forest Land Management Plan, the Apache-Sitgreaves National Forests Land Management Plan, the Tonto National Forest Land Management Plan, and the Tonto National Forest Draft Land Management Plan all allow for the management of wildfires for resource benefits when and where expected fire effects and

behavior would be beneficial and would not threaten lives, property, infrastructure or critical resources.

b. The development of potential operational delineations is outside the scope of this analysis. This project is intended to restore ecological structure and function across the broad landscape and is not designed solely to mitigate wildfire risk.

c. The Fire Ecology Specialist report has been updated to include further discussion of a strategic treatments alternative. While this alternative was ultimately considered and eliminated from detailed analysis, the additional analysis presented in the specialist report and FEIS and implementation of the project may include optimization of the landscape.

6. *Despite representations to the contrary, the CFLRPlan as embodied in the 4FRI Rim Country DEIS perpetuates fire suppression. It lacks strong, nondiscretionary measures to restore the natural fire regimes said to have been lost or altered. This is evident in statements indicating logging and fire suppression are to be key components of the CFLRPlan indefinitely. Again, all these are implicated as factors leading to the need to ecologically restore the Rim Country CFLRPlan area in the DEIS, and also stated in Reynolds et al. 2013—frequently cited by the DEIS as guiding principles of the 4FRI proposal. 42.91*

   The purpose and need for the Rim Country Project is to restore and maintain the structure, pattern, health, function, and vegetation composition and diversity in ponderosa pine ecosystems to conditions within the natural range of variation, thus moving the project area toward the desired conditions in land management plans. Restoration in the project area would directly and indirectly improve the condition of watersheds supporting the outstanding recreational values that local communities and visitors enjoy.

7. *The implication in the DEIS is, under the action alternatives such resource benefits from natural fire would be even more likely because fire managers could feel more comfortable allowing natural ignitions to burn. The problem is, the DEIS is not at all convincing regarding naturally occurring fire management, since it makes several references to continuing widespread suppression under the CFLRPlan…Because of the culture of wildfire control the agency has enabled for over a century, managers are generally only second-guessed for not taking suppression actions.42.92*

   Modifying agency culture and perceived incentives related to fire suppression activities is outside the scope of this decision.

8. *The Fire Ecology Report states, "In areas where it is not possible to allow fire to fully resume its natural role within an ecosystem, Prescribed Fire will be applied to meet management objectives…" Please provide a description (including areal extent) of these areas where fire is not allowed to "fully resume its natural role" in the analysis area. 42.93*

   The Fire Ecology Specialist report and FEIS have been updated to more concisely depict portions of the landscape where fire cannot resume its natural role within the ecosystem based on the current conditions. The intent of the project is to reintroduce wildfire and utilize wildland fire where feasible. Throughout and following implementation, natural ignitions may be used more frequently to promote and maintain desired conditions.

9. *How will it be determined if a wildland fire is threatening the WUI? And to what extent could this suppression happen in areas other than those where it is not allowed to "fully resume its natural role" in the analysis area? Are there areas outside the WUI where fire will not be allowed to "fully resume its natural role"? 42.94*

Emergency suppression actions associated with active wildfires are outside the scope of this decision. See response to fire clarification 8.

10. *"Wildland Fire not meeting management objectives will receive an appropriate suppression response" (Id.). What criteria will be used—and when—to determine a wildland fire is "not meeting management objectives"? 42.95*

    Emergency suppression actions associated with active wildfires are outside the scope of this decision.

11. *Fire suppression in the Rim Country CFLRPlan area has likely not caused a significantly elevated risk of "catastrophic" fire in the analysis area. 42.96*

    As described in the Fire Ecology Specialist report and the FEIS, a confluence of factors have contributed to the elevated risk of "catastrophic" fire in the analysis area when compared to the historic and natural range of variation for the associated ecological response units. Among the contributing factors has been the practice of aggressive fire suppression throughout the 20th century.

12. *The Fire Ecology Report states, "Currently, the number of acres burning with high severity is much larger than historic data indicates was typical of ponderosa pine in the southwest…" What was, historically "typical of ponderosa pine in the SW" in terms of extent of percent burned at low severity, at moderate severity, and at high severity—and what is your scientific basis? 42.100*

    The analysis has been updated to include additional information regarding the role of fire at different severity levels in the pre-Euro-American settlement period.

13. *Opening the forest canopy increases the rate of fire spread, which is not adequately addressed in the DEIS. 42.104*

    Rate of spread is not an indicator or metric used in the analysis supporting this project, therefore, changes in recreation opportunity spectrum are not analyzed in detail. Metrics used to compare alternatives include fire type, fire hazard index, and total surface fuel loading.

14. *The FS's analyses skew toward considering fire as a threat to the ecosystem rather than a rejuvenating natural process. The Narrative needs the obsolete viewpoint in order to justify and prioritize the proposed vegetation manipulations, tacitly for replacing natural processes with "treatments" and "prescriptions." However, the scientific support for assuming that ecosystems can be restored while being continuously maintained by such manipulative actions is entirely lacking. 42.105*

    The analysis has been updated to clarify the role of ecologically appropriate fire as a beneficial system driver while also recognizing the threat posed by large-scale uncharacteristically severe wildfire.

15. *The DEIS fails to disclose or acknowledge the science that indicates severe fires burning over large acreages may be less frequent than low severity fires, but are still not unusual; and that fire severity is dependent much more upon weather than fuels. 42.106*

    The analysis has been updated to better describe the role of mixed- and high-severity fires and their relation to fire weather events. Fulé et al. (2012) found that "Contrary to the conclusions of W&B, the preponderance of scientific evidence indicates that conservation of dry forest

ecosystems in the western United States and their ecological, social and economic value is not consistent with a present-day disturbance regime of large, high-severity fires, especially under changing climate."

16. *"Alternative 2 is expected to reduce the potential for active and conditional crown fire to within desired conditions for all vegetation cover types... Over the rim country project area, 12 percent of the area burned under extreme weather conditions would be expected to be active or conditional crown fire, down from 31 percent given existing conditions. ... Under less extreme wind conditions (5 MPH instead of 20 MPH), the majority of the landscape (95 percent) is expected to burn as a surface fire, and only 43,396 acres are expected to burn with passive crown fire, and 270 acres with active or conditional crown fire." Again, such fire modeling and associated analyses in much of the DEIS fail to provide sufficient temporal context, nuanced at various intervals post-treatment and tempered by the other timing and financing difficulties acknowledged in the DEIS. 42.109*

    The effects presented in the analysis assume full implementation of the project to best disclose the full scope and scale of the environmental impacts. Effects from implementation at levels less than those analyzed will still fall within the range of effects disclosed across alternatives, including the no action alternative.

17. *Please respond to the points made (and the scientific references cited) in the John Muir Project's August 11, 2016 scoping comments. These include:*

    a. *These Forests Do Not Have an Unnatural Excess of Fire, or High-Intensity Fire, and Future Trends May Be Downward*

    b. *Large High-Intensity Fire Patches Did Sometimes Occur Historically in Ponderosa Pine and Dry Mixed-Conifer Forests of This Area*

    c. *Mexican Spotted Owls are Thriving in Large Mixed-Intensity Fires, in the Absence of Post-Fire Logging*

    d. *Optimal Conditions for Forest Birds are Created by Mixed-Intensity Fires in Southwest Ponderosa Pine Forests, Not By Nearly Homogeneous Low-Intensity Fires*

    e. *Large Forest Fires in Arizona Over the Past Decade Are Heavily Dominated by Low/Moderate-Intensity Effects. 42.117*

    Responses to John Muir Project's August 11, 2016, scoping comments:

    a. The analysis presented does not claim an unnatural excess of fire but does point to measured trends in high severity fire exceeding desired conditions for this landscape.

    b. The analysis has been updated to better describe the role of mixed and high-severity fires in the referenced ecological response units.

    c. The purpose and need for this project follows the land management standards and guidelines for Mexican spotted owl in the ecosystems present in the Rim Country project area. Large-scale stand-replacing fire is the greatest threat to the species, and part of the objectives of this project is to mitigate for stand-replacing fire. Prescribed fire and natural ignitions may burn into primary activity centers with varying severity.

    d. This project analyzes for numerous bird species and the effects to these species can vary. As included in the response to fire clarification 17c, prescribed fire and natural ignitions may burn in habitat for other bird species.

e. Chapter 3 of the FEIS, Fire, Affected Environment includes a description of contemporary fire occurrence in and around the project area including fire severity and shows that the majority of acres burned in large fires over the past decade burned with low to moderate intensity effects.

18. *The nine-part Wildfire Research Fact Sheet Series was produced by the National Fire Protection Association (NFPA)'s Firewise USA® program, as part of the NFPA/USDA Forest Service cooperative agreement and with research provided by the Insurance Institute for Business and Home Safety (IBHS). It is a product of the research done by the IBHS lab in South Carolina, covering a wide range of issues. It contrasts with the fire scare appearing in the DEIS. This Firewise approach also begs the question—why isn't the FS implementing an aggressive outreach and education program to assist homeowners living in and near the Rim Country—and elsewhere in the "WUI?" We strongly support government actions that facilitate cultural change toward private landowners taking the primary responsibility for mitigating the safety and property risks from fire… 42.120*

    Fire prevention measures are ongoing as part of regular agency business, including in collaboration with state and private partners. Implementing the National Fire Protection Association's Firewise program is outside the scope of this decision.

19. *Under Alternative 2, what is the duration of that effect? In other words, when would the FHI return to a condition not significantly different than it is currently? 42.122*

    The analysis has been updated to better describe anticipated temporal changes in fire hazard index post implementation. Some underlying factors influencing the fire hazard index rating are static, and those remain static through time. However, other fire hazard index factors are related to fuel conditions and configurations are expected to change through time especially in the absence of recurring maintenance disturbance.

20. *The DEIS also fails to deal with the fuels issue on the appropriate temporal scale. How landscape-level fire behavior would be changed or improved at any period except for a limited time after treatment is not adequately analyzed. 42.108*

    The analysis has been updated to better describe anticipated longevity of described effects.

21. *Under the How Issue 6 is addressed, USFS should provide an explanation of how Alternative 2 addresses Issue 6. 40.22*

    The FEIS provides an explanation of how alternative 2 addresses issue 6 including the following air resource indicators and measures: nuisance smoke (qualitative); exceedances of national ambient air quality standards (qualitative); smoke emissions – criteria air pollutants (quantitative); smoke emissions – greenhouse gases (quantitative); visibility or regional haze (qualitative). Implementation of the project would comply with the Federal Clean Air Act and at the state level with the Arizona Department of Environmental Quality's regulations that require the project to not cause exceedances of the national and state ambient air quality standards. In the FEIS Chapter 1, the "Significant Issues Responded to in Alternatives to the Modified Proposed Action" section describes how alternative 3, not alternative 2, responds to Issue 6.

22. *As might be expected when something is flawed, cracks in the Narrative appear in the form of contradictions and inconsistencies in DEIS analyses. " Many of the wildfires that burned within the project area in the last 10 years were managed primarily for resource objectives instead of primarily for suppression, and they produced primarily low-severity fire effects." In other words, working with natural processes as per the no action alternative can be restorative after all. 42.35*

    The FEIS discloses the need for mechanical treatments followed by prescribed fire in areas that have unnaturally high tree densities and fuel loads that preclude the efficient implementation of wildland fire and that could result in unacceptable damage to ecosystems.

23. *Despite DEIS predictions of "catastrophic" fire under a no-action scenario, the DEIS suggests otherwise. "Of the annual acres burned by large fires since 1992, about 73% burned at low severity on average, and 27% burned at moderate to high severity." Also, "Wildfires from 1943 to 2017 (Table 28) have burned approximately 509,447 acres in or adjacent to the project area. Of these acres, it is estimated that the overall average fire severity to the vegetation was 20% high severity, 30% mixed severity, and 50% low severity. 42.99*

    Answered in part by Fire, Clarification, response 22 above. Under the no action alternative, the FEIS discloses how, if left untreated, large portions of the project area would result in increasing damage from future wildfires.

Analysis Comments

General Concern: Commenters provided concerns regarding the analysis in the DEIS. The comments are related to lack of a comprehensive analysis; failure to address the fuels issue on an appropriate scale, lack of information on how fire reduction is being handled on private land in the project area; direct and indirect effects are not fully analyzed; and the lack of information related to indirect benefits.

1. *The DEIS doesn't provide a comprehensive enough analysis of the varying amounts and levels of effectiveness of "fuel" changes attributable to foreseeable projects in the analysis area, the varying ages of the past cuts, the varying forest types, the past slash treatments, etc. 42.102*

    The Fire Ecology Specialist report and the FEIS have been updated to better reflect the cumulative effects of fuel changes associated with past, ongoing, and reasonably foreseeable projects.

2. *The DEIS does not disclose the actions being taken to reduce fire risk on private lands in the vicinity of the CFLRPlan area, especially those on and adjacent to homes and other valued infrastructure; and the DEIS does not analyze how those activities (or lack of) will impact the efficacy of the activities proposed under the CFLR Plan. 42.121*

    Treatments and actions on private lands are outside the scope of the analysis for the Rim Country Project. See response to fire clarification 18.

3. *The Fire Ecology Report states: "While the primary focus of this cumulative effects analysis focusses on the previous 10 years of wildfires and activities, it is important to note the role that past management has had on influencing this landscape and creating undesirable and unnatural conditions." How can these earlier effects be "noted" if the cumulative effects analysis doesn't consider them? Many direct and indirect effects of fire suppression are also ignored in the DEIS as well as in the programmatic context. 42.124, 42.125*

   The role of past management in influencing the landscape is inherent and included in the existing conditions depicted for the project area as outlined in chapter 3 of the analysis and in the Fire Ecology Specialist report.

4. *Constructing firelines by handcrews or heavy equipment results in a number of direct environmental impacts: it kills and removes vegetation; displaces, compacts, and erodes soil; and degrades water quality. When dozer lines are cut into roadless areas they also create long-term visual scars that can ruin the wilderness experience of roadless area recreationists. Site-specific impacts of firelines may be highly significant, especially for interior-dwelling wildlife species sensitive to fragmentation and edge effects. 42.124*

   Emergency suppression actions associated with active wildfires are outside the scope of this decision. The facilitative operations included in the action alternatives are designed in part to reduce resource impact by minimizing the need for new fire line construction in support of prescribed fire operations. The Forest Service does not construct dozer line in wilderness or roadless areas for prescribed fire.

5. *The indirect benefits claimed by the DEIS in preventing "catastrophic" fires are too speculative, as we discuss elsewhere. Any claimed benefits would be nullified anyway, with the vegetation manipulations within riparian areas both within and outside critical habitat. 42.226*

   Effects to riparian resources and aquatic species are included in the analysis. The watershed and aquatics analysis can be found in chapter 3 of the FEIS and the specialist reports (USDA FS 2022) are available in the project record.

Cumulative Effects Comment

General Concern: Commenters provided a comment related to lack of cumulative effects being analyzed.

1. *The FS has never conducted an adequate programmatic analysis of cumulative effects on all the affected forest resources from its suppression policies. The CFLRPlan would "treat" now, suppress fires continuously, and "treat" again in the future based on the very same "need" to address the ongoing results of fire suppression. 42.123*

   The intent of the action alternatives is to restore the structure and function of the ecological response units in the project area. Following implementation, wildfire may be more effectively managed to maintain desired conditions and predicate the need for future treatments. This would be achieved in part by restoring fire to its natural role in the ecosystem.

Recommendations Comments

General Concern: Commenters provided recommendations related to implementation prioritization; additional information related to fire effects; additional analysis for reduction in air emissions; inclusion

of a statement related to alternative 1 continuing risk of uncharacteristic wildfire; and changes to statements within the EIS.

1. *The ERI has and continues to recommend that landscape restoration begin with spatially explicit landscape assessments of existing condition, existing risk, and departure from desired condition. We strongly recommend that the fire analysis and ranking of HUC 6s be incorporated into implementation prioritization exercises, to build a landscape resilient to uncharacteristically severe fire, in a strategic and efficient manner. 41.157*

   The Fire Ecology Specialist report and FEIS have been updated to include further discussion of a strategic treatments alternative. While this alternative was ultimately considered and eliminated from detailed analysis, the additional rationale presented in the report and FEIS addresses optimization of the landscape to build a landscape resilient to uncharacteristically severe fire. Alternative 2 is designed to help build a landscape resilient to uncharacteristically severe fire; however, it is not designed to do so in an explicitly strategic or efficient manner.

2. *The ERI recommends that the Forest Service include additional information in the fire effects section that documents the effects of thinning and burning on understory species. Specifically, information about how the plant community species composition resulting from a wildfire may be very different than that resulting from restoration treatments. 41.16*

   The Silviculture Specialist report (USDA FS 2022) and the FEIS have been updated to include a discussion of effects of thinning and burning on understory species.

3. *SRP recommends that USFS include a statement that acknowledges that Alternative 1 will continue the existing forests conditions that are at risk for uncharacteristic wildfire and that this Alternative is likely to see more wildfire, which will emit more carbon and sequester less. In addition, USFS should acknowledge that some wildfires will have high-severity burns that could destroy the carbon sink altogether for a certain period of time or change the vegetation for the area and that also has an impact on the amount of carbon that will be sequestered. 40.69*

   The FEIS has been updated to acknowledge the requested information. Alternative 1 would continue the existing forests' conditions that are at risk for uncharacteristic wildfire and that this alternative is likely to see more wildfire. If the entire Rim Country project area were to burn in a stand-replacing wildfire, the criteria air pollutant emissions would be approximately 461 to 684 percent, and greenhouse gas emissions would be approximately 566 percent of Arizona annual statewide prescribed fire emissions. Six different treatment scenarios described under alternative 2 would produce approximately 37 to 116 percent of criteria air pollutant emissions, and approximately 45 to 97 percent of greenhouse gas emissions compared to Arizona annual statewide prescribed fire emissions. Six different treatment scenarios described under alternative 3 would produce approximately 25 to 64 percent of criteria air pollutant emissions, and approximately 27 to 54 percent of greenhouse gas emissions compared to Arizona annual statewide prescribed fire emissions.

   Some wildfires can have high-severity burns that could reduce the carbon sink for a certain period of time or change the vegetation for the area and that also has an impact on the amount of carbon that will be sequestered. Restoration treatments (such as thinning, prescribed fire) as identified in the proposed action, promote low-density stand structures, characterized by larger, fire-resistant trees. This strategy should afford for greater carbon storage in southwestern fire-adapted ecosystems over time (McCauley et al. 2019). Although fire-excluded forests contain higher

carbon stocks, this benefit is outweighed in the long term by the loss that would result from uncharacteristic stand-replacing fires exacerbated by a changing climate and denser forests if left untreated. McCauley et al. (2019) and Woods et al. (2012) found that, although burn frequency affected the rate and total amount of carbon storage in a ponderosa pine forest, both 20-year and 10-year fire return intervals produced forests that were net carbon sinks, while the no-action alternative forest became a net carbon source.

4. *SRP recommends that USFS change this item to state that "After burning is complete, burn sites that are visible from roads, trails, developed sites, or private dwellings may be covered with natural duff, if natural material is available nearby. SRP also recommends that the USFS allow for up to 3" of material to be used for coverage. 40.78*

   Design feature RS011 in appendix C of the FEIS has been updated.

5. *SRP recommends the following change "All piling equipment must be equipped with a brush rake, if possible, to minimize disturbance to the soil surface." 40.82*

   Design features included in the project (see appendix C of the FEIS, volume 2) address soil erosion and it is not necessary to include the commenter's recommended language.

General Concern: Commenters recommended scheduled controlled burns not coincide with hunting seasons.

6. *I sincerely recommend that the scheduling of controlled burns do not coincide with hunting seasons! Please coordinate all activities with AZGFD. 8.1*

   The Forest Service coordinates prescribed burning with local partners regularly. The priority for when prescribed burning occurs is based on weather, resource conditions, and personnel availability to ensure firefighter and community safety as well as successful implementation of the prescribed fire.

Implementation Comments

General Concern: Commenters provided a comment related to implementation for fuel conditions.

7. *The DEIS's analyses which predict reduced fire severity don't consider that management actions would often result in "fuel" conditions leading to just the opposite…During the implementation period, untreated areas would be vulnerable to the effects as described in the Existing Condition and/or the Alternative 1 (no action), depending on the applicable time period. 42.103*

   The Fire Ecology Specialist report and FEIS have been updated to acknowledge the risk for environmental degradation as a result of undesirable fire effects during the implementation period.

Fire and Recreation

Clarification Comment

General Concern: Commenters provided a comment regarding confusion with fire control lines and national scenic recreational and historic trails.

1. *There is confusion regarding fire control lines and national scenic, recreational or historic tails in in RS004. Section (a) states that fire control lines should avoid "the Arizona Trail unless no other viable alternatives exist…" Later section (d) states that "Control lines … should be avoided on these trails under any circumstances unless these trails are co-located on roads" (p. 562). These two sections must be revised to clearly indicate that the Arizona Trail cannot be used as a fire line unless it is co-located on a road. 26.7*

   The Recreation Specialist report (USDA FS 2022) and the FEIS have been modified to reflect consistency between the report and design feature RS004 noting no use of fire control lines on the Arizona Trail unless it is co-located on a road.

Fire and Silviculture

General Concerns Comment

General Concern: Commenters provided a comment stating that small-diameter thinning and prescribed fire would reduce mistletoe occurrences.

1. *…we stand by our position that small diameter thinning and repeated prescribed fire will reduce current mistletoe occurrences to endemic levels, and there is no need to target any mistletoe incidence with higher intensity thinning treatments. 47.58, 47.59, 47.64, 48.6*

   Mistletoe-specific treatments included in the DEIS were removed from the project as a result of collaborative work with the 4FRI Stakeholder Group. These mistletoe-specific treatments (intermediate thinning treatments) are no longer included in the project and do not appear in the FEIS.

Clarification Comments

General Concern: Commenters provided concerns regarding activity generated fuels; concern that the EIS emphasizes actions that adapt the current ecosystem to the presence of human development; lack of correlation between the reduction in tree mortality equating to less trees killed by fire; and a request for guidance for facilitative treatments.

1. *The DEIS doesn't acknowledge the correlation between logging and subsequent severe fire effects. Many activity-generated "fuels" will not be removed or "treated" in timeframes that minimalize risk. 42.107 (150.01, 160.01*

   The Fire Ecology Specialist report was updated to acknowledge that some elevated surface fuel loading may occur in stands treated mechanically before prescribed fire has been fully implemented.

2. *The Rim Country CFLRPlan emphasizes actions that attempt to adapt a fire-prone ecosystem to the presence of human development. However, we firmly believe the emphasis must be the opposite—assisting human communities to adapt to the fire-prone ecosystems into which they're built. We are concerned the definition of Wildland-Urban Interface (WUI) implies that the amount of land encompassed will likely expand during the 20+ years of CFLRPlan implementation. With development of new residential areas or infrastructure resulting in expansion of the WUI, areas receiving more intense treatment would also expand. This invokes NEPA issues. 42.118*

   There may be additional infrastructure and growth in communities and on private land within the project area. The proposed treatments in the action alternatives would improve the overall

conditions on National Forest System lands, reduce the hazardous fuel conditions in the current wildland-urban interfaces which should have a positive effect on future developments. The effects of acres analyzed represent a cap on potential wildland-urban interface treatment acres.

3. *The proposal's intent to reduce tree mortality by having fewer trees to be killed by fire does not make sense from an ecological perspective because there is less old growth and few snags. 42.162*

   See responses to wildlife analysis 4, 5; wildlife clarification 3; and wildlife land management plan consistency 2.

4. *Included facilitative operations (both mechanical and fire) as a treatment in the discussion and include descriptions of ecotone types (pinyon-juniper and mixed conifer) where the treatments will occur. Modify the EIS to include guidance for facilitative treatments that bring these systems closer to their respective Desired Conditions and follow best available science. For example, large and old junipers have high value to many wildlife species and should be excluded from thinning or burning treatments. 28.16*

   Additional information has been added in the FEIS for the facilitative operations treatment descriptions (both mechanical and fire) to include descriptions of ecotone types (pinyon-juniper and mixed conifer) where the treatments will occur. During treatments, upon encountering large and/or old trees of any species, implementers would follow direction under the large and old tree implementation plans. Outside of PACs, facilitative operations mechanical treatments would thin trees 0 to 18 inches dbh from below to a residual canopy cover of 30 percent. In Mexican spotted owl protected activity centers in mixed conifer cover type, facilitative operations mechanical treatments would use the uneven-aged BDq method where B=55 ft squared, D=0-18 and Q=1.1, retention of 99 legacy trees per acre. The FEIS has been updated to show acreages of facilitative operations non-target ERU cover types for alternatives 2 and 3 and broken down by mechanical treatment followed by prescribed burning and prescribed burning only. Very little pinyon-juniper habitat occurs in Mexican spotted owl protected habitat in the project area and prescriptions will not target older trees where they do occur.

Analysis Comments

General Concern: Commenters provided concerns regarding the natural range of variability including the examples given in the EIS and lack of data from recent burns.

1. *The CFLRPlan proposes "Severe Disturbance Area Treatments" for places where the effects of recent wildfire are said to be outside the NRV. Yet the two examples of effects are not direct effects of wildfire, they are indirect effects—regeneration of native species: "aggressive" sprouting of alligator juniper and oaks and "overly dense" regeneration of ponderosa pine. There are no metrics of "aggressive" or "overly dense" regeneration. There are no data sources cited as basis for concluding the wildfire effects are outside the NRV. There is no analysis of all potential factors resulting in this alleged non-NRV. And instead of providing locations where conditions are outside the NRV from fire, the DEIS simply lists the names of recent fires. There is no map showing the locations of the alleged 125,800 acres. There is no analysis of pre-fire conditions or their causes. In short, there is simply no analysis supporting the proposal to conduct "Severe Disturbance Area Treatments" and no way to ensure that the conditions that led to the "aggressive" sprouting and "overly dense" regeneration won't persist and cause the same species to resprout in the same densities post-treatment. 42.111*

An additional citation (Huffman et al. 2020) regarding natural range of variability for alligator juniper, oaks and ponderosa pine has been incorporated into the FEIS to support the analysis that wildfire effects are outside the natural range of variability. The areas that are considered severe disturbance areas are part of the existing condition for the project area. The facilitative operations treatment recommends thinning alligator juniper, oak, and ponderosa pine to within their natural range of variability.

2. *Since the Narrative depends upon the prediction of "catastrophic" fire if treatments aren't undertaken, one might expect the DEIS to provide an analysis citing data collected from recent burns in Rim Country, using scientifically derived metrics to support a conclusion the effects of those fires were "catastrophic." Yet what information the DEIS does provide on the topic tends to contradict the Narrative. 42.112*

   The analysis (chapter 3 in the FEIS and Fire Ecology Specialist report) has been updated to include a more robust description of observed trends in fire severity in the project area and vicinity of the project area, including relationship of high-severity fire effects and the term catastrophic.

3. *The DEIS justifies acceleration of treatments, yet nothing in the DEIS proves such a critical time period exists and perhaps it is response to political pressure created by CFLRP. 42.54*

   The Rim Country Project is no longer a CFLRP project, though the project meets the intent of the CFLRP. The Rim Country Project would conduct restoration activities over a 20-year period, or until activities can be completed. The focus has been to restore forest landscapes and reduce the potential for severe fire effects in a manner that also benefits the local economy.

4. *To what degree are the ponderosa pine/Gambel oak habitat types in the Rim Country analysis area really departed from "historic" conditions as claimed under the Narrative? 42.55*

   The ponderosa pine cover type as, including pine oak, is outside the natural range of variability according to multiple sources including Reynolds (2013) and Wasserman et al. (2019).

5. *The public and other interested parties are unable to see what logging and burning techniques are to be applied in specific stands or other local landscape units, because it awaits until after the ROD is signed. 42.56*

   The Rim Country Project is condition based. The proposed action, including treatment proposed have been adequately described in chapter 2 of the EIS. Implementation is not a component of this planning process. See responses to Collaboration, general, 2 and 3.

6. *The Rim Country DEIS promotes a false narrative about fire. The DEIS seems to tell a confusing story about fire. On one hand, the written narrative tells a tale of imminent threat of stand replacing fire destroying the landscape. For example, the claim that "[e]xisting conditions, which are currently prone to high severity crown fire would only worsen."160 On the other hand, the reported data tells the story of the expansion of ecologically appropriate fires burning at predominantly low severity. So, we wonder why the Forest Service seems intent on telling a narrative that the system is so far out of balance 48.113, 48.114, 48.115*

   The project would move portions of the area that are at risk from damaging wildfires toward meeting desired conditions through use of mechanical and prescribed fire treatments.

Forest Health

Clarification Comments

General Concern: Commenters offer information and alternative approaches while questioning the need for the proposed ponderosa pine regeneration approach, reliance on fencing to protect vegetation, and the need for logging, burning, and road-building. Also noted is the oversimplification of biological diversity across the landscape and the lack of data sources on which natural range of variation is based, and a concern that mechanical treatment may occur on fewer acres than planned. Concerns include comments related to dwarf mistletoe in the landscape.

1. *The ERI does not support the distinction of regeneration openings in ponderosa pine forests as there is little evidence for this pattern in historic reconstructions. 41.9*

   With the replacement of interspace with basal area and trees per acre as treatment metrics, the use of regeneration openings has been deemed unnecessary. The term has been removed from the implementation plan as it pertains to the use of interspace as a metric.

2. *Combining desired "regeneration openings" with desired interspaces to allow a better cross- walk to ecological regeneration process, including the ability to mimic historic forest age distributions (historic regeneration rates range between 0.4 to 3.6 trees per hectare per decade (Mast et al. 1999. Restoration of Presettlement Age Structure of an Arizona Ponderosa Pine Forest. Ecological Applications 9(1): 228-239), also see Bailey and Covington. 2002. Evaluating ponderosa pine regeneration rates following ecological restoration treatments in northern AZ, USA. Forest Ecology and Management 155: 271-278). 32.12, 41.10*

   See response to Forest Health Clarification 1.

3. *"To stimulate growth, recruit younger age classes, and increase individual recruitment of aspen, protective barriers would be placed around sites to prevent browsing and other disturbance during regeneration. Protective barriers would also be placed around pockets of Bebb's willow and bigtooth maple…" With livestock grazing being ubiquitous in Rim Country, and lacking the effect of a top predator (Mexican wolf), please explain how we can ever get to a point where fencing—with its own brand of adverse impacts to scenery and native species movements and survival—would not be needed for those purposes. The Forest Service should not rely on fencing to protect vegetation and should instead focus on long term, sustainable, and proven solutions such as additional wolf reintroductions and recovery and the retirement of grazing allotments to restore ecosystem health. 42.76*

   The aspen restoration methods described in the draft environmental impact statement represent the best scientific information available and were developed in a collaborative manner. The aspen restoration strategies described in Kitchen et al. (2019) and Rogers (2017) represent collaboratively developed strategies to restore aspen on lands in the western United States. Application of these strategies or modified strategies could also be effective at management of bigtooth maple as well as Bebb's willow. The reintroduction of Mexican wolves into the Rim Country project area and grazing allotment management is outside the scope of this analysis.

4. *Churchill, 2011 describes the ongoing natural processes that will alleviate problems such as alleged in the DEIS—without invoking the expensive and ecologically risky logging, prescribed burning, and road building: Over time, stand development processes and biophysical variation, along with low and mixed-severity disturbances, break up these large patches into a finer quilt of patch types. These new patterns then constrain future fires. Landscape pattern is thus generated from a blend of finer scale, feedback loops of vegetation and disturbance and broad scale events that are driven by extreme climatic events. (Emphasis added.) 42.97*

   The proposed action includes the use of prescribed fire as well as mechanical thinning to meet the desired conditions in terms of structure, pattern and composition. A combination of mechanical thinning and prescribed fire provides the most effective strategy to meet the desired conditions.

5. *The DEIS's Existing and Desired Conditions oversimplify the biological diversity and complexity found in the Rim Country. DEIS Table 5 is exemplary. Regardless of the cover types, all of the areas proposed for mechanical thinning are desired to have the same structure, pattern, basal area, stand density, and level of tree diseases and insects. The DEIS also doesn't cite sufficient data sources from long term surveys to accurately define the historic conditions upon which the NRV is based. 39.38, 42.126.*

   Desired conditions are based on a variety of sources, including land management plans, recovery plans as well as the best available scientific information. While table 7 in the FEIS, volume 1, presents a set of desired conditions to serve as indicator measures, a much larger table of desired conditions is presented in the Silviculture Report.

6. *The CFLRPlan strategy to strive toward the NRV focuses on achieving static conditions, instead of fostering the natural dynamic characteristics of ecosystems. An abundance of scientific evidence indicates the FS's static desired conditions should be replaced by desired future dynamics to align with best available science 42.23, 42.131*

   Desired conditions are based on the desired conditions stated in land management plans, recovery plans and other guiding documents. Changing desired conditions in land management plans is outside the scope of this project.

7. *As a solution, the SHG has proposed removing confusing and redundant terms in the current "openness and interspace" methodology contained within the DEIS. 28.7, 39.21, 39.22*

   The terms interspace and openness have been removed from the Rim Country analysis as a treatment metric. These terms have been replaced with basal area and trees per acre as treatment metrics. This approach was developed in a collaborative manner and has been incorporated into the analysis.

8. *Natural disturbance agents are key drivers of resiliency. The use of the term "survive" in the definition of resilience suggests that disturbances are by nature threats to the viability of ecosystems. This is not consistent with adaptations to frequent low-intensity and infrequent high-intensity disturbances that southwestern forests evolved under. 48.5, 48.7*

   The term resilience has been defined in the glossary as, "The ability of an ecosystem and its component parts to absorb, or recover from the effects of disturbances through preservation, restoration, or improvement of its essential structures and functions and redundancy of ecological patterns across the landscape". The text has been modified from "survive and recover" to "survive and/or recover" for the FEIS.

9. *Concern: there are significant limitations and uncertainty in the available science that informs the expected Natural Range of Variation of Rim Country Forests, associated Desired Conditions, and treatment design for mechanical thinning. Recommendation: Any subsequent NEPA document prepared as part of the Rim Country analysis should adopt a more conservative approach to mechanical thinning in Ponderosa Pine cover types, one that acknowledges uncertainty and better addresses desired conditions. 47.48, 47.49, 48.75*

   The natural range of variability of ponderosa pine forest has been extensively studied (Wasserman et al. 2019, Reynolds 2013). Ponderosa pine habitat is the target for restoration in 4FRI. While it is possible that some other adjacent habitat types could be treated to allow for prescribed burning, restoration in other habitat types besides the stated savanna, aspen, grassland, riparian and wet meadow treatments is not the focus of this project.

10. *The Department requests that the FEIS more fully address the diversity of the planning area by being more specific about existing conditions in these different forest types ecosystems so that the Department, and the general public, have a better picture of current restoration needs outside the Ponderosa Pine forest. 28.11*

    Additional information on other cover types has been provided in the FEIS as well as the silviculture specialist report. See also Condition-Based Management, Recommendation, response 51.

11. *The Forest Service has repeatedly attempted to portray the level of dwarf mistletoe on the landscape as an existential threat to forest sustainability. Data presented to the Stakeholders, and firsthand observations in the field, have not convinced us that this argument has merit. Figure 31 shows that despite dramatic landscape scale thinning that moves nearly ¾ of the landscape below desired conditions for stand density index, and nearly 1/3 of the landscape below desired conditions for basal area, that mistletoe infection in the moderate and severe classes will actually increase from 26% to 34%. This should suggest that either the modelling assumptions are off, the data imputations are off, or that the intensity of treatment is driving the increased infection rate. The Center stands by the assertion in the Stakeholders letter of April 4, 2017 to the Forest Service that thinning and burning within a conventional restoration approach is appropriate for managing stand with dwarf mistletoe. 48.82, 48.83. 48.84, 48.93,48.94, 48.95*

    The approach to dwarf mistletoe management has been modified in the FEIS and text has been modified to reflect this.

12. *CONCERN: DEIS mischaracterizes of best available science on ponderosa pine dwarf mistletoe. In citing Conklin and Fairweather (2010), the DEIS claims that "[w]hile experts think that the extent of dwarf mistletoe has increased only modestly, the abundance and intensity of infections have increased substantially across the project area due to closed forest conditions, lack of low severity fire, and lack of adequate mitigation management."125 This statement is misleading and does not accurately cite the referenced report. First, Conklin and Fairweather (2010) never use the term "intensity" to describe dwarf mistletoe infection, so ascribing this term to their work misrepresents the source literature. Second, this statement leaves out an essential word that Conklin and Fairweather (2010) use repeatedly throughout their report; that is the conditional verb modifier "probably." Their report actually says that "[m]istletoe abundance is probably greater today than in the 1800s, mostly because there are more trees now, especially in the ponderosa pine type."126 Furthermore, they state that "…the number of infected ponderosa pines on the landscape—and the abundance of its mistletoe—have probably increased considerably in many areas"127 though they*

never mention any specifics of the "project area" as claimed in the statement above from the DEIS. Third, this statement does not include one of the causes of the probable increase in dwarf mistletoe abundance, and that is thinning and logging Following the slightly inaccurate citation of Conklin and Fairweathers (2010) report, the DEIS cites Kenaley (2008) in stating that "[t]his increased infection severity has been associated with decreased resilience to beetle- and drought-induced mortality."130 This sentence should not begin with the word "this" in referring to increased infection severity, as the use of that word infers that Conklin and Fairweather (2010) established that there has been an increase in infection severity, which they did not. They did state that "ponderosa pine forests along the Mogollon Rim in central Arizona are severely infested with dwarf mistletoe"131 but made no assertion that the level of severity had increased. In fact, in that section of their report they attribute regional variations in severity to climatic and genetic differences and interactions with wildlife that disperse the seeds.

The approach to dwarf mistletoe management has been modified in the FEIS and text has been modified to reflect this.

13. *RECOMMENDATION: To fairly cite the source literature, and to most accurately reflect the demographic changes in ponderosa pine dwarf mistletoe occurrence, we recommend deletion of the statement identified above from page 137 of the DEIS, and complete replacement with this selection from Conklin and Fairweather (2010): "Mistletoe abundance is probably greater today than in the 1800s, mostly because there are more trees now, especially in the ponderosa pine type. Much of the increase in tree density is due to major regeneration event(s) around 1920 (often linked with overgrazing), coupled with the exclusion of fire which had previously kept the forests more open. Natural openings filled in with young trees, facilitating the spread of mistletoe. While the number of infected trees has probably increased substantially, the actual proportion of the landscape with mistletoe has probably increased only modestly (if at all, see next paragraph) from historic levels, again, because of the relatively slow rate of spread. While mistletoe has undoubtedly spread into some previously uninfested stands, it can be assumed that much of its increase can be considered spread into previously existing openings within already infested stands." 48.85, 48.86, 48.87, 48.88*

    The approach to dwarf mistletoe management has been modified in the FEIS and text has been modified to reflect this.

Land Management Plan Amendments

Commenters offer information and asked for clarification about the length and applicability of the amendments related to the current revision process of the Tonto National Forest Land Management Plan. There were also questions about the amendments applying to more than the Rim Country Project area and the overall duration of the project. There were also requests regarding more information on the specific plan standards that are being replaced, and concerns about the best available science related to the amendments.

<u>General concern comments</u>

1. *The DEIS states, "These amendments would be required under the current Tonto NF Plan if the Rim Country ROD is signed prior to the revised Tonto NF Plan going into effect…)" This statement prejudges the outcome of the ongoing revision process for the Tonto NF. 42.133*

    The statement the commentor referenced was updated in the FEIS, chapter 1 and appendix B, to provide more clarity on the land management plan amendment and the consistency between the current and revised Tonto National Land Management Plans. The information referenced was included in the DEIS to clarify that if the record of decision for the Rim Country project is signed

before the revised Tonto National Forest Land Management Plan the proposed amendment exceptions would then apply. If the revised plan for the Tonto National Forest is signed before the Rim Country project is completed the amendments would no longer be necessary. The amendment would no longer be necessary because each alternative outlined in the Tonto National Forest DEIS, released in December 2019, would not need an amendment for the project to move forward.

2. *"Acknowledging changing conditions" as outlined in the description of proposed Amendment #1 would most likely be needed for any other vegetation manipulation project in the Tonto NF, so stating it affects only the 4FRI Rim Country activities is disingenuous. 42.134*

   Project-specific land management plan amendments only apply to the project they are included in. Other projects that include amendments for changed conditions or vegetation treatments on other projects on the Tonto National Forest are outside the scope of this analysis.

3. *The Mexican spotted owl is wide ranging on the Tonto, so the characterization of proposed Amendment #2 is misleading, Likewise, the conditions to be addressed by proposed Amendment #3 are not unique to the Rim Country landscape. 42.135, 42.136*

   The commenter is correct that Mexican spotted owl can be found in other areas of the Tonto National Forest outside of the Rim Country project boundary. However, the proposed amendment is project-specific to Rim Country and does not apply to other areas of the Tonto National Forest. Treatments on slopes greater than 40 percent as included in amendment exception 3 are also project-specific and any projects outside of Rim Country that may need to include options for steep slope treatments are outside the scope of the analysis.

4. *Stating that "Each amendment is a specific, one-time variance in the current Tonto FP direction for the Rim Country Project" is also misleading. The CFLRPlan affects 299,710 acres on the Payson and Pleasant Valley Ranger Districts of the TNF, and the activities are scheduled to last 20 years or longer—a period of time NFMA contemplates as being the entire lifetime of a forest plan. 42.137*

   The FEIS clarifies that the Rim Country Project would make one proposed plan amendment that allows for three different exceptions to the Tonto National Forest 1985 land management plan. The plan amendment applies only to the scope of the Rim Country Project. While the duration of the project is long term, the analysis in the FEIS (chapter 3 and appendix B) articulates what the impact would be for the plan amendment during that time period. The Tonto National Forest is presently undergoing a plan revision. The proposed plan amendment would not be necessary under any of the action alternatives in the revised plan once finalized.

5. *The DEIS doesn't identify the forest plan standards and guidelines proposed for elimination. The DEIS doesn't contain the language of Amendment 1 including the proposed desired conditions. 42.138c.*

   Appendix B of the FEIS outlines the standards and guidelines the Rim Country project would be excepted from as part of the project-specific plan amendment. The appendix includes clarification and more information about the specific project-level amendment including the specific standards and guidelines in question and what the project is doing instead for all three exceptions that make up the amendment.

Review of substantive requirements comments

1. *The DEIS says only evaluation of 36 CFR 219.8 (Sustainability) and 219.9 (Diversity of Plant and Animal Communities) apply here. It fails to explain why 36 CFR 219.10(Multiple use), 36 CFR 219.11(Timber requirements based on the NFMA) and 36 CFR 219.12(Monitoring) do not apply. 42.138a*

   The FEIS, chapter 3, has been updated with additional information on the substantive requirements that apply to the plan amendment included in the project. The analysis does not include information on 36 CFR 219.11 (timber requirements) because the Tonto National Land Management Plan currently describes lands not suitable for timber production. 36 CFR 219.10 (multiple uses) is not highlighted because multiple uses are included under 36 CFR 219.8 (sustainability) and 36 CFR 219.12 (monitoring) is not specified because this applies to land management plans and not specific projects.

2. *In its overly cursory "Evaluation of Substantive Requirements" the DEIS fails to comply with 36 CFR 219.13(b). The DEIS states, "the respective resources and substantive requirements related to the amendments, and were informed using the best available scientific information…"but it fails to disclose what the FS considers to the best available science as basis for the proposed amendments. The FS ignores 36 CFR 219.3. 42.138b*

   The FEIS chapter 3 and appendix B have been updated to include more specific information on the proposed amendment and includes documentation of the best available scientific information used for the amendment. This includes peer reviewed literature, in particular, GTR 310 (the foundation of amendment exception 1), the updated Mexican spotted owl recovery plan, USDI FWS 2012 (for amendment exception 2), which has been thoroughly reviewed and co-developed by USFWS, and Holzfeind et al. 2020 (for amendment exception 3).

Best available science comments

1. *It would be incumbent upon the FS to conduct and independent peer review of Reynolds, et.al. 2013 since it is being utilized to guide a forest plan amendment. 42.143*

   A peer review of Reynolds et.al. 2013 by the Forest Service is outside the scope of this analysis. Peer reviews are not required to determine best available scientific information. In addition, Reynolds et. al. is a General Technical Report (RMRS-GTR-310) titled Restoring Composition and Structure in Southwest Frequent-fire Forests: a science-based framework for improving ecosystem resiliency. This GTR has been determined as best available scientific information for these resources in the Southwest.

2. *For proposed Amendment 3, the DEIS does not identify best available science in support. There is no analysis explaining why the risk is worth the alleged benefit. So, what is the empirical basis for claiming "the design of mechanized ground-based equipment has progressed to allow on steep slopes more effectively and without adverse effects on soil resources? 42.145*

   Amendment exception 3 proposes to allow thinning on slopes greater than 40 percent slope utilizing mechanized ground-based equipment that is used across the country while minimizing adverse effects on soil resources to thin on slopes greater than 40 percent (Holzfeind et al. 2020). When the 1985 Tonto National Forest Land Management Plan was written, equipment was not widely available that could treat steeper slopes.

Clarification comments

1. *The Wildlife Report (and at least one other specialist report) calls proposed Amendment 1 the "goshawk amendment" and states it "would update guidance and direction in the Tonto FP so it is consistent with the A/SNF and CNF's revised forest plan management direction." The DEIS doesn't present that perspective of Amendment 1. 42.140*

   The FEIS has been updated throughout to clearly reference the correct amendment exception names and includes additional information regarding the proposed amendment components.

2. *The FS would need to undergo formal consultation on its amended forest plan. 42.142*

   The proposed amendment, including the three exceptions, are project-specific as part of the Rim Country project. Consultation with the USFWS was completed for this project that includes the proposed amendment as part of meeting legal requirements.

3. *Instead of analyzing these proposed amendments, the DEIS drops the cultural resources amendment and replaces it with an elimination of 40% slope restrictions on mechanical harvesting machinery. No disclosure of this addition has been made to 4FRI stakeholders prior to the publication of the DEIS. It does not appear that public comment during scoping led to the addition of this amendment. 48.202*

   In 2017, after scoping was conducted for the Rim Country project, the Tonto National Forest completed a separate forestwide programmatic land management plan amendment to the cultural resources standard and guideline that the Rim Country project originally intended to amend. Therefore, the proposed Rim Country cultural resource amendment exception included in scoping was unnecessary. For this reason, it was removed between scoping and the DEIS going out for notice and comment.

   After scoping, the interdisciplinary team determined there was a need to include a proposed amendment exception for treatments on steep slopes on the part of the project located on the Tonto National Forest to be consistent with treatments on the Apache-Sitgreaves and the Coconino National Forests. Subject to the notification requirements in 36 CFR 219.16, the responsible official has the discretion to determine the scope, methods, forum, and timing of opportunities for public participation. A preliminary DEIS was released to the stakeholder group and the public on September 25, 2019, this preliminary version detailed the 40 percent slope amendment exception. The DEIS included the 40 percent slope amendment proposal in the action alternatives and an opportunity for the public to comment on the amendment exception was provided in the 90-day DEIS comment period starting on October 19, 2019. Also see 36 CFR § 219.5 (a)(2)(ii). See appendix B for more information about the proposed plan amendment for the Rim County project.

4. *In addition, the order of the amendments as presented in the DEIS is confused in some locations. For example, in the DEIS, amendment 1 is described as being the GTR-310 amendment,[356] but in Appendix B[357] amendment 1 is described as both the MSO recovery plan amendment and the GTR-310 amendment, depending on what section. We advise that a review of these references is made for consistency throughout the document.48.203*

   See response to Land Management Plan Amendment Clarification 1.

5. *Amendment 3, Mechanical Treatments on Steep Slopes, was not included in the Proposed Action, it should be removed from any subsequent NEPA document prepared for the 4FRI project. 48.204.*

   See response to Land Management Plan Amendment Clarification 3. The mechanical treatments on steep slopes amendment exception was outlined in the DEIS Chapter 2 "Elements Common to Alternatives 2 and 3" section and within appendix B.

GIS

Recommendations Comments

General Concern: Commenters provided a recommendation for the online tool and FEIS to present complete information regarding wildland-urban interface treatments.

1. *The SHG recommends that the online tool and FEIS present complete information on the extent and location of WUI treatments and how they influence post-treatment conditions. 32.15, 39.25*

   In response to collaborative discussions prior to the release of the draft environmental impact statement, the Rim Country supplemental website was updated to present information related to the extent, cover type, and location of proposed wildland-urban interface and critical infrastructure protection treatments across the project area in the form of interactive maps and bar charts. Additional interactive maps provided a description of the treatment design as it was presented in the draft environmental impact statement. A map and a tabular summary of wildland-urban interface by vegetation type are included in the FEIS.

General Concern: Commenters provided recommendations for the online tool and tabular summary for vegetation types; treatments; and wildland-urban interface areas be available to the stakeholder group.

2. *CONCERN: The RC DEIS should be more specific with respect to existing conditions and treatment allocation for target cover types present on the planning area. Stakeholders have emphasized this need in previous discussions with the 4FRI Planning Team, requesting a tabular summary and spatial representation of treatment allocation across cover types. Some of the spatial information is now available in an online visualization tool, which we appreciate. The SHG recommends that the online tool be completed, and a tabular summary (of veg types and treatments) made available to stakeholders and then included in the FEIS. 32.28*

   See response to GIS Recommendation 1. More information is provided in the Rim Country Treatment Tracking Process section of the implementation plan (appendix D) of the FEIS regarding the treatment allocation and tracking processes.

Additional Information Comments

General Concern: Commenters had a concern and recommendation for how the DEIS should spatially represent wildland-urban interface areas in the plan.

1. *CONCERN #2: The RC DEIS should include spatial representation of WUIs in the planning area, overlaid by cover type and proposed treatments. ECO had previously requested that this information be added to the online visualization tool. We appreciate the Forest Service's attention to this request but note that only some of this information is currently presented. RECOMMENDATION #2: ECO recommends that the complete information be made available online, with a tabular summary made available to stakeholders and then included in the FEIS. 35.29, 39.40, 47.56*

See response to GIS Recommendation 1.

GIS and Silviculture

Recommendation Comments

General Concern: Commenters provided a recommendation that online tools be completed, and a summary be made available to stakeholders.

1. *CONCERN #1: The RC DEIS should be more specific with respect to existing conditions and treatment allocation for target cover types present on the planning area...Some of the spatial information is now available in an online visualization tool, which we appreciate. RECOMMENDATION #1: ECO recommends that the online tool be completed, and a tabular summary made available to stakeholders and then included in the FEIS. 39.39*

   In response to collaborative discussions prior to the release of the DEIS, the Rim Country supplemental website was updated to present information showing treatments by cover types. Summary tables showing the same information and existing conditions by cover type have been added to the FEIS.

Implementation

General Concerns Comments

General Concern: Implementing the Rim Country actions using the condition-based management will require qualified field reviewers; cross-walked information from the FEIS; a robust framework for allocating and tracking treatments that is used consistently among the Forests; treatment prioritization in the face of limited resources; and alternative funding sources for aquatic work. Commenters request development of a reliable implementation process that includes more complete explanations of the overall condition-based management approach, filters, and decision criteria. The stated open-ended timeframe of 20 years or more to implement is also a concern and should be clarified.

1. *Implementation of the aquatic and watershed FTA would depend upon "Site reconnaissance: IDT, partners, stakeholders walk the potential project area to identify areas of concern and potential causes." However, the qualifications of partners and stakeholders to take on this important role are missing. 42.61*

   See responses to Condition-Based Management Recommendations 8, 9, and 10.

2. *The Forest Service should develop crosswalks between openness and interspace, as needed for use by implementers on the ground. 47.51*

   See response to Forest Health Clarification 1.

3. *The Mechanical Treatments FTA must have a robust framework for allocating and tracking treatments that ensures predictable, reliable, and repeatable implementation over the lifespan of the ROD. 39.11, 47.41*

   See responses to Condition-Based Management Recommendations 4, 6, 8, and 27.

4. *With stakeholder input, the Forest Service should allocate needed resources to develop a viable treatment allocation and tracking framework, with appropriate coordination at Regional, Forest, and District levels. The 4FRI Planning Team could be well positioned to transition into a coordination*

role post-ROD. This framework should be incorporated in any subsequent NEPA document prepared as part of the Rim Country analysis and: (a) effectively allocate treatments with fixed acreage limits across Forests and Districts; (b) ensure that treatment acreages do not exceed sideboards in the ROD; (c) ensure consistent interpretation of decision criteria and treatment application over the shelf-life of the Rim Country ROD; (d) allow tracking of accomplishments in near- real time, and (e provide regular, timely updates to stakeholders and the public. 47.42

See responses to Condition-Based Management Recommendations 2, 6, 7, 9, 12, 14, and 20.

5. *USFS should provide the contractor completing the service work with the locations of the protected resource. 40.91*

   Identification of protected resources would be identified as outlined in law, regulations, and policy and as outlined in the contracting tool used during implementation (for example, sale contract).

6. *In meetings that I have attended, there is very limited information on the implementation phase of the plan. It seems to fall within the discretion of the district rangers of each forest. That is disconcerting because it is obvious that there are marked differences in the effective management of each forest. An additional troubling aspect to this concern is the frequent movement of management personnel within the USFS. There needs to be a clear direction that prioritizes the action from an overseer of the needs of the entire footprint. In other words, if there are clear critical needs of a particular region within the Rim Country Project, then resources must be directed there first, not just an allocation of all resource funding equally distributed to all the forest in the footprint. 12.12*

   See response to Condition-Based Management Recommendations 2 and 4.

7. *The Department recommends the USFS work with the 4FRI planning team in building upon the current reporting/processes to track and allocate resources across four-forests in near real-time to ensure treatments do not exceed sideboards in the record of decision (ROD). These tracking mechanisms should also be incorporated into the FEIS Implementation Plan. 28.3*

   See responses to implementation general concern 4.

8. *The ERI reiterates a SHG recommendation that the Forest Service allocate sufficient resources to develop an appropriate tracking system, with coordination at the Region, Forest, and District levels. We request that this tracking system be incorporated in the Final EIS (FEIS) Implementation Plan and: (a) effectively communicate how and where treatments acreages evaluated in the EIS will change across Forests and Districts; (b) ensure that treatment acreages do not exceed sideboards in the ROD (see above comment); (c) ensure consistent interpretation of decision criteria and treatment application over shelf-life of the Rim Country ROD with a mind toward staff turnover. Accurate tracking of what treatments are actually implemented will be critical to the validity of the monitoring and adaptive management framework and will ensure compliance with the ROD. 32.03, 32.04, 41.14, 47.60*

   See responses to implementation general concern 4.

9. *There is a lack of definition of funding mechanisms other than those implied for mechanical treatments. If desperately needed aquatic treatments are delayed in time due to lack of industry based funding what alternative means are envisioned, and how are they provided for in the alternative analyses? 46.20*

Mechanisms for funding are part of the Forest Service budgeting process and fall outside the scope of this analysis.

10. *CONCERN #2: The RC DEIS lacks a robust framework for allocating and tracking treatment application temporally and spatially. The overarching concern is that flexibility provided by the Flexible Toolboxes could inadvertently result in an overall action with individual and/or cumulative effects that are different or in excess of those analyzed and disclosed in the EIS. 39.10*

    See responses to implementation general concern 4.

11. *RECOMMENDATION #2: ECO recommends that the Forest Service allocate sufficient resources to develop an appropriate tracking system, with coordination at the Region, Forest, and District levels. We request that this tracking system be incorporated in the Final EIS (FEIS) Implementation Plan and: (a) effectively allocate treatments with fixed acreage limits across Forests and Districts; (b) ensure that treatment acreages do not exceed sideboards in the ROD; (c) ensure consistent interpretation of decision criteria and treatment application over shelf-life of the Rim Country ROD with a mind toward the inevitable staff turnover; (d) allow tracking of accomplishments in near-real time, and last but not least (e) provide regular, timely updates to ECO and interested members of the public. Accurate tracking of what treatments are actually implemented will be critical to the validity of the monitoring and adaptive management framework and will ensure compliance with the ROD. 39.12*

    See responses to implementation general concern 4.

12. *CONCERN #1: The treatments' decision process should be clearly interpretable and understandable to stakeholders, the public, and implementers. As presented in the RC DEIS, ECO finds the Flexible Toolbox framework for Mechanical Treatments complex and extremely confusing, thereby potentially leading to inconsistent and unpredictable treatment decisions. We also note that the text narrative (RC DEIS Appendix D, Section F) is sparse on details and does not directly correspond to the decision process illustrated in the graphics and decision matrices. Most importantly, we are concerned that this process appears open to interpretation and may not provide an adequate road map for repeatable application over the expected implementation time period of this EIS. 32.06, 39.13, 39.15*

    See responses to Condition-Based Management Recommendations 2 and 4 and Condition-Based Management Clarification 5.

13. *RECOMMENDATION #1: To address these shortcomings, ECO recommends that the FEIS include a reliable implementation process that includes more complete explanations of the overall approach, filters, and decision criteria. If included, graphic illustrations of the Flexible Toolbox decision flow should be complete and correspond 1:1 with the narrative description presented in the text. 32.05, 39.14*

    See responses to Condition-Based Management Recommendations 2, 3, 4, 9, 14, and 18. A figure representing the condition-based management process has been updated for inclusion in the FEIS that includes more complete explanations of the overall approach, filters, and decision criteria.

14. *4FRI DEIS is inconsistent with CFLRP requirements on duration of project. The DEIS repeats in more than a dozen locations the intent to take 20 years or more to implement the project, with no firm end date set. Does this open-ended proposal mean that in practice, 4FRI treatments could be taking place fifty years from now? RECOMMENDATION: The Forest Service should clarify what*

authorization the Rim Country project is proceeding under that would allow implementation to occur for 20 years or longer. 48.10, 48.11

The 4FRI was a Collaborative Forest Landscape Restoration Project prior to 2019 and the regulations mentioned are related to potential projects, the Rim Country Project still meets the intent of the CFLRP even though the project is not in the CFRLP program.

15. *Concern: a framework is needed to facilitate collaborative engagement during Rim Country implementation. 47.71*

    See response to Condition-Based Management, Recommendation, 1.

16. *The Forest Service should work with stakeholders to develop a formal framework for collaborative engagement and adaptive management decision-making during Rim Country implementation. A recent, informative example is attached in Appendix G (Spruce Beetle Epidemic-Aspen Decline EIS, Grand Mesa, Uncompahgre, and Gunnison National Forest). 47.72*

    See responses to Condition-Based Management Recommendations 1, 2, and 4.

17. *The Forest Service should work with stakeholders to develop additional mechanisms for collaborative engagement and decision-making during implementation, including, but not limited to, revision of the 4FRI MOU. 47.74*

    The memorandum of understanding between the Forest Service and the stakeholder group is a document developed outside the scope of the National Environmental Policy Act.

18. *CONCERN #3: As a CFLRP project, stakeholder engagement is required throughout the planning and implementation of projects associated with the RC DEIS. RECOMMENDATION #3: ECO recommends establishing a formal coordination process between the Forest Service and stakeholders that occurs when planning watershed/aquatic restoration projects. Early engagement with stakeholders will facilitate accomplishment of priority projects, help leverage additional funds, and facilitate sharing of resources and site specific information. 39.20*

    See response to Implementation general concerns 17.

19. *What have you done to ensure that contractors will not proceed without authorization, effective training, and a clear understanding of the significant liabilities if they are found to have acted irresponsibility and have caused damage to the forest, preferred habits, or its inhabitants? 12.9*

    The contracting tool used to implement proposed activities ensures that work is completed and accepted according to contract specifications. See responses to Condition-Based Management, Recommendations 2 and 4.

20. *How will specific restoration projects be prioritized, and adequate resources be allocated over the entire footprint of the project? 12.13*

    Any prioritization or optimization efforts will be taken on during the implementation process, not during the planning process. Forest Service contracts have specific work items with specific, quantitative expectations that must be met before work acceptance occurs as well as provisions to remedy any resource damage that may occur as a result of contractor actions.

21. *What mechanisms will be utilized to ensure that there is adequate training of personnel and a defined set of prioritized steps if/when personnel are transferred to minimize disruption of restoration efforts? 12.14a*

    See response to Implementation, General Concerns 19.

22. *Is there a sequential nature to the implementation plan? If so, what is it and what drives the sequence? 12.14b*

    See Condition-based Management, Recommendation, response 13.

23. *Is there a plan to attend to watersheds with the possibility of negative impact on human habitation (water sources for towns likely fire path to communities) first? 12.15*

    See Implementation, general concerns, response 20.

24. *The AGFD is concerned that the two independent decision-making mechanisms within the toolboxes will be confusing to on-the-ground professionals who will be tasked with planning site specific projects…. The Department recommends that the USPS work with the SHG in developing an effective bridge between the aquatic and terrestrial restoration efforts/toolboxes and include it in the FEIS. 28.2*

    See Aquatics, Clarification, response 3. See responses to Condition-Based Management Recommendation 41 and 43.

25. *The Department acknowledges the USFS's efforts to refine mistletoe management within the DEIS, but Dwarf Mistletoe management remains a central element in the mechanical flexible toolbox decision framework that could potentially allow for aggressive stand removal, including even-aged thinning treatments. This is at odds with restoration priorities articulated by the SHG and the best available science. Additionally, the emphasis of Dwarf Mistletoe treatment in the mechanical flexible toolbox has the potential to be applied inconsistently across Forests/Districts allowing for more even-aged thinning treatments, as well as conditions more open than the silviculture prescriptions outlined in the DEIS. The USFS' focus on aggressive treatment of Dwarf Mistletoe stands in the mechanical flexible toolbox continues to be controversial within the SHG and could potentially impede timely completion of the ROD. The Department concurs with the SHG that restoration treatments followed by prescribed fire at regular intervals should be sufficient to meet objectives, and therefore precludes the need for aggressive stand removal. 28.10*

    See Silviculture and Mistletoe, Recommendation, response 5.

26. *Provide context for the toolboxes and summarize the process early in the FEIS to provide context for the reader and transparency of actions. 28.34*

    Clarification has been added to the FEIS based on this comment. The implementation plan is now described earlier in the document in Chapter 2, Elements and Activities Common to Action Alternatives, section of the FEIS.

27. *Proposing and advocating for a holistic and fully integrated approach to the RCP project planning, decision making, and implementation with recognition for the need for a balanced management of all forest resources 46.13*

    See Condition-based Management, Recommendation, response 15. See responses to condition-based management recommendation 41 and 43. See Aquatics, Clarification, response 3.

28. *The DEIS is not clear as to how the treatment units are to be delineated on the ground, so that the public can know how and where actions are to be conducted, and within what geographic unit the design criteria can be verified, reviewed or monitored. The possible exception is for wildlife habitat delineations such as MSO PACs and such. Yet, since as the DEIS states, existing conditions can vary and so those actions could vary wildly within those habitat units. 42.34*

    See Condition-based Management, Recommendation, response 2 and 15. Additional information on the treatment tracking process appears in the Rim Country EIS Tracking Process section of Appendix D, the Implementation Plan.

29. *"pre-project notification will be reported to all regulatory agencies at least 60 days prior to implementation of the activity." What regulatory mechanisms require such pre-project notification? 42.63*

    This sentence has been deleted from the Implementation Plan (appendix D).

General Concern: Commenters requested that further information be included in any subsequent National Environmental Policy Act document prepared for this project. This includes clarification on intensity and treatment acreage maximums; overall better explanation of condition-based management; clarification of the scope of the purpose and need and the proposed action related to ponderosa pine and other ecosystems across the landscape; additional graphics; and other clarification and corrections as stated below.

30. *CONCERN #3: There is uncertainty whether or not acreages for each treatment type represent fixed ceilings. In meetings with the DEIS WG, the Forest Service has indicated that the acreage allotted to a particular treatment can be decreased, but cannot be increased, as the EIS Effects Analysis is bounded by the upper amount. This suggests a "trade-off" process is relied upon for the implementation of the Flexible Toolbox; any such process needs to be captured more fully in the FEIS. ECO is most concerned about higher-intensity mechanical treatments; however, the RC DEIS does not provide sufficient information for us to comment on the net acreage assigned to them (see Key Issue #2, below). RECOMMENDATION #3: ECO recommends that operational elements of the Mechanical Treatments Flexible Toolbox be clearly explained in the FEIS and that the Forest Service work with stakeholders to develop collaboratively supported treatment acreage allocations for inclusion in the ROD. 32.07, 32.08, 39.16*

    Additional information on the treatment tracking process and treatment acreage ceilings appears in the Rim Country EIS Tracking Process section of Appendix D, the Implementation Plan.

31. *The Forest Service should work with stakeholders to develop consensus on the application of mechanical treatments of varying intensity across target cover types on the Rim Country landscape. These sideboards should be included in any subsequent NEPA document prepared as part of the Rim Country analysis. 47.52*

    See responses to Condition-Based Management Recommendations 2, 3, 4, 9, 14, and 18.

32. *In meetings with stakeholders, the Forest Service has indicated that treatment intensity can always be decreased at the implementer's discretion. This should be clearly stated in the Implementation Plan included in any subsequent NEPA document prepared as part of the Rim Country analysis. 47.36.*

    See responses to Condition-Based Management Recommendations 2, 3, 4, 9, 14, and 18.

33. *The Implementation Plan in any subsequent NEPA document prepared as part of the Rim Country analysis should include more detailed explanations of the overall FTA approach and its three "modules" (habitat and cover filters, decision matrices, and decision modifiers). The narrative should describe when, how, and by whom the FTA will be used and clearly indicate how each "module" can (or cannot) change treatment type and intensity. 47.34, 47.37. 47.38 (110.18)*

    Condition-based management has been clarified in the FEIS with collaborative input from the stakeholder group. More information is provided on filters, decision trees, and modifiers.

34. *The Forest Service should work with stakeholders and key partners to develop an effective bridge between the two Flexible Toolboxes and include this in any subsequent NEPA document prepared as part of the Rim Country analysis. 47.44*

    Additional information has been provided to clarify interaction between aquatic and terrestrial components of the Rim Country condition-based management approach. See responses to condition-based management recommendation 41 and 43.

35. *USFS should note that restoration of in-woods processing sites will occur once the use of the site is complete. 40.38*

    Clarification on restoration that would occur with the in-woods processing sites has been updated in the FEIS, in chapter 2.

36. *The Forest Service should work with stakeholders and key partners to develop an effective bridge between the two Flexible Toolboxes and include this in any subsequent NEPA document prepared as part of the Rim Country analysis. 47.44 and 32.02*

    The Forest Service has worked collaboratively with the stakeholder group to provide additional information on the integration of the aquatic restoration treatments and the upland vegetation focused treatments. A more thorough description appears in the implementation plan (appendix D).

37. *USFS should note that restoration of in-woods processing sites will occur once the use of the site is complete. 40.38*

    Clarification pertaining to the restoration of in-woods processing sites has been added to the FEIS.

38. *Collectively, these circumstances suggest that only a portion of the acres cleared under the completed and planned 4FRI NEPA may actually receive mechanical treatment. The Trust feels it is essential that the Rim Country NEPA provide sufficient flexibility to address these contingencies. 47.66*

    The analysis for this project covers treatments up to the highest number of acres for mechanical treatments. The implementation plan that was developed concurrently with the National Environmental Policy Act analysis addresses how the treatments would occur in the 20-year implementation timeline.

39. *The Large Tree Retention Plan (LTIP, DEIS Appendix D, p. 626) includes the following ecological objective for "Heavily-Stocked Stands (with High Basal Area) Generated by a Preponderance of Large, Young Trees."*

    a. *"Fire may be used with other methods to maintain forest structure over time."*

b. Any subsequent NEPA document prepared as part of the Rim Country analysis should include more appropriate language, as appeared in the corresponding section of the first 4FRI EIS:

c. "Fire is the principal regulator of forest structure over time." 47.8

Category 8 of the large tree implementation plan has been modified from the DEIS in a collaborative manner. While fire may be a principal regulator of forest structure over time and into the future, putting stands on a trajectory toward desirable forest structure in the near term will require fire as well as other methods, including mechanized equipment. Treatment ranges were developed in a collaborative manner with the stakeholder group.

40. The Rim Country DEIS is overly reliant on forest structural manipulation to meet "desired conditions" that are outside the stakeholders zone of agreement. The Center rejects a framework which assumes that complex ecosystems can be wrangled into fixed proportions of tree ages and sizes that must be repeatedly tinkered with at 30-year rotations to maintain "desired conditions." In areas where strategically located mechanical intervention is implemented, fire alone can and should be the primary future maintenance tool.87 This notion has been deleted from the Rim Country DEIS, as we pointed out in the LTIP section of this letter. 48.65, 48.66

Category 8 of the large tree implementation plan has been modified from the DEIS in a collaborative manner. While fire may be a principal regulator of forest structure over time and into the future, putting stands on a trajectory toward desirable forest structure in the near term will require fire as well as other methods, including mechanized equipment. Treatment ranges were developed in a collaborative manner with the stakeholder group.

41. The LTIP states, "During implementation (prescription development), if there is a condition where forest plan desired conditions conflict with the exception condition categories listed below, no large trees would be felled until the NEPA decision is reviewed by the District." In other words, under the CFLRPlan the "District"(?) is authorized to violate the forest plan and there would be no requirement for the public to be informed. 42.154

The Rim Country project does not authorize any actions not supported by each national forest's land management plans, aside from the land management plan amendment for the Tonto National Forest (see appendix B). Also, this project does not authorize the districts to violate their land management plans. The district will be consulted during project implementation to ensure plan consistency and consistency with the intent of LTIP and the project design features. The districts would decide whether the action is consistent with the analysis and the decision made.

<u>Old and Large Trees - Collaboration and Implementation Comments</u>

General Concern: Overall, the DEIS does not adequately describe the value of retaining large trees, and the large tree implementation plan exceptions would permit too much cutting of large trees. The large tree implementation plan is not consistent with the intent of the stakeholders' large tree retention strategy. It appears that large and old trees may be cut to reach even-aged management goals. Old trees should be defined as 150 years or older, retention is imperative, and a collaboratively developed legacy tree guide should be developed to aid implementers in identifying old trees.

1. LTIP exception categories allow far too much large tree cutting. RECOMMENDATION: Any subsequent NEPA document prepared as part of the Rim Country analysis should include a similar analysis to disclose how much of the landscape is not protected from large tree cutting. CONCERN: Dwarf mistletoe will be used as a reason to cut large trees which are not covered under LTIP

exception categories. The DEIS states that "[s]ome dwarf mistletoe will be retained as a natural component for wildlife, and limits will be placed on removal of large infected trees."135 We appreciate that limits will be placed on cutting large trees, but what are the limits? Are they in the Large Tree Cutting Plan?48.30, 48.31 48.89, 48.90, 48.91

The large tree implementation plan (Appendix D) has been developed in a collaborative manner with the stakeholder group and has been updated in the FEIS in a collaborative manner. Retention of large trees would follow the large tree implementation plan as well as large tree retention guidance in the land management plans.

2. *The DEIS frankly states that "[t]he loss of old growth and old trees would require decades to centuries to recover." The retention of all old trees is imperative. 1) Any subsequent NEPA document prepared as part of the Rim Country analysis should maintain consistency with the first EIS and define old trees as those 150 years or older. 2) The Forest Service should collaborate with Stakeholders to develop a legacy tree guide to assist implementers with identifying old trees. 48.12, 48.13, 48.18, 48.19*

   The retention of old trees under the Rim Country project would follow the collaboratively developed old tree implementation plan (Appendix D), and the project record of decision will follow law, regulations, and policy.

3. *The exception categories listed in the LTIP describe when and where implementers can cut large trees (those over 16" d.b.h.). This stands in contrast to the intent of the stakeholder-developed Large Tree Retention Strategy. Therefore, the term "Large Tree Implementation Pan" really does not accurately reflect the intent and outcomes of the LTIP, as written. RECOMMENDATION: As the LTIP would allow the cutting of large trees such that their occurrence on the landscape actually decreases under both action alternatives, it should be renamed "Large Tree Cutting Plan" to reflect its true nature. 48.12, 48.13, 48.26, 48.27, 48.28, 48.29*

   The large tree implementation plan (Implementation Plan, Appendix D) was designed to represent the intent of the stakeholder generated large tree retention strategy. The collaboratively developed large tree implementation plan is part of the analysis and would be incorporated into the decision and the obligation to follow that guidance would follow law, regulation, and policy.

4. *The DEIS states that: "Modeling the most intense extent of the range of the prescribed treatment, combined with the protection of large and old trees, produced even-aged stands of larger trees in some cases. However, as treatments are applied on the ground, the use of the large and old tree implementation plans, in accordance with an uneven-aged thinning strategy, would be able to produce uneven-aged conditions across much of the landscape." This statement makes it clear that the use of the use of the large and old tree implementation plans will allow the Forest Service to cut large trees in areas that do not meet their criteria for even agedness. 48.28*

   See response to Implementation, Old and Large Trees - Collaboration and Implementation, 3.

5. *As the LTIP would allow the cutting of large trees such that their occurrence on the landscape actually decreases under both action alternatives, it should be renamed "Large Tree Cutting Plan" to reflect its true nature. 48.14, 48.29*

   See response to implementation old and large trees - collaboration and implementation 3. The effects of the alternatives are presented in chapter three of the FEIS. The occurrence of large trees is attributable to mechanical treatment as well as the return of fire to the landscape. The effect of

the alternatives on the large tree component of forest structure is provided in the chapter 3, vegetation analysis. The acres of stands with an abundance of large trees increases in the alternatives (FEIS, Chapter 3, Vegetation section).

6. *LTIP introduction lacks contextual background of the value of large tree retention. 48.32*

   Additional citations regarding the importance of large tree retention have been added to the Silviculture Specialists report and the FEIS.

7. *The language used in this exception category should be subject to change to accommodate other changes related to the use of the term interspace, discussed elsewhere in these comments as well as in the Stakeholders comment letter. 48.43*

   The use of the term interspace has been removed as a treatment metric and has been replaced with basal area and trees per acre.

8. *Recommendation-In circumstances where the District plans to fall large trees outside of the exception categories for felling large trees, as provided for in the LTIP, the District shall inform interested Stakeholders, including the 4FRI SHG of its decision prior to warding the unit for sale. Documentation provided by the District to stakeholders shall explain how the LTIP is inconsistent with forest plan desired conditions in the specific area/circumstances in which the decision is being made. 28.31*

   Additional information has been provided in the implementation plan (Appendix D) and the FEIS regarding the treatment allocation and tracking processes. This approach was developed in a collaborative manner with the stakeholder group. The record of decision will follow existing law, regulation, and policy.

9. *CONCERN: Rim Country LTIP eliminates a key phrase which focuses on removal of small trees. The LTIP in the first 4FRI EIS states that within stand openings "would be created by focusing on removal of VSS 3 and lower VSS 4, given the excess of such trees across the project area."62 Interestingly, this phrase has been removed from the Rim Country DEIS. RECOMMENDATION: Consistent with the first 4FRI EIS, and in the interest of retaining large trees on the landscape, any subsequent NEPA document prepared as part of the Rim Country analysis should include the specification that within stand openings "would be created by focusing on removal of VSS 3 and lower VSS 4, given the excess of such trees across the project area." 48.44, 48.45*

   The Forest Service continues to engage with the stakeholder group to identify the role of stakeholders in the implementation process which would include an opportunity to provide input and would occur outside of the planning process. Retention of old trees would follow the collaboratively developed old tree implementation plan (Appendix D). Though the mistletoe-specific treatment type (intermediate thinning) has been removed from the action alternatives, dwarf mistletoe would be managed following individual tree removal criteria and subject to the old tree implementation plan and large tree implementation plan, which states old trees will not be cut for forest health reasons.

10. *In the DEIS, Table 10 describes uneven-aged treatments as "retaining as many old or large trees as possible." Similarly, intermediate thinning treatments would manage "for improved tree vigor and growth by retaining the best growing dominant and co-dominant trees with the least amount of dwarf mistletoe and as many old and/or large trees as possible" and stand improvement treatments would retain "as many old and/or large trees as possible." The Center strongly asserts that there should be*

no "as possible" language associated with old tree protection; this is an arbitrary and open-ended statement that will lead to another Little Creek. As for large trees (those over 16" dbh.) the term "as possible" is still arbitrary and open-ended. The LTIP as written is dramatically too permissive of large tree cutting (we'll explain this more shortly), and the idea of making old and large tree cutting decisions based on what's "possible" is beyond comprehension. In any subsequent NEPA document prepared for the Rim Country analysis, any reference to old trees must be accompanied by a commitment to their absolute protection from cutting, as described in a revised version of the OTIP, and any reference to large trees should be accompanied by clear direction to what is permissible under the criteria established in the final version of the LTIP, or another revised document which might replace it, as documented in the Record of Decision. 48.14

To ensure protection of old and large trees, the following language was inserted into the places identified in the comment, "*…in accordance with the Old Tree Implementation Plan and Large Tree Implementation Plan."* The OTIP and LTIP are collaboratively developed documents that provide protection for old and large trees and identify exceptions where old and large trees need to be cut to meet desired conditions

General Concern: Commenters provided comments requesting that a tracking system be included in the implementation plan.

11. *We request that this tracking system be incorporated in the Final EIS (FEIS) Implementation Plan and: (a) effectively allocate treatments with fixed acreage limits across Forests and Districts; (b ensure that treatment acreages do not exceed sideboards in the ROD; (c) ensure consistent interpretation of decision criteria and treatment application over shelf-life of the Rim Country ROD with a mind toward the inevitable staff turnover; (d) allow tracking of accomplishments in near-real time, and last but not least (e) provide regular, timely updates to the SHG and interested members of the public. 32.4, 47.32*

    A treatment tracking system (Implementation Plan - Appendix D) has been updated in collaboration with the stakeholder group. This system is designed to ensure that implemented treatments are within the effects analyzed, allow public to track accomplishments and be updated in as near real-time as feasible.

General Concern: Commenters provided a comment regarding implementation in degraded riparian and aquatic habitats, restoration and protection of old and large trees, and healthy forest conditions related to dwarf mistletoe.

12. *In particular, the following restoration issues are of high priority concern to AWF because of their importance to the conservation and enhancement of wildlife/fish populations and their essential habitats within the Rim Country project area. The final EIS should emphasize and prioritize implementation of the following actions: 1) the restoration of degraded riparian and aquatic habitats found throughout the project area; 2) the restoration and protection old growth stands and the retention of large old growth trees which are of key importance to many wildlife species (e.g., Mexican spotted owl, northern goshawk, Abert's squirrel, etc.). The final EIS should include a Rim Country project area assessment and plan for the protection and distribution of existing old growth and the development of future old growth stands; and 3) the restoration of healthy forest conditions in relation to management of dwarf mistletoe. 31.4, 32.21, 32.22, 39.31,39.32. 39.33, 39.35, 48.37*

    In collaboration with stakeholders, a section on the integration of upland and aquatic restoration treatments has been updated to ensure that those treatments are appropriately considered during the project planning process. Specific prioritization and sequencing of treatments is considered

during implementation and outside the scope of the planning process. The Forest Service is working with the stakeholder group on the role of stakeholder engagement during the implementation process. If the stakeholder group wishes to update the current memorandum of understanding with a framework for their expectations, they are welcome and encouraged to explore this option with the Forest Service outside of the National Environmental Policy Act process.

Lands and Minerals

Analysis Comments

General Concern: The Forest Service should propose and analyze additional rock pits that will be needed for maintenance of roads used for mechanical treatments. The long hauls proposed will be costly.

1. *SRP has concerns about the lack of analyzed rock pits for the project area. In order to accomplish the necessary road maintenance activities for 889,340 acres of mechanical thinning, significant amounts of rock material will be needed. In addition, there are long haul distances between the rock pits that were included in the analysis. SRP urges USFS to include additional rock pits in the analysis and evaluate the potential impacts among all affected resources and the design features and mitigation measures that minimize or avoid potential impacts. 40.39*

   The rock pits designated and shown on figure 12 (FEIS, volume 1, chapter 2) are the only existing sites that have been used over the years and the analysis area has already been inventoried for existing rock pits. The amount of rock material needed would be determined during implementation.

2. *SRP also has concerns over the lack of a rock pit inclusion on the Tonto National Forest. Hauling rock material over long distances is a significant cost. In order to address Issue 5 (economic viability), USFS should include at least one rock pit in the Tonto National Forest in addition to analyzing local commercial sources. 40.40*

   There are no existing rock pits in the project area on the Tonto National Forest that would be more economically feasible to develop than hauling from existing commercial sources. The amount of rock needed would be determined during implementation.

Recommendation Comment

1. *SRP recommends adding a statement about the use of rock pits even if the effects are non-existent or limited. 40.54*

   A statement has been added to the Chapter 3, Water and Riparian, Effects Common to Both Action Alternatives section.

Monitoring

Clarification Comments

General Concern: Commenters provided comments regarding the Condition-based Management; the monitoring framework that was to be established for the first EIS; lack of guidelines for monitoring ecological resilience; lack of mechanisms for the EIS which would hold implementers accountable for monitoring; request for clarification on what mechanisms will be in place for both toolboxes; installation

of pressure transducers, update to the first paragraph of the EIS; and request for a list of required monitoring other than operational monitoring.

1. *How does the FTA approach mesh with monitoring and adaptive management? 48.158*

   Condition-based management is a pre-treatment process to determine, review, verify, and then allow implementation of the appropriate treatment for a given set of environmental and resource conditions. Both implementation and effectiveness monitoring occur after treatments have been implemented, and adaptive management actions may be taken based on monitoring results. If implementation monitoring shows that treatments were not implemented as planned, adaptive management actions would be taken to ensure that future treatments were implemented as planned. If effectiveness monitoring reveals treatments are not having the intended/desired effects, the Forest Service would evaluate and implement changes as needed, following National Environmental Policy Act policies.

2. *What mechanisms or strategies will you implement that cause managers and crews to be sure that their projects have followed the guidelines of BOTH toolboxes where appropriate? 12.8*

   Condition-based management for mechanical thinning and aquatic and watershed restoration activities are process-based frameworks for implementing the most appropriate treatment for a given set of environmental and resource conditions. Before any treatments are implemented, an interdisciplinary team would complete the implementation checklist in section A of the implementation plan (appendix D of the FEIS) and would also verify that all proposed treatments are appropriate given the resource conditions at the time. Implementation of all restoration activities must include the relevant design features, mitigation and conservation measures, and best management practices from appendix C of the FEIS.

   For projects covered under aquatic and watershed restoration, a restoration review team would be established to help guide restoration priorities and review both general and heavy mechanical project proposals as described in the pertinent section of the implementation plan. The review team would also ensure adequate supporting information, design, and experience is commensurate with the proposed restoration.

3. *Pressure transducers should be installed in stream channels and spring sites, and regular discharge measurements should be taken to develop depth-discharge relationships before and after restoration. These monitoring procedures will allow for quantitative analysis of the degree of success in returning water quantity to its post-treatment amounts. A priority for monitoring could be placed on sites with existing pre-treatment monitoring, such as perennial streams with USGS stream gages. 34.9*

   The monitoring and adaptive management plan currently includes surface water flow and ground water levels as indicators. The Forest Service and 4FRI Multi-Party Monitoring Board would consider these recommendations when planning any future water quantity-related monitoring. However, before committing to new monitoring efforts, the Forest Service and the board strive to balance the need for robust study designs with a limited budget and the opportunity costs associated with funding specific proposals.

4. *USFS states that "Budgetary limitations will dictate how much and what type of monitoring can be accomplished," USFS should clarify, other than Operational monitoring done by USFS, if there is any required monitoring that could potentially not get done if budget does not exist.40.96*

Monitoring that is required by law, regulation, policy, objection resolutions, or as part of settlement of a lawsuit, would be funded by the Forest Service. Treatment effectiveness and socioeconomic monitoring are not required by the Collaborative Forest Landscape Restoration Act. The different types of monitoring in the monitoring and adaptive management plan (appendix E) in the FEIS are collaboratively planned and implemented by the 4FRI Monitoring Board and Forest Service and are subject to the availability of funds.

5. *As is the case for many other aspects of the CFLRPlan, design of many monitoring procedures comes later, after the public NEPA process is history. The Appendix E Monitoring Plan, required by the Omnibus Act, states, "as the project matures and baseline data is collected, thresholds can be refined to describe specific quantitative ranges what will trigger adaptive mgt actions." We note that for eleven monitoring items, it states, "Threshold/Trigger: No threshold determined for this indicator." 42.28*

   While Public Law 111-11, the Omnibus Public Land Management Act of 2009 that established the Collaborative Forest Landscape Restoration Program, does require multiparty monitoring, it does not stipulate the form it should take.

   Appendix E, the Rim Country Monitoring and Adaptive Management Plan, represents the form and process through which the 4FRI Stakeholder Group and the Forest Service plan to collaborate to carry out multiparty monitoring as required. It is the result of years of collaboration between the 4FRI Stakeholder Group and the Forest Service and reflects learning since the development of the monitoring and adaptive management plan that was part of the first 4FRI EIS.

   As noted, some indicators in the plan do not have corresponding thresholds. Appendix E addresses this explicitly under the heading "Adaptive Management Process," which states: " The Monitoring Board and Forest Service recognize that there are cases in which the best available scientific information available at the time of plan development is insufficient for identifying quantitative thresholds. In some of these cases, qualitative thresholds have been identified, and in other cases, we will evaluate the data as they are collected to look for trends and will review new scientific studies to reassess whether appropriate thresholds can be identified. Analysis of monitoring data may also help develop thresholds for future management." Furthermore, appendix E states "As the project matures and baseline (i.e., pre-treatment) data are collected, thresholds may be refined with collaborative input to describe specific quantitative ranges that could trigger adaptive management actions."

General Concern: Commenters provided comments regarding making the large tree implementation plan mandatory and incorporating all monitoring data from the first EIS into the Rim Country EIS.

6. *The Rim Country Monitoring Plan suggests that utilization of the LTIP is optional. Any subsequent NEPA document prepared as part of the Rim Country analysis should delete this sentence referring to "if and how" the LTIP would be used, and clarify that the LTIP applies mandatorily to all task orders in the projects implementation. 48.55*

   The language about the large tree implementation plan has been updated in the fine scale assessment section under biophysical monitoring for structure and pattern in the monitoring and adaptive management plan which can be found in appendix E in the FEIS.

7. *4FRI Rim Country DEIS inappropriately conflates the value and sufficiency of incorporating "all available monitoring information from the 1st 4 FRI EIS and from other sources across the region." 52.2*

   The Forest Service conducts monitoring surveys in Mexican spotted owl protected activity centers prior to implementation in protected habitat. These are in addition to inventory surveys in Recovery habitat that occur each year and are used to develop new protected activity centers or adjust existing protected activity center boundaries. The Forest Service has also collected occupancy data in protected activity centers that were part of the management experiment outlined in the first 4FRI environmental impact statement biological and monitoring plan since 2015. Additionally, the Forest Service is entering the sixth year of a 10-year study, which involves collecting Mexican spotted owl occupancy data across the Southwest Region to assess trends in the population on National Forest System lands. This is consistent with the recommendations in the 2012 Mexican spotted owl recovery plan, first revision, for monitoring Mexican spotted owl population trends. The Forest Service is also utilizing existing habitat information to assess Mexican spotted owl nesting and roosting habitat trends from 1986 through 2020. The U.S. Fish and Wildlife Service and the Mexican spotted owl recovery team will use this information, upon completion of the 10-year population trend monitoring, to determine if adjustments need to be made to the management recommendations in the recovery plan. A monitoring plan for the first 4FRI EIS was developed collaboratively with the U.S. Fish and Wildlife Service and has been followed during the implementation of projects within Mexican spotted owl protected activity centers. As of October 2021, thinning has begun in the protected activity centers planned for thinning, per the first 4FRI environmental impact statement biological opinion and monitoring plan, with prescribed fire to follow. Preliminary monitoring results about the effects of project activities on vegetation in protected activity centers is expected to be available in 2022. These results will be used to inform treatments in Mexican spotted owl habitat for the Rim Country project.

   A Mexican spotted owl monitoring plan for the Rim Country project is being developed collaboratively with the U.S. Fish and Wildlife Service and monitoring results would be shared annually with the U.S. Fish and Wildlife Service. This will include both habitat and occupancy monitoring. The Forest Service is standardizing its analysis, monitoring, and reporting for the Mexican spotted owl and developing a monitoring plan for each large-scale restoration project in the Region that will meet the monitoring needs and requirements of the Mexican spotted owl revised recovery plan while providing for transparency and availability of information, including implementation and monitoring results, to the public for review.

General Concern: Commenters provided a comment regarding post-fire runoff.

8. *Several questions should be kept in mind when developing a monitoring program. How does post-fire runoff affect contaminant transport? What is the likely effect of post-fire runoff on downstream receiving waters? What are the factors that influence how long post-fire runoff effects persist? 34.2*

   See response to monitoring recommendations 2.

Appendix E Comments

General Concern: Commenters provided comments related to appendix E.

1. *The ERI agrees with the concerns and recommendations identified by the 4FRI Stakeholder Group. The ERI appreciates and supports the important role given to monitoring and adaptive management in the DEIS, as outlined in Appendix E... We would like to emphasize the importance of maintaining this component in the FEIS, and request that a more detailed, robust monitoring program be outlined in the FEIS, as depicted in the 4FRI SHG Comments. The ERI is also prepared to contribute their expertise to achieve monitoring goals in the next 10 years. 41.25*

   The Forest Service and 4FRI Multi-Party Monitoring Board, which includes representatives from the Ecological Restoration Institute and other members of the 4FRI Stakeholder Group, have collaboratively revised the monitoring and adaptive management plan to reflect learning, advances in knowledge and methodologies, and updated priorities. The monitoring and adaptive management plan is included in the FEIS as appendix E.

2. *USFS should include references throughout Appendix E to include current data and information that is currently being used. 40.92*

   The Forest Service and 4FRI Multi-Party Monitoring Board have collaboratively updated the monitoring and adaptive management plan to include recent publications, including those based on data collected by the multi-party monitoring board.

3. *The SHG recommends that the text in RC DEIS Appendix E (p. 663) be modified to clarify the relationship between the monitoring plans for RC and the 1st 4FRI EIS. 32.35*

   The relationship between the monitoring plan from the first 4FRI environmental impact statement (appendix E of the FEIS) and the Rim Country monitoring and adaptive management plan would be clarified in the revised Rim Country monitoring and adaptive management plan that will be a part of the Rim Country FEIS.

4. *The SHG recommends that references in RC DEIS Appendix E be updated. Examples include, but are not limited to (see p.16 of SHG comments). 32.04*

   The Forest Service and 4FRI Multi-Party Monitoring Board will update the monitoring and adaptive management plan to include the referenced publications, along with other relevant, recent publications, including those based on data collected by the multi-party monitoring board.

Recommendations Comments

General Concern: Commenters provided comments regarding installing pressure transducers; a request for increased monitoring for riparian, springs, and wetlands systems; and incorporation of efficiencies and improvements from the first EIS.

1. *Pressure transducers should be installed in stream channels and spring sites, and regular discharge measurements should be taken to develop depth-discharge relationships before and after restoration. These monitoring procedures will allow for quantitative analysis of the degree of success in returning water quantity to its post-treatment amounts. A priority for monitoring could be placed on sites with existing pre-treatment monitoring, such as perennial streams with USGS stream gages. 34.9*

   See response to Monitoring Clarification 3

2. *We encourage the proposed action to include more monitoring of response to riparian, spring and wetland systems, changes in water quality and quantity, and physical response of treated watersheds. Again, NAU is poised to provide technical assistance to these monitoring, analysis and interpretation activities through our existing master challenge cost share agreement with the Forest Service. 34.16*

   See response to monitoring clarification 3. The Forest Service and 4FRI Multi-Party Monitoring Board have revised the monitoring and adaptive management plan, which now includes indicators and metrics related to surface and groundwater quantity and quality, aquatic habitat, stream channel morphology, riparian vegetation, fauna, riparian soil conditions, and watershed conditions. The Forest Service appreciates the offer to contribute expertise toward achieving monitoring goals; the Forest Service and 4FRI Multi-Party Monitoring Board will consider the offer and recommendations when prioritizing future monitoring efforts.

Monitoring, Aquatics, and Watershed

General Concern Comments

General Concern: Commenters provided a comment regarding aquatic habitat monitoring and monitoring stream temperatures and use of macroinvertebrates.

1. *Aquatic habitat monitoring is particularly critical to ensure treatments are not resulting in long-term negative impacts to watershed health. 45.8*

   The Forest Service and the 4FRI Multi-Party Monitoring Board have revised the Rim Country monitoring and adaptive management plan (Appendix E), which now includes at least three monitoring indicators related to aquatic habitat. One or a combination of these may be monitored based on available funding and prioritization by the multi-party monitoring board and 4FRI Stakeholder Group. Design features, best management practices, and conservation and mitigation measures in appendix C would be implemented as applicable, to avoid or minimize negative effects to watershed health as a result of treatment activities.

2. *The value of Monitoring, including stream temperatures and use of macroinvertebrate assemblage assessments, to assess watershed condition before, during, and after forest restoration planning and implementation actions to support adaptive management. 46.9*

   The Forest Service and the 4FRI Multi-Party Monitoring Board have revised the Rim Country monitoring and adaptive management plan (Appendix E), which now includes aquatic invertebrates as an indicator and aquatic invertebrate species assemblages and abundances, as well as water temperature, as metrics. One or a combination of these may be monitored based on available funding and prioritization by the multi-party monitoring board and 4FRI Stakeholder Group. Spring monitoring currently being carried out by the Springs Stewardship Institute on behalf of the Forest Service and the 4FRI Multi-Party Monitoring Board includes yearly sampling of water temperature and aquatic macroinvertebrates at springs in both control (non-treatment) and treatment groups.

Monitoring, Aquatics, and Wildlife

General Concern Comments

General Concern: Commenters provided a comment for monitoring of fisheries and wildlife resources both pre- and post-restoration.

1. *Monitoring of fisheries and wildlife resources both pre- and post-restoration is necessary for determining if restoration activities are effective, and that treatments are managed adaptively to avoid and/or minimize the potential for negative impacts to wildlife and/or the habitats. 12.2, 45.7*

   The Forest Service and the 4FRI Multi-Party Monitoring Board have been collecting pre-treatment data on wildlife since 2015 and on aquatic resources since 2018. Depending on the continued availability of funding and on collaborative monitoring priorities, the Forest Service would continue to collect more post-treatment monitoring data on these resources as treatments are implemented. To determine the effects of treatments on wildlife and habitats and to inform possible recommendations for adaptive management, actions would follow the adaptive management process outlined in the Rim Country monitoring and adaptive management plan (see Appendix E - "Adaptive Management Process" section, and table: "Suggested Indicators: Forest Service and Multiparty Monitoring Needed for Adaptive Management"). Pre-treatment data collection on wildlife and aquatic resources, as well as other indicators, would continue subject to available funding and the monitoring priorities set collaboratively by the Forest Service and the 4FRI Multi-Party Monitoring Board.

2. *You need to have measures in place to assess the success of your restoration and recovery efforts. It might be clear from a tree perspective in terms of what forest type vegetation returns after an action, but the impact on wildlife and aquatic inhabitants of the forest may require a great deal more study. This cannot happen after the fact. 12.2*

   In order to understand the effects of management actions on terrestrial and aquatic wildlife, Appendix E includes monitoring indicators that focus both on habitat, as well as on more direct measures of species' populations and assemblages. Monitoring indicators of non-tree-specific habitat conditions include 3, 4, 5, 7, 8, 13, 14, 15, 20, 21, 24, 29, 30, 31, 32, 35, 36. Indicators 1, 2, 17, 18, 19, 33, and 34 focus on non-tree, plant and animal communities, including aquatic invertebrates. In terms of timing when monitoring occurs, the Multi-Party Monitoring Board and Forest Service strive to conduct monitoring that allows for drawing valid statistically supported conclusions about the effects of management actions. Specific study designs vary by monitoring question and indicator.

3. *Do you have mechanisms in place to assess the conditions of wildlife and aquatic species (including aquatic insects that will provide efficient status of stream health) throughout the plan period? Specifically, is there a planned sampling strategy to collect and assess these data as a baseline prior to actions, during remediation, and after the work is completed to assure that the efforts did no harm, and that the actions in fact improved conditions? 12.3*

   See response to monitoring, aquatics, and wildlife general concern 2. To ensure that our monitoring leads to valid conclusions, we often work with experts to develop study designs that specifically address the indicators we are interested in monitoring (see FEIS Appendix E: table of "Suggested Indicators: Forest Service and Multiparty Monitoring Needed for Adaptive Management"). Data collection on wildlife and aquatic resources, as well as other indicators, is subject to available funding and the monitoring priorities set collaboratively by the Forest Service and the 4FRI Multi-Party Monitoring Board.

Monitoring and Watershed

Clarification Comments

General Concern: Commenters provided comments related to monitoring of water systems. One commenter provided a recommendation to have monitoring of spring and stream discharge begin immediately and to collect hydrographic data.

1. *Have you considered what spring and stream water quantity monitoring time period is appropriate for assessing restoration success? We recommend that monitoring of spring and stream discharge should begin immediately, and should include historic measurements when applicable. Hydrograph data should be collected continuously during restoration, and continue for several years after project completion to monitor success, depending on your restoration goals. 34.8*

   The Forest Service continues to work with the 4FRI Multi-Party Monitoring Board and other partners to conduct monitoring associated with the first 4FRI EIS project area. The board has a sub-group specifically focused on water resources. The monitoring plan from the first 4FRI EIS was revised to reflect learning and the different environmental conditions that occur in the Rim Country project area. Past and future monitoring reports can be found at the public-facing 4FRI monitoring page: https://www.fs.usda.gov/main/4fri/monitoring. The recommendations in these comments will be passed on to the 4FRI Multi-Party Monitoring Board.

   The duration of pre- and post-treatment data collection needed to validly establish baseline conditions and assess treatment effects related to water quantity are primary considerations that the Forest Service and 4FRI Multi-Party Monitoring Board account for when making decisions about funding and monitoring priorities. Using the best available science and local expertise, we strive to collect data using study designs that will allow us to make valid inferences about the effects of treatments. The Rocky Mountain Research Station is currently completing a literature review and compiling a list of past and ongoing water-related monitoring in the 4FRI region to facilitate the use of existing data for effects analysis and to inform decision making related to monitoring.

2. *USFS should update this section to include recent Phase one monitoring work related to spring monitoring. 40.100*

   See response to monitoring and watershed clarification 1. The Forest Service and 4FRI Multi-Party Monitoring Board have revised the Rim Country monitoring and adaptive management plan (appendix E). The final version that will appear in the Rim Country FEIS will include references to the monitoring that the board has completed to-date, including spring monitoring.

3. *We recommend the restoration have an emphasis on increasing grassland/meadow cover. 34.10a*

   See responses to monitoring and watershed clarification 1 and monitoring recommendations 2. When making decisions about funding and monitoring priorities, the Forest Service and 4FRI Multi-Party Monitoring Board consider the duration, frequency, and spatial extent of data collection, as well as the necessary instrumentation needed to make valid inferences about treatment effects on surface and groundwater quantity and quality. The study design for current spring monitoring being conducted on behalf of the Forest Service and 4FRI Multi-Party Monitoring Board was informed by the Groundwater Yield and Springs Monitoring Plan in Forest Thinning Treatments of the Four Forest Restoration Initiative (4FRI) (Schenk et al. 2019), which was commissioned by the Forest Service and 4FRI Multi-Party Monitoring Board for the express purpose of ensuring that data collection for 4FRI spring monitoring accounts for considerations such as those mentioned in the comment. Appendix E (Monitoring and Adaptive Management Plan) of the Rim Country FEIS includes the following indicators and/or metrics:

percent bare soil within treated areas; soil bulk density; infiltration rate; soil disturbance; soil moisture; snowpack depth, density, and persistence; baseflow discharge; flow duration; total yield; precipitation/runoff response; depth to groundwater; spring/seep flow. Evapotranspiration rates were considered as part of the paired watershed study discussed in the first 4FRI EIS, but the associated expenses were prohibitively high. Evapotranspiration is not an included indicator in the Rim Country Monitoring and Adaptive Management Plan, though it could be monitored in the future if prioritized by the Monitoring Board and Forest Service and sufficient funding is available.

4. *Additionally, we recommend soil response to thinning be monitored to understand the water yield response through the restoration process. We recommend soil compaction, evapotranspiration rates, soil moisture and overland flow patterns factors be monitored throughout the restoration process in order to better understand how water quantity will be affected by forest thinning. 34.10b*

   Appendix E (Monitoring and Adaptive Management Plan) of the Rim Country FEIS includes the following indicators and/or metrics related to soil disturbance associated with management actions: percent bare soil within treated areas; soil bulk density; infiltration rate; and soil disturbance. Any or all of these may be monitored if prioritized by the 4FRI Multi-Party Monitoring Board and Forest Service and adequate funding is available.

5. *Therefore, soil disturbances during the treatment period should be frequently monitored and minimized by implementing Best Management Practices (BMPs). To address how higher-angle streambank and hillslopes will be stabilized after treatment, the project should implement BMPs AQ103, AQ033, SI017, SW038, SW049, and SW055. 34.13(a)*

   Thank you for your suggestions about monitoring nutrient loading and the duration and frequency of monitoring aspects of soil health. With the exceptions of phosphorous and soil fauna/microbes, all of your suggested indicators and metrics are represented in the Rim Country Monitoring and Adaptive Management Plan and could be monitored in the future if prioritized by the Monitoring Board and Forest Service and sufficient funding is available. Best Management Practices are included as design features in the proposed action. Best Management Practices implementation and effectiveness monitoring is completed as part of the National BMP Monitoring program which also meets our MOU obligations with the Arizona Department of Environmental Quality for non-point source pollution protection program compliance with the Clean Water Act.

6. *The plan should address strategies for mitigating nutrient input to streams, particularly nitrogen and phosphorous, from increased runoff die to short-term soil instability. Collecting pre-fire samples to test soil for concentrations of nitrogen and phosphorous may help in forecasting nutrient loading in streams which can also inform mitigation strategies. For up to 5 years after treatment, soil erosion, soil nutrient and fauna composition, and vegetative growth should be monitored at least on a bi-annual basis. 34.13(b), 34.14*

   Before committing to new monitoring efforts, the Forest Service and the 4FRI Multi-Party Monitoring Board strive to balance the need for robust study designs with a limited budget and the opportunity costs associated with funding specific monitoring efforts. In several cases, the 4FRI Multi-Party Monitoring Board has funded power analyses or the development of study plans specifically to ensure that the data collected would allow for valid inferences to be drawn. When making decisions about funding and monitoring priorities, the Forest Service and 4FRI Multi-Party Monitoring Board consider the duration, frequency, and spatial extent of data collection, as well as the necessary instrumentation needed to make valid inferences about

treatment effects on surface and groundwater quantity and quality. For example, the study design for current spring monitoring being conducted on behalf of the Forest Service and 4FRI Multi-Party Monitoring Board was informed by the Groundwater Yield and Springs Monitoring Plan in Forest Thinning Treatments of the Four Forest Restoration Initiative (4FRI) (Schenk et al. 2019), which was commissioned by the Forest Service and 4FRI Multi-Party Monitoring Board for the express purpose of ensuring that data collection for 4FRI spring monitoring accounts for considerations such as those mentioned in the comment.

General Concern: Commenters provided comments for regarding the monitoring plan and a need for full coverage of geologic units, elevation, topography, and other physical variations.

7. *...Longer-term studies and more frequent monitoring visits are needed to obtain significant results. Monitoring needs to be done much longer in advance before the treatment and quarterly in frequency for both control and treated areas. Continuous instrumentation should be installed at major springs to obtain a better representation of the spatial and temporal hydrologic conditions. Development of a complete monitoring plan should be developed to obtain a full coverage of geologic units, elevation, topography, and other physical variations. 34.11*

   When making decisions about funding and monitoring priorities, the Forest Service and 4FRI Multi-Party Monitoring Board consider the duration, frequency, and spatial extent of data collection, as well as the necessary instrumentation needed to make valid inferences about treatment effects on surface and groundwater quantity and quality. For example, the study design for current spring monitoring being conducted by the Springs Stewardship Institute on behalf of the Forest Service and 4FRI Multi-Party Monitoring Board was informed by the Groundwater Yield and Springs Monitoring Plan in Forest Thinning Treatments of the Four Forest Restoration Initiative (4FRI) (Schenk et al. 2019), which was commissioned by the Forest Service and 4FRI Multi-Party Monitoring Board for the express purpose of ensuring that data collection for 4FRI spring monitoring accounts for considerations such as those mentioned in the comment.

Recommendation Comment

General Concern: Commenters provided a recommendation for adding snowpack accumulation monitoring as a trigger in the monitoring plan.

1. *SRP recommends that USFS add snowpack accumulation monitoring as an assessment/trigger for Tier 1 indicator canopy openness or Tier 1 indicator soil moisture related to forest opening size and orientation. 40.98*

   See response to monitoring and watershed clarification 1. The Forest Service and 4FRI Multi-Party Monitoring Board have added snowpack depth, density, and persistence to the soil moisture indicator, along with a threshold/trigger related to trends of decreasing snowpack depth and persistence.

Monitoring and Wildlife

Mexican Spotted Owl Recovery Plan Comments

General Concern: Commenters provided comments related to the Mexican spotted owl recovery plan.

1. *We urge the FS to focus on its requisite monitoring obligations pursuant to the 2012 MSO Recovery Plan. Accordingly, the FS cannot proceed with the proposed action until it has the results of past*

monitoring regarding the impacts of timber management activities, roads and motorized use on MSO and corresponding habitat. The EIS must account for monitoring challenges or uncertainties. 42.184

See response to monitoring clarification 7. The U.S. Fish and Wildlife Service will work with the Forest Service to develop appropriate Mexican spotted owl monitoring requirements as part of the Section 7 Formal Consultation process.

2. *Sierra Club scoping comments also stated "The Forest Service should have a strong monitoring plan in place with clearly defined thresholds, trigger points for action, and a contingency plan in case those trigger points are met. The Forest Service must create a monitoring plan for MSO that includes a sufficient number of control and treatment sites to generate statistical power and usable data. The Forest Service should not construct roads within PACs." Of the 196 PACs in the Rim Country area, how many are occupied according to most recent surveys? 42.185*

   See response to monitoring clarification 7. The Mexican spotted owl monitoring plan for 4 FRI Rim Country will be developed by working with the U.S. Fish and Wildlife Service to comply with Section 7 of the Endangered Species Act. The Rim Country monitoring and adaptive management plan and the triggers within it (sometimes described as thresholds) were developed collaboratively with the 4FRI Multi-Party Monitoring Board. In some cases, the most current scientific knowledge does not provide sufficient information to identify quantitative triggers. The board and Forest Service recognize there are cases in which the best available scientific information available at the time of plan development is insufficient for identifying quantitative thresholds. In some of these cases, qualitative thresholds have been identified, and in other cases, the data will be evaluated as they are collected to look for trends and will review new scientific studies to reassess whether appropriate thresholds can be identified. Analysis of monitoring data may also help develop thresholds for future management.

   When there is sufficient information to develop a threshold that suggests a trend away from the desired conditions, this plan goes on to suggest potential adaptive management actions. The process for developing these thresholds is collaborative and includes stakeholder and Forest Service input and joint fact finding. Initially, when a trigger or threshold is reached, the monitoring framework focuses on the need to assess if or how management actions have contributed to the outcomes. The Forest Service and board collaboratively evaluate the monitoring data and other relevant data to establish causal relationships. Based on the evaluation, follow-up actions will be developed. These may include, for example, continued monitoring, collecting more refined data, a recommendation to implement the existing adaptive management action, or developing a new recommended adaptive management action.

   There are 214 protected activity centers in the 4FRI Rim Country project area. Of these, all but seven were occupied at the time of the last survey. These seven protected activity centers, though unoccupied at the time of the last survey, will still be considered and treated as if occupied. Road construction (neither permanent nor temporary) in protected activity centers is not proposed in any of the alternatives in the Rim Country Project.

<u>Bird Conservation Initiative Comments</u>

3. *Monitoring and adaptive management are major components within the first 4FRI Project; however, the Rim Country Project Proposed Action does not define or outline how these components would be used in the Rim Country Project…We encourage coordination with the Arizona Game and Fish*

Department Bird Conservation Initiative to assure there is sufficient monitoring of the diverse avian species that live in the 4FRI planning area. 38.5

Monitoring and adaptive management are included in the collaboratively developed Rim Country monitoring and adaptive management plan (appendix E).The monitoring and adaptive management plan discusses the role of monitoring and its relation to adaptive management actions in detail (see Appendix E - "Adaptive Management Process" section). The Forest Service does coordinate with the Bird Conservation Initiative on matters of avian monitoring within the 4FRI footprint and would continue that coordination in the Rim Country project area. In addition, the Forest Service would work with the 4FRI Multi-Party Monitoring Board to facilitate more direct involvement of the Bird Conservation Initiative in 4FRI multi-party monitoring and to support data sharing.

The Arizona Game and Fish Department is a cooperating agency on the Rim Country project and has been involved in the project's planning phase since 2015. In addition, the Department is represented on the 4FRI Multi-Party Monitoring Board and is an active contributor in the wildlife sub-group that makes wildlife monitoring recommendations to the board and the Forest Service.

Monitoring Plan

Clarification Comments

1. *In the DEIS Monitoring Plan section, "Biophysical Monitoring for Function (or Process)" under "Relevant Desired Conditions" under "Ecological Resilience" the bullet points don't provide any way to monitor resilience. 42.21, 42.22*

   The relevant desired conditions section of the monitoring and adaptive management plan and all of its sub-categories and bullets are an enumeration of the desired conditions that relate ecological functions and/or processes by domain or resource such as biological diversity, ecological resilience, soil, water, and air resources. The desired conditions listed are intended to inform monitoring questions, indicators, and metrics developed by the Forest Service and the 4FRI Multi-Party Monitoring Board. Suggested indicators, metrics, and sampling techniques are listed under fine- and broad-scale assessments and in Table E-3 in Appendix E of the FEIS.

2. *There is also no mechanism in the CFLRPlan, the CLFLRA, or CFLRP holding anyone accountable if the Monitoring Plan is not properly implemented.3 This is inherent since "collaborative partners are expected to support monitoring efforts by soliciting and contributing both in-kind and monetary funds from other sources" and "Financial support from stakeholders and other organizations will be required to adequately monitor these indicators." 42.29*

   The Forest Service and 4FRI Multi-Party Monitoring Board have collaboratively developed a monitoring and adaptive management plan to reflect learning, advances in knowledge and methodologies, and updated priorities. The monitoring and adaptive management plan is included in the FEIS as appendix E.

3. *There is a lack of definition for monitoring plans (data definition; as well as data collection, retention and integrity protocols) to support initial implementation action planning and longer term adaptive management review and decision making. This concern applies both to the original Current Conditions and the likely changed Current Conditions as discussed in the previous point. 46.17 (110.13)*

The Rim Country Monitoring and Adaptive Management Plan (FEIS appendix E) is a collaboratively developed plan to help guide the Forest Service, 4FRI Multi-Party Monitoring Board, and 4FRI Stakeholder Group when monitoring treatment effectiveness of 4FRI restoration treatments. The core of the monitoring and adaptive management plan is a collection of suggested indicators and metrics, methods and sampling techniques, triggers/thresholds, and adaptive management actions. The plan is intentionally designed as a living document. There is an expectation that indicators, metrics, methods, thresholds, adaptive management actions, and monitoring priorities would change over the course of the project as information is gained and new questions are revealed. The Forest Service would collaborate with the 4FRI Stakeholder Group when changes are needed and to assess monitoring priorities throughout the life of the project.

The Forest Service and the 4FRI Multi-Party Monitoring Board recognize challenges of, and the need for, improved protocols for data retention, integrity, and sharing. The Forest Service and the 4FRI Multi-Party Monitoring Board are actively discussing this issue to come to a solution to address these challenges and would welcome participation and input in these discussions.

4. *And under this proposal, the search for validation of the Narrative is explicitly avoided: Validation monitoring(which) assess the degree to which underlying assumptions about ecosystems relationships are supported…is not integrated in the monitoring plan." 42.40*

   The "Types of Monitoring" section of Appendix E, the Rim Country Monitoring and Adaptive Management Plan, explicitly addresses different types of monitoring, including validation monitoring. As your comment noted, Appendix E states that validation monitoring "…assesses the degree to which underlying assumptions about ecosystem relationships are supported (Block et al. 2001, Busch and Trexler 2003). Validation monitoring is often closely associated with research and is not integrated in this monitoring plan." It goes on to state: "Any validation monitoring (research) conducted would be independent of implementation and effectiveness monitoring and would be funded strictly by external entities. However, the results of relevant research should inform future monitoring prioritization, methods, and adaptive management decisions."

   While theoretical and applied research both informed development of the Rim Country Monitoring and Adaptive Management Plan and will continue to inform its evolution, the Plan focuses primarily on monitoring to collect empirical data on the effectiveness of treatments at moving the landscape toward desired conditions rather than the more theoretical work of testing underlying assumptions of ecology.

Recommendations Comments

General Concern: Commenters provided recommendations for the monitoring plan related to forest cover types, tree species, and structural components as well as mixed conifer desired conditions.

1. *CONCERN #3: Forest cover types, tree species, and structural components currently listed in the RC DEIS Monitoring Plan are specific to the 1st 4FRI EIS. RECOMMENDATION #3: ECO recommends that this section be updated to reflect the Rim Country planning area. This should include additional descriptions and justification in RC DEIS Appendix E (p. 674–675) for mixed-conifer and other forest types, and adjustment of indicators, thresholds, and triggers for mixed-conifer (including monitoring of species proportions, diameter distributions, and spatial distribution of trees). 39.47*

The Forest Service and the 4FRI Multi-Party Monitoring Board have updated the monitoring and adaptive management plan (appendix E) to reflect the vegetation types that occur within the Rim Country project area.

2. *USFS should include a monitoring section on mixed conifer desired conditions. In addition, there are several statements on forest openings and snowpack accumulation. USFS should include a more recent publications (Broxten et al. 2019) that documents some of these impacts. 40.97*

   See response to monitoring plan recommendation 1. Relevant publications about canopy cover, forest openings, and snowpack by Broxton et al. 2015, Sankey et al. 2015, and Svoma 2017 have all been added to the monitoring and adaptive management plan. The publication referenced in the comment (Broxton et al. 2019) focuses on specific methods for improving estimates of snow water equivalent in central Arizona. It was added under "Assessment" for the Soil Moisture and Snowpack Depth, Density, and Persistence indicator as source to inform methods of monitoring snow water equivalent if that is prioritized by the monitoring board. If the monitoring board prioritizes monitoring of snow water equivalent, specific methods would be chosen at that time based on a range of factors including the best available science (determined in part through a literature review that could include the referenced publication) and the cost, feasibility, and sustainability of collecting and analyzing the data to make inferences to inform management.

3. *CONCERN #8: Additional detail is needed on the adaptive management process. RECOMMENDATION #8: ECO recommends that the Monitoring Plan (RC DEIS Appendix E) more clearly articulate specific steps in the monitoring and adaptive management process (as illustrated in Figure 100) and indicate that decisions will be made in collaboration with ECO and MPMB. 39.52*

   The Forest Service and 4FRI Multi-Party Monitoring Board have updated figure 100 and the narrative in the adaptive management process section of the Rim Country monitoring and adaptive management plan (appendix E) to clarify them both. The role of the 4FRI Multi-Party Monitoring Board and 4FRI Stakeholder Group, of which the Eastern Arizona Counties are a member, in the adaptive management process is explained in the adaptive management process section of the plan. The process by which adaptive management recommendations would be made to the 4FRI Stakeholder Group, and subsequently to the Forest Service, are laid out in the charter, which is available from the 4FRI Stakeholder Group.

4. *Forest cover types, tree species, and structural components currently listed in the RC DEIS Monitoring Plan are specific to the 1st 4FRI EIS. The SHG recommends that this section be updated to reflect the Rim Country planning area. This should include additional descriptions and justification in RC DEIS Appendix E (p. 674–675) for mixed-conifer and other forest types, and adjustment of indicators, thresholds, and triggers for mixed-conifer (including monitoring of species proportions, diameter distributions, and spatial distribution of trees). 32.36*

   See response to monitoring plan recommendation 1.

5. *The SHG recommends that RC DEIS Appendix E be expanded to articulate implementation tracking requirements and indicate how this information will be linked to effectiveness monitoring when developing adaptive management recommendations. This could be presented in a table of similar theme as Table 130, that lists specific tracking metrics for effectiveness monitoring across Districts/Forests, which could then be reviewed with monitoring results to produce adaptive recommendations. 32.37*

The implementation monitoring plan within the Rim Country Monitoring and Adaptive Management Plan will be updated in the FEIS (appendix E) to reflect the outcome of collaboration with the 4FRI Stakeholder Group on tracking the implementation of treatments proposed and analyzed in the Rim Country FEIS. The relationship between implementation monitoring/tracking, effectiveness monitoring, and adaptive management, will also be clarified in the updated monitoring and adaptive management plan in the FEIS.

6. *The SHG recommends that the scale of the Biophysical and Social and Economic plans be revised as needed throughout the FEIS. This includes inclusion of language in RC DEIS Appendix E indicating that fire analyses are performed at the HUC 6 level. 32.39*

   The Forest Service and 4FRI Multi-Party Monitoring Board have updated the monitoring scales for different indicators and metrics in the Rim Country monitoring and adaptive management plan (FEIS appendix E). In the fire and fuels analysis, the alternatives were evaluated at both the landscape and hydrologic unit code 6 scales to ensure the expected effects are being considered in the appropriate context. The scales of analysis are not listed by resource in the monitoring and adaptive management plan, but under fire indicators like fuel/fire hazard and fire occurrence it is noted that the assessment may occur at hydrologic unit code 6 and the entire Rim Country landscape scales.

7. *The SHG recommends that the FEIS emphasize the collaborative approach to monitoring and adaptive management and add language (e.g., in RC DEIS Appendix E, p. 662) indicating that the 4FRI MPMB is well established and will play a significant role going forward. 32.42, 39.53*

   The Forest Service and 4FRI Multi-Party Monitoring Board have updated the language in the Rim Country monitoring and adaptive management plan to reflect the board's well-established existence and to clarify its role in the monitoring and adaptive management process.

8. *The SHG recommends that the Monitoring Plan (RC DEIS Appendix E) more clearly articulate specific steps in the monitoring and adaptive management process (as illustrated in Figure 100) and indicate that decisions will be made in collaboration with the SHG and MPMB. 32.41*

   See response to monitoring plan recommendation 3.

General Concern: Commenters provided recommendations regarding modifications to the monitoring plan and the lack of continuity between the implementation plan, implementation monitoring, and treatment effectiveness.

9. *ECO recommends the following modifications:*
   a. *Monitoring Questions, indicators, triggers, and thresholds should be completed and/or updated as needed—a process that can be informed by the living monitoring document maintained by the MPMB.*
   b. *Vague wording in this section (e.g., the term "appropriate") should be clarified with necessary context, sideboards, and direction.*
   c. *The Monitoring Plan should incorporate information from 4FRI monitoring reports including, but not limited to Hjerpe and Mottek-Lucas (2018) as well as relevant information from the RC DEIS Specialist report ("Socioeconomic Environmental Consequences").*

d. Monitoring efforts in treated areas (e.g., groundwater assessment (P.792) should include control and pre-treatment data collection in a BACI (Before-After-Control-Impact) design to support the strongest inference.

e. The Monitoring Plan will need to be updated to reflect openness metrics (and associated assessments on the 1st EIS area) being developed in collaboration with the SHG.

f. Indicators (e.g., spatial metrics, forest structure, and wildlife variables) should be measured at the same scale whenever possible. 32.34, 39.45

a. The Forest Service and 4FRI Multi-Party Monitoring Board have updated the indicators, metrics, methods and sampling techniques, triggers/thresholds, and adaptive management actions in the Rim Country monitoring and adaptive management plan.

b. Where possible, triggers/thresholds and adaptive management actions have been specified. However, the plan is intentionally designed as a living document, and further learning could necessitate changes to suggested parts of the plan. There is an expectation that indicators, metrics, methods, thresholds, adaptive management actions, and monitoring priorities will change over the course of the project as information is gained and new questions are revealed. The Forest Service would collaborate with the 4FRI Stakeholder Group as changes are made and assess monitoring priorities throughout the life of this document.

c. Changes to the plan reflect information learned from 4FRI monitoring, including from Hjerpe and Mottek-Lucas (2018), as well as from the Rim Country Socioeconomics Report.

d. Before committing to new monitoring efforts, the Forest Service and the 4FRI Multi-Party Monitoring Board strive to balance the need for robust study designs with a limited budget and the opportunity costs associated with funding specific proposals. In several cases, the 4FRI Multi-Party Monitoring Board has funded power analyses or the development of study plans specifically to ensure that the data collected would allow for valid inferences to be drawn.

e. The plan as it appears in the FEIS will be updated to include collaboratively developed metrics related to openness and canopy cover.

f. The Forest Service and the 4FRI Multi-Party Monitoring Board are working to improve integration of data collection on indicators and metrics across resource areas or domains (for example, wildlife and forest structure and composition). That said, the spatial scale of measurement (fine, broad, or both) identified for specific indicators was chosen based on the patterns or processes of interest for each indicator.

10. *CONCERN #2: The relationship between Monitoring Plans in the 1st EIS and Rim Country needs to be clarified. The FEIS should clearly state that the Rim Country Monitoring Plan does not apply to the 1st EIS area, but rather complements it. It is also important to indicate that some indicators overlap both EIS areas, but others are unique to Rim Country. RECOMMENDATION #2: ECO recommends that the text in RC DEIS Appendix E (p. 663) be modified accordingly. 39.46*

    The relationship between the monitoring plan from the first 4FRI EIS and the Rim Country monitoring and adaptive management plan will be clarified in the Rim Country FEIS.

11. *CONCERN #4: The relationship between implementation, implementation monitoring, and treatment effectiveness needs is not clearly articulated in the RC DEIS Monitoring Plan. These components need to be effectively integrated in the Monitoring Plan. RECOMMENDATION #4: ECO recommends that RC DEIS Appendix E be expanded to articulate implementation tracking*

requirements, and indicate how this information will be linked to effectiveness monitoring when developing adaptive management recommendations. This could be presented in a table of similar theme as Table 130 that lists specific tracking metrics for effectiveness monitoring across Districts/Forests, which could then be reviewed with monitoring results to produce adaptive recommendations. 39.48

See Monitoring Plan, Recommendation, 2.

12. *RECOMMENDATION #5: ECO recommends that the Monitoring Plan be updated to include the following:*
    a. *Fire Hazard Index (FHI), a new modeling approach used in the RC DEIS analysis of fire effects, but only loosely referenced in the Monitoring Plan.*
    b. *Various technologies and products that could be used to monitor tree age structure, spatial aggregation, canopy openness, patch size, patch configuration, patch density, and patch evenness, as well as the frequency and scale (e.g., UAV based imagery on a project basis).*
    c. *Quantification of snags using LiDAR data. 39.49*

    Comment subpart a through c - The Forest Service and 4FRI Multi-Party Monitoring Board are working with Forest Service fire ecologists to align the Rim Country monitoring and adaptive management plan with the fire modelling approach used in the Rim Country DEIS, and to facilitate evaluation of treatment effectiveness related to fuel loading, fire behavior, and fire occurrence and risk. Recommended methods and sampling techniques in the plan, including the use of unmanned aerial vehicles/unmanned aircraft systems for assessing certain metrics, and use of light detecting and ranging (LiDAR) methods for quantifying numbers and sizes of snags, have been updated.

13. *CONCERN #6: Scale of the RC DEIS monitoring plans does not match the analysis area. RECOMMENDATION #6: ECO recommends that the scale of the Biophysical and Social and Economic plans be revised as needed throughout the FEIS. This includes inclusion of language in RC DEIS Appendix E indicating that fire analyses are performed at the HUC 6 level. 39.50*

    See response to monitoring plan, recommendation, 6.

14. *CONCERN #7: References in the RC DEIS Monitoring Plan should reflect the best available current science. RECOMMENDATION #7: ECO recommends that references in RC DEIS Appendix E be updated. Examples include, but are not limited to:*
    a. *Forest thinning and groundwater recharge (O'Donnell 2018, Moreno et al. 2016)*
    b. *Canopy openness, soil moisture, and snowpack accumulation (Broxton et al. 2019)*
    c. *Scale and grain considerations (Wasserman et al. 2019).*
    d. *Climate science (Seager and Vecch 2010, Barnes and Polvani 2013, Lu et al. 2018, Singh et al. 2018, Espinoza et al. 2018, the 2018 National Climate Assessment)*
    e. *Human dimensions and economics (Egan and Nielsen 2014, Brown 2015, Esch and Vosick 2016) 32.40, 39.51*

    See response to monitoring plan, appendix E, 2.

General Concern: Commenters provided a recommendation for the monitoring plan to be updated to include fire hazard index.

15. *The SHG recommends that the Monitoring Plan be updated to include the following: Fire Hazard Index (FHI), a new modeling approach used in the RC DEIS analysis of fire effects, but only loosely referenced in the Monitoring Plan. Various technologies and products that could be used to monitor tree age structure, spatial aggregation, canopy openness, patch size, patch configuration, patch density, and patch evenness, as well as the frequency and scale (e.g., UAV based imagery on a project basis). Quantification of snags using LiDAR data. 32.38*

    See responses to Monitoring Plan, Recommendations, 4 and 12.

Monitoring Board Comments

General Concern: Commenters provided comments for the 4FRI Multi-Party Monitoring Board to consider.

1. *Further the 4FRI Multi- Party Monitoring Board has yet to make any recommendations regarding management activities authorized under the first 4FRI ROD; it is premature for the FS to propose so much vegetation management action in the 4FRI Rim Country, especially given Alternative 2 will adversely affect the MSO. 42.183*

    The first 4FRI Record of Decision and associated FEIS and adaptive management, biophysical and socioeconomic, Mexican spotted owl and Arizona bugbane monitoring plan are not applicable to the Rim Country project or proposed activities in the project.

2. *USFS should update language about the 4FRI multi-party monitoring board and they are the entity that will oversee the monitoring. "The 4FRI Stakeholder Group will also create a Multi-Party Monitoring Board {Monitoring Board) which-will work with the USFS. 40.94*

    See response to Monitoring Plan, Recommendations, 7. Further information about the steps by which the multiparty monitoring board would make adaptive management recommendations to the 4FRI Stakeholder Group, and subsequently to the Forest Service, are laid out in the charter, which is available from the 4FRI Stakeholder Group.

3. *The Department requests that the USPS incorporate efficiencies and improvements learned from the 1st EIS into the Monitoring Plan, as well as update references within the Monitoring Plan to reflect the best available science. Lastly, the Department requests the FEIS and Monitoring Plan incorporate language that emphasizes the collaborative role in the decision-making process with the existing 4FR1 Multi-Party Monitoring Board and the 4FR1 SHG. 28.14*

    See response to monitoring plan, monitoring board, 2. The Forest Service and 4FRI Multi-Party Monitoring Board have collaboratively revised the Rim Country monitoring and adaptive management plan to reflect learning from monitoring associated with the first 4FRI EIS, best available science relevant to the indicators and metrics in the monitoring and adaptive management plan, advances in knowledge and methodologies, and updated priorities.

National Environmental Policy Act (NEPA)

Commenters expressed concerns about or asked for clarification on a variety of NEPA topics and questions related to the analysis.

General concern comments

1. *The term "additional habitat degradation" is arbitrary and inappropriate. 48.20, 48.21*

   The passage referenced from the old tree implementation plan in appendix D by the commenter has been modified in a collaborative manner to provide additional clarity for the FEIS to state, "Exceptions would be made for threats to human health and safety, and those rare circumstances where the removal of an old tree is necessary in order to prevent additional habitat degradation that would be caused by forest thinning and burning operations." The phrase additional habitat degradation has been updated in Appendix D, Implementation Plan to clarify that it is not the old trees that might cause habitat degradation but rather the mechanical equipment used to perform the restoration activities.

2. *The text of the DEIS includes many dozen scientific citations, however a large number of them do not appear in the References section, impeding efforts of reviewers to check for proper interpretation. 42.356*

   The reference section in the FEIS has been updated to reflect the references cited throughout the document. Additional references have been cited where applicable through the FEIS, and specialist reports have been updated as well with reference information.

3. *SRP recommends that USFS provide a short paragraph description that outlines the key differences between Alternative Two and Three. 40.5*

   The summary section of the FEIS includes a description of the alternatives by activity in table S-1.

4. *SRP suggests adding "the current Tonto National Forest Plan as amended or as amended by this decision and analyzed in this EIS." 40.6*

   The land management plan consistency section in the FEIS has been updated to clarify the project-specific plan amendment as part of the Rim Country project. This project will not amend the Tonto National Forest land management plan but will except the Rim Country project from certain standards and guidelines. Chapter 2, chapter 3, and appendix B offer more information about the plan amendment and the full land management plan consistency check is available in the project record.

5. *USFS uses the terms "associated ecosystems" in this section and other sections throughout the document, but does not define what associated ecosystems means. SRP recommends adding either a clarifying sentence about associated ecosystems here or in the glossary.40.7*

   The term associated ecosystems is included in the background section of the FEIS in one instance and includes the vegetation in the project area that is not specifically ponderosa pine. Other vegetation types include grasslands, pinyon juniper, wetlands mixed conifer and riparian areas.

6. *For Table 3 Tonto Forest Plan Management Areas, include a footnote that informs the reader that the Tonto Forest Plan is undergoing revision and the items in the table may be subject to change. 40.9*

   See response to NEPA general concern 4.

7. *SRP suggests that USFS provide additional clarification and definition of "passive," "active," and "all fire." 40.10*

   There are three types of fire behavior relevant to crowns: surface fire, passive crown fire and active crown fire. All three terms are defined in Appendix G - Glossary. “All fire” is not used within the FEIS.

8. *USFS states that "Planting, burning, and other management actions will be considered to encourage reforestation." SRP suggests USFS more fully describe the types and locations (or criteria) of planting activities. SRP recommends that USFS provide additional explanation of the reforestation activities or direct the public to the appropriate section in the DEIS that would provide greater details on these activities. 40.12*

   The sentence has been deleted from the FEIS. As stated in the treatment descriptions and objections tables in the DEIS Chapter 2 - Modified Proposed Action description, severe disturbance area treatments and riparian restoration treatments could include planting. The Rim Country project includes planting activities in riparian restoration and under the severe disturbance area treatment type (see FEIS chapter 2, table 17). Locations of potential plantings for the treatment types are identified in the FEIS maps and acres are identified by alternative.

9. *SRP suggests moving the 4FRI Collaborative Forest Landscape Restoration Project paragraphs to the background section to improve the flow of the Purpose and Need for Action section. 40.16*

   The sections pertaining to the CFLRP within the purpose and need were collaboratively developed with the 4FRI Stakeholder Group and will remain within the purpose and need.

10. *SRP suggests that USFS clarify that the final EIS will incorporate information from the Biological Opinion that will be issued along with the final EIS. 40.18*

    Issuance of the draft Record of Decision will not occur until the Forest Service receives the biological opinion. The draft and final Record of Decision will reference the biological opinion.

11. *SRP recommends that USFS inform the public where they can find more information related to the Old Growth Protection and Large Tree Retention Strategy. 40.19*

    The Old Growth Protection and Large Tree Retention Strategy as authored by the 4FRI Stakeholder Group can be found in the project record or on the stakeholder group public website (https://4fri.org/wp-content/uploads/2018/04/old_growth_protection-revised080812.pdf).

    The Old Tree Implementation Plan and the Large Tree Implementation Plan can be found in appendix D of the FEIS.

12. *SRP recommends that USFS clarify that the 2nd bullet pertains to the Tonto National Forest Plan amendments. 40.24*

    The FEIS has been updated in the Decision to be Made section of chapter 1 to clarify that the second bullet pertains to the 1985 Tonto National Forest Land Management Plan amendment.

13. *SRP recommends dividing the 2nd paragraph discussion between the dwarf mistletoe and other restoration activities. 40.25*

    See Silviculture and Mistletoe Recommendation response #2. Dwarf mistletoe has been removed as a decision variable in condition-based management. Dwarf mistletoe treatments have also been removed from the action alternatives. Dwarf mistletoe will instead be handled by individual tree removal criteria (see the Implementation Plan in Appendix D of the FEIS for the criteria).

14. *In item 3, USFS should explain the term "regular restoration activities" or use other terms that have been introduced. 40.26*

    The bullet point in the FEIS has been updated in chapter 2, to now say “Elimination of even-aged shelterwood silvicultural prescriptions to address dwarf mistletoe infections, replaced with other treatments as assigned by the condition-based management process”.

15. *USFS mentions mechanical treatments in the 2nd paragraph, but does not define the term. SRP suggests USFS define mechanical treatment or state that mechanical treatment and mechanical thinning are the same and then revise and reference in the glossary. 40.27*

    The definition of mechanical treatments has been added to Appendix G - Glossary, to add clarity between use of the two terms.

16. *USFS states that changes were made to the Proposed Action in response to public comment, but does not provide detail about what specific changes were made in items 1 and 2. SRP recommends that USFS provide additional details to item 1 and 2 to understand how USFS is being responsive to the public comments and concerns. 40.28*

    The FEIS, Chapter 2 Alternative Development description has been updated to include more information on the changes that occurred between scoping and publication of the DEIS. Additional definitions have been added and some definitions have been modified for clarity.

17. *USFS provides a list of all the proposed activities. SRP recommends that USFS also include a statement that directs the reader to the implementation plan, in order to facilitate the understanding of how these treatments will occur. This will help tie the analysis together on the types and methods used in various treatments. 40.29*

    Modifications have been made to chapter 2 to clarify the alternatives and the elements and activities that are common between the action alternatives. Clarification includes moving and updating the “Elements Common to Action Alternatives” section above alternatives 2 and 3 and relabeling it “Elements and Activities Common to Action Alternatives.” Clarification has also been added to this section so that there are specific elements (i.e., the implementation plan, design features, plan amendment exceptions) that apply to both action alternatives. Additionally, there are many activities (i.e., comprehensive restoration and in-woods processing sites) that are common to both action alternatives and these activities have been presented in this section. By adding this section above the action alternatives description, it is now clear that the implementation plan and other elements and activities are part of the action alternatives.

18. *In the additional actions list, USFS should add the 12 in-woods processing sites to the list. 40.30*

    The in-woods processing and storage sites are included in the section of chapter 2 under activities common to alternatives 2 and 3.

19. *USFS should include in the table the difference between Alternative 2 and 3 for in-woods processing sites and rock pits. 40.41*

    See response to NEPA general concerns 18. There are the same number of in-woods processing sites and rock pits in alternatives 2 and 3. These activities have been added to the comparison table of alternatives 2 and 3 in the FEIS and the Chapter 2 Activities Common to Action Alternatives section clarifies that the number is the same.

20. *USFS states that the project would authorize 13 in-woods sites, which is inconsistent with the analysis in the other sections. 40.73*

    The FEIS, Chapter 2 Elements and Activities Common to Action Alternatives and associated FEIS sections, and specialist reports have been corrected to reflect there are 12 in-woods processing sites included in alternatives 2 and 3.

21. *SRP recommends that USFS include in the analysis the effects of in-woods processing sites and rock pits will have on MSO, even if the effects are limited or non-existent. 40.75*

    There is no requirement in NEPA to include information in an analysis that indicates there are no effects to a resource. The rock pits and in-woods sites are not located in Mexican spotted owl habitat and would not have effects on Mexican spotted owl nor their habitat. An analysis of the in-woods processing sites has been added to the FEIS, Chapter 3, Terrestrial section. Design features and initial placement would avoid effects to Mexican spotted owl.

22. *Stump heights are inconsistent between these two items. USFS should select either 6" or 8". 40.77*

    The design features (Appendix C- Design Features RS010, RS011, RS013) have been updated to be consistent.

23. *USFS states that entrances would be gated. SRP recommends that USFS change the statement to "entrances may be gated." Gating may not be effective or could be cost prohibited in some locations. This would provide greater flexibility during implementation. 40.79*

    Utilizing gates to close roads is a standard practice during project implementation for the Forest Service to ensure public, employee, and contractor safety as well as protection of the resources by ensuring use of roads is appropriate when equipment is operating in an area, or if road conditions are not appropriate for travel due to snow or mud, which could cause rutting and erosion.

24. *USFS states that identified wildlife trees cannot be felled. SRP recommends that USFS include an exception in cases of safety where the tree can be felled. Also, SRP recommends that USFS clarify who is going to identify the wildlife tree. 40.80*

    Wildlife trees are identified by Forest Service biologists and serve as nesting and roosting habitat for a variety of species. These are typically not felled unless they are identified by the Forest Service and the contractor during implementation. The old tree implementation plan includes language that states; threats to human health and safety would include hazard trees as defined by Forest Service Manual and Forest Service Handbook Direction (currently FSM 2332.1, FSM

2332.11, and FSH 7709.59). A hazard tree is defined as a tree that has both a structural defect that increases the chance of a tree or its parts to fail and a target (people, buildings, cars, etc.) would be hit when the tree fails. Hazard tree felling will also be analyzed through Section 7 Consultation with the USFWS.

25. *b. The ERI recommends modifications to Table 4. Acres of Cover Type, to further clarify the scope of the problem and intent of the project. We recommend including for each Cover type (Ecological Response Unit, ERU), additional information such as Fire Regime, and Existing Condition with a quantified (or qualified) status, as in "XX amount departed from natural range of variability." 41.2*

    Fire regime information is shown in Table 6 of the fire ecology report and table 34 of chapter 3 Fire Ecology in volume 1 of the FEIS.

26. *The ERI recommends adding clarification and more consistent description of desired conditions in the introduction. It is understood that this project incorporates desired conditions across 3 National Forests, and multiple ERUs (Table 4). However, the introduction does not clearly define desired conditions at the broad landscape scale, and does not link desired conditions to the natural range of variability. Table 5 is oddly placed, and refers to specific, stand-level desired conditions, for the "...acres analyzed for mechanical thinning and prescribed fire treatments". At this point in the document, those treatments and ERU's haven't been, and would include pinyon and juniper woodlands, that should not be represented by the stand specific desired conditions found in Table 5.*

    - *Specifically, remove Table 5. Replace with a GENERAL summary of the ERU and/or Forest Plan desired conditions, and explain relationship to natural range of variability and resiliency. The Forest Plan desired conditions are available in the Silviculture Specialist report in great detail. This recommendation is not to copy and paste the forest plans' desired conditions, but is for an introduction section and assessment on the broad, landscape desired conditions, that are common across these forests (they are all really similar). The mid-scale and stand-scale are not necessary in the introduction. 41.3*

    Desired conditions for the Rim Country Project are based on the best scientific information available, including historical reconstructions and best assessments of the natural range of variability. The ranges of desired conditions and modeled outcomes follow the best scientific information available, as well as direction from land management plans and recovery plans. Desired conditions are based on ecosystem needs and come from land resource management plans that guide projects like Rim Country. The difference between the existing conditions and desired conditions determine the purpose and need for a project. The approach of comparing alternatives and existing and desired conditions is outlined in existing law, regulation, and policy.

27. *The ERI recommends adding citations to support the background and context in the introduction, effects analysis and specialists reports. There are numerous broad statements that need citations throughout the document. We provide citations in this document to support any recommended additions or modifications, and include suggested references for the general text found in the DEIS volumes and specialist reports. References at end of Volume 2 are not complete based on existing references in text; References in specialist reports are not complete and not in alphabetical order. 41.5*

    See response to NEPA General Concern 2. The reference section has been updated.

28. *Concern: language and content of the DEIS must reflect diversity of ecosystem types within the planning area and similarly diverse planned restoration activities. Recommendations: Language in any subsequent NEPA document prepared as part of the Rim Country analysis should reflect the broader ecosystem restoration goals appropriate to the Rim Country planning area.*
Current conditions, desired conditions, treatments designs, and effects of the Alternatives should be presented separately for each of the target cover types. Any subsequent NEPA document prepared as part of the Rim Country analysis should be consistent when identifying the "target" cover types (the list varies throughout the document). 47.1

    See response to NEPA general concerns 25 and 26.

29. *Any subsequent NEPA document prepared as part of the Rim Country analysis should provide site-specific coverage for identified priority projects, but maintain flexibility for unforeseen circumstances, e.g., restoration needed following flood events triggered by future fires. 47.2*

    Condition-based management is used as a pre-treatment process to determine, analyze, verify, and then allow implementation of the most appropriate treatment for a given set of environmental and resource conditions. Both implementation and effectiveness monitoring occur after treatments have been implemented, and adaptive management actions may be taken based on monitoring results. If implementation monitoring shows that treatments were not implemented as planned, adaptive management actions would be taken to ensure that future treatments were implemented as planned. If effectiveness monitoring reveals treatments are not having the intended/desired effects, the Forest Service would evaluate and implement changes as needed, following National Environmental Policy Act requirements.

30. *The FS 4FRI has also violated the 2012 Planning Rule by failing to offer greater transparency by burying crucial public health data in the appendices of the FEIS. 20.32*

    The 2012 Planning Rule does not specify what documents or information the Forest Service provides in appendices of an FEIS. This EIS was prepared per NEPA regulations in 40 CFR 1500 and 36 CFR 218, a list of laws, regulations, and policies that the FEIS complies with can be found in appendix I.

31. *The number one problem with FS policies and the conduction of this NEPA process is that the FS decisions are made in a vacuum. The FS says that their decisions will be based on "science. 20.39*

    The Rim Country analysis and process for public disclosure followed requirements of the NEPA and the CFLRP. This project has included and demonstrated extensive public involvement as documented in the public involvement section of the DEIS and FEIS including collaboration with the 4FRI Stakeholder Group and the cooperating agency, consultation with tribes, and public meetings. The Forest Service also used current and best available science for the analysis and formation of the alternatives and incorporated references as appropriate from comments received.

32. *The DEIS can state that "radiation emissions is beyond the legal scope of this analysis," but they are wrong. It is covered in NEPA, the Federal Land Management Act and the Environmental Justice Guidelines. 20.35*

    See response to smoke general concerns 10.

33. Alternative 3 represents a less intensive and extensive treatment plan. It does not meet the objectives of 4FRI. Drop alternative 3 and choose alternative 2 in the Record of Decision. 28.35, 22.25

Alternative 3 is designed to focus restoration treatments in areas that are the most highly departed from the natural range of variation of ecological conditions, areas that represent Forest priorities, and/or that are currently putting communities at risk from undesirable fire behavior and effects. Alternative 3 responds to the Smoke/Air Quality issue by reducing the amount of prescribed fire. Alternative 3 would also need less miles of temporary road to be built to because of the reduced amount of mechanical treatment acres. This would respond to the Roads issue. Alternative 3 would respond to the purpose and need, provides a range of alternatives, and responds to significant issues. Alternative 3 strives to balance the effects of increased smoke from prescribed fire and the effects of declining forest health and the associated increased risk to communities. The responsible officials will take into consideration the purpose and need, analysis, and comments as they make their decision.

34. I am cautioning increasingly narrowed focus that may occur as input from stakeholders to the FS can sometimes take the form of 'yes-men' for proposed actual FS programs. 36.13

The CFLRP required collaboration as stated in P.L. 111-11 Title IV Section 4003(c)(2) "be developed and implemented through a collaborative process that-- (A) includes multiple interested persons representing diverse interests; and (B)(i) is transparent and nonexclusive; or (ii) meets the requirements for a resource advisory committee under subsections (c) through (f) of section 205 of Public Law 106-393 (16 U.S.C. 500 note)"

The 4FRI Stakeholder Group was formed in 2009. An MOU between the Forest Service and the 4FRI Stakeholder Group was signed in February 2011. This MOU outlines a framework of collaboration by all parties involved and interested in the restoration of northern Arizona's ponderosa pine forests, and the cooperative relationship among the parties, in accordance with three main goals. The MOU states that the Forest Service, the 4FRI Stakeholder Group, along with the public at large, will work together at multiple stages prior to, during, and following the NEPA process to establish expectations for landscape-scale restoration and on such products as the purpose and need statement, proposed action, alternatives, collection and use of data, and development of monitoring and adaptive management processes, subject to/consistent with applicable Federal laws, regulations, land management plans, and other management direction.

The 4FRI forests and the interdisciplinary team have worked closely with the stakeholder group regarding implementation and meeting the Collaborative Forest Landscape Restoration Program requirements and the MOU's direction. The Rim Country Project has had multiple opportunities for public involvement in the NEPA process as outlined in the Public Involvement section in Chapter 1.

35. Because of possible budget and funding challenges the FS needs to approach this project with eyes wide open.36.15

Project funding and annual budgets are outside the scope of the analysis.

36. *This exceedance of the consensus agreement on the extent of thinning appropriate for the landscape does not even account for the additional acres within the 4FRI footprint that have been made available to thinning under different NEPA decisions, which, based on Table 25 in the Cumulative Effects discussion, would be between approximately 184,039 acres and 258,416 acres. The Rim Country project is often described as being 1,240,000 acres. The vegetation analysis provides a more accurate area, which is reported as 1,238,658 acres. According to this section of the DEIS, "[a]pproximately 255,249 acres have been removed from this silvicultural analysis because they are part of an ongoing project or are being analyzed in a separate analysis," "[a]pproximately 30,263 acres are either non National Forest System lands, or are non-forested," and "[a]n additional 1,141 of these acres identified as "Other" in Table 4 were determined to be either surface water, mineral pits, dams or road surface and will not be given a detailed description in this silvicultural analysis."96 The DEIS then says that "[t]he remaining 951,691 acres, considered the analysis area, will be analyzed in this report." As an initial matter, the Forest Service has provided an inaccurate reporting as these numbers simply don't add up. 48.69, 48.70*

    Treatments have not exceeded the zone of consensus-based agreement and were developed collaboratively with the stakeholder group. All of these statements are correct. There are areas within the project area that are analyzed under other projects, some areas are non-forested. Past activities have occurred within and adjacent to the project area. Many of those past activities have contributed to the existing condition across the area. Additionally, ongoing and future activities are occurring and will continue throughout the implementation of this project. Cumulative effects of past activities with ongoing effects as well as those ongoing activities with effects that would be additive to the direct and indirect effects of treatments proposed in this project were analyzed by each resource. Acres of past, current, and reasonably foreseeable activities cumulative to the direct and indirect effects of the alternatives proposed in this project area quantified differently by each resource according to the direct and indirect effects being analyzed.

37. *Because of the extensive direct, indirect, and cumulative ecological damage from roads, we fully support the proposal to decommission hundreds of miles of roads. Likewise, other proposed measures to remove the human-caused impediments to natural recovery are very worthy. These are:*
    ** Restoring riparian areas by removing noxious or invasive plants, protecting them from livestock grazing, and promoting, protecting or planting native aquatic or riparian species.*
    ** Restoring streams by establishing former drainage patterns, stabilizing slopes, restoring vegetation, protecting sites from livestock grazing, and removing stock tanks,*
    ** Restoring springs by restoring natural flow regimes, removing dilapidated or non-functioning infrastructure, protecting from inappropriate recreational activities and protecting from livestock grazing. 42.3*

    Thank you for the support of decommissioning roads. The project includes aquatic habitat and riparian area restoration activities, invasive weed mitigations, and spring protection and restoration. Management of recreation activities is outside the scope of this project.

38. *The DEIS doesn't explain who the "4FRI Board of Supervisors" are and how are they delegated the authority to "drop one of the preliminary alternatives from consideration in the Rim Country DEIS" for example. Also, there is to be an "implementation team leader" who is not identified in the DEIS, and whose accountability to the public is not explicit. 42.25*

    The 4FRI Board is currently made up of the 4FRI Chief Executive, the four forest supervisors, deputy forest supervisors of the Apache-Sitgreaves, Coconino, and Tonto National Forests, the stewardship staff officer of the Kaibab NF, the Southwestern Regional Director of Forestry and

Forest Health, and the Deputy Director, Southwestern Region 3 Fire & Aviation Management. The responsible officials for the Rim Country project are the Apache-Sitgreaves, Coconino, and Tonto National Forest Supervisors. They worked with the interdisciplinary team to develop and review alternatives, and during this part of the NEPA process an alternative may be dropped. An implementation plan was developed for the project and the three forests that Rim Country project is on and the 4FRI operations team will work together to implement the project.

39. *The USFS uses fire to conduct "prescribed burns" on public lands; and encourages and grows lightening caused wildfires through "managed wildfires." Prescribed burns are under NEPA guidelines. Managed wildfires are not rated under NEPA guidelines. 20.16*

    The FEIS discloses that wildfires managed for resource benefit may occur in the project area and could augment the proposed action's use of prescribed fire to move areas toward meeting land management plan desired conditions. When the Forest Service has the opportunity to manage a natural ignition, the agency ensures it is following all laws, regulations, and policy including land management plans and Arizona Department of Environmental Quality, which requires land management agencies to follow and use the smoke management techniques stipulated in individual burning authorizations.

40. *The FS has rejected all alternative methods to fire, within the NEPA process and outside the NEPA process, that were suggested by the public and has dismissed requests by the public for the FS to develop alternative methods to fire. The FS's stated reasons are that fire uniquely meets their program goals for their ideal forest remediation plan and is cost effective for the USFS. 20.23*

    The Rim Country project area is in a fire dependent ecosystem (Agee 1993, Hann et al. 1997) and the proposed activities would restore the project area so natural ignitions and the resulting wildland fire would burn naturally.

41. *Change our timber export laws. In the 1970s, Japan, in need of timber, began buying from the Pacific NW public lands and sinking it in bogs for later use, much like a savings account. They would then mill it on their offshore processing ships as needed. To prevent this practice, which circumvented the employment of the U.S. lumber mills, Congress passed a series of protection laws, beginning in the 1970s, which led to the prohibition of harvesting timber from public lands west of the 100th meridian for export in its unmilled form. Forty years later, with an abundance of dead and dying trees throughout the West, this well-meaning legislation has outlived its usefulness in its current form. 20.24*

    Changing the timber export regulations is outside the scope of this project.

Programmatic comments

1. *The programmatic Rim Country CFLRPlan, as outlined in the DEIS, substitutes for existing Forest Plans because the latter were hardly used to guide or direct the CFLRPlan design. And the development of this hybrid programmatic CFLRPlan is conducted in disregard of the existing programmatic planning regulations—the 2012 Planning Rule. The CFLRPlan is, in effect, a set of forest plan amendments for which the agency doesn't want to follow proper procedures to implement.42.13*

    A land management plan consistency check was completed for this project and is included in the project record. This consistency check included a review of general plan direction and direction for the specific management areas and resources within the project boundary for all three national

forests as outlined in their current land management plans. The plan amendment for the Tonto National Forest outlines three exceptions for the Rim Country project. See the land management plan amendment responses for more information.

2. *During the development of this CFLRPlan, consistency with relevant direction from the three forest plans need not be demonstrated. The DEIS states, "Forest Plan consistency evaluations are located in each specialist report, and design features to ensure that activities are consistent with Forest Plans are noted in Appendix C." While those reports repeat verbatim much plan direction, there is little written to explain how the CFLRPlan is consistent with those relevant forest plan standards, guidelines etc. 42.14*

   See response to NEPA programmatic 1. In addition, the design features for the Rim Country project were created to ensure consistency with management direction found in each of the three national forest land management plans. The design features will be used during Rim Country implementation to ensure continued consistency.

3. *The Rim Country CFLRPlan would implement logging, prescribed burning, and road construction over a period of time longer than NFMA specifies for Forest Plans: "…over a period of 20 years or when activities can be funded or completed." 42.15*

   The National Forest Management Act does specify a lifespan for land management plans that will end up being similar to or less than the Rim Country Project. The National Environmental Policy Act (NEPA) does not put the same time constraints on projects. There are mechanisms within the NEPA process that require previous decisions to be reviewed before moving forward but those are unforeseen at this time. If new information or changed circumstances relating to the environmental impacts of a proposed action come to the attention of the responsible official prior to a completion of an approved project, the responsible official should review the information carefully (FSH 1909.15, Section 18.1) to determine the best path forward.

4. *In this CFLRPlan process, there is not mechanism for the owners of the national forests to hold managers or the stakeholders accountable if they fail to make forests "resilient" because there is no timely, scientifically supported way of measuring that major goal.42.17*

   See response to NEPA, general concerns, 26.

5. *The CFLRPlan is to sustain industry 'for long term.' The CFLRPlan is programmatic, not a project. 42.27.*

   The purpose and need for the Rim Country project includes support of sustainable forest products industries. As discussed in chapter 1 of the EIS, in the purpose and need for action section, there is a need to support appropriately-scaled, sustainable, forest products industries that strengthen local economies, while conserving natural resources and aesthetic values. Appropriately scaled businesses would play a key role in accelerated forest restoration, by harvesting, processing, and selling wood products, thereby reducing treatment costs and providing economic opportunities. Engaging industry could reduce the cost of removal of forest restoration byproducts by the value of the products removed.

6. *Section B Management Direction, Desired Conditions and Treatment Design: This section includes existing forest plan management direction, desired conditions, and treatment specific silvicultural design. It is designed to be used by the district implementation team." In other words. Programmatic*

direction. Yet while some direction is attributed to the MSO Recovery Plan, none of section B direction is attributed to Forest Plans. 42.33

The projects management direction including desired conditions and treatment design are based on ecosystem needs and come from land resource management plans that guide projects like Rim Country. The Implementation Plan in Appendix D includes direction from land management plans, recovery plan as well as other sources including the best available scientific information from peer reviewed literature. The use of condition-based management as a pre-treatment process to determine, analyze, verify, and then allow implementation of the most appropriate treatment for a given set of environmental and resource conditions. Both implementation and effectiveness monitoring occur after treatments have been implemented, and adaptive management actions may be taken based on monitoring results. If implementation monitoring shows that treatments were not implemented as planned, adaptive management actions would be taken to ensure that future treatments were implemented as planned. If effectiveness monitoring reveals treatments are not having the intended/desired effects, the Forest Service would evaluate and implement changes as needed, following National Environmental Policy Act requirements as detailed in Appendix E - Monitoring Plan.

Condition-Based Management Comments

1. *Under normal NEPA procedures the FS would do the field work; gathering data on existing conditions so that a Purpose and Need can be properly formulated, then designing alternatives to serve the Purpose and Need. Only then can analysis of the impacts be accurately presented and an informed debate invoking best available science ensue and other agencies can properly play their oversight role. But by basing Rim Country activity design within a FTA paradigm, this is all flipped on its head. We have data-free analysis, so essentially analysis-free decision making. The NEPA principle of 'look before you leap' is subverted—the leap will come first. 42.52.*

   See response to NEPA, programmatic, 6.

2. *With the CFLRPlan, the FS rejects a sensible, NEPA-consistent approach by delaying their timing until after the ROD, allegedly because of the necessity to "accelerate restoration" and "move into on-the-ground implementation as quickly as possible."42.53*

   See response to NEPA, programmatic, 6.

3. *Any subsequent NEPA document prepared as part of the Rim Country analysis should ensure consistency in describing all aspects of the FTA. 48.165.*

   Condition-based management information has been added and clarified in the FEIS and the implementation plan.

Cumulative Effects Comments

1. *The DEIS has no basis for limiting the time period for analyzing cumulative effects no more than "20 years in the past and into the future." Damage to riparian and stream systems persists for many decades. 42.233*

   The analysis time frame for water and riparian resources is determined by several factors. These resources are primarily located in bottom lands which are strongly influenced by runoff from the surrounding topography. A time frame of 20 years is reasonable for analyzing cumulative effects

because this provides a reasonable idea of what projects are occurring or are reasonably foreseeable and the duration of their effects.

Activities in the uplands and upstream areas can affect these resources within the 20-year time span due to vegetation regrowth, reduced overland flow, and decreased or increased density of vegetation. Using the subwatershed (HUC12) hydrologic unit is consistent with the Forest Service watershed condition framework, which has attributes specific to these indicators. Temporally, effects include those activities up to 20 years in the past and into the future. Cumulative effects to water quality, and riparian resources include effects associated with past, present (ongoing) activities, and those that are reasonably foreseeable.

2. *SRP recommends adding a statement that "although this analysis is independent, it does take into consideration the cumulative effects of previous and future projects and environmental impact analyses of those actions." 40.8*

   The cumulative effects analysis completed for the project by individual resources indicates what spatial and temporal boundaries were utilized. There is also a cumulative effects summary and detail list of activities included for cumulative effects in table 28 in volume 1 of the FEIS.

3. *The DEIS states "Approximately 192,000 acres already covered by NEPA decisions will be included in the Rim Country analysis in order to incorporate additional restoration activities such as road decommissioning, spring and stream channel restoration, and wildlife habitat restoration." How the changes proposed in this DEIS would affect conclusions in the NEPA documents of those already approved projects concerning cumulative impacts is not adequately analyzed and disclosed in this DEIS. The DEIS also states: Approximately 61,000 acres have been excluded because they are already covered by NEPA decisions, with treatments designed to meet restoration objectives. Cumulative effects of those actions are not adequately analyzed and disclosed in the Rim Country DEIS.42.83, 42.84*

   There are other past, present, and future projects within the Rim Country boundary. The intent of including the areas that were in some of these projects in the Rim Country analysis is that the other projects did not include the full suite of restoration activities that are included in Rim Country. By including these acres in Rim Country, the Forest Service has an opportunity to apply restoration activities across those acres as well.

   The analysis or re-analysis for these other projects are outside the scope of the Rim Country project. Each specialist completed a cumulative effects analysis for their resources which can be found in chapter 3 of the FEIS. Each specialist also selected the appropriate projects for their specific resource to complete the cumulative effects analysis, and can have different projects based on how the spatial and temporal boundaries are determined for their resource.

4. *Of the ongoing or foreseeable projects encompassed within the 192,000 acres or 61,000 acres, did their NEPA documents analyze the cumulative effects of the 4FRI Rim Country proposal as a foreseeable action? If not, has the FS performed a changed conditions analyses as per FS handbook at 1905.15 or reinitiated NEPA to consider cumulative effects of the Rim Country project as a foreseeable action? The DEIS fails to present a genuine analysis of the effects of those ongoing actions-not even mentioning them in some resource analyses.42.88, 42.89*

   Cumulative effects analysis or changed conditions analysis for other projects that have occurred in the past are outside the scope of the Rim Country analysis.

5. *The DEIS fails to include analysis of monitoring of those past projects, which would inform cumulative effects analyses. The DEIS list several actions, but it includes no analysis of how well those past FS projects met the goals, objectives, desired conditions, etc. state in those project NEPA documents and how well the project conformed to forest plan standards and guidelines. Such an analysis would provide an explanation of why, with "469,036 acres of mechanical vegetation management activities that mainly consisted of tree thinning involving heavy equipment and 567,935 acres of prescribed fire" from 1990 to 2017 plus tens of thousands of acres of other treatments-the forest lands of the analysis area are still quite out of whack as stated in the DEIS. 42.85, 42.86, 42.87*

   Determining how well another project met its goals, objectives, desired conditions, or if monitoring for those projects was conducted is outside the scope of the Rim Country analysis.

Clarification Comments

General Concern: Commenters provided a recommendation for additional clarification and more consistent quantification.

1. *The ERI recommends adding clarification and more consistent quantification of scale in the introduction and across all effects and specialists reports. While the intent of the CFLRP and the 4FRI project is to restore at landscape scales, the information provided on landscape- scale currently is inconsistent, with unclear desired conditions (limited to references to the 3 forest plans and the ERUs, see above recommendation regarding landscape scale desired conditions), and little explanation of the linkages from landscape to stand scales. The Silviculture, the Fire and the Wildlife specialist reports do acknowledge variable scales (Wildlife & Silviculture) and address landscape scale pattern and expected landscape change with the project (Fire)… It is difficult to understand how things like openness, composition, structure, and tree group sizes will change across the landscape at different scales (but see below for specific recommendations in the Silvicultural effects and specialist reports). 41.1 (110.01, 160.01, 150.01, 370.01)*

   While consistency is needed in some areas of an analysis, each resource has the specifics it is required to include based on law, regulation, and policy for that resource. This may make it appear there are inconsistencies. The intent of the National Environmental Policy Act is to inform decision makers and provide the public information on the impacts of a project. It is not to ensure consistent quantification of scale in the EIS. The silvicultural, wildlife, and fire ecology analyses do discuss the effects of treatments on openness, composition, structure, and tree group sizes across the landscape at different scales and meet Forest Service obligations under National Environmental Policy Act.

2. *SRP recommends that the USFS include a statement in the abstract that clearly describes that the action alternatives are consistent with the Coconino and Apache-Sitgreaves Forest Plans and that Forest Plan amendments are not needed. 40.4*

   Clarification has been added to Chapter 2, in the Elements Common to Alternatives 2 and 3 section that the plan amendment would not be needed for the Coconino and Apache-Sitgreaves Land Management Plans.

3. *As a Cooperating Agency and ID Team member, the Department provided environmental analysis and recommendations that were not included in the DEIS. For example: SERI species and some of the SGCN were not included in the Terrestrial Wildlife section (page 312 and 317). Information provided in memorandums/specialist reports/geospatial data and in other communications to 4FRI were not*

included in the DEIS. Action: Review and incorporate Department environmental analysis and recommendations. Action: Ensure species design features/BMPs in the EIS are compatible with the toolboxes, silviculture guidance, and other aspects of the EIS. 28.29, 28.30

Comments from the Arizona Department of Game and Fish were reviewed during scoping and addressed to indicate where and how these comments would apply to the project to be considered in alternative development and the analysis. The species analyzed in the Terrestrial Wildlife and Aquatics sections of the FEIS were selected based on what is required by law regulation and policy (FSM 2670), that includes the Regional Forester Sensitive Species that that occur within the Rim Country project. Species of greatest conservation need (SGCN) and species of economic importance (SERI) are not the same as Regional Forester Sensitive Species. Sensitive species are those plant and animal species identified by the Regional Forester for which population viability is a concern on National Forest System (NFS) lands within the region. The goal of the Forest Service Sensitive Species Program (FSM 2670) is to ensure that species numbers and population distribution are adequate so that no Federal listing will be required, and no extirpation will occur on NFS lands. See page 21 of the Terrestrial Wildlife Specialist report for more information.

The 4FRI Planning team did use the referenced maps and spatial data to assist in which species were found and where. For example, the Chiricahua leopard frog data was extremely useful in assisting with the analysis. Design features (appendix C) have been updated and revised by specialists on the districts to ensure that they are logical, clear, and will be implementable.

4. *A critical flaw in this Initiative is that it leaves out a great many people who live in the four involved Forests and surrounding areas. These many people are at the very least as important as the restoration of Pine forest and all its ancillaries. 36.1*

The Rim Country analysis and process for public disclosure followed requirements required by the CFLRP, and demonstrated extensive public involvement as documented in the public involvement section of the DEIS and FEIS including collaboration, work with cooperating agencies, tribal consultation, and public meetings. Letters and scoping documents were mailed to 676 individuals, local governments, state governments, Federal and state agencies, and organizations that engage with all three national forests. Public workshops were held in Show Low, AZ and Payson, AZ to discuss the proposed action and accept comments. The Forest Service also hosted three public meetings in Payson, AZ, Overgaard, AZ, and Flagstaff, AZ. Tribal consultation was also conducted with each forest consulting with specific tribes to reduce redundancy of information sharing and comments gathered by each forest liaison is continuously shared with the other forests. A list of the tribes who received invitations to consult on the project can be found in chapter 1 of the FEIS.

5. *Alternative 3-Focused Restoration- The details of how this alternative is being analysis and how it would be implemented is lacking and could be enhanced. 51.5*

Alternative 3 is the focused restoration alternative and was fully analyzed in the DEIS. The implementation plan discusses how both the action alternatives would be implemented including alternative 3. The implementation plan can be found in appendix D.

6. *The DEIS's all too cursory analysis is supposedly supported with scientific references, which do not appear in the DEIS's Reference section 42.274*

See response to NEPA, general concern, 2.

7. *The DEIS doesn't address the question of if lands are actually suitable for the type of management ongoing or proposed. This has become an open question, due to ongoing and expected climate change impacts. 42.285*

   The determination of land suitability for a specific type of management is outside the scope of this analysis. The land management planning process determines this and each of the three forests that are included in the project area have land management plans that established the desired conditions and management for the project area.

General concern: Commenters had a general concern stating that their scoping comments and the 4FRI stakeholder comments are incorporated by reference, and that their scoping comments were not properly addressed in the DEIS.

8. *The Rim Country DEIS doesn't properly acknowledge the content of Sierra Club and WildEarth Guardians comments or the science, policy, regulations and legal precedents they cite. We therefore incorporate by reference both our comments letters as comments on this DEIS and request that you provide written responses to those comments, just as the National Environmental Policy Act (NEPA) requires the Forest Service (FS) to respond in writing to comments in this present letter. We incorporate by reference what the Sierra Club scoping comments incorporated, namely the Sierra Club appeal of the 2015 revised Apache-Sitgreaves National Forests Land and Resource Management Plan—filed in partnership with the Center for Biological Diversity, Grand Canyon Wildlands Council, Western Watersheds Project, and White Mountain Conservation League. We also agree with and incorporate by reference the 4FRI "stakeholder" comments submitted to the Forest Service in a letter dated January 16, 2020. Sierra Club is not an "official" stakeholder in the 4FRI process, because Sierra Club is not a signatory to the 4FRI Charter, but the Club has been participating in 4FRI stakeholder meetings and field trips for almost a decade and agrees with the comments submitted by that group. 42.1, 42.2*

   Comments from both the Sierra Club and Wild Earth Guardians were received and addressed during the review of scoping comments. The National Environmental Policy Act does not require written responses to scoping comments for an EIS. A written response to comments is required for comments on a DEIS and are included as appendix H in the Rim Country FEIS.

9. *I want all my actual words to be printed in the Rim Country 4FRI online and hard copy public comments, including my complete EJ complaint. 20.1*

   Comment received during the notice and comment period for the DEIS will become part of the project record. Comments that are substantive and responded to by the interdisciplinary team become part of the response to comments and are found in appendix H of the FEIS. The FEIS will be available online and in print. Additionally, all scoping and DEIS comments submitted on the Rim Country Project are available to the public on the Rim Country Reading Room website (https://cara.ecosystem-management.org/Public/ReadingRoom?project=48210).

10. *I want my entire Environmental Justice Complaint to be printed online in the hard copy version of the public responses to this DEIS 20.11*

    See response to NEPA, clarification, 9.

11. *During the development of the FEIS and ROD, we are asking the USFS to give full consideration both to our original scoping comments and to our key concerns. 46.4*

    Comments received during scoping were addressed by the interdisciplinary team and were considered during alternative development and analysis for the DEIS. Comments received for the DEIS were responded to and clarification, additional analysis or updates can be found in the FEIS.

12. *The range of action alternatives considered and fully analyzed in the DEIS excludes legitimate differing views. 42.10*

    Under 40 CFR 1502.14, a Federal agency is required to analyze those alternatives necessary to permit a reasoned choice. When there are potentially a very large number of alternatives, only a reasonable number of examples (or alternatives) must be analyzed and compared in the EIS (Question 1b, CEQ, Forty Most Asked Questions Concerning CEQ's NEPA Regulations, March 23, 1981). The range of alternatives discussed in environmental impact statements shall encompass those to be considered by the ultimate agency decision maker (40 CFR 1502.2(e)). Section 102(2)(C) provides only that an agency should prepare a detailed statement addressing, among other things, ''alternatives to the proposed action.'' 42 U.S.C. 4332(2)(C). Section 102(2)(E) requires only that agencies ''study, develop, and describe appropriate alternatives to recommended courses of action.'' 42 U.S.C. 4332(2)(E). The FEIS, chapter 2, has been updated to include more information about the alternative development process.

CFLRP Comments

General Concern: Commenters allege a violation of the Collaborative Forest Landscape Restoration Program related to project duration.

1. *The FS narrative assumes forests already damaged from logging, livestock grazing, road construction, and fire suppression can be restored while the same actions are applied extensively throughout the Rim Country landscape. This narrative follows largely from inaccurate suppositions found in Title IV of the Omnibus Public Lands Management Act of 2009 (also known as the CFLRP Act. Such an implausible story is inherent with politically instilled solutions to misperceived and overly simplified "unhealthy" conditions on national forests. In the DEIS, the assumptions of the CFLRA are accepted a priori—they are not properly tested against actual conditions in the Rim Country analysis area. 42.8, 42.9*

   The Rim Country analysis in the FEIS ensures the project is consistent with the Endangered Species Act and the National Environmental Policy Act along with any other applicable laws. The FEIS was prepared per NEPA regulations in 40 CFR 1500, prior to 2019, and 36 CFR 218, a list of laws, regulations, and policies that the FEIS complies with can be found in appendix I.

General Concern: Commenters provided a concern related to violations of the Collaborative Forest Landscape Restoration Act.

2. *Because the CFLRPlan is not consistent with the Endangered Species Act (ESA), and the DEIS does not conform to NEPA and the planning rule, it violates the CFLRA at Sec. 4003(a). 42.47*

   The Rim Country project is consistent with the CFLRP, the Endangered Species Act (ESA), National Environmental Policy Act (NEPA), and the 2012 Planning Rule. The Rim Country analysis and process for public disclosure followed requirements required by the CFLRP and the

2012 Planning Rule. Consultation with USFWS was completed on this project, including the proposed land management plan amendment, as part of meeting legal requirements of ESA. Also see NEPA CFLRP response 1.

3. *The DEIS does not demonstrate the Rim Country proposal meets the eligibility criteria under Sec. 4003 (b)(1)(A), 4003 (b)(1)(B),4003 (b)(1)(B(iv), 4003 (b)(1)(C), 4003 (b)(1)(D) and (E). 42.41, 42.42, 42.43, 42.44, 42.45*

   The Rim Country Project was developed to meet these criteria. As of 2019, the project is no longer an active CFLRP project, but the proposal meets the intent.

Proposed Alternatives

Analysis Comments

1. *The FS fails to analyze an alternative projecting climate science into the future. It fails to adequately consider that the effects of climate risk represent a significant and eminent loss of forest resilience already, and growing risk into the "foreseeable future." 42.282*

   The purpose and need to increase forest resilience ultimately moves the vegetation in the project area toward desired conditions. Increasing resilience is intended to increase the ability of the ponderosa pine and mixed conifer-frequent fire forest types (target cover types) to survive and maintain function in light of stressors such as uncharacteristic fire, insect and disease outbreaks, and climate change (FSM 2020.5). While shifting climate envelopes will likely lead to a loss of function in some portions of the landscape, including some type conversion, the proposed treatments under the two action alternatives are designed to help mitigate large scale batch type conversion resulting in pulse disturbance events (specifically high-severity fire).

General Concern: Commenters requested the EIS analyze the use of prescribed or managed fires as an alternate to "first-entry" mechanical treatments.

2. *Any subsequent NEPA documents prepared as part of the Rim Country analysis should expressly cover the use of prescribed or managed fire as an alternate "first-entry" on acres that are initially targeted for mechanical thinning. These documents should also facilitate or include a spatially-explicit decision framework for allocating mechanical treatments and prescribed/managed fire across the analysis area, as proposed in the Strategic Treatments for Fire Use Alternative. 47.69*

   Both the modified proposed action and focused restoration alternative include prescribed fire and/or mechanical treatments to improve stand conditions and modify fuel configurations. A selection of either of the action alternatives would allow for initial entry prescribed fire where conditions are conducive to meeting the management objectives outlined in the FEIS. While the sequence of entry is not pre-ordained, the effects analysis presented in the FEIS presumes mechanical treatments would precede prescribed fire treatments on acres eligible under each action alternative for mechanical treatments. While the strategic treatments for fire use alternative as proposed by the commentor was considered, it was not analyzed in detail as detailed in the FEIS Chapter 2 "Alternatives Considered and Eliminated from Detailed Study" section. Therefore, a full effects analysis of this alternative and the associated merits and environmental consequences was not completed.

Strategic Treatments for Fire Use Alternative Comments

General Concern: The strategic treatments for fire use alternative is proposed to better reach the project's goals while minimizing the need for mechanical treatments and increasing the use of fire across the landscape. It uses an optimization model intended to identify where mechanical treatment might be needed to reduce potential for mixed and high severity fire and identifies zones for varying degrees and approaches of fire use to achieve thinning goals.

1. *The Strategic Treatments for Fire Use Alternative proposes a science based solution to maximize the use of scarce resources and limited industry capacity while accomplishing the project purpose. 48.119*

   The strategic treatments for fire use alternative does represent a science-based solution for maximizing limited or scarce resources and industry capacity. While this alternative was considered, it was not analyzed in detail. Chapter two of the FEIS includes additional information and rationale on why this alternative was not analyzed in detail.

2. *As described in our proposal, the Strategic Treatments for Fire Use Alternative would utilize a modified version of the methodology developed by the Hurteau lab and used by Krofcheck and colleagues. Their optimization model, under which the land manager would mechanically treat only the operable areas with the highest probability of mixed- and high-severity fire, was shown in multiple fire simulations to be as effective as thinning all operable acres at reducing wildfire burn severity and facilitating landscape scale low-severity fire restoration. 48.120*

   Additional analysis was performed to initially evaluate the strategic treatments for fire use alternative including the development of spatial optimizations of the Rim Country project area to select areas with a high probability of mixed and high severity fires. This additional analysis is included in the final Fire Ecology Report. However, as this alternative was ultimately not considered in detail (See FEIS Chapter 2 "Alternatives Considered and Eliminated from Detailed Study" section), a full effects analysis associated with treatments on the optimized landscape was not completed.

3. *We assert, as we did in our proposal, that this approach in combination with the suite of comprehensive restoration activities that are included in both action alternatives will meet the projects needs to increase forest resilience and sustainability, reduce hazard of undesirable fire effects, improve terrestrial and aquatic species habitat, improve the condition and function of streams, springs and other aquatic and hydrological resources, restore riparian vegetation, preserve cultural resources, and support sustainable forest products industries. 48.121*

   Initial analysis on the strategic treatments for fire use alternative indicates that it meets the Rim Country project purpose and need, but not as well as the Modified Proposed Action or Preferred Alternative, and although it may ameliorate some conflicts over mechanical harvest, there is some concern that it may raise the risk of some forms of environmental damage resulting from an increased use of prescribed fire in areas that have not received mechanical treatments. The Strategic Treatments for Fire Use Alternative may not meet the purpose and need as well as the Modified Proposed Action because it (1) proposes to mechanically treat fewer acres moving the landscape toward desired conditions to a lesser degree; (2) has the potential to slow the pace of movement toward desired conditions in Tier 3 areas; and (3) could also limit restoration tools available during implementation in Tier 3 areas, thereby, limiting restoration potential in aquatic habitats.

4. *The Strategic Treatments for Fire Use Alternative proposes a planning and implementation framework that maximizes carbon storage and minimizes risk of high-severity fire. 48.122*

   While the intent of the Rim Country project includes minimizing risk of high-severity fire, this project does not have an objective of maximizing carbon storage. Because the strategic treatments for fire use alternative was not considered in detail, a full effects analysis on the relative reduction in risk of high severity fire compared to the other alternatives was not performed. See response to fire recommendations response 3.

5. *The Strategic Treatments for Fire Use Alternative Is Not Remote, Speculative, Impractical or Ineffective. In fact, based on scientific studies, the alternative would meet the purpose and need for the project with less cost, and fewer adverse environmental impacts, than the preferred alternative. 48.123*

   See response to proposed alternatives strategic treatments for fire use alternative 3.

6. *Optimizing fuel reduction treatments at the landscape scale that provide some guidance for those evaluating tradeoffs and can be used as guidelines in the Strategic Treatments for Fire Use Alternative:*

   a. *Treating 10% of the landscape provides notable reductions in modeled fire size, flame length, and spread rate across the landscape relative to untreated scenarios, but treating 20% provides the most consistent reductions in modeled fire size and behavior across multiple landscapes and scenarios.*

   b. *Increasing the proportion of area treated generally resulted in further reduction in fire size and behavior, however, the rate of reduction diminishes more rapidly beyond 20% of the landscape treated.*

   c. *Random placement of treatments requires substantially greater proportions of the landscape treated compared with optimized or regular treatment placement.*

   d. *The improvements offered by optimized treatments are reduced when 40-50% of the landscape is unavailable for treatment due to land management constraints.*

   e. *Treatment rates beyond 2% of the landscape per year yield little added benefit. 48.124*

      A review of the submitted alternative was performed to initially evaluate the strategic treatments for fire use alternative, including the development of spatial optimizations of the Rim Country project area to select areas with a high probability of mixed and high-severity fires. This analysis indicated that more than 10 percent of the project area was at a relatively high probability of stand-replacing fire. While it is likely that there is a point of diminishing return after which additional landscape treatment produces less risk reduction, the specific percentage for this unique landscape has not been determined. There is potential for optimizing the priority of treatments in the project area to achieve the largest benefit as quickly as possible; however, the preferred alternative does not commit the Forest Service to any prioritization. Because the strategic treatments for fire use alternative was ultimately not considered in detail, a full effects analysis on the submitted alternative's relative reduction in risk of high severity fire compared to the other alternatives was not performed. Chapter 2 of the FEIS includes additional information and rationale on why this alternative was not analyzed in detail.

7. *As we reviewed at length in the Strategic Treatments for Fire Use Alternative proposal, Forest Service and academic scientists have been providing mangers with analytical and planning tools for years to encourage informed deployment of mechanical thinning. Projects like 4FRI are exactly where these tools should be utilized. Because our proposed alternative is not remote, speculative, impractical or ineffective, it is a reasonable alternative that the agency must consider in detail. 48.125*

   The proposed strategic treatments for fire use alternative follows available analytical and planning tools, and the scale and scope of the Rim Country Project are of sufficient size to allow for the use of such tools. An alternative being considered as remote, speculative, impractical, or unreasonable are not the only reason to not include for detailed study. Under 40 CFR 1502.14, a Federal agency is required to analyze those alternatives necessary to permit a reasoned choice. Chapter 2 of the FEIS includes additional information and rationale on why this alternative was not analyzed in detail and on the alternative development process. Also, see response National Environmental Policy Act (NEPA), clarification, 12.

8. *The DEIS does not actually identify where mechanical thinning treatments would be placed. It just assigns vast acreages to each treatment type, to the sum of 93% of the forested Rim Country landscape in Forest Service ownership. We have not been able to determine what the last 7% is but based off of maps we assume these are areas that have zero potential for timber income or are extremely difficult to access. 48.127*

   The 7 percent of acres not treated with mechanical thinning treatments represents the acres where prescribed fire only treatments would occur (DEIS, Chapter 2, Table 16). It should be noted that these acreages have been updated in volume 1 of the FEIS (table 15). The condition-based management process has been designed to stay within the effects analysis for the action alternatives. Both action alternatives include a description of areas that would be eligible for mechanical thinning treatments, and specify the treatments identified for specific acres based on the best information available. Upon implementation, the condition-based management process would be used to ensure that the implemented treatment aligns with current conditions assessed in the field and during the interdisciplinary team review. The FEIS includes a full description of the condition-based approach for utilizing mechanical treatments via condition-based management. See response to proposed alternatives strategic treatments for fire use alternative 9.

9. *In contrast, the Strategic Treatments for Fire Use Alternative would evaluate the landscape, including existing holding features, and identify the subset of the landscape that, if thinned, would allow use of prescribed or managed wildfire across a broader area. Thus, the Strategic Treatments for Fire Use Alternative has the added advantage of resulting in disclosure of site-specific impacts of the project, as NEPA mandates. 48.128*

   See Proposed Alternatives, Proposed Strategic Treatments for Fire Use Alternative, 8. The effects analysis and associated environmental consequences presented in the FEIS include those effects predicted if all available acres were treated. It is expected that the effects presented would not exceed this amount. The strategic treatments for fire use alternative included minimizing mechanical treatments and increasing the use of fire across the landscape.

   Condition-based management provides for an adaptive framework to more thoroughly assure that the most appropriate treatment is implemented in the most appropriate location for the proposed action to best meet the desired conditions. Condition-based management is a pre-treatment process to determine, analyze, verify, and then allow implementation of the most appropriate

treatment for a given set of environmental and resource conditions. Both implementation and effectiveness monitoring occurs after treatments have been implemented, and adaptive management actions may be taken based on monitoring results. If implementation monitoring shows that treatments were not implemented as planned, adaptive management actions would be taken to ensure that future treatments were implemented as planned. If effectiveness monitoring reveals treatments are not having the intended/desired effects, the Forest Service would evaluate and implement changes as needed, following National Environmental Policy Act policies.

10. *The Strategic Treatments for Fire Use Alternative Is Significantly Distinguishable from the Action and No Action Alternatives. The Forest Service may not fail to analyze the Strategic Treatments for Fire Use Alternative on the grounds that it cannot be distinguished from the other alternatives. The Strategic Treatments for Fire Use Alternative in fact would result in numerous differences in on-the-ground treatments. The primary manner by which the Strategic Treatments for Fire Use Alternative is distinguishable from the proposed action is that the Strategic Treatments for Fire Use Alternative would identify thinning treatment areas based on an informed, landscape level optimization analysis, consistent with the best available science, rather than leave decisions for treatment locations up for spur-of-the-moment judgements within a conditions-based management approach, or under the influence of economic factors and potential for projects paying their way. 48.126*

    See responses to proposed alternatives, strategic treatments for fire use alternative, 1, 2, 6, 8, and 9. See response to NEPA clarification 12. The strategic treatments for fire use alternative mechanically treats fewer acres moving the landscape toward desired conditions to a lesser degree, and has the potential to slow the pace of movement toward desired conditions in Tier 3 areas. The proposed mechanical treatments rely primarily on the portions of the landscape with the highest probability to propagate undesirable fire effects. As a result, it does not focus mechanical treatments within stands solely to improve forest health such as stand structure, age class diversity, and species diversity. The Rim Country EIS analyzes in detail three alternatives: the no-action alternative, the modified proposed action or preferred alternative, and the focused restoration alternative. The alternatives were ultimately analyzed in detail because they considered a range of actions that best met the purpose and need. These represent a range of reasonable alternatives for analysis, with the modified proposed action alternative analyzing the highest treatment acreage and the focused based restoration alternative analyzing the lowest treatment acreage. Both action alternatives propose consensus-based treatments as developed with stakeholders through the collaboration process. The no-action alternative would not treat any acres within the project area.

    Designated Tier 3 areas would receive burn only treatments without mechanical fuel reduction. In some places, it would be more difficult to control fire behavior fire severity and resulting undesirable post-fire effects in areas where mechanical treatments are needed. Loss of vegetative cover combined with high soil burn severities increase runoff resulting in increased soil erosion, transport, and subsequent excess sedimentation downslope and downstream can degrade riparian and aquatic habitats.

    Mechanical treatments combined with fire can be efficient in some of these areas by reducing tree density, etc., prior to burning thereby moderating the effects of fire in these areas and such treatments would be prioritized in Tier 2 of the proposed alternative. Like both action alternatives, all smoke generating treatments would be performed in accordance with state and Federal regulations and clearances. Smoke generating activities from all alternatives have the potential to create management-generated smoke. However, the Focused Restoration Alternative

also leaves the largest portion of the landscape completely untreated and susceptible to uncontrolled emissions from wildfire. The proposed alternative may require more burning days and increased burn acreages in comparison to alternative 3. This does not mean air quality standards would be exceeded under the proposed alternative. However, smoke was raised as a key issue and the Focused Restoration Alternative includes reduced acreages for treatments and was developed partially in response to the issue of smoke and its impact on communities.

Under the strategic treatments for fire use alternative, Tier 3 acres may be on a slower or less certain trajectory toward the natural range of variation, especially if implementation of prescribed fire treatments lags in these areas. As will all alternatives, ultimate progress toward desired conditions will depend not only on the pace and prioritization of implementation, but also on the extent and severity of wildfire. Some forest stands in Tier 3 areas may remain outside of the historic range of variation with regards to structure, pattern, and composition for a longer period and therefore may slow progression toward desired conditions. This slower trajectory in some portions of the landscape does align with the purpose of the Rim Country EIS—which is to move forest conditions toward the desired conditions as described in the land management plans—though it may do so at a slower pace than the modified proposed action.

11. *The Forest Service's Failure to Analyze the Strategic Treatments for Fire Use Alternative Is Arbitrary and Capricious. Failure to consider this reasonable, middle ground alternative would violate the "heart" of the NEPA process. CEQ regulations which apply to all NEPA documents, and not just EISs, require that agencies "to the fullest extent possible . . . [i]mplement procedures . . . to emphasize real environmental issues and alternatives" and to "use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment."48.129,48.130*

    See response to proposed alternatives strategic treatments for fire use alternative 10.

12. *In sum, the Strategic Treatments for Fire Use Alternative, compared to the preferred alternative, would utilize the best available science, stay true to core 4FRI social agreements and foundational documents, follow policy recommendations, use process-driven modalities to achieve ecological restoration outcomes; result in less disturbance from mechanical treatment; require fewer scarce Forest Service and industry resources; maintain the same comprehensive restoration objectives, and better protect our shared climate. For all these reasons, the Forest Service must consider the Strategic Treatments for Fire Use Alternative in any subsequently prepared NEPA document. 48.131*

    See response to Proposed Alternatives, Strategic Treatments for Fire Use Alternative Comment, 2.

13. *CONCERN: The Rim Country DEIS does not utilize the best available science or follow policy recommendations for strategic treatment placement and prioritization…. 48.61*

    See responses to condition-based management recommendation 2 and 4.

14. *Now that we have thoroughly reviewed the Rim Country DEIS, and we have confirmed that it fails to use any form of strategic treatment placement or prioritization, we see the need even more for the analysis of the Strategic Treatments for Fire Use Alternative. We are disappointed that our alternative was not given its due attention. And we are disappointed that the Forest Service has proposed mechanical treatments on 93% of the Rim Country landscape. Choosing our alternative would reduce the acreage treated mechanically to within the range that we found consensus around, and still make plenty of acres available for a sustainable forest products industry. 48.62*

    See response to Strategic Treatments for Fire Use Alternative comment 6 and responses to Condition-Based Management Recommendations 2 and 4.

15. *We have not been able to identify the broad recommended methodology which is referred to in that statement. This leads us to believe that there is no coherent strategy in placing treatments on the landscape. 48.63*

    See response to Strategic Treatments for Fire Use Alternative comment 6, and responses to Condition-Based Management Recommendations 2 and 4.

16. *As we argued in our Strategic Treatments for Fire Use Alternative proposal, there is a need to maximize the benefits of scarce resources and limited industry capacity in order to harness the restorative benefits of prescribed and managed wildfires at the landscape scale. The current direction in the Rim Country DEIS assumes the impossible (that is that almost 1,000,000 acres would be treated in the next decade or two), and as such fails to present a realistic strategy for accomplishing the vision of restored forests and fire regimes shared by the Center and many of our stakeholder partners. 48.64*

    See response to strategic treatments for fire use alternative comment 1.

Operations

Clarification and Recommendations Comments

General Concern: Clarification and recommendations are requested as stated below.

1. *USFS should clarify that USFS approves landings and decks, but does not designate them. Also, USFS should clarify that this item applies to cable thinning operations. 40.84*

    The Forest Service would designate landings and decks as well as appropriate operational methods under existing authorities and according to law, regulation, and policy in Forest Service manuals and handbooks. The purchaser can request additional/different deck locations from the Forest Service. Chapter 2 has been updated to provide clarification for cable thinning operations.

2. *USFS should define "consistently" and provide additional flexibility in this item. 40.88*

    The authority of the Forest Service to control and mitigate detrimental soil disturbance is already decided by existing law, regulation, and policy (for example, B provisions of a 2400-6 timber sale contract).

3. *SRP recommends the following change "Skidders should not be turned on roads, when feasible." 40.87*

   See response to operations clarification and recommendations 2. This is handled under the contract with B provisions (resource protection); usually a C provision includes information about avoiding damage and what to do if damage occurs.

4. *The Implementation Plan in any subsequent NEPA document prepared as part of the Rim Country analysis should include acreage allocations and operational elements of the Mechanical Treatments FTA that are specific to the target cover types. 39.17, 47.40*

   The Rim Country condition-based management approach has been collaboratively developed. Additional detail has been provided, including an updated figure to clarify and better describe acreage allocations and operational elements for specific cover types.

5. *"In Woods Processing and Storage" the language specifies the types of tasks that would be performed on those sites and they types of equipment commonly used at processing sites. Our concern is that the tasks and equipment listed may restrict operators to those tasks only. We would prefer to see language that says 'but not limited to' or to remove the specific tasks and equipment and use more generic terms to allow for new technologies that may emerge over the next 20 years. 11.1*

   Specific tasks as well as specified equipment has been removed from the in-woods processing site section of the EIS to increase flexibility.

Recommendation Comments

General Concern: Measuring forest health using density metrics related to industry is no longer appropriate for northern Arizona forests. Also, severe disturbance area and facilitative operations treatments are vague and open-ended; sideboards and guidelines should be developed in collaboration with the stakeholders.

1. *The Center strongly supports a sustainable and appropriately scaled forest products industry that can accomplish the hard work of thinning in order to restore ecologically appropriate and low-risk fire processes. However, measuring the health of the forest on the basis of density-metrics represents a worn-out allegiance to a past industrial paradigm that is not the right scale or approach for northern Arizona's forests. Unfortunately, the Forest Service has neglected to take this fantastic opportunity to analyze an alternative that maximizes return on limited resources by focusing thinning on the acres that truly need it the most. Restoring a forest is not an exercise in manipulating every quantifiable metric into a neat category or alleviating any form of stress that might lead to unexpected mortality. 48.67, 48.68*

   The FEIS has been modified in a collaborative manner with the stakeholder group to use density metrics that are more easily understood. The term interspace has been largely removed from the FEIS and replaced with the use of basal area as the treatment metric.

2. *Severe Disturbance Area and Facilitative Operations Treatments are too open-ended… Facilitative operations would also have the liberty of using mechanical thinning. We are concerned with the vast uncertainty, flexibility, and open-endedness in these two treatment categories which account for 255,940 acres in Alternative 2. These treatment categories deserve additional discussion with Stakeholders to identify appropriate sideboards and management guidelines. 48.197*

Mechanical treatments in facilitative operations would be designed to reduce the potential of high intensity fire behavior in prescribed burn units that contain non-target ERU cover types and are adjacent to or between target ERU cover types. The treatments would either move these non-target cover types toward Land Management Plan desired conditions or maintain their current condition while remaining consistent with the Land Management Plan. The treatments would use prescribed burning, or a combination of mechanical fuel reduction followed by prescribed burning. Mechanical fuel reduction would be used in areas where prescribed burning alone would produce too much fire behavior intensity that would be unsafe to fire personnel, increase the risk of prescribed burns escaping containment boundaries, and/or cause unacceptable damage to ecosystems including vegetation, wildlife, soils and water resources. The use of mechanical treatments would be condition-based and only used in problematic fuels that need to be reduced prior to prescribed burning. Additional information on facilitative operations and severe disturbance areas has been added to Chapter 2 and Appendix D - Implementation Plan.

General Concern: Commenters provided a comment related to lack of information on how often or extensive treatments would be.

3. *The FS does not explain how its CFLRPlan would sustain a restored landscape into perpetuity. In this CFLRPlan there are no details on how often or how extensive treatments must be, which kinds of treatments will be necessary, how many miles of roads will be needed (both permanent and temporary), etc. This means we cannot know how many acres at any given time will be suffering reduced productivity because of soil damage or infested by noxious weeds, or how many acres of wildlife habitat will be subject to diversity impacts due to snag losses from dealing with logger safety or from public firewood cutting. Under "cumulative effects" the DEIS discusses impacts of firewood gathering…However, this doesn't disclose or estimate the number of acres in the analysis area which would be expected to be below the NRV in snag densities from fuelwood gathering' either alone or in combination with other human activities. 42.19, 42.178*

   The Rim Country analysis meets the obligations under the National Environmental Policy Act as well as the enacting language of the Collaborative Forest Landscape Restoration Program under the Omnibus Public Lands Management Act of 2009. While this Act does not require the planning of restoration activities into perpetuity, it does "encourage the collaborative, science-based ecosystem restoration of priority forest landscapes through a process that-- (1) encourages ecological, economic, and social sustainability; (2) leverages local resources with national and private resources; (3) facilitates the reduction of wildfire management costs, including through reestablishing natural fire regimes and reducing the risk of uncharacteristic wildfire; and (4) demonstrates the degree to which-- (A) various ecological restoration techniques-- (i) achieve ecological and watershed health objectives; and (ii) affect wildfire activity and management costs; and (B) the use of forest restoration byproducts can offset treatment costs while benefitting local rural economies and improving forest health."

Outside the Scope of the Analysis

General Comment

General Concern: Commenters provided a recommendation to include a framework for stakeholder expectations to be included in the FEIS as a binding document.

1. *The Department recommends that a solution be provided within the FEIS that is binding, along with bolstering this formal framework within the 4FR1 Memorandum of Understanding. In conjunction*

with the Department and other stakeholders, USPS should develop a framework that captures stakeholder expectations for 4FRI. 28.13

The stakeholder group and the Forest Service have a memorandum of understanding that is not a document included in the National Environmental Policy Act process. If the stakeholder group wishes to update this memo with a framework for their expectations, they are welcome and encouraged to explore this option with the Forest Service outside of the National Environmental Policy Act process. See Collaboration General Responses 1.

General Comments

General Concern: Several commenters brought forward opinions or process concerns, such as issues with the request for proposals, contract awards, funding, congressional communication, potential partnerships, market capacity, importance of hunting and fishing in Arizona, and others as stated below.

1. *Modelling assumptions for slash and biomass removal are incongruous with possible actions under the pending Request for Proposals (RFP). 47.67, 47.68, 48.193*

   Comments regarding information related to any request for proposals (RFPs), requests for information (RFIs), contracts, agreements, or other acquisition efforts are outside the scope of the National Environmental Policy Act process.

2. *While we aren't able to crosswalk the modelling assumptions with the criteria in the RFP, we are nonetheless concerned that it is very likely that a contract could be granted that does not meet the thresholds for slash removal that were used in the modelling. If this happens, then the validity of the modelling and predictions for reduction in fire risk are all completely invalid. The issue is further complicated by the possible scenario that an awarded contract thins to the high intensities critiqued throughout these comments, then removes the merchantable material, but leaves as much as 50% of the slash. 48.195*

   See response to Outside the Scope of Analysis, General Comments Related to the Request for Proposals 1.

3. *Earlier I noted the RFP that considers applicants based on their percentage of biomass removal as part of their proposals. This is a great strategy, but given the poor track record that the USFS has had with contracting for effective biomass removal on a large scale, there remains a real concern that this effort could fail too. 12.18*

   See response to Outside the Scope of Analysis, General Comments Related to the Request for Proposals 1.

4. *The final comment is about funding. This process to restore and protect the forests in northern Arizona has taken much too long to get to this point. The scary part is that this point does not begin to effectively reduce the risks that those unhealthy forest conditions cause to our forest and communities. Simply completing the necessary paperwork to move the process along is not enough. To have this book on the shelf does not attend to the needs to actively clean up the forest. There needs to be adequate funding and/or reprioritization of the existing funding to take care of this dangerous situation. What is the funding status of this Rim Country Project? 12.20*

   See response to Discussion of funding is outside the scope of the analysis. See Economics, Recommendations, 3.

5. *When will the work be completed? 12.21*

   The Rim Country Project would conduct restoration activities over a 20-year period, or until completed. See Implementation, General Concerns, 22.

6. *What actions are being taken by the USFS leadership to inform Congress and the Administration about the high risk needs of this area? 12.22*
7. *Communications with Congress or the administration are outside the scope of the analysis....as this budget is shared, is the cost of recovery due to inaction presented as a metric in the calculations to determine funding response? 12.23*

   See response to Outside the Scope of Analysis, General Comments Related to the Request for Proposals 1.

8. *What partnerships are you engaging with in the area to begin work that may be supported outside federal funding capabilities? 12.24*
9. *Project funding and annual budgets are outside the scope of the analysis. Assuming that the current White Mountain industry continues to implement 15,000 acres/years, the total capacity would reach 55,000 acres/year. This is close enough to generally meet the purposes and needs of both 4FRI First Analysis and Rim Country analysis. However, public information made available in the last 60 days triggers considerable uncertainties: 1. Industry members have indicated publicly during the November 4FRI Stakeholders meeting that the existing White Mountain industry members who intend to submit proposals in response to the RFP will file proposals that will not result in an increase of existing capacity, but in a displacement of capacity. 39.1, 39.3*

   See response to Outside the Scope of Analysis, General Comments Related to the Request for Proposals 1.

10. *Award next contract to a competent bidder 10.1*

    See response to Outside the Scope of Analysis, General Comments Related to the Request for Proposals 1.

11. *There are efficient ways to do the work, ways to maximize more money from bidders, and ways that prioritize the needs of the forest and attending to the most hazardous conditions first. The RFP for bidders to amend to biomass removal is an example of addressing a critical need of the forest condition and reflects action on the USFS to look at a high priority condition. 12.10*

    See response to Outside the Scope of Analysis, General Comments Related to the Request for Proposals 1.

12. *What plans do you have if the bidders do not meet the biomass removal quotas that you intend? Will that mean a lengthy redesign of the RFP and bidding process? If so, that is unacceptable and you need to have a plan to address the biomass removal plan internally. The health of the forest cannot afford any additional delays. 12.19*

    See response to Outside the Scope of Analysis, General Comments Related to the Request for Proposals 1.

13. *There needs to be adequate funding and/or reprioritization of the existing funding to take care of this dangerous situation. What is the funding status of the Rim Country project? When will work be completed? What actions are being taken by the USFS leadership to inform congress and the administration about the high risk needs of this area? Is the cost of recovery dur to inaction*

presented as a metric in the calculations to determine funding response? What partnerships are you engaging with in the area to begin work that may be supported outside the federal funding capabilities? 12.20, 12.21, 12.22, 12.23, 12.24.

Project funding and annual budgets are outside the scope of the analysis. See response to general comments related to the request for proposals. Project funding for Rim Country and annual budgets are outside the scope of the analysis.

14. *The DEIS refuses to consider meat goat grazing to keep down the ladder fuels in our wildland urban interfaces including the perpetual regrowth of ponderosa pine seedlings.20.7*

    See response to rangeland resources and livestock grazing, outside the scope of the project, response 4.

15. *The 4FRI project needs to be awarded to the most qualified, US Company, not the lowest bidder and not a foreign company. 22.3*

    See response to general comments related to the request for proposals 1.

16. *Budget issues are used as the excuse in several instances here. I see many opportunities for the FS to go lean. Annual fleets of new trucks; rangers in full armored, fully loaded out tactical vests and pulling over vehicles on the highway for suspected speeding; and fancy new visitor/office centers are all prime examples of budgetary negligence that should be addressed rather than further restricting the publics' access to public lands. If either alternative 2 or 3 is passed, can we a significant reduction in taxes once the closures are completed? 43.3, 43.5*

    The purpose and need of the Rim Country Project includes improving the motorized transportation system to provide for a more sustainable road system where poorly located roads are relocated or obliterated. By improving the road system and doing general maintenance activities, it reduces the size of road failures, thus saving the Forest Service and taxpayers money. Construction practices have changed greatly over the last 50 plus years, providing longer durability today, thus addressing the commenters concerns around budget issues for public land management.

17. *Is there a link to a website publishing the business plan for the original 4FRI project [Sec. 4003 (g)(1)(B)], the Annual Report for the original 4FRI project[Sec. 4003 (g)(3)], and the results of multi-party monitoring completed thus far for the original 4FRI project? 42.49*

    Requests for information about the original 4FRI project are outside the scope of this analysis. That said, the original 4FRI work plan, which includes the business plan as described in PL111-11, Title IV, Sec. 4003 (g)(1)(B), is available upon request. Annual reports were required each year during the 10-year period in which 4FRI was part of the Collaborative Forest Landscape Restoration Program (2010-2019). Those reports are available here: https://www.fs.usda.gov/detailfull/4fri/home/?cid=stelprdb5346432&width=full. Five- and 10-year ecological indicator reports, as well as reports detailing much of the multi-party monitoring that has been completed are available on the 4FRI Monitoring webpage here: https://www.fs.usda.gov/main/4fri/monitoring. Results of ongoing multi-party monitoring are not represented on that webpage as these efforts are still underway.

18. *we would argue that workforce limitations will affect mechanical thinning operations more than fire management crews. 48.104.*

    This comment refers to General Technical Report 310 and is outside the scope of the analysis.

19. *" The DEIS fails to acknowledge how little humans understand of the complexity of forest ecosystems. Managers should demonstrate humility and properly attribute "control" (if that term is even appropriate) to the natural processes that have created and maintained these forests for centuries.42.267*

    Use of condition-based management acknowledges that forest ecosystems are complex. The Rim Country analysis considers the best scientific information available and provides a reasonable assessment of the effects of the proposed actions. Condition-based management provides for an adaptive framework to more thoroughly assure that the most appropriate treatment is placed in the most appropriate location for the proposed action to best meet the desired conditions. Additionally, the Forest Service continues to engage with the stakeholder group to identify the appropriate role of stakeholders in the implementation process which would include an opportunity to provide input into the implementation process and would occur outside of the planning process. See Condition-based Management Recommendation Response 2.

20. *The FS should re-initiate the NEPA for Cragin Watershed Protection Project to bring it in alignment with legitimate plan direction.42.269*

    Re-initiation of the Cragin Watershed Protection Project, which was completed under a separate NEPA analysis and decision, is outside the scope of the Rim Country analysis.

General Concern: Clarify the sequencing of treatments and how changed conditions will be addressed throughout the implementation timeframe of 20 years. There is a concern in changes in the conditions on the ground and how this can impact the request for proposals for the timber contract.

21. *Given that the RCP EIS will be in force for a 20-year period, it is only to be expected that there will likely be substantial changes in conditions on the ground and in the watersheds before actions on specific areas are planned and implemented. Some of these changes will be due simply to the passage of time, some due to climate change, others due to natural occurring or man caused wildfires, and others due to the impact of treatments already conducted on adjacent areas or in upstream reaches of a watershed. They will in effect establish a new set of "Current Conditions" at the time of specific implementation planning. The EIS should clearly address these issues early and provide a clear understanding of how they will be addressed during the overall implementation period. To this purpose, there appears to be a contradiction between the requirement of the NEPA analysis for 85% of the cut stems 90% of the branch wood removal, and the slash removal/on-site disposal requirements in the RFP (Executive Summary, p. 13): "Additionally, each proposal will be evaluated on the ability to meet the slash removal and/ or on-site disposal requirements as follows:*

    - *Removal and/or on-site disposal of slash:*
    - *90% or greater: Exceptional*
    - *80% - 89%: Very good*
    - *70% - 79%: Satisfactory*
    - *50% - 69%: Marginal*
    - *Less than 50%: Unsatisfactory 46.16.*

Modeling parameters are distinct from slash descriptions in the RFP. Modeling parameters were input into FVS by invoking the YARDLOSS keyword and estimating values for portion of cut stems left in stand, proportion of left stems that are down and proportion of branchwood left from removed stems. The RFP defines slash as "Trees or parts of trees left after thinning that are not removed for utilization." And may include a combination of whole trees as well as branchwood from removed stems.

22. *CONCERN: although it remains to be determined how the combined percentage of removal of cut stems and branch wood correlates with the percentage of removal of slash, the possibility of a contract award to a proposal that would be judged "Marginal" (50% to 69% biomass removal), or even "Satisfactory" (70% to 79% biomass removal) could create legal ground for a litigation and injunction based on a claim that the NEPA requires the removal of a higher percentage. RECOMMENDATION: it appears advisable to harmonize the definition and quantification of biomass removal between the NEPA analysis and the RFP selection criteria, and/or to clarify in the NEPA document the role of on-site biomass/slash treatments such as pile & burn, and the possibility for on-site biomass/slash disposal. 39.4, 47.70*

    See response to outside the scope of the analysis, general comments related to the request for proposals, 1. The implementation plan (appendix D) that was developed concurrently with the National Environmental Policy Act process addresses how the treatments would occur in the 20-year implementation timeline, including application of condition-based management to provide for adaptive management to more thoroughly assure that the most appropriate treatment is implemented in the most appropriate location for the proposed action to best meet the desired conditions. If implementation monitoring shows that treatments were not implemented as planned, adaptive management actions would be taken to ensure that future treatments are implemented as planned. If effectiveness monitoring reveals treatments are not having the intended/desired effects, the Forest Service would evaluate and implement changes as needed, following National Environmental Policy Act policies. The FEIS, Appendix E, the Monitoring and Adaptive Management Plan (see "Adaptive Management Process" section), describes the process for adaptive management. The assumptions made for vegetation modeling include estimates toward the more severe end of the treatment intensity spectrum to ensure that the effects of the implemented activities are within the effects disclosed in the environmental analysis.

23. *Has Region 3 examined the correlation between impaired or unsatisfactory soils and livestock grazing? 42.73*

    Livestock management is outside the scope of this project and is handled on an allotment-by-allotment basis. The Soils Report includes a discussion on the existing condition, which includes other activities that may have contributed to existing conditions.

24. *with "Partner Interest" and "Partner Implementation" being considerations for how aquatic restoration actions are prioritized (Table 13), there will be unavoidable conflicts of interest. Which management actions are considered best for the Rim Country is already heavily biased toward resource extraction on the vegetation "treatment" side, so it would be of no surprise if, for aquatics, the public interest would be subverted in favor of private financial interests. 42.236*

    See response to the Outside of the Scope of Analysis Area, General Comments, Comment 22.

25. *"It is estimated there are up to 10 times the number of unmapped springs that are not developed in the Rim Country project area." How do the allotment management plans comply with forest plan and AMP direction, if all those springs are subject to cattle trampling. 42.238*

    Allotment management plans and their compliance with land management plan direction is outside the scope of the Rim Country Project. Livestock Management is outside the scope of this project and is handled on an Allotment-by-Allotment basis.

General Concern: Commenters provided comments related to unregulated managed wildfire; chipping the slash piles; providing air tankers and increased length of the runways; and complete lack of concern for human health.

26. *Chip the slash piles on site for export to the EU and the Orient. 20.27*

    Mechanical options such as mastication and chipping slash and vegetation are included in the action alternatives. Other options for the biomass materials such as shipping have been considered in other operational ideas for biomass removal.

27. *Provide air tankers (waterhogs, not supertankers) and lengthen runways for mountain towns so they can put out wildland fires within the first half hour of ignition. 20.28*

    The consideration, purchase of, and use of air tankers and water holding tank locations and lengths for runways is outside the scoping of this project.

28. *The purchase of air tankers and development of water holding tanks is critical to wildfire prevention and should be a number one priority for the forest service. 21.3*

    See response to outside the scope of the analysis general comment 27.

29. *If the USFS has time to stack slash and debris into pile burns, then why can't they place this same debris into mulchers/shredders? Then leave the fine debris on forest floor to nourish it? 21.2.*

    Some mastication is proposed for areas with facilitative operations that do not have a heavy fuel loading and where leaving the material on the forest floor would not increase fire hazard in those locations. If all material were to be mulched and spread across the forest floor, there is potential that the accumulated material would prohibit the germination and survival of desirable understory species, including perennial grasses, and could also lead to unacceptable surface fuel loading.

30. *The forest service purports that prescribed burns are safer for the public than wildfires, yet refuses to take into account the frequency and amount of burning the forest service performs on a yearly basis, which makes it as or far worse than a wildfire. They are also portraying to the public that wildfires are getting larger, while the Forest Service is actually growing them for fire management. Their total lack of concern for public health will be looked at historically as a travesty to human health. The benefit to the forest does not outweigh the damage to public health. 21.4*

    The updated Air Quality and Climate Change Specialist report and the FEIS address potential wildfire emissions and proposed project smoke emissions in comparing alternatives. The FEIS also shows how proposed project smoke emissions would be managed to comply with the Clean Air Act and Arizona State air quality rules. The analysis in chapter 3 of the FEIS and the Air Quality and Climate Change Specialist report discusses how alternative 2 addresses issue 6, including the following air resource indicators and measures: nuisance smoke (qualitative); exceedances of national ambient air quality standards (qualitative); smoke emissions – criteria air

pollutants (quantitative); smoke emissions – greenhouse gases (quantitative); and visibility or regional haze (qualitative). Implementation of the project would comply with the Federal Clean Air Act and at the state level with the Arizona Department of Environmental Quality's regulations that require the project to not cause exceedances of the national and state ambient air quality standards.

Rangeland Resources and Livestock Grazing

Clarification Comments

General Concern: Commenters provided comments related to the concern that high intensity treatments would benefit livestock industry; the request for permanent removal of livestock; and the concern of increased access to streams, riparian areas, and other areas.

1. *High intensity treatments are being used to benefit the livestock industry. 48.186*

   Livestock grazing is one of many multiple uses of National Forest System lands. An effect of actions within this project would be an increase of forage production. No changes to permitted numbers is being analyzed within this project. Livestock management actions, such as numbers, season of use, or the need to address specific resource concerns from livestock grazing, are analyzed within the allotment management planning process and are not being addressed through this project.

2. *The DEIS states that "[s]tream and riparian area restoration would have a long-term benefit to livestock grazing management by increasing forage, by improving bank stability, and by decreasing the amount of sediment to downstream stock tanks. Excluding livestock from these restoration areas would be short term." This surprising revelation contrasts with the need for widespread and permanent removal of livestock from riparian areas and springs. 48.176, 48.179*

   See response to range clarification 1. If necessary, Appendix C design features would allow for exclosure fencing in riparian areas.

3. *Grazing is contributing to unhealthy riparian, aquatic, and wet meadow ecosystems. 42.81b*

   See response to range, clarification, 1.

4. *We believe that too many high intensity treatments are being assigned, and this issue of benefit to livestock adds to our concern. 48.189*

   See response to range, clarification, 1.

5. *We find it difficult to understand how increasing cattle access to streams, riparian areas and other areas of currently dense trees, while increasing forage in those opened areas via prescribed burning and "mechanical treatments" constitutes "restoration" when what would occur is spreading the weeds, soil damage, and other direct impacts of livestock into areas they don't currently access. 42.66*

   The effects from livestock grazing are included in chapter 3 of the DEIS and FEIS and in the range, water quality, and soils specialist reports.

6. *As stated in our 4FRI scoping comments which we incorporate by reference, our concerns about how grazing is perpetuating the problems 4FRI aims to fix. By removing the understory, grazing interrupts ground fire behavior and allows woody species such as ponderosa pine and juniper to sprout at high densities, both of which are identified in the DEIS as problematic in the Rim Country project area. 42.82*

   See response to rangeland resources and livestock grazing cumulative impacts response 1 and 4.

Cumulative Impacts Comments

General Concern: Commenters provided comments related to cumulative impacts of grazing.

1. *In rejecting an alternative that would not utilize prescribed fire, the DEIS states, "Grazers would remove the herbaceous vegetation that helps carry a fire across the majority of the project area." Yet the DEIS fails to include such cumulative effects in its analysis of fire. 42.80*

   Prior to implementing a prescribed burn, evaluations of the areas are completed, and that information is used to develop a burn plan. Fuel loadings and fuel types are part of that plan. If herbaceous vegetation is needed to carry the fire, discussions between the range and fire managers would occur, as mentioned within the best management practices and design features included in appendix C of the FEIS.

2. *The degree and significance of these cumulative impacts of livestock grazing on the species of concern are not analyzed or disclosed in the DEIS. 42.223*

   Analysis of effects, including cumulative effects, for aquatic species is in chapter 3 of the draft environmental impact statement and the Aquatic Specialist report.

3. *Whereas the Soil and Watershed Report discloses: "Grazing reduces herbaceous ground cover, allowing ponderosa pine seedlings to become established due to less vegetative competition while aggressive fire suppression prevented wildfires from reducing seedling and sapling densities" the DEIS doesn't explain such cumulative effects anywhere. 42.68*

   Analysis of effects, including cumulative effects, for the range resource is in the draft environmental impact statement and the Range Specialist report. The quote referenced in the comment is in the Soil and Watershed Specialist report and references past effects from livestock grazing that are now part of the existing condition. The cumulative effects analysis in the analysis discusses past grazing that is more current. The quote from the Soils Specialist report has no quantitative analysis attached to it and is a generalized statement on conditions in the last hundred years due to fire suppression and changes in weather patterns and duration.

4. *The DEIS fails to present an analysis of the cumulative effects of livestock grazing on fire regimes. USDA Forest Service 2012c states: Fire regime condition class ... is used to describe the degree of departure from the historic fire regimes that results from alterations of key ecosystem components such as composition, structural stage, stand age, and canopy closure. One or more of the following activities may have caused this departure: fire exclusion, timber harvesting, grazing, introduction and establishment of nonnative plant species, insects or disease (introduced or native), or other past management activities. (Id., emphasis added. 42.115*

   Fire regimes and desired fire return intervals are discussed in the fire ecology analysis and depending on the cover type, the fire intervals can range from 1 to 150 years. Burning is dependent upon having a fuel source to carry the fire, and in relation to livestock grazing, this

includes fine fuels. Fine fuels consist mainly of needle cast and herbaceous vegetation. Following thinning and the initial fire entry there would be an increase in needle cast from the scorch, that leads to a pulse in needle cast. Once there is a decrease in overstory canopy cover, the herbaceous vegetation would increase in response to more sunlight and precipitation reaching the ground.

Livestock grazing is an ongoing activity that occurs throughout the project area. Livestock grazing would have more of an effect to the herbaceous component of the fine fuels. With the current levels of grazing, the herbaceous vegetation would be topped, skimmed, or grazing in patches, with many of the seed stalks remaining (depending on weather). Forest Service allotment management plan include utilization standards that allow for removal of a certain percentage of forage in a given pasture. Grazing would remove some of the biomass associated with the increase of herbaceous species. With the remaining herbaceous biomass, the needle cast, and other fuels, it is not expected that when combined with the herbaceous response associated with implementation livestock grazing would alter the desired fire return intervals or change the fire regimes. If more herbaceous matter is needed for prescribed burning, design feature RM007, includes coordination between range and fire managers to determine if rest or deferment would be needed.

5. *Role of livestock grazing in current degraded upland and riparian conditions is not meaningfully addressed in the DEIS. 48.169*

   Livestock numbers are discussed within the Range Specialist report. This report covers past stocking as compared to current stocking and livestock management is analyzed through Allotment Management Plans. While past stocking in conjunction with other activities, such as fire suppression have contributed to the current conditions, actions, such as thinning and prescribed burning, proposed within this analysis will restore conditions.

6. *The DEIS also fails to quantify the cumulative damage to biotic soil crusts, as we discuss in the section on livestock grazing 42.326*

   Analysis for biological soil crusts have been added to the FEIS and a version of soil crusts mapping was developed. A design feature was also added to field verify prior to implementation.

Recommendations Comments

General Concern: Commenters provided recommendations related to post-treatment grazing and range effects from mechanical treatment.

1. *The ERI recommends that the Forest Service include how post-treatment grazing timelines will incorporate site specific and weather variability in the document.41.18*

   There are no specific post-treatment grazing timelines established for the Rim Country project. Adaptive management would guide post-treatment recovery since there are many factors such as different sites, scale, treatment activities, and weather that can affect understory response to treatments. Adaptive management would also be applicable to time frames and pasture rest prior to implementing prescribed fires. As implementation occurs, an evaluation of conditions would determine what livestock management adjustments may be needed. (See design feature RM004 in appendix C of the FEIS.)

2. *The ERI recommends a more careful evaluation of range effects from the mechanical treatment and prescribed burning of almost 1 million acres. 41.17*

   Chapter 3 in the DEIS included a full analysis of the effects of mechanical treatments and prescribed burning in the project area.

Existing Conditions Comments

General Concern: Commenters provided a comment related to existing conditions for the EIS.

1. *The existing conditions section in Chapter 1 of the DEIS does not adequately describe the cause of impaired ecological function or departed structure in grasslands and savannas. 48.170*

   Chapter 1 of the DEIS describes grasslands as having impaired soil conditions due to inadequate protective ground cover, compacted soil surfaces, and encroaching pines and junipers. As tree canopy increases, understory productivity decreases. In many meadows, vegetative ground cover is low, hydrologic soil function is reduced from compaction, groundwater levels have dropped below root zones due to gully formation and encroaching upland tree species are competing with desired species.

2. *What are the results of monitoring of water and riparian conditions in livestock allotments in the analysis area, as directed by grazing NEPA documents? Has the monitoring been funded and carried out as spelled out in NEPA documents? Why isn't any of that information cited in the DEIS? 42.237*

   Grazing management is outside the scope of the proposed action. Riparian conditions and Arizona Department of Water Quality listed waters within the project area are presented and discussed in the Water and Riparian Resources Specialist report and in chapter 3 of the FEIS.

3. *So, what is the root cause of this excessive erosion? Would this be happening without grazing impacts from exotic ungulates? 42.296*

   The reasons for erosion are more complicated than just from impacts of livestock grazing. Weather, soils types and lack of fire are some causes of the juniper expansion. Arnold (1964) noted that pinyon and juniper tree species increased with both grazing and in areas protected from grazing. Climate change reducing near surface soil moisture, downstream changes (roads, timber harvesting, and modifications to stream channels that may impact local water table levels in the grasslands), and encroachment on the system edges may also change the hydrological soil group from class C (near surface water) to more of a Class B (water table below grass root zone).

Outside the Scope of the Project Comments

General Concern: Commenters provided comments related to livestock grazing that were outside the scope of the project.

1. *The Forest Service will fail to restore the Rim Country landscape if livestock management is not part of a comprehensive restoration package. 48.172*

   Livestock management is outside of the scope of the Rim Country analysis. Livestock management analyses are handled on an allotment-by-allotment basis. See response to range clarification 1.

2. *One purpose of the CFLRPlan is to improve forage for livestock. The goal of the Four Forests Restoration Initiative should be to improve ecological processes and forest health; goals should not include feeding livestock. 42.71*

   See response to range clarification 1.

3. *By removing the understory, grazing interrupts ground fire behavior and allows woody species such as ponderosa pine and juniper to sprout at high densities, both of which are identified in the DEIS as problematic in the Rim Country project area. 42.81a*

   Past management practices may have contributed to a lack of herbaceous surface fuels that would carry a low-severity fire. With reduced canopy cover, which will increase understory vegetation and current utilization levels, more herbaceous materials should be left than in the past, supporting prescribed fires. See response to range outside the scope of the project 1.

4. *Utilize goat grazing by professional goat grazers to clean out ladder fuels, including shrubs and saplings, similar to what land managers throughout the West are already doing. 20.26*

   While goat grazing has been used around the western United States, due to the scale of this project and the pace of the treatments that are being proposed, goat grazing is not being considered. Although goat grazing would assist in cleaning up the some of the smaller ladder fuels by eating the shrubs and saplings, goats would not take care of the dead and down component or be able to meet certain prescriptions or desired conditions.

5. *It is not scientifically defensible to engage in "ecosystem restoration" in an area already significantly impacted by ongoing livestock grazing without including grazing in a comprehensive environmental assessment and analysis of a full range of ecological alternatives that accounts for the cumulative impacts to the degraded ecosystem from historic timber harvest, roads, fire suppression, climate change AND livestock grazing. 42.64*

   See response to range outside the scope of the project 1.

6. *One of our key concerns is that forest restoration will lead to increases in cattle stocking due to increased forage production and availability. The DEIS includes several statements that seem to indicate that treatment intensity is related to an unstated agency desire to produce more forage for livestock. 48.187*

   See response to range outside the scope of the project 1.

7. *Although we appreciate the proposed actions to protect and mitigate livestock damage in springs and meadow areas, it won't counterbalance all the adverse impacts of livestock spreading further and eating the vegetation in areas they don't now graze. 42.67*

   See response to range clarification 1.

8. *We request that the Rim Country interdisciplinary team review Poff et al. (2012) - GTR-269 – 48.173*

   A review of the rangeland management section of Poff et al. (2012) showed that this paper was a literature review of other publications regarding livestock effects to riparian ecosystem. The Rim Country project is not analyzing livestock grazing as part of this project. The Forest Service has management standards in place to ensure desired conditions on the allotments are met along with meeting requirements of multiple use management.

9. *Continued livestock grazing threatens the success of restoring diverse wildlife habitats and improving watershed conditions. 48.168*

   Cumulative effects of livestock grazing are addressed in the Wildlife and Soils and Watershed Reports.

10. *The only widely accepted way to eliminate cattle impacts and restore springs, streams and upland health is the exclusion of domestic grazers. 48.178)*

    See response to range, outside the scope of the project, 1

11. *Upland stocking rates and allowable grazing areas must be evaluated, and stocking rates should be reduced as a result of restricted access to riparian areas which are artificially propping up the perceived capacity of the range.48.180.*

    See response to range, outside the scope of the project, 1

12. *This statement clearly asserts that higher intensity treatments will benefit the beef industry, and they would be rewarded with "increased flexibility," which is likely to mean higher stocking rates, especially since "[a]daptive management would continue to be used to adjust livestock management to meet annual forage production." [322] Based on these statements, it is clear to us that as more forage is produced following restoration, adaptive management will be used to adjust stocking numbers up.48.188*

    See response to range, outside the scope of the project, 1

13. *The DEIS totally ignores the damage to native microbiotic crusts, which potentially occur on much of the 1,000,000 or so acres where cattle graze. 42.70*

    As stated in the Soils Specialist report "Cumulative effects from livestock grazing include minor, generally localized soil compaction, puddling, displacement and erosion from livestock trailing and in areas where animals congregate such as livestock waters and areas where mineral supplements are placed. Livestock trails make up a very small portion of the total project area and therefore have a negligible effect on soils or watershed condition. Livestock grazing is not expected to increase the area of soils characterized as unsatisfactory within the project area. Overall, in combination with ongoing livestock grazing and in the absence of increasing livestock numbers being grazed, alternative 2 would benefit soils and watershed conditions."

<u>Data and Monitoring Comments</u>

General Concern: Commenters provided comments related to the lack of data and monitoring information.

1. *The DEIS presents no information from that monitoring, rendering its cumulative effects analyses much uninformed. 42.74*

   Annual monitoring, collecting data on livestock use and actual use, and long-term monitoring, collecting data on attributes such as canopy cover, frequency, composition and/or ground cover, are conducted on an individual allotment basis. This data is used during allotment analysis to assist in determining appropriate livestock management. The Rim Country project is not analyzing livestock management.

2. *The DEIS presents incomplete baseline data for cattle stocking. The Range Specialist report lists numbers of livestock on the Coconino National Forest in Tables 2 and 3. The data stops at 2010. As it is 2020, these tables should include up to date numbers. Additionally, the Tonto and Apache-Sitgreaves National Forests should be included, too. 48.182*

   A grazing year (in the Forest Service) runs from March 1 to February 28, data for the 2020 grazing season have been added to the Range Specialist report.

3. *Without baseline data, neither the public nor the agency can understand the effects of the proposed action or craft and analyze alternatives and mitigation measures to protect these values. As such, the Forest Service must identify the environmental baseline and affected environment, as well as the scope of impacts and where those impacts may take place. 48.183*

   The affected environment for the project and existing condition for each resource are included in the specialist reports, and a summary of exiting conditions is included in chapter 1 of the FEIS.

4. *Any subsequent NEPA document prepared for the Rim Country analysis must include 2020 data for range stocking and complete the tables to include all 4FRI Forests. 48.185*

   See response to range, data and monitoring, 2.

Analysis Comments

General Concern: Commenters provided comments related to a need for analysis. These comments are overgrazing issues; major disruptor in ecosystem function; increased amount and accessibility to forage; and impacts of invasive species related to grazing on fire regimes.

1. *DEIS fails to address the issue of overgrazing of upland and riparian ecosystems, 48.171*

   Livestock management is outside the scope of the Rim Country analysis. Livestock management analyses are handled on an allotment-by-allotment basis. Standards decided within these analyses are designed to maintain or improve vegetation conditions, therefore preventing overgrazing from livestock. The action alternatives and conditions-based management approach include tools for riparian restoration areas, including items such as movement of waters and fencing, as needed.

2. *That the plan doesn't deal with a major disruptor of ecosystem function in the analysis area—livestock grazing—adds greatly to our concern. 42.6*

   See response to range, analysis, 1.

3. *How many acres in the analysis area may currently be characterized as unsatisfactory due only to livestock grazing? 42.301, 42.325*

   Soil condition ratings are determined by more than just livestock grazing and include soil functions such as ability to accept, hold and release water; ability to resist erosion and degradation; and ability to accept hold and release nutrients. Indicators include surface texture, surface pore space, consistency (dry/moist) soil crust, bulk density, infiltration, penetration resistance, erosion, rill and gully erosion, pedestaling, erosion pavement, soil deposition, surface texture, vegetative community composition, organic matter, coarse woody material, and root distribution are used for the condition determinations. Any concerns to soil conditions related to livestock grazing would be addressed within specific allotments management planning, and allotment management plans are outside the scope of this analysis.

4. *With the increased amount and accessibility of forage due to the logging and burning, how much will this acreage increase with action alternatives? 42.325*

   Acreages per action alternative are disclosed in the FEIS, Chapter 3 Range analysis for each alternative and included in the Range Report. An increase in unsatisfactory conditions can occur due to multiple factors of future canopy cover, seed sources, and weather patterns and durations to estimate. Design feature RM008 in appendix C of the FEIS describes the future potential for monitoring for any additional grassland acreages that may develop.

5. *The impacts of invasive grasses associated with livestock grazing on fire regimes in the analysis area are poorly analyzed and undisclosed in the DEIS. Fusco et al., 2019 note "significant differences in fire regimes, coupled with the importance of grass invasion in modeling these differences, suggest that invasive grasses alter US fire regimes at regional scales." 42.116*

   The impacts of invasive grasses from livestock grazing are outside the scope of this analysis and the reference cited Fusco et al. (2019) does not refer to livestock grazing, but to human activities impacting invasive grasses and fire regimes. The project would result in an increase in native species including grasses and forbs occurring with the overall restoration of throughout the project area from restoration activities, that would reduce the impact of non-native and invasive species.

6. *The DEIS asks, "Would livestock grazing affect the restoration of understory species?" Where is the analysis supporting an answer to that question in the DEIS? 42.68*

   During implementation, determinations would be made to ensure livestock grazing can resume in a pasture after a restoration activity has occurred. As part of implementation adaptive management is applied to livestock management, such as stocking and season of use which are specified within an annual operating instruction developed with and issued to the grazing permittee. This annual operating instruction will specify levels of use for the allotment, generally 25 to 40 percent use. Utilization of forage/understory species at these levels will maintain or improve forage production and plant vigor. Depending on several factors such as the type of treatment and scale/size, restoration of understory species may increase forage production in different areas, which would increase livestock distribution and decrease utilization.

7. *The amount of damage cattle have caused, and continue to cause to soil integrity, and the resultant erosion is basically dismissed as "minor" without any genuine quantification of such impacts. 42.69*

   The affected environment and existing conditions include historical grazing patterns that may have resulted in overgrazing. Current livestock management includes practices to ensure utilization levels are not exceeded. Livestock management is outside the scope of the Rim Country analysis. Livestock management analyses are handled on an allotment-by-allotment basis.

8. *Livestock grazing effects on understory restoration are ignored. Any subsequent NEPA document prepared for the Rim Country analysis must answer the question of how does livestock grazing affect the restoration of understory species?. This concern is not solely related to whether or not there are sufficient fine fuels to carry a fire (which the Range Specialist report briefly addresses), but whether the species composition, structure, and function are restored to the natural range of variability and resilient to the effects of climate change under the influence of increased cattle grazing that will be allowed as forage production increases. 48.181*

See response to range, analysis, 6.

9. *The Forest Service must discuss how grazing will affect its ability to meet its desired future conditions. 42.65*

   Livestock grazing in the project area during and after implementation would be managed through adaptive management, pasture rotations, and stocking levels to ensure understory response is supported, increasing the restoration of understory species as well as the needed understory vegetation to carry prescribed fires (See Appendix C design feature RM004).

10. *An extensive body of scientific literature has developed concerning the harmful effects of domestic livestock grazing on western public lands, on the environmental effects of deforestation, and climate change stress on ecosystems and ecosystem processes. Livestock grazing would work hand in hand with other agency policies to interact with the adverse effects of fire suppression identified throughout the DEIS. Such effects are virtually ignored in the DEIS. 42.77*

    Livestock grazing and fire suppression are both activities that would continue to occur while this project is implemented. The effects analyzed in the Range Specialist report and draft environmental impact statement include these activities. Condition-based management would be important as the project is implemented, and livestock management would be adapted to allow different livestock rotations in pastures before or after mechanical and prescribed fires treatments.

11. *The DEIS fails to analyze and disclose the extent, degree, and significance of livestock grazing (and associated infrastructure and activities) impacts on most resources discussed in the DEIS. 42.75*

    The effects of livestock grazing are discussed in many of the specialist reports, including aquatics, range, soil and watershed, and riparian/water. See response to range, analysis, 1.

12. *FS is not proposing to remove by far the biggest contributors to long-term vegetative imbalances described in the DEIS—those contributors being fire suppression, livestock grazing, and logging. 42.352*

    The Rim Country project does not propose to remove fire suppression, livestock grazing, and logging. Instead, the project is focused on restoring structure, and function of these systems. Active restoration with the use of mechanized equipment as well as wildland fire has been shown to be the most effective strategy at returning structure, composition, and pattern to frequent fire forests of the southwest. (Fulé et al. 2001, Waltz et al. 2003, Roccaforte et al. 2010). Livestock management is outside the scope of the Rim Country analysis and is handled on an allotment by allotment basis.

13. *The Soil and Watershed Report discloses "Some areas currently have appreciable numbers of ponderosa pine invasion or encroachment especially along meadow edges due to either long term drought or conditions that have led to drainage of meadow soils such as channelized flow patterns that drain meadows or gully formation caused by historic livestock grazing and browsing by wildlife ungulates (i.e., elk)." The DEIS doesn't disclose such cause and effect relationships implicating livestock grazing in disturbing ecological processes. 42.72*

    The Soil and Watershed Specialist report references past effects from livestock grazing that are now part of the existing condition. See response to range analysis 7.

Recreation

General Concern Comments

General Concern: Commenters provided a comment stating that more than annual evaluation and monitoring is needed during the life of this project.

1. *The monitoring and evaluation of project activities, as indicated in RS006(h) (p. 564) by Forest Service personnel, the national trail administrator, and ATA staff and volunteers is most important. However, only an annual evaluation and monitoring will not be adequate to protect the values of the Arizona National Scenic Trail. This design feature must be expanded to include continuous monitoring at least once every month. 26.13*

   The Arizona Trail regional trail administrator has been added to design feature RS001 in appendix C of the FEIS. The Arizona Trail Association volunteers are currently included in the mitigation measure as referred to local trail stewards. Per RS001, the Arizona Trail Association is included in pre-planning in any treatment occurring on, adjacent or near national and systems trails. The Forest Service staff appreciates the existing good working relationship with the Arizona Trail Association and are open to discuss further clarification of monitoring during pre-planning.

2. *Slash must be treated or removed within 300 feet from the AZT (RS011 (c) p. 567. 26.6*

   Design feature RS011(c) was updated in appendix C of the FEIS to reflect the comment.

3. *There is confusion regarding fire control lines and national scenic, recreational or historic tails in in RS004. Section (a) states that fire control lines should avoid "the Arizona Trail unless no other viable alternatives exist…" Later section (d) states that "Control lines … should be avoided on these trails under any circumstances unless these trails are co-located on roads" (p. 562). These two sections must be revised to clearly indicate that the Arizona Trail cannot be used as a fire line unless it is co-located on a road.26.7*

   The design feature and Recreation Report has been modified to reflect consistency, noting no use of fire control lines on the Arizona Trail unless it is co-located on a road, unless approved by the Forest Service officer and any adverse effects would be mitigated.

4. *Jack straw treatment shall not be implemented within 1,000 feet of the AZT or other national trails (RS012 p. 567).26.8*

   The 1,000-foot buffer of no jackstraw treatments was deemed difficult to implement given the scale of the project, miles of national trail, and considering the areas where distances much less than 1,000 feet would not be in view of trails due to topography, vegetation or landforms. Given this, with the intent of the comment in mind, the design feature RS012 in appendix C was updated to "Coordinate with a designated USFS representative prior to implementing jackstraw, spring, and road restoration treatments. Do not implement jackstraw treatments within the line of sight and/or 300 feet of the Arizona Trail or other National Trails."

5. *RS010 (l) includes the Arizona Trail national trail administrator as one of the persons coordinating locations (p. 566). The Arizona Trail national trail administrator should also be included in the following design features: RS001; RS006 (h) and (i); RS007; and RS004 (d).26.9*

The Arizona Trail Association regional national scenic trail administrator has been added to design feature RS001 which includes coordination annually and additional design features in RS004 and RS006 in appendix C of the FEIS.

6. *The ATA also recommends adding an additional mitigation: where possible, while implementing proposed treatments, make improvements within recreation sites and along trails. Examples include cleaning up logs and debris from past projects and removing hazard trees and downed timber across trails.26.10*

   Proposed treatments and projects affecting National Forest System Trails are subject to restoring trails to pre-treatment conditions. All National Forest System Trails negatively affected by projects would be restored to USFS standards and Trail Management Objective prescriptions (FEIS, Appendix C, design feature RS010). No standard maintenance activities are included in projects.

7. *Design Features, Best Management Practices and Mitigation for Recreation, Trails, Scenery, and Special Areas should be explicitly communicated to all individuals working on the project, not only stated in prescriptions for treatment within contracts, but also communicated to each person involved in thinning and/or burning. 26.11*

   Personal, contractors and public affected by activities related to recreation in this project are contacted and informed to mitigate any negative impact to the resources or the public.

8. *Individual workers need to understand the importance of the AZNST and how their work can positively or negatively impact this important resource. The communication to all personnel working on the 4FRI project to protect the AZNST, the General Crook Trail, and the Highline Trail should be included in the ROD. 26.12*

   This is outside the scope of work, however, those implementing the project will made aware of management practices of the AZNST and other national trails and the specific design features associated.

Silviculture

Clarification Comments

General Concern: Commenters provided concerns that need clarification in the DEIS.

1. *With UEA the FS also "Manages to enhance growing space for younger trees" which seems to conflict with the DEIS concern that there is a huge surplus of smaller trees fueling imminent catastrophic fire. 42.157 b*

   The Forest Service manages for multiple age classes, including young trees that are necessary for regeneration. The increased number of smaller trees referenced in the comment are different because they contribute to the high fuel loading and increase fire hazard range. These trees are found in dense patterns across the landscape, contributing to the potential catastrophic landscape-level stand-replacing fires. While the majority of stands within the project area have a surplus of trees in the smaller size classes, this does not occur in all stands. Under an uneven-aged management approach, it is desirable to have a balance of trees in all size classes. Uneven-aged conditions are a desired condition in Southwest ponderosa pine forests and the project area.

2. *The DEIS describes one objective of Grassland and Wet Meadow Restoration treatments as "[m]echanical and fire treatments to reduce or eliminate woody species encroachment." This seems to conflict with other desired conditions that state the need for increasing woody vegetation. 48.175*

   Grassland and wet meadow restoration treatments would be implemented to reduce or eliminate woody species encroachment because these areas historically did not have woody species in them. There are other vegetation types or specific locations in the project area where an increase in woody vegetation is desired, such as in aspen regeneration locations.

   This objective comes from the land management plans and the statement is in line with desired conditions. In some wet meadows the objective is to reduce or eliminate woody species encroachment (pines, junipers and various shrubs). In some stands woody encroachment is excessive within wet meadows, while in other stands, native riparian vegetation, large conifers and willows are deficit, and it would be desirable to increase their representation. The difference in desired conditions related to woody vegetation is based on location and vegetation type. In riparian areas there is a desire to include and or increase riparian species, and in wet meadows there is a desire to reduce encroaching conifer species.

3. *The DEIS focuses narrowly on ponderosa pine. Because the Rim Country landscape is a dynamic and diverse aggregation of ecosystems across two elevational gradients, and because thinning, fire, and comprehensive restoration activities are planned for virtually the entire landscape, there is a need to more formally recognize the role of the 4FRI in restoring those systems. Any subsequent NEPA document prepared for the Rim Country project should expand the project purpose to more accurately reflect the scope of the proposed actions, or restrict the proposed actions to ponderosa pine forests as stated in the project purpose. 48.1*

   The Silviculture Specialist report and FEIS have been updated to include more information on cover types other than ponderosa pine, including dry mixed conifer and aspen.

4. *2) The LTIP should also make clear that if the pine-oak exception is to be used, the stand must meet the threshold established in the MSO Recovery Plan for the definition of pine-oak forest, and we also request that the original oak diameter threshold of 12" d.r.c. is used in a revised LTIP. 3) A table that breaks down the acres associated with the pine-oak exception category should be provided in any subsequent NEPA document prepared as part of the Rim Country analysis.4) The introductory section on LTIP should also clarify that there are no exception categories specific to dwarf mistletoe, and as such large trees cannot be cut because they have dwarf mistletoe, adding language indicating that "large trees will not be cut for forest health reasons." 48.35, 48.36, 48.37*

   Information on the pine oak type as related to Mexican spotted owl habitat is contained in the Wildlife Specialist report. The proposed action, including the LTIP and OTIP (Appendix D – Implementation Plan) are compliant with the 2012 MSO Recovery Plan. Both LTIP and OTIP were developed collaboratively with the stakeholder group, and have been modified to reflect the current values of the stakeholder group. LTIP is a document that identifies circumstances where removal of large post-settlement trees could occur when ecologically appropriate and is located in Appendix D, the Implementation Plan.

5. *The Appendix B definition of "Uneven-aged management" contains mostly tree farming language which doesn't recognize natural processes as creating and maintaining uneven-aged forests. This is consistent with prioritization of sustained-yield timber production, not ecological restoration. 42.139*

   The glossary in the FEIS defines uneven-aged forests as "Forests that are comprised of three or more distinct age classes of trees, either intimately mixed or in small groups." Uneven-aged management describes the silvicultural approach to achieving those desired conditions and is the definition in glossary of the FEIS.

6. *Mechanical treatment designs and outcomes (including the effects analysis) should be expressed in terms of "openness" (the inverse of canopy cover) rather than "interspace" in any subsequent NEPA document prepared as part of the Rim Country analysis. These documents should also clearly explain how these and related metrics were calculated. 47.51*

   The use of interspace has been removed as a treatment metric and has been replaced with basal area and trees per acre as a result of collaboration with the stakeholder. Appropriate basal area ranges were determined in a collaborative manner to best represent the natural range of variability. Ranges of trees per acre were based on an idealized representation of uneven aged stand structure for the basal areas presented.

7. *Any subsequent NEPA document prepared for the Rim Country analysis should illustrate and report on modelling results in a manner that does not portray modelled acreage above 90 ft2/acre basal area as "above desired conditions" if those acres are located in wildlife or vegetation strata that have desired conditions above 90 ft2/acre as described in applicable planning documents. 48.80*

   Desired conditions for the Rim Country project are based on the best scientific information available, including historical reconstructions and best assessments of the natural range of variability. The ranges of desired conditions and modeled outcomes follow the best scientific information available, as well as direction from land management plans and recovery plans. The presentation of the data has been clarified in the Silviculture Specialist report and the FEIS to reflect this. For a specific description of vegetation effects in components of wildlife habitat, consult the Wildlife Report.

8. *USFS should update the basal area in the table to be measured in square feet and not inches. 40.42*

   Basal area is measured in ft2/ac. All references in the FEIS to basal area are in this unit.

9. *SRP recommends that USFS include a statement on how snag conditions increase would be increased. 40.43*

   FVS modeling showed that the action alternatives will maintain or increase large snags where implementation will occur. Large snags will not be cut and over time live trees will die becoming snags, also maintaining or increasing large snags where implementation occurs.

10. *USFS states the "higher-intensity thinning would likely have the greatest potential for groundwater recharge..." SRP recommends that USFS include a clarification that higher-intensity thinning means greater basal area reductions. This would be consistent with subsections of the analysis. 40.53*

    Clarification has been added to the FEIS in the Water and Riparian section of the chapter 3.

11. *The ERI recommends adding clarification and more consistent quantification of scale in the introduction and across all effects and specialists reports. While the intent of the CFLRP and the 4FRI project is to restore at landscape scales, the information provided on landscape- scale currently is inconsistent, with unclear desired conditions (limited to references to the 3 forest plans and the ERUs, see above recommendation regarding landscape scale desired conditions), and little explanation of the linkages from landscape to stand scales. The Silviculture, the Fire and the Wildlife specialist reports do acknowledge variable scales (Wildlife & Silviculture) and address landscape scale pattern and expected landscape change with the project (Fire). It is understood that mechanical restoration happens at stand scales, but the silvicultural effects report in Vol 2 would be improved by explaining how the stand scale treatments feed into landscape desired conditions, specifically with regard to in desired conditions, existing conditions, and the post-treatment conditions. It is difficult to understand how things like openness, composition, structure, and tree group sizes will change across the landscape at different scales (but see below for specific recommendations in the Silvicultural effects and specialist reports). 41.4*

    A paragraph has been added to the FEIS chapter 3 vegetation section on connection between stand scales and landscape scales. While the intent of 4FRI is to restore composition, structure and pattern at the landscape scale, individual treatments are applied at the stand scale. It is important to understand how these individual stand treatments scale up to larger scale changes across the landscape. As treatments are applied to individual stands during implementation, these individual stands effects will scale up to the watershed scale and eventually to the landscape scale over time.

12. *The ERI recommends that the Forest Service improve the ability to compare existing pre- and post-treatment conditions at landscape scales and by ERUs, including a comparison to desired conditions. While much effort and space are devoted to post-treatment conditions and distributions across multiple scales and for multiple categories, metrics analyzed are not linked to a broad, landscape desired condition. 41.6*

    Landscape-level desired conditions are provided in the FEIS and are derived from land management plans, recovery plans and guiding documents. Existing conditions and post treatment conditions are presented in the effects analysis in order to determine the effects of the proposed actions.

13. *The ERI recommends including pre- and post-treatment maps with legend categories that better relate to the desired conditions expected. These maps could be binned into the same categories as the graphs (maps and graphs found as Figures 17 - 43 in Vol 1; also in specialist report). A restored forest has a range of stand metrics across the landscape; current maps of trees per acre (TPA), and basal area (BA) include color ramps that lump the desired ranges into one color category (TPA) or have the desired and undesired cutoffs within one color band (BA). We acknowledge a huge shift in the distribution of these stand categories, but map legends can be adjusted to show post-treatment outcomes that are more easily evaluated for heterogeneity. 41.7*

    The color ramp break points have been improved in the FEIS.

14. *The ERI recommends the use of two sets of metrics for forest structural attributes. Some metrics may work across scales, but scale can affect post-treatment ranges and means. Landscape metrics may include measures of canopy cover, and tree patch description (and openness, although openness is not as well characterized by historic reference literature); the stand level metrics as stated in the Silviculture Specialist's report are appropriate. If interspace is used in implementation, the FEIS*

should provide a clearly understood and repeatable method for estimating interspace as well as a crosswalk with the landscape level metrics, potentially canopy cover/opennessaaarewet .41.8

Interspace has been largely replaced with basal area and TPA in the FEIS as treatment metrics. To improve clarity and ease implementation. Interspace may appear in the document but only to aid in implementation. Tables have been included in the implementation plan to identify appropriate level of interspace given desired basal area ranges.

15. *What constitutes a meadow in the 4FRI program? How are the meadow sites determined and/or selected? What work is proposed to be completed in a typical meadow restoration? How many meadow areas will be restored? Where are these meadows located and can you provide me with a map of the proposed meadow restoration areas? 4.1*

    Meadow locations are primarily based on the USFS Region 3 Ecological Response unit layer that is based on many considerations including the National Vegetation Classification, the Terrestrial Ecosystem Unit Survey and LANDFIRE which take into account site potential as well as historic disturbance regime at a finer scale existing conditions are considered as well. Meadow restoration activities may include removal of post settlement conifers. The extent of the meadow restoration activities as well as a map of proposed activities is included in chapter 2 of the FEIS.

16. *Are clearcut areas the same as meadows? If not what is a clear cut area and why are they being created? How many clear cut areas are proposed in the 4FRI? Likewise, can you provide me with a map of clear cut areas? 4.2*

    There are no clearcut treatments proposed in Rim Country. A clearcut is an even-aged management technique designed to create a subsequent stand of trees of the same age. Meadow restoration is a distinct activity designed to restore natural conditions by removing conifer encroachment. The extent of the meadow restoration activities as well as a map of proposed activities is included in chapter 2 of the FEIS.

17. *The Trust understands that mechanical thinning is an integral component of forest restoration on Rim Country, but has concerns about treatment intensity, especially given the scale of the project. The total 4FRI footprint is approximately 2.4 million acres, of which approximately 1,880,000 acres (78%) would be cleared for mechanical treatment between the first EIS and Rim Country. These concerns are exacerbated by a lack of clarity in the DEIS about pre- and post-treatment stand conditions as well as modeling results supporting the effects analysis. For example, Figure 28 in the Silviculture Report (np) indicates that the percent of acres below the desired condition for basal area increases over the 20-year modeled lifespan of the project. A similar pattern is evident for trees per acre (Silviculture Report, Figure 27). For Stand Density Index (Silviculture Report, Figure 29) a whopping 73% of stands would be below desired condition by 2039. Collectively, these modeling results imply that the Preferred Alternative actually trends away from desired conditions with outcomes that appear indicative of excessively intense mechanical thinning.47.47*

    The natural range of variability in southwestern frequent fire systems is well understood. Post-treatment basal area ranges were developed in a transparent and collaborative with the stakeholder group and represent the best available scientific information. Treatments were modeled toward the more intense end of the intensity spectrum to ensure that post treatment effects are within the effects disclosed in the FEIS.

18. *The DEIS states that "historical regimes" are probably similar to those widely reported for those montane structure ponderosa forests of the SW. Frequent surface fires…that likely kept forests in open structure conditions. Likely and probably? 20.40*

    The purported quote summarizes the best scientific information available.

19. *Dry mixed conifer and associated fine scale desired conditions-There is a lack of distinction of forest structure desired conditions at the fine scale. Particularly, the differentiation of dry mixed conifer from ponderosa pine forest cover types, also within ponderosa pine cover types of different productivity and tree densities. 51.6*

    Desired conditions for PP and DMC come from land management plans, recovery plans, and the best scientific information available. Wasserman et al. (2019) and Reynolds et al. (2013) were used to develop desired post treatment stand conditions in a collaborative manner with the stakeholder group. Rodman et al. (2016) has been incorporated into the document.

20. *Sprinkled throughout the above DEIS quotes on increasing resiliency and sustainability are terms (emphasized) that beg to have some sort of metric or measuring method attached to them, so that the FS can demonstrate at some later date that resiliency and sustainability has been improved. Attaching metrics to those terms is essential to the veracity of the CFLRPlan, yet there is little or nothing in the DEIS that would allow for objective, independent measurements of such terms. 42.20*

    Numerous citations are included in the EIS that demonstrate the increased resilience and sustainability that the treatments such as those proposed provide to cover types in the project area.

21. *The CFLRPlan's Implementation Plan (appendix D) states, "Essentially, if the quantity of treatments in D-a are within the bounds of the treatments analyzed in Chapter 3 of the FEIS and specialist reports, the program of work is considered to be consistent with that effects analysis." There is no Tables D-1, and so there is no specified quantity of treatments. Also, Tables D-1 shows the compliance evaluation and documentation requirements to demonstrate compliance." Where is this? 42.30, 42.31*

    This sentence has been removed from the FEIS to reduce confusion.

22. *Section A Implementation Checklist:..The checklist is designed to be used by the implementation team leader. Source of data to populate row three are found in Chapter 3 and the specialist reports." There is no row three, there is no heading for any alleged data. 42.32*

    This sentence has been removed from the FEIS to reduce confusion.

23. *The DEIS provides too little information about benefits of insects and tree diseases. 42.130*

    Information about insects and disease is provided in the Silviculture Specialist report and accompanying citations.

24. *The proposal to cut large aspen trees in an attempt to rejuvenate aspen stands risks important habitat for cavity nesting species and also the northern goshawk. And, since it has been difficult to keep aspen saplings alive without maintaining fencing to protect them from elk and cattle browsing, this strategy is risky and unlikely to succeed. 42.152*

    Strategies for the management of aspen follows the best scientific information available (Kitchen et al. 2019, Rogers 2017).

25. *The definitions of "interspace" and "openings" provide no more comfort. One difference between the two is that the latter "occur(s) naturally due to differences in soil types as compared to sites that support forests or woodlands" yet they "may also result from disturbances like severe fire or windthrow, or management activities" so that means the first definition needn't apply. Perhaps the most distinction between the two is that openings are "treeless areas having fairly distinct shape or size" vs. interspace being "areas not currently under the vertical projection of the outermost perimeter of tree canopies(drip-line)." 42.156*

    To improve clarity and consistency, the use of interspace and openness has largely been replaced with the use of basal area as a treatment metric.

26. *The DEIS does include things like Figure 26 which represents the intent for "Distributions of trees per acre across size classes across the analysis area." However, the DEIS doesn't say how that landscape level intent is applied within individual "treatment type" units. 42.158*

    Treatment in Mexican spotted owl and northern goshawk habitat would be implemented to enhance or maintain old growth levels. FVS modeling shows that on 398,363 acres for the Mexican spotted owl and 60,180 acres for the northern goshawk (total 398,363 acres) large trees greater than 18 inches would be promoted and would continue to be as treatment is implemented over 20 years.

27. *The DEIS projects timber volume from three different size classes: Volume from trees <5"+278,440 CCF, 5"-12"=2,303,480 CCF, >12"= 2,676,470 CCF. Nothing anywhere in the DEIS provides a basis for these numbers, which estimate half the volume would be from trees > 12" dbh. Since the FS is able to put numbers on these three size classes, it ought to be able to estimate facts such as the number of trees cut in each of the larger size classes, such as >18". Yet this is obscure. 42.159*

    Volume from trees in individual size classes is necessary for the economic analysis. The number of trees in individual size classes was not calculated.

28. *The DEIS admits that old growth is below the NRV in the analysis area, but does not say what the NRV for old-growth habitat is on these Forests. And it provides no estimates on the amount of old growth destroyed or degraded. The FS has not analyzed the wildlife viability implications of managing these Forests well outside NRV for old growth. The DEIS has failed to cite any evidence that its strategy for old growth habitat (i.e., logging and burning to restore old growth, or to help create old growth) will improve old-growth wildlife species' habitats over the short-term or long-term. In regards to this theory often offered by the FS, Pfister et al., 2000 state: (T)here is the question of the appropriateness of management manipulation of old-growth stands… Opinions of well-qualified experts vary in this regard. As long term results from active management lie in the future – likely quite far in the future – considering such manipulation as appropriate and relatively certain to yield anticipated results is an informed guess at best and, therefore, encompasses some unknown level of risk. In other words, producing "old-growth" habitat through active management is an untested hypothesis. (Pp. 11, 15 emphasis added). 42.160*

    The Rim Country Project follows direction for old growth management that is derived from land management plans. The Rim Country analysis uses the best available scientific information available involving management of old growth. The use of wildland fire and mechanical thinning of younger post settlement trees in managing current old growth and facilitating developing old growth (Abella et al. 2007). Additionally, the collaboratively developed OTIP and LTIP will ensure that large and old trees will be protected where appropriate and will be able to accelerate

individual tree growth under optimum conditions, including reduced risk of severe fire and its effects.

29. *The DEIS improperly generalizes natural range of variability in dry mixed conifer forests using overly narrow scientific information. We are concerned that the basis for the desired conditions for mixed conifer is overly narrow and does not address the uncertainty in pre-settlement conditions. We contest the statement claiming that aspen, Douglas-fir, white fir and southwestern white pine were minor occurrences, though. Rodman et al. (2016) report that those species, combined, provided comparable trees per acre and basal area to ponderosa pine, meaning that their occurrence was ecologically significant when considering the biodiversity values of those species. 48.107, 48.108, 48.109*

    The analysis used a variety of sources to determine NRV including Reynolds et al. (2013) and Wasserman et al. (2019) as well as Rodman (2019). These references include the most complete reconstruction of historical conditions. Proposed actions in dry mixed conifer have been designed to retain diversity.

30. *Of more concern though, is that neither the DEIS nor the Silviculture Report provides the full citation for Huffman et al. (2018), and a search of the Ecological Restoration Institute library returned no such publication. We are not aware of any recent Huffman publication that would shed light on mixed conifer conditions, as much of his recent work has been focused on reconstructions below the Rim in ponderosa pine-evergreen oak forests. 48.110*

    The citation has been corrected to read Huffman et al. (2020) in the FEIS.

31. *Any subsequent NEPA document prepared for the Rim Country analysis should include more supporting information for the Forest Service's assertions regarding pre-settlement conditions, natural range of variability, and historical forest structure in dry mixed conifer forest. If additional scientific information is not available, then disclosure of uncertainty should be more apparent. 48.112*

    Additional citations including Huffman et al. (2020) have been incorporated into the analysis.

32. *How large and representative of the entire analysis area this data subset is—is not disclosed in the DEIS. Along with the seemingly limited acreage extent of the survey data, the age of the data creates inaccuracy and uncertainty. As we discuss in the Scientific Integrity part of these comments, this raises questions the DEIS should be addressing in each of its resource analyses—but doesn't. 42.264*

    The Rim Country Project analysis includes a disclosure of the reliability of stand data and classifies stand data as being above threshold, below threshold, or reference data as well as the assumptions made during the modeling process. Modeling was completed using FSVeg spatial Data Analyzer (USDA 2020, (http://fsweb.nrm.fs.fed.us/support/docs.php?appname=FSVegSDA) and the Forest Vegetation Simulator (Dixon 2020). The modeling assumptions are disclosed in the Silviculture Report and in the project record.

33. *It would help if, prior to modeling, the FS would field-check the input data. The DEIS doesn't indicate such verification has occurred. 42.265*

    Field data is validated at the time of data collection, using a process outlined in the Stand exam contract. Field verification of stand exam data is a required component in Section C of the standard Common Stand Exam Contract.

34. *In addition, the conditions the DEIS presents as representing the Natural Range of Variation (NRV)—upon which Desired Conditions and therefore proposed management actions are based—are themselves not presented with the proper acknowledgment of uncertainty. 42.266*

    The analysis uses the best available scientific information to present the natural range of variability and cites those sources for additional information.

35. *"the FS doesn't actually describe desired conditions for stand metrics in terms of acceptable ranges. So for example Figures 18-20, 27-29, and 36-38 express "desired" as a single number—furthering our skepticism. 42.268*

    Desired conditions can take multiple forms. Sometimes ranges (30 $ft^2 > x < 90$ ft^2) are appropriate, sometimes specific values (greater than or equal to 2 snags per acre), sometimes categories (moderate mistletoe severity).

36. *."How do encroaching pines and junipers impair soil conditions? What caused the inadequate protective ground cover? What caused the compacted soil surfaces? 42.270*

    Encroachment of conifers can occur from multiple causes. Soil moisture in the grasslands can be lost due to climate change (less rain) drying out the grasslands. Downstream actions such as road building, stream diversions, etc. can dewater the grasslands slowly which lowers the local ground water below the root zone. Localized changes to the hydrological soil group from Class C (near subsurface soil moisture) to a Class B (water table below grassland root zones).

37. *The Ecosystem Response Unit does not account for our current ecological understanding of ecosystems, making it insufficient for determining the seral-stage proportions for different vegetation types. 42.271*

    ERUs were not designed to determine seral stage proportions. The use of ERUs in this analysis is used to determine cover types to identify appropriate restoration treatments and analyze effects.

38. *Using Terrestrial Ecosystem Unit Inventory data to determine the location of ERUs is not grounded in our current scientific understanding of the factors that determine the distribution of vegetation types across landscapes, Forest Service needs to adjust its analysis in the Final Environmental Impact Statement to reflect these comments. 42.272, 42.273*

    ERUs were not designed to determine seral stage proportions. The use of ERUs in this analysis is used to determine cover types to identify appropriate restoration treatments and analyze effects.

39. *The DEIS does not disclose restocking monitoring data and analysis 42.286*

    The proposed action would not reduce stands to understocked conditions and as a result, would not require restocking. The only component of the proposed action that includes planting is on Severe Disturbance Treatment areas. Reforestation that may occur in these areas would comply with applicable law, regulation and policy, including NFMA. See also Climate Change and Silviculture, Analysis, 2.

40. *The Soil and Watershed Report states: "Approximately 15 percent (142,969 acres) are estimated to exhibit varying degrees of soil compaction. …It is assumed that between harvest and fuel reduction treatment activities, every acre in each proposed treatment unit would be affected. Therefore, the total project acreage is assumed to be at risk for some level of soil disturbance." Has the FS estimated total reductions in tree growth, other vegetation growth, and site productivity due to this large areal extent of soil damage? 42.299*

    The Forest Vegetation Simulator was used to perform vegetation modeling. Growth and productivity equations were developed in stands where active management had taken place. As a result, any changes in growth or productivity are included in the modeling assumptions. See the Vegetation section chapter 3 of the FEIS and the Vegetation Specialist report for more information.

41. *The FS has not disclosed the limitations of all models the FS relies upon for the Rim Country analyses, which begins to address model validity. 42.358*

    Rim Country analysis includes a disclosure of the reliability of stand data and classifies stand data as being above threshold, below threshold, or reference data as well as the assumptions made during the modeling process. Modeling was completed using FSVeg spatial Data Analyzer (USDA 2020, (http://fsweb.nrm.fs.fed.us/support/docs.php?appname=FSVegSDA) and the Forest Vegetation Simulator (Dixon 2020). The modeling assumptions are disclosed in the Silviculture Report and in the project record.

General Concern: Commenters provided comments related to lack of acknowledgment of scientific controversial nature of the narrative as Hanson points out; questions of the temporal effectiveness of proposed treatments; and important details such as the amount, extent, degree, and methodology of vegetation removal in forested stands or any other specific geographic unit do not have to be spelled out in the National Environmental Policy Act document.

42. *FS ignored their feedback. Case in point, the 8/11/2016 letter from the John Muir Project of Earth Island Institute. The letter's author, scientist Chad Hanson, states, "These Forests Do Not Have an Unnatural Excess of Fire, or High- Intensity Fire, and Future Trends May Be Downward" and "Large High-Intensity Fire Patches Did Sometimes Occur Historically in Ponderosa Pine and Dry Mixed-Conifer Forests of This Area." Hanson cited other scientists' work, attaching one of the cited documents to his comments. Instead of acknowledging the research, the FS didn't even include the attached document on the website where scoping comments appeared. And the DEIS failed to even acknowledge the scientifically controversial nature of the Narrative as Hanson points out, as if the agency's is the only perspective worth considering. Hanson also cited research in supporting another statement: Mexican Spotted Owls are Thriving in Large Mixed-Intensity Fires, in the Absence of Post Fire Logging." 42.36, 42.37)*

    Additional citations regarding the role of mixed and high-severity fire in ponderosa pine forests and discussion have been included in the analysis to understand the various points of view regarding the role of fire in these forests. The Forest Service completed a literature review of all literature submitted during the scoping and comment period that is withing within the project record.

43. *In discussing an alternative not included for full analysis—one that would not utilize any prescribed fire—the DEIS explains the result would be a need for even more mechanical treatments: "In order to avoid seedling re-growth that would support undesirable fire behavior and effects, much of the forested areas of the Rim country project area would need some kind of treatment every 10 years,*

roughly 90,000 acres annually." This raises questions of the temporal effectiveness of proposed treatments claimed to ward off vegetation conditions that would lead to "catastrophic" fire. As discussed elsewhere in these comments, the CFLRPlan won't really achieve restored conditions since there is no coherent plan to end the causes of the vegetation imbalances—the symptoms—described in the DEIS. 42.26

The desired conditions include moving stands on a trajectory toward their natural range of variation. Prescribed fire is an important part of the action alternatives because it allows for a reintroduction of one of the key ecosystem drivers in the target cover types (predominantly low severity fire). Analyzing mechanical treatments alone might restore overall structure of the system in the short term; however, it would not provide for ecosystem function. The alternative proposed by the Center for Biological Diversity was not analyzed in full because it would not provide for the desired ecosystem function by restoring ecological drivers such as fire, also see Proposed Alternatives, Strategic Treatments for Fire Use Alternative, response 2.

44. *Using this hybrid process, the programmatic Rim Country CFLRPlan would authorize major vegetation alterations on an area of land larger than over three dozen individual U.S. national forests. Using this CFLRPlan process, the relevant, pertinent, and important details such as the amount, extent, degree, and methodology of vegetation removal in forested stands or any other specific geographic unit does not have to be spelled out in the NEPA document prior to the decision to heavily alter the vegetation using intensive logging and/or burning. In this process, such relevant, pertinent, and important details are to be determined during a later, post-Decision decision making process conducted by agency employees and non-agency stakeholders, who do not have to disclose their rationale or second level decisions to the taxpayer/owners of these national forests in any legal procedural manner. 42.11, 42.12*

The rationale is described in the purpose and need for the project and includes desired conditions from the three land management plans that are included in the project area. The effects of the alternatives have been described in the effects analysis in chapter 3 of the FEIS.

General Concern: Commenters provided comments requesting clarification in any subsequent National Environmental Policy Act document. These comments are regarding cutting of large trees; replacement of a statement about best management practices; a request to provide indicators/measures for large tree retention; explanation of the term "regular restoration activities"; a request that any subsequent National Environmental Policy Act document related to the Rim Country EIS should include a revised statement for old trees and habitat degradation; and removal of a specific statement on page 617 of the DEIS.

45. *In the section titled "Significant Issues Responded to through Mitigation Measures, Analysis, and Modifications to the Proposed Action" in any subsequent NEPA document prepared as part of the Rim Country analysis, please: 1) clarify that in addition to the statement that no old trees shall be cut, that few large trees would be cut and they would be cut only in accordance with the exception categories in the LTIP; 2) replace the phrase "and BMPs to retain old growth and groups of large trees in all action alternatives" with "and BMPs to retain old growth and large trees in accordance with the exception categories in the OTIP and LTIP in all action alternatives"; and 3) provide indicators/measures that relate to the larger issue of large tree retention and are not specifically focused on SPLYT acres only. 48.54*

The large tree implementation plan and the old tree implementation plan (appendix D of the FEIS) have been modified in a collaborative manner to ensure appropriate protections for large and old trees.

46. In item 3, USFS should explain the term "regular restoration activities" or use other terms that have been introduced. 40.26

The analysis has been updated to better describe the proposed actions, activities, and efforts taken to protect large and old trees. This work has been completed in a collaborative manner with the stakeholder group.

47. The OTIP (DEIS Appendix D, p. 617) includes the following statement:

a. "Removal of old trees would be rare. Exceptions would be made for threats to human health and safety, and those rare circumstances where the removal of an old tree is necessary in order to prevent additional habitat degradation." [emphasis added]

b. Any subsequent NEPA document prepared as part of the Rim Country analysis should include a revised statement that does not imply that old trees cause habitat degradation and provides specific examples of circumstances where removal of old trees would be warranted. 47.14, 47.15

The old tree implementation plan (appendix D) has been modified in a collaborative manner to address this concern, it has been clarified that the additional habitat degradation would be caused by the thinning operations and not the presence of old trees.

48. The OTIP (DEIS Appendix D, p. 617) includes the following statement:

a. "This old tree implementation plan will be applied to the Rim Country Environmental Impact Statement Record of Decision and may not apply to subsequent decisions on the same project area or on other areas within Region 3. Subsequent decisions may include an old tree implementation plan that reflects project specific current conditions and the purpose and needs of subsequent projects.", 48.22, 48.23

b. According to a Forest Service NEPA specialist (Katherine Sanchez-Meador, personal communication to stakeholder DEIS Working Group), this statement is beyond the scope of the Rim Country EIS. Any suggestion of future old tree harvest is counterproductive and will only serve to perpetuate distrust of the Forest Service. This statement should be removed from any subsequent NEPA document prepared as part of the Rim Country analysis. 47.16

c. The statement above should be struck from any subsequent NEPA document prepared as part of the Rim Country analysis and replaced with the following statement: "The agreements, implementation plans, and restoration guidelines established in the 4FRI Rim Country Record of Decision, having been collaboratively crafted by some of the most intelligent and committed practitioners in the field, vetted by years of collaborative discussion, and founded in the best available science, should serve as templates for adoption into forest restoration projects in the Southwestern Region." 48.23

The statement in the DEIS referenced by the commenter has been removed from the old tree implementation plan (appendix D). National Environmental Policy Act regulations provide direction for future projects with their specific purpose and need and activities within their project boundaries where the decision for that project applies only to that specific project.

General Concern: Commenters provided comments related to desired conditions.

49. The DEIS's desired conditions approach is too static. The DEIS reflects an overriding bias favoring vegetation manipulation and resource extraction via "management" needed to "move toward" its selected desired conditions, along the way deemphasizing the ecological processes driving these ecosystems. Essentially this rigs the game, as desired conditions would only be achievable by

resource extraction activities. This is quite evident in DEIS Table 5, "Desired Conditions Compared to Existing Conditions…" Since these desired conditions must be maintained through repeated management/manipulation which the DEIS acknowledges is inherent to the CFLRPlan, the management paradigm conflicts with natural processes—the evolutionary drivers of the ecosystem. 42.129

Desired conditions are based on ecosystem needs and come from land resource management plans that guide projects like Rim Country. The difference between the existing conditions and desired conditions determine the purpose and need for a project. The approach of comparing alternatives and existing and desired conditions is outlined in existing law, regulation, and policy.

50. *We have plotted generic trend lines onto Fig. 28 to show this. Collectively, with 275,990 acres below desired conditions in 2039, these trends suggest that treatments are too intense, and conflict with the statement that "[t]he number of trees per acre, basal area, and SDI would decrease considerably, trending toward desired conditions within NRV …." CONCERN: The range used to illustrate silvicultural modeling results in the DEIS misrepresents the amount of acres "above desired conditions." The graphs displayed in Figures 28 and 37 of the DEIS107 shows modeling results, including showing the "desired condition" range of 30-90 ft2/acre. However, a number of vegetation and habitat strata have desired conditions that are above 90 ft2/acre, therefore, the way the data is displayed incorrectly assigns those areas to the class of acres that are "above desired conditions."48.78, 48.79*

Existing condition data is presented by cover type for ease of interpretation by the reader. Some areas in Rim Country, such as MSO PACS and NR Recovery habitat have desired conditions that are above these overall desired conditions. These areas are summarized in the Wildlife specialist report.

51. *Since the CFLRPlan relies heavily on the FTA where conditions are to be surveyed later, the existing data is far too sparse to accurately define Existing Conditions. 42.127*

The Rim Country Project analysis includes a disclosure of the reliability of stand data and classifies stand data as being above threshold, below threshold, or reference data as well as the assumptions made during the modeling process. Modeling was completed using FSVeg spatial Data Analyzer (USDA 2020, (http://fsweb.nrm.fs.fed.us/support/docs.php?appname=FSVegSDA) and the Forest Vegetation Simulator (Dixon 2020). The modeling assumptions are disclosed in the Silviculture Specialist report and in the project record.

52. *As we discussed in our Rim Country scoping comments, the Center has considerable concerns with the Forest Service's General Technical Report 310 (GTR-310). The Rim Country landscape is a widely variable mosaic of ecosystems arranged across several topographic and elevational gradients, meaning generalized desired conditions should not be applied universally across the project area. GTR-310 presents a useful review of the literature, but it should be perceived as rough guidelines for determining natural range of variability within the context of site-specific considerations. .48.99, 48.100, 48.101*

Multiple sources were used to develop appropriate treatment ranges in collaboration with the 4FRI Stakeholder Group. Wasserman et al. (2019), Reynolds et al. (2013) and others were used to identify appropriate ranges.

53. *The Center is not the first entity to bring this important level of uncertainty to the Forest Service's attention. In fact, the Stakeholders Landscape Restoration Strategy for the First Analysis Area cited Bell et al. (2009) in stating that "[u]ncertainty exists about historical forest plots and reconstruction data and their representation of prior forest conditions (Bell et al. 2009), particularly with respect to the spatial heterogeneity and structural conditions across large landscapes." 48.102*

    Though some uncertainty may exist, the best scientific information available was used to develop treatments and analyze the effects of proposed treatments.

54. *Desired conditions for dry conifer forests established in GTR-310 are not specific to Rim Country and should be critically reviewed prior to drafting prescriptions. They fail to address uncertainty and qualified disagreement among experts about forest ecology and management in the Southwestern Region. citing GTR-310 is inherently problematic when it comes to mixed conifer. 48.103, 48.111*

    Multiple sources were used to develop appropriate treatment ranges in collaboration with the stakeholder group. Wasserman et al. 2019, Reynolds et al. 2013 and others were used to identify appropriate ranges.

55. *Clearly, basing treatment prescriptions on GTR-310, which is heavily reliant on studies published out of Fort Valley, does not account for very different forest structure that is displayed at the Long Valley site which we assert is a required local site for informing desired conditions. 48.105*

    Multiple sources were used to develop appropriate treatment ranges in collaboration with the stakeholder group. Wasserman et al. (2019), Reynolds et al. (2013) and others were used to identify appropriate ranges.

56. *The next two pages describe reference sites from the North Rim of the Grand Canyon, which share similar soils and topographic position with the Rim Country landscape and as such provide more useful characteristics for developing desired conditions for Rim Country than do reference sites around Flagstaff, including the Fort Valley Experimental Forest. Collectively, the studies cited here suggest that desired conditions and treatment intensities for the Rim Country analysis area are biased toward the low end of the natural range of variability and overly representative of the "Flagstaff Model." 48.106*

    Multiple sources were used to develop appropriate treatment ranges in collaboration with the stakeholder group. Wasserman et al. (2019), Reynolds et al. (2013) and others were used to identify appropriate ranges. Historical reconstructions from the North Rim were taken into account by the 4FRI stakeholder group when developing appropriate treatment ranges for Rim Country.

Cumulative Effects Comment

General Concern: Commenters provided a comment related to cumulative effects exceeding the degree of openness that the commenter is comfortable with.

1. *We strongly believe that the cumulative effect of these treatments dramatically exceeds the degree of openness that we are comfortable with. In some cases, these treatments are simply scientifically unjustified. 48.71*

    This analysis does not use openness or interspace to compare alternatives. The metrics used, basal area and trees per acre, were collaboratively developed with the stakeholder group in an effort to approximate the natural range of variation. For the Rim Country project, the cumulative effects

analysis assesses the degree to which past, present, and reasonably foreseeable future actions contribute to the landscape attaining the natural range of variation. The cumulative effects analysis also demonstrates that these treatments accelerate the trajectory toward the natural range of variation with regards to pattern, structure, and composition.

Recommendations Comments

General Concern: Commenters provided recommendations related to revising the number of acres to match those in the Cragin Watershed Protection Project and the removal of regeneration openings from the DEIS.

1. *USFS states that the Cragin Watershed Protection Project "would mechanically treat 41,046 acres." SRP recommends USFS revise this number to reflect the final EA analysis approved in July 2018. "Hazard fuel reduction and forest restoration activities proposed for the Cragin Watershed Protection Project area consist of mechanical vegetation treatments on approximately 37,764 acres and prescribed burning treatment s are proposed over about 63,634 acres within the project area. 40.65*

   This analysis is for the Rim Country project. The CC Cragin watershed protection project is within the Rim Country boundary and consists of mechanical vegetation treatments on approximately 37,764 acres and prescribed burning treatment on approximate 63,634 acres. These acres have been updated in the FEIS to correctly reflect the activities included in the Cragin Watershed Protection Project.

2. *Since the objectives of Rim Country are to restore ecosystem function by focusing on thinning of small diameter trees with little timber value, there is no value to include "regeneration openings" as a treatment design. For these reasons, the Department agrees with the SHG recommendation to remove "regeneration openings" as treatment designs in the DEIS. 32.13, 28.8, 39.23, 47.28, 48.72, 47.54*

   The use of regeneration openings as a component of interspace has been removed from the Rim Country Project. This was done as a result of the collaborative process with the stakeholder group.

3. *Process for cutting of more large trees beyond LTIP exceptions should be removed. Any subsequent NEPA document prepared as part of the Rim Country analysis should delete the current language in the Rim Country DEIS LTIP identified above as the third paragraph in the LTIP. 48.38, 48.39*

   The large tree implementation plan (FEIS appendix D) outlines the process for cutting large trees and identifies exception categories where cutting large trees is ecologically appropriate. In order to achieve desired conditions most efficiently, there may be cases where removal of large trees is necessary outside of these categories, such as human health and safety during implementation, habitat degradation, and efficient access to areas during implementation.

4. *CONCERN: The RC DEIS should incorporate the best available science applicable to management of ponderosa pine dwarf mistletoe. The RC DEIS cites some, but not all of the current science relevant to this issue. RECOMMENDATION: A list of pertinent references is provided in Appendix III. The SHG recommends that this information be incorporated into the FEIS, with a clear explanation of the scientific basis for the proposed treatment approach. 32.24, 39.34, 47.57, 47.62, 47.63*

The approach to mistletoe management has been modified in the FEIS in collaboration with the 4FRI Stakeholder Group. Mistletoe -specific treatments have been removed and replaced with using mistletoe presence as an individual tree removal criterion. Additionally, the implementation plan (appendix D) has been modified to clarify that management of dwarf mistletoe should focus on southwestern dwarf mistletoe, and its most common host, ponderosa pine.

5. *CONCERN: terms and definitions needing clarification or correction. The SHG previously requested that the term "overmature" be removed or placed in appropriate context. While overmature remains in the document, it is with respect to the age classification tables based on cited literature. The definition of overmature used is based also on the cited literature. RECOMMENDATION: the SHG appreciates changes made in the DEIS and request they be carried forward into the FEIS and ROD. 32.44*

   The recommended changes will be carried forward in to the FEIS.

6. *CONCERN: removal of 55-70% interspace treatments used for the management of mistletoe. The SHG asked for removal of 55-70% interspace treatments, listed in an early version of the DEIS, to manage mistletoe. This was a departure from the 1st EIS, and does not meet the intent or goals of the CFLRP. On reception of the SHG official request (see Project Record), the Executive Board removed all treatments above 55% interspace outside of WUI. RECOMMENDATION: the SHG appreciates this change made in the DEIS and recommends it be carried forward into the FEIS and ROD. 32.45*

   See Silviculture, Recommendations, response 4.

7. *The treatments that react to mistletoe are unwarranted and counterproductive. They would end up removing the largest trees as a treatment method, and as a result damage and degrade the very habitat components mistletoe provides for so many species of wildlife. 42.153*

   See Silviculture, Recommendations, response 4.

Implementation Comments

General Concern: Commenters provided comments related to the implementation process, including the large tree implementation plan and stands with a preponderance of large trees.

1. *During implementation, the Forest Service should conduct consistent and repeatable pre- treatment field verifications to identify stands or portions of stands that meet SPLYT criteria. 47.10, 48.18, 47.19, 47.20*

   Assessment of stands with a preponderance of large trees criteria would be performed as part of the implementation process. The criteria for stands with an abundance of large trees have been collaboratively developed with the stakeholder group and have been updated in the FEIS to be more easily measured and repeatable.

2. *The LTIP in any subsequent NEPA document prepared as part of the Rim Country analysis should include an introductory paragraph that explains the ecological and social values of large trees and the need to retain them across the Rim Country landscape. 47.22, 47.23, 48.34*

   Additional citations describing the ecological and social value of large trees have been incorporated into the analysis to explain the ecological and social values of large trees and retaining them in the project area.

3. *The following statement appears in the DEIS LTIP (p. 619):*
   a. *"This plan may not include every instance where large post-settlement trees may be removed. There may be additional areas and/or circumstances where large post- settlement trees need to be removed in order to achieve restoration objectives. During implementation (prescription development), if there is a condition where forest plan desired conditions conflict with the exception condition categories listed below, no large trees would be felled until the NEPA decision is reviewed by the District. The District would decide whether the action is consistent with the analysis and the decision made."*
   b. *This "opt out" clause is vague, creates unnecessary process, and leaves the door open to widely different implementations across Rim Country. This statement should be removed from any subsequent NEPA document prepared as part of the Rim Country analysis. 47.24*
   c. *Potential conflicts with Forest Plans should be resolved via plan amendments that accommodate LTIP requirements. 47.24*

      The large tree implementation plan (FEIS appendix D) applies to the Rim Country project area equally on all four forests and the districts where the project is located. This plan outlines the process for cutting large trees and identifies exception categories where cutting large trees is ecologically appropriate. However, in order to achieve desired conditions most efficiently, there may be cases where removal of large trees is necessary outside of these categories.

4. *Thin until the distance between trees or groves of trees prevents crown fires. If the public knew the true cost of chronic exposure to the FS generated and FS preventable smoke, the 16" maximum trunk diameter size would have to increase. 20.25*

   The modified proposed action has been designed to modify fire behavior and reduce the incidence of crown fires. This includes thinning between trees and groups of trees. A category in the Large tree implementation plan allows for the cutting of trees greater than 16 inches with the ecological objective of "Reduced horizontal and vertical canopy fuels reduce the potential for crown fire."

5. *The mistletoe infection should be addressed using sustainable logging techniques. 43.7*

   The approach to dwarf mistletoe management has been modified in a collaborative fashion with the stakeholder group and will be implemented using appropriate logging techniques.

6. *How are the requirements of the CFLRA provisions to focus on small diameter trees being implemented? Due to lack of specific commitments in the DEIS it's now impossible to tell. 42.57*

   This project is consistent with the requirements of the CFLRP. See NEPA, CFLRP Comments, response 3. Restoration activities would focus on cutting smaller diameter live, standing trees (5 to 16 inches) in order to return forest structure to the natural range of variation

<u>Modeling Comments</u>

1. *The DEIS does not disclose the statistical reliability of the data the FS relies upon for the Rim Country CFLRPlan analyses. 42.357*
   a. *The Ninth Circuit Court of Appeals has declared that the FS must disclose the limitations of its models in order to comply with NEPA. The DEIS fails to disclose these limitations. The FS uses models without any real indication as to how much they truly reflect reality. 42.359*

b. *There is no evidence that the FS has performed validation of any the models for the way they were used to support Rim Country DEIS analyses. There is no documentation of someone using observation or experiment to support the model hypotheses. 42.360*

The Rim Country analysis includes a disclosure of the reliability of stand data and classifies stand data as being above threshold, below threshold, or reference data as well as the assumptions made during the modeling process. Modeling was completed using FSVeg spatial Data Analyzer (USDA 2020, (http://fsweb.nrm.fs.fed.us/support/docs.php?appname=FSVegSDA) and the Forest Vegetation Simulator (Dixon 2020). The modeling assumptions are disclosed in the Silviculture Specialist report and in the project record.

2. *The FS has not disclosed the limitations of all models the FS relies upon for the Rim Country analyses, which begins to address model validity. 42.358*

The Rim Country analysis includes a disclosure of the reliability of stand data and classifies stand data as being above threshold, below threshold, or reference data as well as the assumptions made during the modeling process. Modeling was completed using FSVeg spatial Data Analyzer (USDA 2020) (http://fsweb.nrm.fs.fed.us/support/docs.php?appname=FSVegSDA) and the Forest Vegetation Simulator (Dixon 2020). The modeling assumptions are disclosed in the Silviculture Report and in the project record.

Silviculture and Mistletoe

Recommendation Comments

General Concern: Commenters provided recommendations for the Forest Service to consider, including the definition of old trees and the removal of dwarf mistletoe from the mechanical treatment's toolbox as a decision variable.

1. *Section D (p. 617) of the RC DEIS defines old tree age as: "Established prior to 1870, predating Euro-American settlement." The SHG recommends that the Forest Service replace this statement with this language from the 1st EIS: "Approximately 150 years and older." 32.19, 47.17*

The use of 1870 as a criterion for an old tree has been removed and replaced with 150 years of age (see Appendix D – Implementation Plan). This was done in a collaborative manner working with the stakeholder group.

2. *The SHG recommends that the Forest Service remove dwarf mistletoe as a decision variable in the Mechanical Treatments Flexible Toolbox. 32.23, 32.25, 47.61, 47.65*

Dwarf mistletoe has been removed as a decision variable in condition-based management. Dwarf mistletoe treatments have also been removed from the action alternatives.

3. *The SHG recommends that the Forest Service clarify differences between the ecology and management of mistletoes in the FEIS. 32.26, 39.36, 48.7*

Additional citations regarding ecology and management of dwarf mistletoe has been included.

4. *The SHG recommends that the FEIS/Implementation Plan clearly identify deferral or burn only as preferred options for ponderosa pine stands with "severe" levels of dwarf mistletoe. 32.27, 39.37*

Deferral has been described as an option in stands with severe dwarf mistletoe infection.

5. *The DEIS presents a "one size fits all" approach that does not distinguish between the various Dwarf Mistletoes and host tree species other than Ponderosa Pine, and relies on highly subjective field assessments of mistletoe infection. The Trust consider this strategy wholly inappropriate for a project ostensibly focused on ecological restoration rather than sustained-yield timber production. We also note that the DEIS does not reference a number of pertinent references on Dwarf Mistletoe and that some of the information presented does not accurately reflect source materials. These issues notwithstanding, the Preferred alternative also appears to have negligible effect on reducing infection of Ponderosa Pine by Dwarf Mistletoe. 47.57, 47.63*

   The approach to dwarf mistletoe management has been modified for the FEIS. Mistletoe-specific treatments have been removed and replaced with the use of dwarf mistletoe presence as an individual tree removal criterion. Additionally, the implementation plan (FEIS appendix D) has been modified to clarify that management of dwarf mistletoe should focus on southwestern dwarf mistletoe, and its most common host, ponderosa pine.

6. *Dwarf mistletoe is driving treatment intensity and prioritization. Ponderosa pine dwarf mistletoe should not be a fundamental driver of treatment priorities or treatment assignment in an ecological restoration project. Such an approach is inconsistent with the best available science. [137] We stand by our frequently made assertion that conservative restoration thinning and application of prescribed fire is an adequate approach to maintain mistletoe at levels within the desired range. 48.93, 48.94, 48.95*

   The approach to dwarf mistletoe management has been modified for the FEIS. Mistletoe-specific treatments have been removed and replaced with the use of dwarf mistletoe presence as an individual tree removal criterion.

7. *Any subsequent NEPA document prepared for the Rim Country analysis should clarify that mistletoe severity levels will not lead to increased treatment intensity or prioritization for treatment, and should specify that severely infected stands should be deferred from mechanical entry and be assigned burn-only treatments. In particular, the dwarf mistletoe infection decision variable should be removed from the Mechanical Treatments FTA. 48.96, 48.98*

   The approach to dwarf mistletoe management has been modified for the FEIS. Mistletoe-specific treatments have been removed and replaced with the use of dwarf mistletoe presence as an individual tree removal criterion. Deferral has been identified as a treatment option in stands with severe mistletoe infection.

8. *Mistletoe treatments should not be applied to Mixed Conifer Forest. The DEIS does not clarify how the proposed action would treat dwarf mistletoe in mixed conifer forests and trees other than ponderosa pine. The DEIS does not explain the ecological value of dwarf mistletoes in coniferous trees, especially for how they are used for nesting by Mexican spotted owls. 48.97, 48.98*

   Mistletoe treatments have been removed from the proposed action in the FEIS. Additionally, the implementation plan (FEIS appendix D) has been modified to clarify that management of dwarf mistletoe should focus on southwestern dwarf mistletoe, and its most common host, ponderosa pine. Information on the value of dwarf mistletoe as wildlife habitat is in the FEIS.

Silviculture and Old Growth/Old Trees/Large Trees

Clarification Comments

General concern: Commenters requested clarification on old growth and old trees being cut, including more description on treatments and the type of monitoring that would occur for old growth.

1. *Clarifications are needed related to cutting in the exception categories because how they stand now, they could allow for too many old trees to be cut. 28.9*

   Exception categories were developed in a collaborative manner with the stakeholder group. Old trees may be cut under specified exceptions. From the old tree implementation plan: "Exceptions would be made for threats to human health and safety, and those rare circumstances where the removal of an old tree is necessary in order to prevent additional habitat degradation that would be caused by forest thinning and burning operations." This statement has been updated in the FEIS for clarity.

2. *The same can be said of the CFLRPlan's intent to reduce tree mortality by having fewer trees to be killed by fire. 42.162*

   There is not necessarily a connection between reduction in old growth and reduced chance of fire in trees. A reduced chance of fire in trees is more closely related to lower overall stand density, higher canopy base height, lower crown bulk density and lower surface fuels. For more information on the relationship to stand level metrics and fire behavior, consult the Fire Ecology Report.

3. *CONCERN: The RC DEIS contains unnecessary language concerning application of the OTIP to subsequent NEPA decisions. From the OTIP (RC DEIS Appendix D, p. 617): "This old tree implementation plan will be applied to the Rim Country Environmental Impact Statement Record of Decision and may not apply to subsequent decisions on the same project area or on other areas within Region 3. Subsequent decisions may include an old tree implementation plan that reflects project specific current conditions and the purpose and needs of subsequent projects." 32.20*

   Language regarding application of the old tree implementation plan and subsequent National Environmental Policy Act decisions has been removed from the old tree implementation plan (appendix D). See response to silviculture clarification 47.

4. *CONCERN: drift from the intent of CFLRP. Stakeholders were concerned that the drafty- draft RC DEIS did not include key CFLRP language articulating a focus on thinning small diameter trees and protecting large/old-growth trees. The DEIS WG provided recommended language to the 4FRI Planning Team, which was approved by the Executive Board and added to the RC DEIS. 32.43, 47.3*

   The old tree implementation plan and large tree implementation plan, both collaboratively developed documents, outline the Rim Country approach to retention of old growth structure. Incorporation of the recommended text can be found in Chapter 1, Purpose and Need.

5. *LTIP does not meet the spirit and intent of CLFRA to maintain old growth and retain large trees. 47.6*

   Protection for old trees is described in the old tree implementation plan and large tree implementation plan (FEIS appendix D), which were collaboratively developed with the stakeholder group. Rim Country meets the requirements of the CFLRP.

6. *The DEIS is ambiguous about how "old trees" will be identified, for the purpose of complying with the CFLRA, implementing design feature FE004. And where the DEIS states, Old trees would be retained, with few exceptions, regardless of diameter, within the Rim Country analysis area. Removal of old trees would be rare. In the DEIS Old Tree Implementation Plan, it suggests that trees of age 150 years and older would all be retained, but at least four other characteristics are identified. It doesn't say if a tree must meet one, two, all, or any number of characteristics to be retained as an old tree. It discloses Ponderosa Pine Age Class Descriptions but doesn't say how those supplement the other criteria or otherwise apply. 42.149*

   The old tree implementation plan (FEIS appendix D) has been designed to comply with CFLRP, has been collaboratively developed and is strongly supported by the stakeholder group and the public. The designation of old trees "will be made in consideration of the tree forms depicted…all of these factors should be taken into account when identifying old trees." There is no set number of criteria that a tree must meet to be considered old; however, these physical characteristics correlate with trees greater than 150 years old (Thomson 1940).

7. *The DEIS proposes to deal with the Large Tree issues with "Indicators/Measures: being "Number of acres of stands meeting collaboratively established Stands of Preponderance of Large Young Trees (SPLYT) criteria." Yet there doesn't seem to be an acre figure for SPLYT stands in the DEIS and the exemptions for logging large trees in SPLYT read like all-encompassing loopholes. 42.155*

   The number of acres meeting SALT criteria is provided in the vegetation section of the FEIS as well as the Vegetation Specialist report.

8. *We fail to see how logging most all the large, old trees in the treatment areas would be prohibited by the treatment description in Table 10. 42.157a*

   Direction for incorporating protections for large and old trees is located in the implementation plan (Appendix D), the OTIP and LTIP. Information regarding the OTIP and LTIP has been incorporated into the treatment description in table 17 (Alternatives 2 and 3 mechanical and prescribed fire treatment descriptions and objectives" in the FEIS).

9. *Our comments also stressed that the implementation of "regeneration" gaps within mixed conifer types for the purpose of creating openings to recruit ponderosa pine seedlings would remove too many large trees. 42.263*

   The use of the term "regeneration openings" has been removed from the implementation plan (appendix D).

10. *Building off of comments earlier in this letter, the introductory section of the LTIP should be modified to better reflect the values of large trees and the Forest Service's commitment to protect them unless they fit into an exception category. As part of this, implementers have a clear understanding of how SPLYT identification and treatment modifications fit into the broader strategy of large tree retention. RECOMMENDATION: Any subsequent NEPA document prepared as part of the Rim Country analysis should add a description of SPLYT to the introduction of LTIP. 48.57*

    The definition of SALT (formerly SPLYT) has been updated in a collaborative manner with the stakeholder group. As it has been included in appendix D, the implementation plan as part of the condition-based management approach as a treatment modifier, it is most appropriate in that section. The Rim Country condition-based management approach is a collaboratively developed approach with the stakeholder group and is distinct from the LTIP.

Recommendations Comments

General concern: Commenters provided recommendations related to old growth and old trees being cut, including more description on treatments and the type of monitoring that would occur for old growth.

1. *At a minimum, the Rim Country EIS should incorporate old tree protections included in the 1st EIS. ECO notes that Age Class 3 trees (per Thompson 1940) have been included in the Old Tree Implementation Plan (OTIP, RC DEIS Appendix D) per our previous request. However, those age classes are missing from the accompanying illustration (Figure 94). ECO recommends that the figure be updated to match the text. 39.26*

   The figure and the text in Appendix D, the Implementation Plan of the FEIS have been updated to better incorporate Thomson age class 3 trees.

2. *Any old tree diagrams and narrative descriptions used in the first 4FRI EIS should be included in the OTIP that is part of any subsequent NEPA document prepared as part of the Rim Country analysis. 48.17*

   In Appendix D -Implementation Plan, the old tree diagrams included in the OTIP and narrative descriptions were developed in a collaborative manner with the stakeholder group. Additionally, a photo guide was added to aid in identification of old trees and was developed in a collaborative manner with the stakeholder group.

3. *There is uncertainty in some of the language regarding old tree protection. The OTIP (RC DEIS Appendix D, p. 617) indicates that "Removal of old trees would be rare. Exceptions would be made for threats to human health and safety, and those rare circumstances where the removal of an old tree is necessary in order to prevent additional habitat degradation." The latter portion of this statement could be interpreted as "habitat degradation" caused by old trees. ECO does not believe this is the Forest Service's intent and recommends that the statement be clarified and include examples of habitat degradation situations requiring old tree removal. 32.17, 48.21, 39.27*

   Appendix D in the FEIS been updated to clarify that old trees do not contribute to habitat degradation, but rather, old trees may need to be removed to ensure that the least amount of habitat degradation will occur during restoration thinning and burning operations.

4. *The RC DEIS contains at least one statement inconsistent with the stakeholder old tree– large tree document and LTIPs included in the 1st EIS and RC DEIS. The "Modeling Assumptions" section of the Draft Silviculture Report (no pagination), states: "Within this project area, the majority of trees that meet the old tree definition are greater than or equal to 18". On the ground cutting prescriptions will follow the Old Tree Implementation Plan (OTIP) and trees larger than 18" that do not meet the OTIP criteria may be cut during implementation." This statement should be revised to be consistent with OGPLTRS/OTIP/LTIP and specify how ponderosa pine and other conifer species will be treated. 32.18, 39.28, 47.12, 47.13, 47.26,48.15, 48.16*

   The FEIS has been updated to clarify that trees larger than 18 inches that do not meet old tree implementation plan criterial may be cut in accordance with the large tree implementation plan.

5. *The old tree age criterion included in the 1st 4FRI EIS has not been incorporated in the RC DEIS. Section D (p. 617) of the RC DEIS defines old tree age as: "Established prior to 1870, predating Euro-American settlement." ECO recommends that the Forest Service replace this statement with this language from the 1st EIS: "Approximately 150 years and older." 39.29*

The reference to 1870 as criteria for an old tree in the DEIS has been replaced with trees 150 years and older in the FEIS.

6. *The RC DEIS contains unnecessary language concerning application of the OTIP to subsequent NEPA decisions. From the OTIP (RC DEIS Appendix D, p. 617): "This old tree implementation plan will be applied to the Rim Country Environmental Impact Statement Record of Decision and may not apply to subsequent decisions on the same project area or on other areas within Region 3. Subsequent decisions may include an old tree implementation plan that reflects project specific current conditions and the purpose and needs of subsequent projects." Given the sensitivities surrounding harvest of old growth, ECO recommends that this statement be removed. 39.30*

   The statement mentioned by the commenter has been removed from the old tree implementation plan (FEIS volume 2, appendix D).

7. *The DEIS fails to identify stands which as a whole generally exhibit old growth characteristics, and in fact the CFLRPlan risks destroying a lot of such habitat. The DEIS's descriptions and specifications of the proposed vegetation manipulations are so vague and lacking in detail that huge loopholes would allow cutting of very numerous large and old trees of all species throughout the Rim Country landscape. 42.147*

   The Rim Country Project follows land management plan direction for old growth trees. Additionally, within Appendix D-Implementation Plan, the incorporation of the OTIP as well as the LTIP and SALT provide additional protection of stands and their contribution to old-growth characteristics. In frequent fire forests, old growth stands are not historically or currently characteristic. The characteristic structure of these stands is uneven-aged, with components of old trees. The land management plan desired conditions and project objectives are to maintain or develop uneven-aged stands with a component of old trees.

8. *The post treatment basal area ranges proposed in the How many large and old trees are "possible" to retain is not explained; it appears arbitrary with a range of basal areas being the only specification quantified. This basal area can be achieved while logging as many old or large trees as possible, with the specified basal area being made up in intermediate sized trees of medium age. That's the nature of the loophole. And the fact is, at the lower end of the basal area ranges to be applied (20-30), the results would resemble clearcuts with few trees remaining. 42.148*

   The ranges of post-treatment stand density were the result of a collaborative process with the stakeholder group and best approximate natural range of variation. Old and large trees are protected through the OTIP and LTIP (FEIS appendix D). The natural range of variation in southwestern frequent fire forests is well understood (Wasserman 2019, Reynolds 2013).

9. *The Old Tree Descriptions only apply to ponderosa pine, which creates a huge loophole for old trees of other species to be logged. This is neither ecologically sensible nor in compliance with CFLRA. Large old pinyon and juniper, which provide habitats for species not well represented by the forest plans, remain vulnerable. 42.150*

   Old and large tree protections identified in OTIP and LTIP (Appendix D – Implementation Plan) apply to all conifer species. Citations have been added in the OTIP and LTIP for consideration old trees of species other than ponderosa pine.

10. *Any subsequent NEPA document prepared as part of the Rim Country analysis should include an Old Tree Protection Plan that describes old tree (over 150 years) and old growth group/stand characteristics for each species of tree found on the Rim Country project area. If qualitative characteristics are not definable, then diameter caps of can be used as a surrogate., 48.16*

    Citations (Van Pelt 2007 and Van Pelt 2008) have been added to appendix D, the implementation plan, to identify physical characteristics to consider for species other than ponderosa pine.

11. *Any subsequent NEPA document prepared for the Rim Country analysis should clarify that large trees will not be cut on the basis of the mistletoe infection severity level at the tree or stand level.48.92*

    See Silviculture and Mistletoe, Recommendation, 2 response.

12. *As we discuss in the Large Tree Retention and Old Growth section of these comments, large and old pinyon and juniper remain vulnerable.42.262*

    Old and large tree protections identified in OTIP and LTIP (Appendix D) apply to all conifer species. Citations have been added within Appendix D for consideration old trees of species other than ponderosa pine.

General Concern: Commenters are concerned that the large tree retention strategy was modified for the DEIS and the new large tree implementation plan violates the Collaborative Forest Landscape Restoration Act. The design elements, condition-based *management, and other restrictions on logging fail to provide enough detail to clearly understand how requirements for retention of the largest trees contributing to old growth structure, focusing on small diameter trees, and maximizing the retention of large trees will be met, to comply with the Act.*

13. *As expressed in scoping comments, the Sierra Club supports implementing the Large Tree Retention Strategy (LTRS), developed by the Stakeholder Group (SHG) for the first 4FRI EIS. However, the DEIS does not include an alternative implementing this original Large Tree Retention Strategy. In eliminating such an alternative from the EIS, the FS claims "the original LTRS would not meet various elements of the purpose and need." Instead, the FS "modified the original strategy, developing the Large Tree Implementation Plan (LTIP), which was included in (the first 4FRI) EIS and is brought forward with modifications into this EIS and is part of the Implementation Plan." This DEIS major Issue (#3): … will be addressed in the effects analysis for all alternatives. Large tree retention will be addressed with treatment design and location, design features, mitigation measures, and BMPs to retain old growth and groups of large trees in all action alternatives. The Old Growth Protection and Large Tree Retention Strategy (OGP/LTRS) as developed by the 4FRI Stakeholder Group will be evaluated and considered as fully as possible in all action alternatives. (Emphasis added.) However, the modified LTIP doesn't meet the spirit and intent—certainly not the letter—of the CLFRA. The design elements, FTAs, and other restrictions on logging fail to provide enough detail to clearly understand how requirements for retention of the largest trees contributing to old growth structure, focusing on small diameter trees, and maximizing the retention of large trees will be met, to comply with the Act. In fact, given the Omnibus Act of 2009 expressed need to "offset treatment costs while benefitting local rural economies" there exists a bias toward cutting and selling a lot of timber— and this bias is clearly against protecting large and old trees. The DEIS fails to reconcile these potentially conflicting intentions stated in the Omnibus Act. 42.146*

The large tree implementation plan (appendix D) is a collaboratively developed document and describes how large trees would be protected in the Rim Country project. The large tree implementation plan was developed collaboratively to meet section C.1.E. of section 4003 of the Omnibus Public Land Management Act of 2009, "(E) would carry out any forest restoration treatments that reduce hazardous fuels by-- (i) focusing on small diameter trees, thinning, strategic fuel breaks, and fire use to modify fire behavior, as measured by the projected reduction of uncharacteristically severe wildfire effects for the forest type (such as adverse soil impacts, tree mortality or other impacts); and (ii) maximizing the retention of large trees, as appropriate for the forest type, to the extent that the trees promote fire-resilient stands…."

General Concern: Commenters provided a concern regarding the large tree implementation plan's ability to meet the objectives of the original retention strategy.

14. *The LTIP's ability to satisfy stakeholder concerns remains virtually untested. We are very uncertain of how well the LTIP meets the objectives of the original retention strategy. It's entirely possible that the LTIP creates so many exceptions to large tree retention that is has almost no utility, and thus, a complete overhaul may be necessary. RECOMMENDATION: Unfortunately, because almost no monitoring data is available to address this uncertainty, we can't say if the LTIP is accomplishing its mission, at least as far as the Center's concerns for large tree retention are addressed, so we cannot offer a firm recommendation. However, we request continued Forest Service collaboration in assessing the effectiveness of the LTIP, and request that modifications may be made if it is not meeting our objectives of large tree retention. 48.24, 48.25*

    See response to silviculture and old growth/old trees/large trees recommendations 6. The large tree implementation plan (appendix D) identifies the same eight exception categories as the large tree retention strategy, that allows for the cutting of large trees in ecologically appropriate situations and allows for the retention of large trees in accordance with the Collaborative Forest Landscape Restoration Program exception criteria.

15. *The LTIP exception categories are overly broad and cover too much of the landscape. The added possibility that mistletoe severity rating will allow cutting of large trees not covered by other overly broad exception categories is another reason to doubt the Forest Service's commitment to protect old and large trees, especially considering what happened at Little Creek. 48.91*

    The LTIP (appendix D) is a collaboratively developed document that provides categories where it is ecologically appropriate to cut large post-settlement trees. Forest health reasons, including dwarf mistletoe infection severity is not an exception category in the LTIP. The West Escudilla project and the Little Creek timber sale are outside the scope of this analysis.

Analysis Comments

General concern: *Commenters requested additional analysis on old growth and old trees being cut, including more description on treatments and the type of monitoring that would occur for old growth.*

1. *Indicators and measures related to large trees need to be included in the analysis. 48.52*

    Indicators and measures for old trees include the number of acres meeting the criteria for stands with an abundance of large trees. Acres of stands with an abundance of large trees stands serve as a useful stand level metric that asses the presence of large trees on the landscape. The definition of stands with an abundance of large trees criteria was developed in a collaborative manner with

the stakeholder group. This information is provided in the Silviculture section of the FEIS. The collaborative development of the old tree implementation plan identifies the protection strategy for old trees.

2. *Replace the information presented regarding old tree protections with the information from the first EIS. 32.16, 47.9*

   The old tree implementation plan (appendix D), developed collaboratively with the stakeholder group, outlines how old trees would be protected and retained in Rim Country. The Rim Country record of decision will follow law, regulation, and policy.

3. *The final EIS should emphasize and prioritize implementation of the following actions: 1) the restoration of degraded riparian and aquatic habitats found throughout the project area; 2) the restoration and protection old growth stands and the retention of large old growth trees which are of key importance to many wildlife species (e.g., Mexican spotted owl, northern goshawk, Abert's squirrel, etc.). The final EIS should include a Rim Country project area assessment and plan for the protection and distribution of existing old growth and the development of future old growth stand. 31.4a, 31.4b, 32.21, 32.22, 39.31,39.32. 39.33, 39.35*

   See response to silviculture and old growth/old trees/large trees analysis 2. In collaboration with stakeholders, a section on the integration of upland and aquatic restoration treatments in the Appendix D – Implementation Plan has been updated to ensure that those treatments are appropriately considered during the project planning process. Specific prioritization and sequencing of treatments is considered during implementation and outside the scope of the planning process. The Forest Service is working with the stakeholder group on the role of stakeholder engagement during the implementation process.

4. *and 3) the restoration of healthy forest conditions in relation to management of dwarf mistletoe. 31.4c*

   Treatments for dwarf mistletoe/dwarf mistletoe-specific treatments (intermediate thin treatments) were removed from this project. Dwarf mistletoe would be managed through individual tree selection criteria during implementation rather than a specific dwarf mistletoe treatment. This approach was developed in response to public comment and in a collaborative manner with the stakeholder group.

General Concern: Commenters requested revised or additional analysis related to slash, identifying stands with a preponderance of large trees stands, in-woods processing sites; climate change; modelling timeframe; and question the environmental effects and assumptions related to road closures, mechanical treatments, biomass removal, large tree implementation plan criteria; large tree/old tree definitions; and large tree retention.

5. *Clearly, logging related slash leads to increased fire intensity and heightened fire and bark beetle risk. That is why so much energy has gone into trying to establish restoration industries that can utilize slash and biomass. But what if this didn't pan out for Rim Country? What if more slash was left behind than we want to admit could happen? 48.194*

   The effects of fuel loading presented in the Fire section of the FEIS and within the Fire Specialist report assume appropriate implementation of the signed decision. Hypothetical implementation that does not conform to this decision would fall outside the bounds of this analysis and would require subsequent review.

6. *Any subsequent NEPA analysis should model treatment outcomes based on the worst case scenario of 50% slash left on site, to match the worst case scenario of what might be an outcome of the RFP. 48.196*

   See response to silviculture recommendations 5.

7. *Road closures: this is the perfect continuation of the prior topic. Alternative #2 and #3 of the proposed Initiative both contain 490 miles of existing road decommission and 800 miles of unauthorized road decommission. Nothing is more vexing to today's public than this endeavor, already in considerable implementation...the huge acreage of the Forests versus miniscule roadway acreage by comparison, and the allowed usage by the FS "partners" and cattle as well as sheep, I will be ardently frank in saying that this policy is a feel-good endeavor with minimal upside and grave downside. 36.10*

   Roads are decommissioned for the following reasons (36 CFR Part 212): no longer needed for future management, to protect cultural resources, causing soil or water resource damage, not usable without significant investment, an ongoing road maintenance challenge, an unauthorized road, or other unique situations along those same lines. The Forest Service does not decommission existing roads unless it meets those criteria. If a road does not meet those standards, it would be left open.

8. *The Mechanical Treatments FTA contains treatment modifiers that increase the intensity of mechanical thinning, which have uncertain effects or are unjustified. 47.53*

   Condition-based management was collaboratively developed with the stakeholder group. The effects of the proposed action are described in the Silviculture Report and the Vegetation section of the FEIS.

9. *The Trust and other stakeholders have invested considerable effort working with the Forest Service to develop a more robust and field-tested methodology for identifying SPLYT stands. That collaborative effort was ostensibly successful and communicated to the Forest Service in October 2017 (Appendix D). However, the Forest Service subsequently informed stakeholders that this approach was not viable for implementation, as it could not be used to verify stand conditions on the ground, as will occur before assigning mechanical treatment via the Flexible Toolbox. The Forest Service agreed to collaborate with stakeholders to develop a new method for identifying SPLYT stands, an effort that has yet to be completed. The Trust considers development this methodology a top priority. Given our significant concerns about the intensity of mechanical thinning (see below), we also feel that SPLYT stands should be treated more conservatively than specified in the first 4FRI EIS. 32.30, 39.41, 47.11, 48.58*

   The stands with an abundance of large trees criteria were developed in a collaborative manner with the Center for Biological Diversity and members from the stakeholder group and redefined for the FEIS, appendix D, to be easier to understand and implement.

10. *USFS also includes a modeling assumption that "All other biomass resulting from the cutting is assumed to be removed." This assumption may not reflect actual on the ground implementation as described in the project description. SRP recommends that USFS include a range of biomass removal options in order to analyze and disclose the potential range of effects of the project. 40.64*

    The effects of the proposed action on fuel loading are described in the Fire and Fuels Report and the Fire analysis in the FEIS.

11. *SRP recommends that USFS include an additional in-woods processing site located on the east side of the project area. This would allow for additional in-woods processing activities to occur from thinning stemming from this project and could improve economic viability. The Final EIS should include an analysis of this additional in-woods processing site(s) within all affected resource sections. 40.37*

    During the analysis, the Forest Service determined that the number and location of in-woods processing sites would be adequate for implementation of this project.

12. *Modelling assumptions fail to incorporate LTIP criteria and are thus likely inaccurate. 48.50*

    Forest vegetation modeling criteria have incorporated large tree implementation plan criteria (appendix D) to better describe the effects of the proposed action on large trees.

13. *Model runs should be updated to represent the current year. In the Final EIS, modelling should start at 2021 and grow out to 2031 and 2041. 48.201*

    The year 2019 was selected to best represent the earliest that the project might have been implemented, and the analysis is still within the sideboards of 2019 because the interdisciplinary team modelled out 20 years. Condition-based management and adaptive management would apply and guide implementation within the sideboards of the analysis, which is still applicable.

14. *The Modelling Assumptions portion of any subsequent NEPA document prepared as part of the Rim Country analysis should: 1) Clarify that generally, ponderosa pine and most forest conifers over 18" are old, but that many trees under 18" may be old depending on the species and the trees site quality; 2) Clarify that large trees may only be cut in accordance with the LTIP exception categories; 3) Specify that the LTIP defines large trees as those over 16" d.b.h.; and 4) because of the compounding effect of these issues, the modelling may need to be re-run under properly parameterized assumptions that incorporate projected LTIP implementation. 48.51*

    The large tree implementation plan (appendix D) uses multiple criteria other than diameter at breast height to identify old trees. The large tree implementation plan identifies situations where large trees can be cut and defines large trees as 16 inches diameter or greater. Modeling assumptions to identify large trees are fully disclosed in the assumptions and methodology section of the silvicultural analysis.

15. *A Science Consistency Review for the CFLRPlan, which would treat up to 953,000 acres of national forest land, is very much warranted. 42.362*

    The Rim Country analysis meets all obligations under the National Environmental Policy Act, Collaborative Forest Landscape Restoration Program, and all applicable law, regulation, and policy and includes a review of literature submitted with comments. The Forest Service also utilized current and best available science for this analysis.

16. *USFS includes a modeling assumption that all tree cutting and removal was modeled in 2019. SRP recommends that USFS update this assumption to include tree cutting occurring over a period of 20 years. 40.63*

    Management activities were modeled using 2019 as the treatment year because that is the earlier possible time of treatment occurring at the time the initial modeling was performed.

17. *The validity of the various models utilized in the DEIS's analyses have, by and large, not been established for how agency utilizes them. No studies are cited which establishes their content validity, and no independent expert peer review process of the models has occurred.42.361*

    Rim Country analysis includes a disclosure of the reliability of stand data and classifies stand data as being above threshold, below threshold, or reference data as well as the assumptions made during the modeling process. Modeling was completed using FSVeg spatial Data Analyzer (USDA 2020, (http://fsweb.nrm.fs.fed.us/support/docs.php?appname=FSVegSDA) and the Forest Vegetation Simulator (Dixon 2020). The modeling assumptions are disclosed in the Silviculture Report and in the project record.

18. *The first real quantitative definition of SPLYT offered in the DEIS does not accurately reflect the criteria agreed upon by the stakeholders and the Forest Service. The DEIS states that "[p]onderosa pine stands of post settlement trees where the quadratic mean diameter of* ***the top 20 percent of trees*** *is greater than 15 inches and the basal area of trees greater that 16 inches is more than 50 square feet of basal area may be considered stands with a preponderance of large young trees (SPLYT stands)." However, the SHG SPLYT position paper states that SPLYT criteria are:a) Site Class 1; b) Quadratic Mean Diameter (QMD) of the* ***largest 20 trees*** *is >15"; and c) There is >50 square feet/acre of basal area in trees >16" diameter at breast height (DBH). The inconsistent definition is used again at pages 150, 161, 173, 638 of the DEIS…. RECOMMENDATION: We cannot determine how this mix-up occurred, but it has potentially very significant ramifications. The definition criteria offered by the Forest Service in the Rim Country DEIS appears to be inconsistent with what the Stakeholders have approved. We request that substantial attention is given to this in a constructive manner as soon as stakeholder workgroups resume their collaborative process of refining the EIS with the Forest Service. As a starting point, a comparison of the modelled results of both iterations should be created for stakeholder review and shared learning. 48.56*

    In the FEIS, SPLYT designation was replaced by SALT designation. The SALT definition was collaboratively developed and supported by the stakeholder group.

19. *Under current direction, areas identified as SPLYT would be assigned treatments at the lower end of the of the assigned treatments range. This does not comport with what the Center understood during the formulation of the process, and it has only been during the Rim Country DEIS process that this has come into focus. In the absence of SPLYT stands being treated, we have not had an opportunity to validate the outcomes of the approach. Stands identified as SPLYT should receive the lowest treatment assignment (10- 25%), rather than the lower end of the assigned strata. If monitoring data indicates that treating SPLYT stands to the lowest intensity interferes with reducing high-severity fire risk at the mid and landscape scales then modifications can be discussed then under the adaptive management framework. 48.59*

    In the FEIS, SPLYT designation was replaced by SALT designation. The SALT definition was collaboratively developed and supported by the stakeholder group.

Implementation Comments

General Concern: Commenters provided a comment related to old growth protection and large tree retention strategy.

1. *Consistent with the Old Growth Protection and Large Tree Retention Strategy, any subsequent NEPA document prepared as part of the Rim Country analysis should replace the line identified here with the original stakeholder vision that "natural fire (rather than silviculture) is the principal regulator of forest structure over time" in the discussion of Heavily Stocked Stands with High Basal Area Generated By a Preponderance of Large Young Trees in the LTIP. 47.25, 48.46 48.47*

   Category 8 from the FEIS has been rewritten in a collaborative manner with the stakeholder group to better reflect the intent of the category and will be included in Appendix D, the Implementation Plan of the FEIS.

2. *There are several concerns imbedded in this aspect of the issues analysis. First, in addition to our issue being that "no old trees be cut," we have consistently argued that relatively few large trees should be cut, too, with treatments focusing on small diameter, young trees, and any large tree cutting clearly defined as exceptions to the "16" diameter threshold that limits the cutting of trees larger than 16" to circumstances and criteria set forth in pre-defined exception categories"70 in the LTIP. Second, the statement that BMP's would be crafted to retain "groups of large trees" dismisses the significance of large trees which are not part of groups. Third, the indicator/measure is narrowly prescribed and does not address the issue of large tree retention across the landscape, outside of stands identified as SPLYT. 48.53*

   Both the OTIP and LTIP (FEIS volume 2, appendix D) are included in the implementation plan and direct the protection of old and large trees. OTIP and LIP protect old and large trees regardless of their presence in groups or not. OTIP and LITP address old and large tree retention throughout the project area. SALT stands are indicative of large tree structure throughout the project area.

3. *In the section titled "Significant Issues Responded to through Mitigation Measures, Analysis, and Modifications to the Proposed Action" in any subsequent NEPA document prepared as part of the Rim Country analysis, please: 1) clarify that in addition to the statement that no old trees shall be cut, that few large trees would be cut and they would be cut only in accordance with the exception categories in the LTIP; 2) replace the phrase "and BMPs to retain old growth and groups of large trees in all action alternatives" with "and BMPs to retain old growth and large trees in accordance with the exception categories in the OTIP and LTIP in all action alternatives"; and 3) provide indicators/measures that relate to the larger issue of large tree retention and are not specifically focused on SPLYT acres only. 48.53, 48.54*

   A statement has been added to the implementation plan (FEIS volume 2, appendix D) as well the Significant Issues Responded to through Mitigation Measures, Analysis, and Modifications to the Proposed Action section of the FEIS to clarify that large trees would be cut in accordance with the LTIP. SALT stands are indicative of large tree structure throughout the project area.

4. *The exception category of Heavily-Stocked Stands (with High Basal Area) Generated by a Preponderance of Large, Young Trees is contradictory with SPLYT, confuses the implementation of the decision, and as such should really be discarded…. but insert the language "natural fire (rather than silviculture) is the principal regulator of forest structure over time" in other appropriate areas in the document. 48.48, 48.49*

   See Silviculture and Old Growth/Old Trees/Large Trees, Implementation, response 1.

Smoke

General Concerns Comments

General Concern: Commenters provided concerns regarding public health, smoke, and the Forest Service burn program.

1. *Nothing should rank higher than public heath, not even the FS's ideal forest health implementation plan which effectively eliminates human health from the equation by minimizing public health studies about the adverse health effects of PM 2.5 in favor of using fire as a "cost effective" (for the FS) tool to manage the forests. 20.18*

   Implementation of the Rim Country project would comply with the Federal Clean Air Act and at the state level with the Arizona Department of Environmental Quality's regulations that require the project to not cause exceedances of the National and State Ambient Air Quality Standards. Therefore, no project level air quality health analysis is required.

2. *The air quality during a managed wildfire is unregulated. It is important to note that ADEQ does not recommend that the FS conduct this fire program, nor does it guarantee that the level of resulting smoke pollution will not shorten the lives of vulnerable individuals within the downwind populations. ADEQ's job is to identify when atmospheric conditions are likely to favor sufficient lift near the fire to move smoke away from the forest communities during prescribed burns only. 20.19*

   The project's implementation would comply with state air quality rules: 2004. Title 18. Environmental Quality, Chapter 2. Department of Environmental Quality - Air Pollution Control, Article 15. Forest and Range Management Burns. Arizona Department of Environmental Quality.

3. *Above all discussions over the historical regimes and the FS's budget, is the fact that the FS's burn programs will disable and shorten the lives of our citizens through the deadly smoke that they will produce. The FS burn programs are not sustainable. 20.41*

   See response to smoke general concern 1.

4. *The forest service needs to protect the public, not harm it with unending toxic smoke production. 21.5*

   None of the alternatives eliminate smoke. The proposed action is designed to reduce threats from wildland fires. As analyzed in the FEIS, Chapter 3, Fire Ecology analysis, prescribed burns have the advantage over wildland fires of being controlled and regulated by the ADEQ in order to protect human health. See response to smoke general concern 1 and 2.

General Concern: Commenters provided concerns regarding fire effects such as smoke and the health effects of smoke; fine particulate matter (PM2.5); prescribed burns; use of diesel and chemicals for prescribed burns; cesium 137; and a request for use of air curtain burners and other technology.

5. *My question is how is the Forest Service going to mitigate the adverse effects of the smoke related to controlled burns? 6.1)*

   The Forest Service would mitigate the health effects of smoke by complying with Arizona Department of Environmental Air Quality regulations that require the project to not cause exceedances of the National and State Ambient Air Quality Standards. Therefore, no project-level air quality health analysis is required.

6. *We are almost constantly inundated with smoke in Northern Arizona. 30.1*

   Smoke in northern Arizona is produced by prescribed burning and wildfires fires on public and private lands throughout the region. The Forest Service is responsible for managing emissions from prescribed burning on National Forest System lands and the agency is required by law to manage smoke emissions in compliance with Arizona Department of Environmental Quality regulations. The Forest Service would mitigate the health effects of smoke by complying with Arizona Department of Environmental Quality regulations that require the project to not cause exceedances of the National and State Ambient Air Quality Standards.

7. *Smoke is not healthy in any amount and the toxicity of smoke from burns is exceptionally harmful to humans and animals. In addition to that the burns that they do, do not substantially reduce the fuel loading in the overall forest. 30.2*

   See response to smoke general concern 5. The DEIS, Chapter 3, Fire Ecology section (Surface Fuel Loadings), discloses the effectiveness of prescribed burning in reducing fuel loadings in proposed action treatment areas.

8. *The burning of forest, chaparral and grassland vegetation creates hazardous air pollution, adversely affecting downwind populations. The tiny particulate matter referred to as PM 2.5, only one toxic pollutant of over 100 contained in wood smoke, is known to shorten the lives of people with COPD, heart disease, diabetes and people with inflammatory diseases such as rheumatoid arthritis and Lupus; and adversely affects people with asthma, including children. 20.14*

   See response to smoke, general concern, 5.

9. *The FS claims that fire is natural to the SW forests, which is correct. But, the heavy use of diesel and chemical accelerants to ignite and maintain these prescribed burns and managed wildfires is not natural and adds a significant increase in the amount of air pollution caused by these burns. This is a source of toxic air pollution that is not measured by the FS's or ADEQ's PM 2.5 particulate monitors. 20.17*

   The emissions produced using ignition sources such as gasoline and diesel fuel, fusee flares, and aerial ignition devices emit criteria pollutants and hazardous air pollutants. The amounts of such emissions produced by the project on a daily, weekly, monthly and annual bases would be insignificant and their impacts to human health would be far below health standards. No further analysis of their effects is required.

10. *The concern is that the lead will now have a direct route into the human body through the lungs and into the blood stream of a whole new generation of children. Not only can Cesium 137 be mobilized in wildland fire, its presence in smoke can be used as a marker to track the movement of the smoke from wildland fire around the earth. 20.38*

    The Nevada Test Site, 65 miles north of Las Vegas, was a nuclear weapon test site. Nuclear testing, both atmospheric and underground, occurred here between 1951 and 1992. The U.S. government conducted a total of 1,021 nuclear tests at the site (Atomic Heritage Foundation, 2022). Out of these tests, 100 were atmospheric, and 921 were underground (Atomic Heritage Foundation, 2022). The atmospheric nuclear tests caused concern about potential health effects on the public, and environmental dangers, due to nuclear fallout. As a result, the last atmospheric test occurred on July 17, 1962, at the Nevada Test Site (Atomic Heritage Foundation, 2022). In 1990, Congress passed the Radiation Exposure Compensation Act to make payments to people who met a set of conditions who claimed to have been affected by the fallout from the nuclear tests (USDOJ, 2022). The individuals and communities who were exposed to nuclear fallout are now called "Downwinders." The Rim Country Project lies within the Radiation Exposure Compensation Act Downwinder Area (USDOJ, 2022). A claimant must establish a physical presence in the Downwinder area for at least two years during the period beginning on January 21, 1951, and ending on October 31, 1958, or for the entire period beginning on June 30, 1962, and ending on July 31, 1962 (USDOJ, 2022). An eligible claimant must also establish a subsequent diagnosis of a specified compensable disease.

    According to recent research conducted by Wei Min Hao: Following a radiological release event, nuclear power plant incident, improvised nuclear device, nuclear testing site, or hazardous waste site a wide area may be contaminated by radiological materials, including significant forest areas. There is a potential for emissions of radionuclides such as cesium-137 from a wildfire over a radionuclide-contaminated forest. The paper reports on a laboratory simulation study of a wildfire with two types of biomass doped with nonradioactive cesium. This simulation suggests that only 1 to 2.5 percent of the cesium in the biomass would be emitted from the wildfire, while the rest would reside in the residual ash. In the study, pine needles were the only contributor to the air emissions of cesium; duff was not a source of cesium emissions. In the study, cesium emitted from the simulated wildfire was concentrated in particle sizes larger than 10 micrometers (Hao et al. 2018). Hao (2018) confirms that cesium and other radionuclides that would be emitted by the Rim Country Project would not reach unsafe levels. This research can be found in: Hao et al. 2018. Cesium emissions from laboratory fires. Journal of The Air and Waste Management Association 2018, Vol. 68, No. 11, 1211–1223 https://doi.org/10.1080/10962247.2018.1493001.

    Also see the literature review within the FEIS, Air Quality, Radioactive Emissions section.

    The Forest Service is responsible for controlling emissions from prescribed burning on National Forest System lands and the agency is required by law to manage smoke emissions in compliance with Arizona Department of Environmental Quality regulations. See response to smoke general concerns 1, 2, and 5.

11. *...I was well motivated to try to reduce the frequent controlled burning by making my presentation about its health effects and had done a lot of demographics and health inquiry. Smoke irritates nasal and throat mucous membranes and also lungs, creating inflammation which – arguably – makes infectious disease and possibly deadly dysfunction such as pneumonia more likely. This deserves serious study, yet I have heard it dismissed as of little consequence by Forest Service staff...greatly*

reduce the burning for a singular reason: it is not just a matter of whether the created smoke's effects injure people, statistically it will kill people. 36.2

The Forest Service is responsible for controlling emissions from prescribed burning on National Forest System lands and the agency is required by law to manage smoke emissions in compliance with Arizona Department of Environmental Quality regulations. See response to smoke general concerns 1, 2 and 5.

12. *...regrowth was recognized and would require a re-burn every 8 to 10 years to perpetuate the Forest repair. I must relate that this would be further dismay to a great many of the thousands of humans subject to the effects of this project, and therefore is another open-ended potential glitch for the overall plan due to lack of full analysis, should this long term burning occur. Indeed, if the current burning is statistically going to kill people via its smoke (see section 2), what does this long-range burning do? 36.14*

    The Arizona Department of Environmental Quality requires the Forest Service to meet the following: "Burning fuels with an air curtain destructor, as defined in R18-2-101, operated according to manufacturer specifications and meeting applicable state or local opacity requirement." (Arizona State Title 18. Environmental Quality chapter 2. Department of Environmental Quality - Air Pollution Control Article 15. Forest and Range Management Burns, R18-2-1509. Emission Reduction Techniques. A. Each F/SLM conducting a prescribed burn shall implement as many Emission Reduction Techniques as are feasible subject to economic, technical, and safety feasibility criteria, and land management objectives. B. Emission Reduction Techniques include: 10. Burning fuels with an air curtain destructor, as defined in R18-2-101, operated according to manufacturer specifications and meeting applicable state or local opacity requirement).

13. *SRP urges USFS to include the use of air curtain devices/ technology on in- woods processing and storage sites. 40.36, 40.59*

    See response to smoke general concern 1.

14. *There is a fundamental manipulation of language in the DEIS that repeatedly pits the benefits of prescribed fires with wildfires. This is misleading and deadly because it conveys the message that, if the public supports 4FRl's burn program, our citizens will be exchanging the smoke pollution from high intensity fires for that of low intensity prescribed fires. The concept of managed wildfires, in which the FS expands lightning strikes to thousands or tens of thousands of acres by ground and aerial ignition, is not explained. Managed wildfires are increasingly becoming the land management tool of choice because they are exempt from ADEQ's air quality restrictions. Therefore, the truth is that the FS will engage in an increasing number of prescribed fires and managed wildfires within the 4FRI boundaries and beyond. That combined amount of smoke pollution is the real amount of smoke pollution that our citizens will be forced to breathe. 20.2*

    Implementation of the project would comply with the Federal Clean Air Act and at the state level with the Arizona Department of Environmental Quality's regulations that require the project to not cause exceedances of the National and State Ambient Air Quality Standards in populated areas. Prescribed burning smoke emissions are regulated by the Arizona Department of Environmental Quality, which requires land management agencies to follow and use the smoke management techniques stipulated in individual burning authorizations. The Arizona Department of Environmental Quality has jurisdiction over determining permissive burn days and authorizing

prescribed burning operations to protect human health by not allowing exceedances of NAAQS in populated areas.

15. *The DEIS downplays the health consequences of the 4FRI burn program. The number, severity and prevalence of medical conditions that will be caused or worsened by the smoke pollution that Rim Country 4 FRI will generate is staggering. The PM 2.5 that is contained in this smoke shortens the lives of people with heart, lung, stroke, diabetes, cancer and autoimmune diseases along with harming the health of the fetus and the developing lungs of children… When the DEIS discusses the "zero sum cost" of their 4FRI thinning and burn program, it deliberately ignores the REAL COSTS to our society through our healthcare system, absences from work and school, lost productivity and early death to our citizens. 20.3, 20.4*

    The health effects of smoke are addressed in the FEIS Chapter 3 Air Quality section.

16. *"A household's ability to adapt to change" is a euphemism for families that are too ignorant to agree with the FS's superior assessment of their burn programs and too ignorant to practice proper "averting behavior"…To expect downwind populations to "adapt to change" in response to this smoke pollution is physiologically impossible. Smoke kills, plain and simple. 20.13*

    The commenter is correct in stating that the Forest Service is responsible for protecting public health from the impacts of prescribed fire smoke emitted from National Forest System lands. The language in the FEIS has been updated to clarify that the agency must comply with the Clean Air Act and protect public health from smoke impacts. Implementation of the project would comply with the Federal Clean Air Act (CAA) and the CAA is implemented at the state level under the Arizona Department of Environmental Quality (ADEQ) rules that require the project to not cause exceedances of the National and State Ambient Air Quality Standards in populated areas. The ADEQ is the agency having jurisdiction over determining permissive burn days and authorizing implementation of prescribed burning. The ADEQ requires the Federal land management agencies to follow and use the emissions reduction and smoke management techniques stipulated in burning authorizations. A detailed description of the ADEQ's smoke management regulation, Article 15, and the state's smoke management program is described under Other Relevant Law, Regulation, or Policy in the Air Quality Specialist report.

General Concern: The design criteria for fire lack direction, timeframes, and sources that ensure measurable outcomes to meet the desired conditions. The EIS does not adequately or realistically address the smoke effects that will disproportionally burden poor and low-income communities (environmental justice), and this lack of analysis will initiate litigation and the project will fail.

17. *I am submitting my Environmental Justice complaint from 2016, which thoroughly explains the disproportionate burden placed on our poorest counties with low income and the lack of access to electric power that preludes these citizens from practicing what the FS refers to as "averting behavior". The FS claims that practicing "averting behavior" will protect our citizen's health from 4FRI generated or preventable smoke pollution. "Averting behavior" includes, but is not limited to, purchasing high tech HVAC systems, purchasing and running room HEPA air cleaners, wearing respirators, using 02 tanks, remaining inside with doors and windows closed at all times, running the AC and taking vacations upwind during unplanned times of the year. The DEIS does not explain how a citizen would practice these behaviors if he is poor and has no electrical power. 20.10*

    See responses to smoke, general concern, 14 and smoke, general concern, 16. Notification strategies are a required best practice for burn plans. These allow business and individuals to

adapt, as possible and warranted. The FEIS acknowledges that some populations or individuals may not have the resources to engage in averting behavior.

18. *I therefore respectfully submit that in this day and age of ubiquitous litigation, the Forest Service, and in particular this Initiative, have failed to fully investigate and incorporate the very real health effects of the existing and planned burning, and in fact the whole grand plan could falter or fail as a result. 36.3*

    See response to smoke, general concern, 1.

19. *It is nothing less than criminal that Apache Country, the poorest county in Arizona, with a poverty rate of 35.9% and the 6th poorest county in the US, was totally left out of the Socioeconomic Analysis and the Environmental Justice Analysis. Yavapai County, a relatively affluent county was inserted in Apache County's place. Yavapai county isn't even in the 4FRI project. I believe this was a deliberate maneuver to camouflage the unrealistic expectation that impoverished downwind populations will be able to protect their health from the onslaught of smoke pollution that the FS will be generating in their burn programs. The little Colorado River Basin is at the lowest elevation in 4FRI situated north and east and downwind of the 4FRI Forests. Apache and Navajo Counties are the major air shed for both the first half of 4FRI and the Rim Country project. 20.9*

    Analysis for Apache County has been added to the Air Quality and Socioeconomics sections in Chapter 3 of the FEIS. Yavapai County is within the Rim Country project area and would also be affected by smoke from the Rim County project.

20. *The amount of participation by EJ populations in 4FRI does not relieve the FS of their obligation under the EJ to identify and mitigate the disproportionate adverse effects of FS programs to EJ populations, even if it means that the FS has to change their programs. 20.12*

    The environmental effects of action and no-action alternatives on minority and low-income communities is disclosed in the Socioeconomic sections in Chapter 3 of the FEIS. Public participation through scoping and the DEIS comment period elicited views from affected populations. Letters and scoping documents were mailed to 676 individuals, local governments, state governments, Federal and state agencies, and organizations that engage with all three national forests. Public workshops were held in Show Low, AZ and Payson, AZ to discuss the proposed action and accept comments. The Forest Service also hosted three public meetings in Payson, AZ, Overgaard, AZ, and Flagstaff, AZ. Tribal consultation was also conducted with each forest consulting with specific tribes to reduce redundancy of information sharing and comments gathered by each forest liaison is continuously shared with the other forests. A list of the tribes who received invitations to consult on the project can be found in chapter 1 of the FEIS. The decision maker has information needed to consider and weigh environmental justice concerns in the decision-making process. As presented in the Socioeconomic sections in Chapter 3 of the FEIS the burn plans and project implementation check list for action alternatives require mitigation measures, such as notification strategies to contact people known to be sensitive to air pollution prior to the ignition of the prescribed fire.

Recommendations Comments

1. *We recommend that the Forest Service work with the interagency Smoke Management Group and commit, in the Final EIS and Record of Decision, to implement best management practices to reduce emissions from prescribed bums and other fuel treatments to the greatest possible extent. 44.2*

   The Forests are required to participate in and cooperate with the interagency Smoke Management Group. See Arizona State Code Title 18. Environmental Quality chapter 2. Department of Environmental Quality - Air Pollution Control, Article 15. Forest and Range Management Burns.

2. *Recommend that the Forest Service analyze and include a description, in the FEIS, of the potential for further reductions in air emissions from fuel treatments by lessening or eliminating pile burning of residual fuels in favor of biomass energy production and/or deploying mobile air curtain incinerators, a device currently being tested by air quality officials with Coconino County. 44.3*

   The Forests are required to implement emission reduction techniques. See Arizona State Code Title 18. Environmental Quality chapter 2. Department of Environmental Quality - Air Pollution Control, Article 15. Forest and Range Management Burns.

Clarification Comments

General Concern: Commenters provided comments that are outside the scope of the project. These comments related to air tanker fleets; Arizona Department of Environmental Quality; smoke pollution in certain communities; and cesium 137 particles.

1. *Considering the FS's philosophy that the only way to fight fire is with fire, it bears noting that there are a lot of misconceptions about our air tanker fleet…First we need to extend and reinforce the runways of our mountain towns so that we can handle large air tankers…This scenario leaves the White Mountains without effective support If you wanted to cripple our fire suppression policy in favor of reintroducing fire into our western forests, what better way than to have a skeleton air tanker fleet? 20.8*

   Increasing air tanker fleet capacity is outside the scope of the proposed action.

2. *ADEQ does not monitor PM 2.5 in our Little Colorado River airshed, which is downwind and lower in elevation to the four forests of the Four Forest Restoration Initiative (4FRI). This airshed is heavily impacted by the FS generated and the FS preventable smoke pollution 20.20*

   The Forest Service does not have control over the Arizona Department of Environmental Quality air quality monitoring program; however, the two agencies do cooperate through the Arizona Interagency Smoke Management Group.

3. *The USFS, in conjunction with our state air quality agency (ADEQ), shifts the burden of coping with the smoke pollution (generated by and preventable by the FS) to downwind populations by promoting the concept of "averting behavior"...Averting behavior is an essential component of the FS's plan to justify their massive and chronic production of smoke pollution. It is at this point that the intent of the Environmental Justice principles are violated…many homes on the Navajo reservation and other rural areas of Apache and Navajo counties do not have electric power to their homes and live "off the grid" because of poverty or non-existing utilities. Combined Apache and Navajo occupied households without electric power = 4,764. What these basic facts mean is that the vulnerable people, who do not have access to the tools necessary for averting behavior, will die sooner than those people who do have access. 20.21 and 20.22*

See response to smoke, general concern, 16.

4. *Because the FS is only concerned with the acute health effects, they are only monitoring PM 2.5 close to the fire area. Whereas the Little Colorado River Airshed is below the forest elevation in Scrub/Juniper/grassland ecology. Although we don't have the fire, we bear the brunt of the smoke impact from the FS-generated and FS-preventable smoke activity. 20.29*

   See response to smoke, clarification, 2.

5. *PM 2.5 kills at concentrations below what the Little Colorado River airshed experiences from the FS generated and FS preventable smoke pollution in Apache and Navajo Counties. Please refer to Department of Ecology State of Washington Pub #09-02-021 (12-11-09)…What this study means to 4FRI is that the increase in smoke pollution generated by and preventable by the USFS will shorten the lives of people in downwind populations of Northern Arizona. 20.33*

   See response to smoke, general concern, 5.

6. *The level of disregard for public health attributed to the FS's 4FRI fire plan and concurrent fire plans can only be summed up in the fact that after years of asking the FS to develop an official public smoke complaint form to incorporate and track the impact that the smoke pollution generated by and preventable by the FS is having on downwind populations, the FS has failed to do so. Their stated reasons are that the form would be too costly for the 0MB to produce and that there is "no point in collecting such data because we are going to have to burn anyway." Yet, during the Coconino/Kaibab 4FRI the FS set aside $85,000 to follow the impact that their fire program will have on northern goshawks. 20.34*

   The Arizona Department of Environmental Quality maintains a public complaint process that is accessible online at https://legacy.azdeq.gov/function/compliance/complaint.html.

7. *This is an either or proposition. When in fact, if the FS's program strategies were changed or "amended," then the clean air alternative methods to fire could be implemented for successful forest management. It also misleads the public into comparing one prescribed burn to one wildfire, when the Coconino/Kaibab 4FRI plans to conduct prescribed burns on 58,611 acres per year for ten years. The Apache Sitgreaves, Tonto and Southern Coconino 4FRI, Rim Country, proposes to conduct prescribed burns on up to 95,233 acres per year for ten years. All four forests are upwind to us and these burns will co-exist with concurrent fire projects in the same airsheds. 20.30*

   See response to smoke, general concern, 14.

8. *The FS justifies the smoke pollution from managed wildfires as less detrimental to downwind populations than catastrophic wildfires. This argument similarly discounts alternative methods to fire, such as the "waterhog air tanker/runway system previously described in Fact #5…Because the effectiveness of such a system is time dependent on the first 1/2 - 1 hour of the start of a wildfire, the large geographical distances that a tanker has to travel to get to the fire and then fly back to reload for the four forests of 4FRI, essentially make their application ineffective in extinguishing a potential catastrophic wildfire. 20.31*

   See response to smoke, clarification, 1.

9. *The FS has been officially aware of this issue as early as 2012 when they were asked, during the public comment period, by this author and by the entire board of the Physicians For Social Responsibility PSR to test the smoke and ash for these radionuclides and publish their methodology*

and findings in a peer reviewed journal…The FS's response was to produce a pamphlet entitled, "Prescribed Bums and Radiation" in which they incorrectly stated that prescribed burns cannot get hot enough to re-suspend Cesium 137 into the atmosphere. The FS also incorrectly compared the cumulative exposure to medical x-rays and air travel to exposure to these radionuclides…It is worth noting that the debris did not fall evenly and testing one plot of the forest does not necessarily represent another plot an acre away. 20.36

See response to smoke, general concern, 11.

10. *The pamphlet and the DEIS persist in quoting the "one chance in a million" from the Cerro Grande study to describe the harm that could have been caused by the Cerro Grande fire. Remember, this study was designed to assess whether the fire had reached the nuclear waste storage containers located outside the Los Alamos Nuclear Laboratories, not the amounts and kinds of radionuclides that are sequestered in our northern Arizona forests. In addition, the laboratory that conducted the testing published a disclaimer as to the accuracy of their results based on the small amount of samples and the short window of testing. Residents complained that air monitors were not placed where the heaviest smoke was present. The "one chance in a million" statement is meaningless to 4FRl's DEIS analysis and is essentially untrue. 20.37*

    See response to smoke, general concern, 11.

11. *The FS's burn program is riding on the suffering and death of our citizens, NOT the FS budget. 20.5*

    Implementation of the project would comply with the Federal Clean Air Act and at the state level with the Arizona Department of Environmental Quality's regulations that require the project to not cause exceedances of the National and State Ambient Air Quality Standards in populated areas.

General Concern: Commenter provided comments related to the Smoke Management Group language in the DEIS being corrected.

12. *Chapter 3 page 213*
    - *"An interagency Smoke Management Group was developed in partnership with the State and housed in the ADEQ offices in Phoenix." 35.1*

    In Arizona prescribed fire smoke emissions is regulated by the ADEQ, Arizona Revised Statute Title 18 Chapter 2 Article 15, Forest and Range Management Burns. The ADEQ Smoke Management Program is certified by the EPA. The program is specific to forest and range management burns done by Federal and state land managers, along with municipal fire departments. Prescribed burning is necessary to help prevent catastrophic wildfires because of Arizona's arid climate.

    Elements of ADEQ's Smoke Management Program include:

    - Evaluating smoke dispersion potential of prescribed fires and wildfires
    - Gathering prescribed burn data
    - Permitting daily prescribed burn activity
    - Notifying the public of approved prescribed burns
    - Assisting in air quality monitoring related to smoke from prescribed burns and wildfires

- Enforce Emission Reduction Techniques and Smoke Management Techniques
- Encouraging regional coordination between burners for adherence to EPA's Regional Haze Rule

13. *And Chapter 3, page 214"*
    - *Considerable coordination between Forests takes place when burns and wildfires that can affect the Verde Valley take place, facilitated by the interagency Smoke Management Group housed at ADEQ"*

    - *The Forest Service liaison is no longer housed here at ADEQ, so the Smoke Management Group is actually made up of ADEQ (housed at ADEQ Phoenix) and Forest Service staff (housed at Tonto FS Office). As a simple correction, we would suggest just eliminating the "housed in the ADEQ offices in Phoenix" portion of the above passages. They would instead read:*

        - *"An interagency Smoke Management Group was developed in partnership with the State.*
        - *- "Considerable coordination between Forests takes place when burns and wildfires that can affect the Verde Valley take place, facilitated by the interagency Smoke Management Group." 35.1*

    The national forests are required by law to comply with Article 15 and participate and cooperate in the State's Smoke Management Program (Air Quality Report page 33). The FEIS has been updated with the recommended language provided by the Arizona Department of Environmental Quality in the comment.

Transportation

Clarification Comments

General Concern: Commenters provided concerns regarding a need for clarification for road decommissioning; a request for actual miles of roads to be decommissioned; clarification on the minimum road system in order to become compliant with regulatory direction; clarification that decommissioning would result in full removal of the roadbed and features; addition of information to page 31 regarding Travel Management Rule decisions; need for transparency and continuity of road-related actions; clarification regarding Travel Management Rule decisions that were not made; context required in some areas of the DEIS; request for maps and shapefiles to be included; land management plan consistency; citation needed on statement made in comment number 28.21; and, need for scope of work for road actions to be clearly defined.

1. *Road decommissioning is the same between alternatives, so to conclude that the less intensive treatment would have greater erosion and sediment delivery impacts is not accurate. In fact, the opposite could be true as alternative 2 would create about 160 miles more temporary roads. Also, in this section, we don't understand the statement "[a]dd a one or two sentences that clarify the substantially reduced areal extent blurb." 48.200*

    Under the no action alternative, existing unauthorized roads and/or poorly located roads would continue to erode without treatment and be a source of sediment delivery to nearby creeks. Under alternatives 2 and 3, those roads would be removed from the landscape and returned to a natural condition, therefore eliminating the erosion and sediment delivery they are currently contributing. While alternatives 2 and 3 would construct temporary roads, that sediment delivery would be only during use and eliminated when the use is completed.

2. *How many miles of roads will actually be decommissioned or relocated? Same uncertainties. Where are new roads to be constructed, however "temporary" they may be? 42.58*

   The proposed mileage of decommissioned/relocated roads in the action alternatives is up to 800 miles of system and non-system roads. The mileage that would be decommissioned would meet the concerns outlined in road decommissioning and road relocation sections of the Transportation Report and the draft environmental impact statement. The exact location of temporary roads would be determined as implementation occurs across the project area, and any temporary roads constructed would follow land management plan direction and the design features outlined in the Transportation Report and appendix C of the FEIS.

3. *Locations are not identified. How would anyone be able to tell if the worst sites are being restored, lacking such essential components of analysis and disclosure? 42.242*

   Some locations for road decommissioning have been identified on the Tonto National Forest and the rest of the project area would follow the travel analysis process for each respective forest. The roads would be specifically located when deciding and prioritizing roads for decommissioning. The Forest Service prioritizes the funding for decommissioning roads based on the factors listed in the road decommissioning section of the Transportation Report and the draft environmental impact statement.

4. *The Forest Service does not state roads identified for decommissioning reflects the min. road system or that identification of min. road system is a primary purpose or outcome of this proposal. The omission is a huge opportunity for the Forest Service to finally comply with regulatory direction. 42.245b*

   Regulations at 36 CFR 212 direct the Forest Service to maintain a minimum road system. In addition, each land management plan includes direction to reduce roads to minimum amount. The Rim Country analysis follows the land management plans and complies with regulatory direction.

5. *The Forest Service must clarify that all decommissioning must result in the full removal of the roadbed and road features so as to preclude any future rediscovery where the agency would reconstruct the road under a future project or add the road to the system. 42.252*

   Although full removal of a roadbed is one way to decommission a road, under Forest Service direction (FSM 7734.112) the agency is authorized to decommission a road with any of the five treatments listed under road decommissioning, including full roadbed removal, blocking the entrance, revegetation and water barring, removing fills and culverts, establishing drainageways, and removing unstable road shoulders. There could be a situation of the road being used again during implementation so it could be hydrologically stored, and then decommissioned upon completion of the project. The Forest Service Manual reference has been updated in the FEIS to FSM 7734.1. Additionally, throughout the FEIS, decommissioning activities following Forest Service policy have clarified.

6. *USFS should provide a statement that explains how Alternative 2 is addressing Issue 7. 40.23*

   Alternative 3 was partially developed to respond to the issue of temporary roads and includes the least number of miles of temporary roads. Design features and/or mitigation measures were developed to reduce effects on watersheds, streams, and wildlife habitat from temporary roads and are included in the Transportation Report and appendix C of the FEIS. The effects to other resources from temporary roads are addressed in the effects analysis for all alternatives.

7. *The recreation specialist report stated all the Travel Management Rule (TMR) decisions for the Coconino, Tonto, and Apache-Sitgreaves National Forest will be adhered to, but this statement is missing from page 31 and the Transportation section. 28.20*

   The statement referenced by the commenter has been added to the appropriate section of the Transportation Report and the FEIS, Transportation, environmental consequences, Direct and Indirect Effects Common to Both Action Alternatives section.

8. *Provide greater transparency and continuity of road-related actions. The Department and the public are unable to comment on these actions if they have not been identified. Provide shapefiles and maps, and include a table of the number of miles of road-related actions per Forest. Both page 31 and CH 3 - Transportation section should include a narrative on how the number of miles were derived. 28.20, 28.24*

   For each road related action, the Forest Service would use a condition-based approach to determine what is needed and develop maps during implementation. Road maintenance would be completed on all timber haul routes and any reconstruction items would be determined upon the completion of each timber sale contract. Although all reconstruction related items are not identified at this time, the public can see the road work that would be completed when the timber sale is out for bid. Any road decommissioning, temporary roads, and/or road relocation would follow project design criteria, FSM 7734.1, and maps would be developed at that time. See the Condition-Based Management responses for additional information.

9. *The EIS must clearly state it would only provide for the NEPA decision to decommission roads and roads segments as to remain fully consistent with the TMP decisions for each Forest. It should further clarify that in cases where a Forest does not have a completed TMP, this EIS would not provide for road or road segment decommissioning. 28.24*

   Reference to decommissioning roads and/or road segments and the consistent approach with each forest's travel management plan is included in the direct and indirect effects for road decommissioning for both action alternatives and listed in the road decommissioning sections of the Transportation Report and the draft environmental impact statement. The effects of road related actions are also analyzed for each specific resource they would affect.

10. *Action: Total number of miles to be decommissioned/constructed in the EIS differed from the original number of miles presented on page 31, and numbers presented in the comparison of Alternatives by Activity table on page iii to v. Total number of miles in the EIS and number of miles for outside projects not analyzed in the EIS should be clearly presented in a table along with a narrative or other format to clarify scope of road-related actions. Action: Provide context for the following statement and a citation for the project - "...50 miles of temporary road that have been analyzed under separate project within the project area and are in various stages of implementation. When these are added to the 330 miles proposed in alternative 2 the total mileage of temporary roads is 380 miles within Rim Country analysis area, which is more than under alternative 3." 28.26*

    The cumulative effects analysis has been updated. Temporary roads are decommissioned after use per regulations; therefore, these effects are not additive to the temporary roads in the project area and this number has been removed from the analysis.

11. *Identify roads that met the high priority criteria and present the total number of miles that will be relocated for each alternative and for each Forest. Include shapefiles and maps… Ensure the Transportation section is the primary place where information is summarized and referenced to facilitate public comments. 28.25*

    Road relocation would be conducted in the areas outlined under the road relocation section of the Transportation Report and the draft environmental impact statement and meet the following criteria: too steep resulting in significant erosion, below the level of the surrounding land and are difficult to drain, and/or are too close to a seasonal or perennial waterbody and contributing sediment to the waterbody. Any prioritization or optimization efforts will be taken on during the implementation process, not during the planning process. Chapter 3, the Transportation section of the DEIS also details the considerations for road relocation. The Condition-based Management for Aquatics and Watershed Restoration (appendix D, volume 2 of the FEIS) treatments also outlines in Table D-3 consideration for prioritizing aquatic and watershed restoration projects. In addition, Arizona Game and Fish Department developed a list of priority streams and springs for aquatic restoration in collaboration with the Forest Service, Trout Unlimited, and U.S. Fish and Wildlife Service to identify aquatic restoration needs and priorities within the Rim Country project area. This is list can be found within the Implementation Plan (appendix D).

12. *Verify information provided in the EIS is consistent with information presented in the Forest Plans (specifically the Tonto Travel Management Project). 28.22*

    See responses to transportation clarification 3, 4, 5, and 9.

13. *The Department believes the scope of work for temporary roads should include both merchantable material treatments and facilitative operations. Include a description of the temporary roads that will be needed for facilitative operations across all Forests and include in the analysis. 28.21*

    Temporary roads would be constructed for a variety of uses including thinning and facilitative operations and are referenced in the Transportation Report and the draft environmental impact statement. All temporary roads would be constructed to the same standards as roads needed for log haul so there is no need to have a different description.

14. *Provide additional evidence and justification for the conclusions made in this section. Include a citation for the following statement "Areas not proposed for mechanical treatments with wood products removal would not need the same level of access as those areas where forest products would be utilized." 28.21*

    The statement referenced by the commenter is based upon the design criteria that a road must meet, under Forest Service Manual 7700, to haul merchantable material. Areas in the project that do not have thinning or facilitative operation treatments would not need temporary roads.

15. *The Department requests the scope of work for road-related actions and the decision points be clearly defined in the EIS and summarize and referenced in the Transportation section. 28.28*

    See response to transportation, clarification, 8.

16. *Who will oversee and permit the closure process to ensure no impacts to the environment during the closure process? 43.4*

    Temporary roads are closed prior to completing timber contract closeout and is overseen by the designated Forest Service timber sale administrator or harvest inspector. If roads are closed under a different contract mechanism, then that work is overseen by a designated Forest Service Contracting Officer Representative or Inspector.

17. *In regards to FS road decommissioning, it is all to common for it to remain on hold indefinitely because of insufficient funding. 42.7*

    Temporary roads are required to be decommissioned prior to complete contract closeout. Existing unauthorized roads and unneeded system roads (not authorized for public access) are decommissioned as funding allows.

18. *There is no analysis based upon quantified metrics of road density. Road densities will increase during the timeframe that proposed activities occur (Id.) Since this amount of road decommissioning isn't guaranteed, final measures of this "useful index" are not possible. 42.219*

    Road densities would only temporarily increase during project implementation and then convert back to existing conditions. Although this proposed amount of decommissioning isn't guaranteed to happen quickly, at some point funding would become available and implementation would be completed.

19. *Incorrect mileage listed in alternatives comparison section. Correct the sections describing additional actions common to both alternatives so that road mileage is not described as the same between Alternatives 2 and 3. 48.198*

    The correct mileages have been added to the FEIS.

20. *"The miles of unauthorized routes (roads or trails) within the project area are unknown, but their effects on these systems can easily be generalized. Based on current mapping, it is estimated that there are over 800 road and stream crossings in the project area. It is assumed that road crossings are generally stable on maintenance level 3 thru 5 roads (suitable for passenger cars to high degree of user comfort)…" This is a highly unreasonable assumption, given the fact that maintenance funds are acknowledged to be insufficient. What is the empirical basis of the "generally stable" conclusion? 42.239.*

    Maintenance level classifications are used to designate certain numbers (ML1-ML5) based upon several factors, with stability being one factor. With the limited amount of funding available, those funds are generally spent on maintenance level 3-5, prior to maintenance levels below that.

21. *Does this mean the FS will likely never need these sites for temporary roads in the future? If the FS does anticipate future use of some decommissioned roads, please disclose the estimated road miles. 42.315*

    Roads that would be decommissioned are either unauthorized (never planned or needed), or it has been determined that they would not be needed during implementation. At this time no decommissioned routes are anticipated to be used again.

22. *Improvements to motorized transportation system are an uncertain project need. Any subsequent NEPA document prepared for the Rim Country analysis should ensure that every list of project needs is consistent, and 2) the need should be restated to clarify primarily that the road work that will occur is intended to reduce transportation system impacts to wildlife and watersheds, rather than just to improve the system and make it more sustainable. 48.8, 48.9*

    Transportation system improvements are completed to reduce the effects to wildlife habitat and watershed, but are also completed to make the existing system sustainable over time.

23. *Further, the Forest Service incorrectly states that "[o]n the Tonto National Forest, decommissioning of system roads is being analyzed as part of the Tonto Travel Management EIS and roads for decommissioning are identified." DEIS at 308. To correct the record, the Tonto TMP draft ROD designates 1,288 miles of roads for decommissioning, but "[t]he on-the-ground actions associated with decommissioning a road, along with the effects, are not part of this analysis. All activities associated with decommissioning will be covered by additional environmental analysis in compliance with the National Environmental Policy Act." Tonto TMP Draft ROD at 6. 42.245d*

    The commenter is correct that roads listed in the Tonto National Forest Travel Management EIS for road decommissioning are to be included in future projects for analysis. The roads indicated for decommissioning in the Tonto National Forest Travel Management analysis that are found in the Rim Country analysis are included in this analysis.

Cumulative Effects Comments

General Concern: Commenters provided comments related to cumulative effects.

1. *The cumulative effect analysis for transportation is incomplete and insufficient. Include a dedicated section that discusses the 'cumulative effects' of the proposed road system. 28.27a*

    There is a cumulative effects analysis in volume 2 of the FEIS, Transportation section that covers the use of existing roads, maintenance, decommissioning, and relocation, along with an analysis of temporary roads.

2. *In addition, projects that are outside of this EIS, but within the project footprint that need to be included in the cumulative impacts analysis should be clearly listed and cited; to include their respective timelines and number of miles for road-related actions (e.g., decommissioned, temporary roads, relocation, unauthorized routes etc.). Include roads that have already been analyzed under previous project(s) in the EIS shapefiles, applicable App A - Maps and tables. Project(s) that will be concurrent with actions in the EIS have the potential to multiply impacts to natural resources, and therefore should be included in the cumulative effect's analysis. 28.27c*

    The cumulative effects analysis includes effects from other roads within the cumulative effects boundary for the project, see the FEIS Transportation section.

Analysis Comments

General Concern: Commenters provided comments related to a need for analysis; quantifying and/or adequately describe harmful effects; need to properly analyze direct, indirect and cumulative effects; disclosure of any analysis, description or measure of maintenance level 1 roads; full discussion of the effects of temporary roads; analysis of climate change impacts on temporary roads; mitigation measures

needed for temporary roads; need for a detailed monitoring plan; analysis of costs for roads, need for assessment of landslide risks; and, need for identification of the new roads and reconstruction.

1. *The DEIS (p. 304-305) fails to quantify or adequately describe ongoing harmful effects to forest resources from forest roads. 42.247*

   All existing road conditions are not known at this time, the estimate provided is based upon general road conditions and their effect on the forest resources. Poorly located roads cause soil erosion, contributing sediment to any nearby streams, which adversely affects aquatic habitat. Decommissioning roads can prevent this erosion from continuing. Failure to complete any needed road relocation and/or decommissioning would result in continued sediment delivery and potential for road slides and failures.

2. *The Forest Service improperly ignores many direct, indirect, and cumulative impacts of this proposal that will result from construction, reconstruction, opening and use of the forest road system and temporary roads. 42.246*

   Direct, indirect, and cumulative effects from temporary roads are included in the final environmental impact statement and the soils, watershed, and transportation reports. See response to transportation clarification 6.

3. *The DEIS fails to disclose any analysis, description or measure of ML 1 roads closed due to resource concerns. 42.248*

   Table 35 in volume 2 of the final environmental impact statement (transportation section) lists the mileage of maintenance level 1 roads for each forest. All maintenance level 1 roads are currently closed partially due to resource concerns. See the glossary in appendix G of the FEIS for a definition of maintenance level 1 roads.

4. *The DEIS fails to fully discuss the effects of the construction of temporary roads (many impacts identified in our scoping comments), including disclosing the specific location of each road. 42.250*

   See response to transportation cumulative effects 1 and analysis 2.

5. *The Final EIS should include a full analysis of the increase amount of temporary roads along with mitigation measures across all resources. 40.31*

   See response to transportation: clarification 8, cumulative effects 1 and analysis 2. All mitigation features are included in the design feature table in appendix C of the FEIS.

6. *The Forest Service must analyze in detail the impact of climate change on forest roads and forest resources. 42.256*

   The FEIS and Air Quality and Climate Change Report address Forest Service policy concerning climate change analysis. In 2009, the Forest Service established policy direction for climate change considerations in project-level National Environmental Policy Act analysis (Climate Change Considerations in Project Level National Environmental Policy Act Analysis, January 13, 2009). The policy calls for addressing climate change through two types of climate change effects analysis in National Environmental Policy Act documentation when appropriate including the following:

a. The effect of a proposed project on climate change (greenhouse gas emissions and carbon cycling).

b. The effect of climate change on a proposed project. Example: effects of expected shifts in rainfall and temperature patterns on the seed stock selection for reforestation after timber harvest and effects of decreased snow fall and increasing earlier snow run-off.

Emissions from vehicles are discussed in the air quality section. Equipment use over the approximately 20-year implementation timeframe of the project would include only tens of gasoline or diesel fuel powered vehicles and specialized tree harvesting equipment on any given day, spread out over a large area. Therefore, the amount of emissions the equipment would produce would be insignificantly small and generally unknowable because it is not known at this time exactly where, when, and how many acres would be treated on any given day, and the number of and types of vehicles or equipment that would be used, and their hours of operation. The FEIS analyzes impacts of climate change on resources in the Vegetation section.

7. *The Forest Service must provide in this DEIS a detailed monitoring plan to assess how the selected alternative addresses impacts concerns and to ensure effectiveness of the specified design features. 42.253*

The project includes design features that would be followed when implementing the work. A monitoring plan was included in the draft environmental impact statement and an updated monitoring plan for the project is included in the FEIS in appendix E.

8. *The DEIS omits an analysis of costs that would be picked up by the counties and other governments, due to increased road maintenance and improvement costs. 42.347*

For all merchantable timber removal, the cost associated with improving National Forest System roads, and conducting road maintenance would be paid for out of the value of the timber. For all other work completed outside of timber removal, that money would come from appropriate funds and/or grants to accomplish the work. The only shared costs would be under any cooperative road maintenance agreements, which would be a slight increase. However, this slight increase in improvement and/or maintenance cost would reduce a larger cost needed in the future. For all roads maintained by only the county or state, that cost analysis is outside the scope of this project. All road maintenance costs completed on National Forest System roads would be paid for by the purchaser of that contract. Even though additional traffic would occur over paved county or other government agencies roads, the anticipated traffic from this project would not affect routine maintenance schedules due to being a small percentage of total traffic volume on those roads. This information is within the Socioeconomics environmental consequences section of the FEIS and the Socioeconomics Specialist report.

9. *The analysis fails to provide an adequate assessment of landslide risks throughout the analysis area relative to the current road system or temporary roads under the proposed action. 42.257*

Landslides do not occur very often in the project area. When analyzing the placement of temporary roads and/or road relocation, all soil conditions and attributes would be considered in the final placement of roads.

10. *The analysis must also identify the construction of any new roads and reconstruction of skid trails or previously obliterated roads and identify the level of reconstruction necessary. 42.258*

    No new permanent roads are included in this project due to Collaborative Forest Landscape Restoration Project requirements, even though the Rim Country Project is no longer a CFLRP, the project would be implemented to the intent of the CFLRP. All roads would be maintained to their appropriate maintenance levels. If previously obliterated roads and skid trails are utilized during implementation, they would be reconstructed to the minimum requirements needed for log haul and then placed back in their previous state after use.

General Concern: Commenters provided a comment regarding lack of analysis for any ongoing damage.

11. *The DEIS neglects to fully analyze and disclose all the ongoing damage where funding cannot address the full scope of insufficient maintenance issues. 42.244*

    Funding for road maintenance is outside the scope of this analysis. For all merchantable timber removal, the cost associated with improving National Forest System roads, and conducting road maintenance would be paid for out of the value of the timber. All road maintenance costs completed on National Forest System roads would be paid for by the purchaser of that contract. For all other work completed outside of timber removal, that money would come from appropriate funds and/or grants to accomplish the work.

General Concerns Comments

General Concern: Commenters provided comments related to permanent closures; motor vehicles limiting mining; and closure of roads.

1. *Please consider other options than permanent closures. 16.6*

    When analyzing each road, the Forest Service considers all factors (long term commercial/public use, erosion potential, road location, current condition) prior to deciding what type of closure to implement. Some roads also only have seasonal closures.

2. *The Big Bug Mining District LLC is opposed to closing any Forest Service or BLM land. Preventing access by motor vehicle severely limits mining and causing economic loss to the state. 17.1*

    Roads are only decommissioned if they meet the factors outlined for road decommissioning criteria including the following: no longer needed for future management, to protect cultural resources, causing soil or water resource damage, not useable without significant investment beyond current and future funding, an ongoing road maintenance challenge, an unauthorized road, or other unique situations. This project does not propose to close any National Forest System lands.

3. *Opposed to any closing of Forest Service or BLM roads to motorized use or any other plan that would bar access to roads or lands: If it's on a historic map of 1976 or earlier. 23.1, 24.1*

    See response to transportation, general concerns, 2.

4. *What does the current road-closure plan accomplish versus its downside? ...Road closure is not worth it and should be removed from the Initiative. 36.12*

   Road decommissioning is included in this project to improve soils, watershed, and vegetation conditions. Often there are multiple roads accessing the same location and decommissioning these duplicative roads reduces run-off, disturbance to wildlife, and improves overall watershed conditions. See response to transportation, general concerns, 1.

5. *Please take no action on this, motorized recreation is needed, the more remote the better for me. 14.1*

   The project does not propose to reduce access for motorized recreation activities.

6. *Full closures and large closed areas do not make sense. I support the restoration 100%, however I do not support the huge plan of closures that do not include the word temporary. Closing over 1,000 miles of trails for the restoration without using the word "temporary" is highly concerning. 16.1, 16.2, 16.3, 16.4, 16.5.*

   The project includes decommissioning both National Forest Systems roads and unauthorized roads. Decommissioning these roads does not mean the areas they are found in are closed to public access. Many of the roads proposed for decommissioning are unauthorized roads and are located in areas with high soil erosion, riparian areas, or a duplicative in nature as they run parallel to other roads going to the same destination. Transportation Analysis Process (TAP) reports for the Apache-Sitgreaves, Coconino, and Tonto National Forests and site-specific on-the-ground evaluations would be considered in selecting roads for decommissioning. Roads currently designated as open on a forest's motor vehicle use map would not be decommissioned or closed under the action alternatives. Also, roads that are needed to provide access to leases and other special uses on National Forest System lands would not be decommissioned unless other suitable access is provided.

7. *I would propose that Alternative 1, the No Action should be taken. The USFS has been doing a great job with forest restoration and management without closing portions from public use. 18.1*

   Alternative 1 is the no-action alternative and no restoration activities would occur under in the project area if alternative 1 were selected. The project does not propose to permanently close areas of the national forests to public access. There would be some areas that are temporarily closed during implementation for public, contractor, and employee safety.

8. *No action should be taken to limit the public's right to access this area. 19.1*

   See response to transportation, general concern, 7.

9. *There should be no decommissioning of any forest roads in this project, all the roads are covered under Travel Management. There should be no fencing, barricading, or other blocking of forest roads, springs, steams or lakes in the project. You need to first clearly identify those places. In summary, you need to take into account all owners and users of the forest and not just try to lock us out. 22.2, 22.4*

   See responses to transportation, general concern, 5, 6, and 7. Some project activities would include fencing to protect culturally significant sites from damage during rock pit development, in-woods processing operations, or for aspen and other riparian vegetation restoration treatments.

10. *If you read it real close from a legal standpoint it is just a way for the federal government to get around RS2477. 27.1*

    This project does not propose to limit big game retrieval or limit access in motorized cross country areas in the project area.

11. *Neither alternative 2 nor 3 should be implemented. The Forest Service should not be further restricting the public access to PUBLIC lands under the guise of environmental protection. 43.1, 43.2*

    See responses to transportation, general concern, 5, 6, and 7.

12. *The Forest Service should focus on opening and maintaining existing roadways. These closures will cause greater trail congestion and animal pressure on the few roads remaining open after the new travel mgt plan and these alternatives. This will not only discourage locals from enjoying our wonderful forests, but local businesses will be negatively impacted as less people care to play bumper cars on our few remaining trails. 43.6*

    See response to transportation, general concern, 5, 6, and 7.

General Concern: Commenters commented on the Travel Analysis Reports and had concerns regarding several aspects of travel management including: minimum roads system; a request to not authorize construction or reconstruction of roads; an analysis of the effectiveness of mitigation measures; consider the effects of its proposal to use temporary roads when combined with the effects of its existing roads; look at the proposal to ensure more roads are suitable for passenger vehicles over decommissioning roads; modify existing environmental assessment to identify access routes; and how implementation and adaptive management be applied to the road system.

13. *There is a need for the Forest Service to consider its Travel Analysis Reports for the 3 national forests, and more importantly, identify the Minimum Road System. 42.245a*

    The travel analysis reports for the three forests in the project were reviewed for the transportation analysis and are referenced in the road decommissioning portion of the Transportation Report and the draft environmental impact statement. The Forest Service is also required to discuss the minimum road system (36 CFR 212). See responses to transportation, general concerns, 4.

14. *The Forest Service should not authorize the construction, reconstruction or use of temporary roads in areas with moderate or high erosion potential, within 300 feet of streams, within any aquatic management zone, or in habitat for species of conservation concern. 42.251*

    Part of the purpose and need to decommission some roads in the project area for restoration activities is to remove roads for example, from areas of higher erosion potential, within 300 feet of streams, within aquatic management zones, or in habitat for species of concern. Mitigation factors are included in the project to mitigate for resource concerns. There is also a need to decommission unneeded routes identified during the forest Travel Management Rule planning processes as part of the restoration of the landscape in the project area. The need for temporary roads is to have adequate access for project implementation, and temporary roads would be decommissioned after use to restore these areas once project activities are completed.

15. *The Forest Service's approach relies too heavily on its menu of potential design feature to mitigate a range of harmful environmental consequences, many of which rely on uncertain future monitoring, lack adequate specificity and clear triggers for implementation, are unenforceable, and lack demonstrated effectiveness in reducing impacts. 42.255*

See response to transportation, general concerns, 6. Design features are always included in contracts to mitigate effects from temporary road construction. These features are monitored throughout each contract and immediately accomplished. If there are issues or concerns about implementation the Forest Service contracting officer works with the contractor to ensure issues are addressed and mitigation measures are correct.

16. *The agency also fails to assess the effectiveness of these mitigation measures, in violation of NEPA. 42.255*

    Appendix C in the draft environmental impact statement includes design features, best management practices, mitigation, and conservation measures along with the primary purpose for each of these.

17. *The agency must consider the effects of its proposal to use temporary roads when combined with the effects of its existing, official road system. 42.254*

    The draft environmental impact statement includes a cumulative effects analysis in the transportation section that analyzes the effects of the temporary roads when combined with the effects of the existing road system.

18. *Passing this 4FRI Project and dedicating time and resources to decommission up to 800 miles of unauthorized roads would greatly impact the upkeep on the current road ways…Instead the forest service should dedicate the resources to increasing this percentage of roads suitable for passenger vehicles… 33.2*

    Unauthorized roads receive priority funding to be decommissioned first since they were user created and never analyzed for long term effect on the landscape. These unauthorized roads are currently creating more resource damage than existing system roads. All roads are required to meet their corresponding maintenance levels and those standards are listed in the glossary in appendix G of the DEIS. Increasing the percentage of roads suitable for passenger vehicles is outside the scope of the project.

19. *USFS should modify the existing draft environmental analysis to identify ways to increase access and develop new routes. 50.1*

    No new permanent routes are authorized under the Collaborative Forest Landscape Restoration Act, even though the Rim Country Project is no longer a CFLRP, the alternatives were developed to meet the eligibility criteria and the alternatives would be implemented to the intent of the CFLRP. Increasing access and developing new routes is also outside the scope of this project.

20. *Discuss how implementation and adaptive management will be applied to the road system in the project footprint to reduce potential impacts? 28.27b*

    See responses to transportation, general concerns 4, 6, and 8.

<u>Recommendations Comments</u>

General Concern: Commenters provided recommendations for expansion accessibility, seasonality, and repair and maintenance; commit to decommissioning actions by replacing words; request that the Forest Service maintain oversight on rehabilitation of roads; highlight the use of design features and BMPs; a recommendation that the Forest Service review prior thinning projects; recommendation to include a

statement in the 5th paragraph regarding increased weight limits for roads; a request for a citation to be added to comment number 40.61; greater transparency is needed.

1. *The ERI recommends the transportation section (Page 304) should be expanded to cover accessibility, seasonality, and repair & maintenance. 41.26*

   Accessibility, seasonality, and repair and maintenance are outside the scope of this project.

2. *The Forest Service should commit to the decommissioning actions by replacing "up to" with "shall." 42.245c*

   The phrasing 'up to' allows for flexibility for condition-based management in the project area. The analysis includes up to 800 miles of decommissioning.

3. *We would also like to recommend that the Forest Service maintain oversight and timeliness in the removal and mitigation of temporary road impacts… Rehabilitation of roads should be an immediate priority after cessation of mechanical thinning. Failure to keep to the published guidelines in CFR 36 22.5 could result in destruction of these environments exceeding the potential benefits from clearing. 34.12*

   When temporary roads are constructed for mechanical thinning, they are part of a completed contract, and prior to the timber sale contract the purchaser is required to decommission those roads. Timber sale contracts also require contractors to implement design features and mitigation measures for roads to mitigate erosion during use. All Forest Service contracts have several administrators that inspect and enforce all contract requirements throughout the duration. Design features and contract specifications enforce the locations of temporary road placement and follow requirements related to CFR 36 22.5. Temporary roads are required to be rehabilitated prior to contract acceptance and any final payment. Contract specifications require all signage meet Federal requirements.

4. *SRP recommends that USFS highlight the use of the design features and best management practices related to roads that will greatly mitigate negative short-term and long-term effects of temporary roads. 40.23*

   Design features, best management practices, mitigation, and conservation measures are included in appendix C of the draft environmental impact statement and the FEIS and are referenced throughout both documents.

5. *SRP suggests that the USFS review prior thinning projects, coordinate with industry experts and USFS on -the-ground project (contract) managers to improve the estimate of temporary roads that could be required for implementation of Alternative 2. 40.31*

   The estimate of temporary roads was derived from a review of previous thinning projects. During implementation, the Forest Service would work with the purchasers of each timber sale to minimize the number of temporary roads that would be needed as part of condition-based management.

6. *SRP suggests that USFS include a statement in the 5th paragraph that addresses the increased weight limits that Arizona Dept. of Transportation (ADOT) is implementing and the possibility the USFS may also increase weight limits on USFS roads. 40.33*

The Forest Service has not discussed increasing weight limits on Forest System roads. Forest System roads are not constructed to the same standards as Arizona Department of Transportation roads and would not be able to withstand increased weight without significant financial investment. A full analysis of the investment needed is outside the scope of this project, and several factors would have to be considered, including increasing minimum culvert fill depths, constructing bridges to withhold a higher weight limit, and additional surfacing placement.

7. *USFS states that "However, this practice rarely improves hydrologic function where roads have interrupted or redirected surface flows via ditches and cross drain culverts, road surfaces are severely compacted, or have channelized flow in the existing roadbed…" SRP recommends that USFS provide a citation, and suggests USFS recognize that as part of the project's purpose and need, retaining and using slash provides for an economically viable project and can provide efficient and ecologically beneficial options in some instances for road decommissioning. 40.61*

   Placing slash is a common contract requirement for road decommissioning. Depending on the road characteristics and location, on-site slash and/or commercial straw may be needed and/or used and is included in design feature TR003. Also see response to watershed, recommendation 15.

8. *The Department recommends that USPS provide greater transparency and continuity of road-related actions within the FEIS by including shapefiles and verifying the information provided in the DEIS is consistent with the information presented in each Forest Plan. 28.15*

   See response to transportation: clarification 8, cumulative effects 1, and analysis 2

General Concern: Condition-based management planning fails to satisfy the agency's "hard look" requirement. Also, the Forest Service approach to road closures is not in accordance with law, but rather appears to be initiated by conservation rather than managed-use strategies, reducing access and thus reducing agency support from hunters and others.

9. *The DEIS fails to adequately measure or quantify those resource risks sufficiently to satisfy the hard look NEPA requires, which is a systemic flaw in the agency's "condition-based management strategy." 42.249*

   See response to transportation: clarification 8, cumulative effects 1, and analysis 2

10. *Partnership of the Forest Service and AZ Game and Fish Dept. and improving hunter attitude toward the FS for this and other projects: why is hunter attitude in this area toward the FS poor? One significant reason is because the FS seems to be putting forth closures of both areas and roads by edict rather than law at a time when voluminous data nationwide shows decreased usage of national monuments, parks and forests along with falling hunter numbers -- and also that the primary cause is repeatedly cited by the public as lack of access. So, if the FS, including this Initiative's Forest units, is following old paradigms of preservation instead of pragmatic and proven conservation via managed use, is that not a case (pardon the pun again) of "not seeing the forest for the trees"? 36.9*

    Regulations (36 CFR 212) require the Forest Service to maintain a minimum road system. The criteria for decommissioning roads are listed in the road decommissioning and land management plans portion of the Transportation Specialist report and the draft environmental impact statement. Even though this project would be decommissioning up to 800 miles of road, the overall percentage is minimal to the total mileage of roads in the project area. The Forest Service

maintains and keeps open all roads possible that are not causing resource damage or are too expensive to maintain.

Watershed

New Information Comments

General Concern: Commenters provided new information related to the watershed function.

1. *The DEIS notes that Christopher Creek has Impaired Function while Horton Creek-Tonto Creek and Bull Tank Canyon- Tonto Creek subwatersheds are Functioning at Risk. Restoration activities are slated for 100%, 100%, and 55% of these subwatersheds, respectively. The scale and scope of the restoration activities proposed in the DEIS have the potential to improve water quality along all stream reaches within these three subwatersheds. 29.5*

   The Forest Service agrees with the commenter that the greater the proportion of treatment in a given subwatershed, the greater potential for moving existing conditions toward desired conditions supportive of improvement of water quality along stream reaches.

Analysis Comments

General Concern: Commenters provided concerns regarding how fire would impact water quality and clarification on why the DEIS states that none of the three alternatives would have detectable impacts to water quality.

1. *How would these higher intensity fires impact water quality? 34.4*

   The water and riparian resources section in chapter 3 of the FEIS includes information on how high intensity fires impact water quality. Higher intensity fires would have greater short-term impacts to water quality, such as changes in pH, suspended sediment, nitrogen, phosphorus concentrations, nutrient, and metal concentrations than lower intensity fires.

2. *Further research within the 4FRI management area could help predict how it will respond to prescribed burns and high intensity wildfires and the water quality impacts. The table on page 107 of the DEIS states that none of the three alternatives will have a detectable impact on water quality. Each management alternative is likely to have a unique impact on surface water and groundwater quality. 34.5*

   Effects to water quality are described in the water and riparian resources section in chapter 3 of the FEIS. In general, the action alternatives would have short-term negative impacts to water quality; however, there would be overall benefits in the long-term. Under the no action alternative, existing conditions degradative to water quality would likely persist over the long-term.

3. *How does post-fire runoff affect containment transport? What is the likely effect of post-fire runoff on downstream receiving waters? What are the factors that influence how long post-fire runoff effects persist? 34.2*

   See response to Watershed, Analysis, comment number 2.

General Concern: Commenters provided comments for clarification of analysis effects.

4. *The effects analysis claims that "[h]igher-intensity thinning would likely have the greatest potential for groundwater recharge, and stream and spring discharge, by reducing evapotranspiration rates,"101 but this is not necessarily true, as there are conflicting reports published in the literature. In addition, any increases in runoff could be offset by climate change,103 and the DEIS does not analyze the effects of intensive thinning on soil drying. 48.76, 48.77*

   The amount of potential recharge and discharge attributed to reductions in overstory vegetation is complex and not just a factor of evapotranspiration but also aspect, canopy interception, the size and pattern of canopy removal, and the amount and timing of precipitation just to name a few. The Forest Service will removal the statement "[h]igher-intensity thinning would likely have the greatest potential for groundwater recharge, and stream and spring discharge, by reducing evapotranspiration rates" from both the specialist report and the FEIS.

Clarification Comments

General Concern: Commenters provided a comment that constitutes clarification around water quality.

1. *Though the document predicted that there will be no changes to water quality, we do not believe this to be the case...There may be measurable effects of fire on water quality. What is unknown is the time-scale on which changes in water quality would appear and how severe the changes will be? 34.3*

   See response to watershed, analysis, 1.

2. *Further collection and analysis of water quality (both chemical and biological components) will provide a stronger pre-fire baseline and eliminate data gaps for future consideration. This is especially important for priority watersheds like the Upper Tonto Creek watershed, and for impaired bodies of water such as Black Canyon Lake. Once these additional baseline data are collected, a more robust study can be conducted to assess pre and post-fire water quality conditions. Site-specific management techniques should be considered in conjunction with an ongoing monitoring program. 34.1*

   Regarding the status of the Black Canyon Lake impairment, the Arizona Department of Water Resources is currently in the process of delisting this water body and this will be reflected in the FEIS. For monitoring activities outside those required by law, policy, regulations, directives, and other agreements, the Forest Service is working with the 4FRI Multi-Party Monitoring Board and other partners. The multi-party monitoring board has a sub-group specifically focused on water. A 4FRI monitoring plan is currently being revised. Past and future monitoring reports can be found on the public-facing 4FRI monitoring webpage at https://www.fs.usda.gov/main/4fri/monitoring.

3. *It doesn't say how up-to-date or accurate the data is for classifying 876 miles of the total of 4,047 total miles of drainages occurring in the analysis area, using this protocol. It (DEIS) says that Water Quality Condition is "good" for 70% of something undefined, without defining what is meant by "Water Quality." 42.230*

   The riparian condition data used in this analysis were a consolidation of data from the three forests. These data were collected using different methodologies and protocols and were consolidated by creating a cross-walk into a single protocol for display and reporting. The protocol selected is Proper Functioning Condition (Dichard et al. 2015). Much of the data were

collected over many years on a project-by-project basis and represent the most up to date information available at the time of this analysis. Due to these factors these data do not lend themselves to an accuracy assessment. Water quality condition refers to one indicator used in determining the overall watershed condition class. This indicator addresses the expressed alteration of physical, biological, or chemical impacts to water quality following in the rule set in USDA-Forest Service. 2011. Watershed Condition Classification Technical Guide. FS-978. July 2011. 41 pp.

General Concern: Commenters requested the Watershed Conservation Practices Handbook be used in the EIS.

4. *The DEIS explains that direction contained in the Watershed Conservation Practices Handbook (FSH 2509.25) are protection measures applied to this project…If followed, the design criteria and management measures provided in the Watershed Conservation Practices Handbook are sure to support successful implementation of watershed restoration projects. Certain management measures are particularly important as they relate to how the 4FRI project will modify livestock grazing practices. The Watershed Conservation Practices Handbook directs the Forest Service to "[e]xclude livestock from riparian areas and wetlands that are not meeting or moving toward desired condition objectives where monitoring information shows continued livestock grazing would prevent attainment of those objectives." 48.177*

   This project includes many design features to meet the intent of the Watershed Conservation Handbook. Livestock management is outside the scope of the Rim Country analysis. Livestock management analyses are handled on an allotment-by-allotment basis.

General Concern: Commenters provided comments regarding clarification needed in the EIS, including the following: requests for adequate analysis to be added; questions regarding aquatic species habitat; requests for clarification that accurate data were used to classify miles of roads and miles of drainages; lack of site specific analysis; lack of information on how much sediment, where it occurs, and what aquatic species of concern would be found; techniques and desired conditions should reflect diversity and flexibility; clarification on standards and guidelines that are in place to minimize effects to water quality; questions regarding a plan for actions within a watershed; request to cite Wyatt et al. (2015); and request to re-arrange items (ground water response) on page 692.

5. *Statements such as "Analyses included the changes (such as, increase, decrease, or change from current conditions) for the indicators or measures, and how they can affect aquatic species and their habitats" stand without adequate justification or analysis. "Riparian Condition is being used as a surrogate to indicate potential changes in multiple factors that directly influence aquatic and riparian habitat quality and quantity such as sediment load, streamside canopy cover and structure, large woody debris, stream temperature, and changes in peak flows." Again, how Riparian Condition correlates to the noted "factors" is not explained. The analytic methodology does not appear to be scientifically valid. 42.216*

   Resource indicators and measures were used to analyze effects to all aquatic species and are in chapter 3 of the FEIS and the Aquatic Specialist report. Riparian condition is the resource indicator used to assess effects to aquatic habitat quality and quantity as described in chapter 3 of the FEIS.

6. *Does the establishment of a "buffer" on aquatic species' habitat prohibit vegetation treatments or other actions? What proposed actions would be allowed within these buffers? The project seems to allow for later, arbitrary decision making in stating: AMZs can be customized by an ID team of qualified specialists prior to project implementation…" (SW002) "Accepted activities within AMZs include mechanical and conventional tree felling, yarding, skidding, backing fire, and stream and springs restoration projects" (SW004) "(W)ithin ½ mile of private land boundary or designated WUI: Treatment measures necessary to reduce the risk of wildfire encroachment on adjacent private lands may take priority over other considerations in these AMZs. Entry and treatments in these reaches will be considered on a case-by-case basis by ID teams." (SW011). 42.217*

   Design features to protect and minimize effects to aquatic species habitat are established through the use of aquatic management zones, which limit the proximity and type of activities adjacent to streams. Default widths based on stream type are included in the design features found in appendix C of the FEIS. Ground truthing would occur prior to implementation and aquatic management zone widths would be adjusted based on this site-specific information. Activities allowed with the aquatic management zones are described in design feature SW003 listed in appendix C of the DEIS. Conventional tree felling refers to ground-based systems including but not limited to feller-bunchers, bunching heads, harvesters, skidders, forwarders, masticators, and shovels used to remove tree material. Road and fire line construction of any sort are not acceptable activities within aquatic management zones.

7. *As much these cause-and-effect statements disclose potential impacts, the DEIS still lacks sufficient site-specificity, lacking reference to specific locations along or in specific analysis area water bodies, and they lack quantification of the impacts. Again, this is symptomatic of the programmatic nature of the analysis. Numerical estimates for how much sediment would be released into any specific water body are not in the DEIS. 42.231*

   The water and riparian resources section of chapter 3 in the FEIS includes a qualitative analysis of water quality effects. Numerous proposed design features are included in appendix C of the FEIS to protect water quality and maintain compliance with the Clean Water Act, including with regards to sediment (suspended sediment concentrations).

8. *Dumping a lot of sediment in a specific stream does not "spread out" effects - it pollutes the stream and damages aquatic habitat there. The DEIS fails to answer such important questions as how much sediment, where it occurs, and what aquatic species of concern are found in these locations. 42.232*

   Aquatic species occurrences and habitat can be found in chapter 3 of the FEIS and in the Aquatics Specialist report. Numerous proposed design features are included in appendix C of the FEIS to protect water quality and maintain compliance with the Clean Water Act, including with regards to sediment (suspended sediment concentrations). Including, but not limited to, AQ011, AQ030, SW063, SW065-68, SW070, to reduce direct impacts and sedimentation.

9. *Watershed restoration work does not fit neatly into stream reach categories of ephemeral, intermittent, or perennial in the diverse and dynamic ecologies of the Southwest. The recommendations and management actions of the restoration techniques and desired conditions should reflect that diversity and need for flexibility. 46.10*

   The aquatic and watershed condition-based management approach (FEIS Implementation Plan – Appendix D) has tools applicable to all stream categories and ecological types and is designed to reflect the diversity and need for flexibility during implementation or restoration treatments.

10. *Two watersheds proposed for restoration of particular concern to the ADEQ straddle or fall completely within the Project boundary: Fossil Creek and Christopher Creek. Fossil Creek is an Outstanding Arizona Water (OAW) as defined under Arizona Administrative Code R18-11-112. Degradation of an OAW is prohibited under the Antidegration Rule R18-11-107(D). The vegetation and prescribed fire treatments proposed across 48% of the Upper Fossil Creek subwatershed (150602030305) may affect existing water quality; however, if proposed Guidelines and Standards designed to prevent water quality concerns are followed, then impacts should be non-existent or short-lived. 29.2*

    The commenter is correct that the greater the proportion of treatment in a given subwatershed, the greater potential for moving existing conditions toward desired conditions supportive of improvement of water quality along stream reaches. Design features are included in appendix C of the FEIS to maintain compliance with the Clean Water Act. Included are limitations on what proportion of a subwatershed, including Fossil Creek and Christopher Creek, can be treated with mechanical thinning and prescribed burning over a given period (Appendix C – SW054).

11. *The Christopher Creek watershed, known by ADEQ as the Christopher Creek Targeted Watershed, includes the following subwatersheds: Christopher Creek (150601050203), Horton Creek-Tonto Creek (150601050204), Bull Tank Canyon-Tonto Creek (150601050206). ADEQ has funded projects to address non-point source pollution in this watershed. Per ADEQ's 2018 statewide water quality assessment, Christopher Creek is Not Attaining for E. coli and Impaired for Dissolved Oxygen, Horton Creek-Tonto Creek is Not Attaining for E. coli, and Bull Canyon-Tonto Creek is Not Attaining for E. coli and Impaired for Mercury in Fish Tissue. These designations are consistent with ADEQ's 2016 assessment results that are reported in the DEIS. 29.3*

    See response to watershed, clarification, 10. Included in the design features are limitations on what proportion of a subwatershed, including Christopher Creek, Horton Creek-Tonto Creek, and Bull Tank Canyon-Tonto Creek, can be treated with mechanical thinning and prescribed burning over a given period (Appendix C – SW054).

12. *The DEIS notes that Christopher Creek has Impaired Function while Horton Creek-Tonto Creek and Bull Tank Canyon- Tonto Creek subwatersheds are Functioning at Risk. Restoration activities are slated for 100%, 100%, and 55% of these subwatersheds, respectively. The scale and scope of the restoration activities proposed in the DEIS have the potential to improve water quality along all stream reaches within these three subwatersheds. 29.4*

    Effects to water quality are discussed in the water and riparian resources section of chapter 3 of the FEIS.

13. *The status of 3 lakes has changed since the Water and Riparian Resources Report was drafted or their status was incorrectly conveyed. As of the 2018 assessment, the status of Stoneman Lake remains unchanged. It is not Attaining for pH; however, it is also Not Attaining for Dissolved Oxygen, which is an omission in the report, Black Canyon Lake was impaired for Ammonia in 2016 as reported. In 2018, Mercury in Fish Tissue was added as impaired with Ammonia remains unchanged. Bear Canyon Lake is incorrectly identified as impaired in the text; its status remains inconclusive as of the 2018 assessment. Watershed conditions surrounding these lakes are Functioning at Risk. 29.5*

    These corrections have been incorporated into the Water and Riparian Specialist report and chapter 3 of the FEIS.

14. *Substantial upland vegetation treatments coupled with stream restoration efforts planned for tributaries may affect water quality in the short-term; however, the long-term benefits of these actions will likely outweigh any short-term impacts on these water bodies. 29.6*

    Refer to the response to watershed, clarification, 12

15. *What is the plan for actions within a watershed? If they are not specified to work from upstream to downstream, what will you do to escalate the work schedule and minimize the potential for watershed devastation while the watershed is being treated? 12.11*

    Considerations for prioritizing where and when treatments are implemented using the aquatic and riparian condition-based management approach are displayed in table 116 in section D of appendix F in the draft environmental impact statement and is included in the FEIS (Table D-3 in appendix D of the FEIS volume 2). Numerous design features are included to minimize impacts to watershed resources including water quality, stream channels, springs, wetlands, riparian habitat, and soils during implementation (appendix C of the FEIS volume 2).

16. *Have you considered the importance of groundwater recharge to spring and stream water quantity restoration? We would like to highlight that thinning and restoration could also increase groundwater recharge, which would help restore springs and streams to more traditional discharge patterns. We encourage you to cite Wyatt et al. (2015) for a recent study documenting the changes in groundwater recharge predicted in the 4FRI first analysis area. 34.7*

    The commenter is correct that the thinning, prescribed burning, and other restoration activities would promote conditions conducive to groundwater recharge to springs and water quality improvements. Wyatt et al. (2015) has been cited in the Water and Riparian Specialist report.

17. *USFS should move Surface Water Response assessment to the next Suggested Tier (Fuel/fire hazard, fire occurrence, soil, and watershed function) after Groundwater Response item on page 692. 40.102*

    The surface water response indicator has been changed from a fine-scale tier 2 indicator to a broad-scale tier 1 indicator.

General Concern: Commenters requested a definition for the terms functioning, functioning-at-risk, and non-functioning.

18. *Table 8, USFS provides the number of riparian stream miles that are functioning, functioning-at-risk, and non-functioning. The USFS should provide a footnote of the definition of "functioning riparian stream" and provide a reference, if available, to the report(s) classifying the steam conditions (Also see page 21). 40.11*

    The definitions of the three proper functioning condition ratings are included in the Water and Riparian Resource Report. The FEIS will include the definitions in the glossary found in appendix G.

General Concern: Commenters provided a comment in which clarification in the EIS is needed regarding negative impacts on human habitation.

19. *Is there a plan to attend to watersheds with the possibility of negative impact on human habitation (water sources for towns, likely fire path to communities) first? 12.16*

    Areas around communities, referred to as wildland-urban interface areas, are priorities for treatment to reduce the risks associated with uncharacteristic wildfire which may threaten life, property, and additional values at risk such as energy and communication infrastructure and water supply systems.

General Concern: Commenters provided a comment requesting that watershed condition assessment tracking tool scores correspond to specific habitat conditions be explained in the EIS.

20. *The DEIS does not explain how WCATTT scores correspond to specific habitat conditions needed by the wildlife and fish species of concern in the analysis area. There doesn't appear to be any field survey results cited to verify or confirm WCATTT ratings or to correlate with species' habitat conditions. What data and what analysis supports the following statement: "Watershed Condition Framework assessments utilized for existing condition accurately reflect indicators for aquatic species and habitats"? What indicators are we talking about here, and how has correlation with WCF assessments been determined (i.e., field validated by survey data)? Please explain why riparian vegetation conditions are said to be in such impaired condition [the cause(s)], as disclosed by the DEIS. 42.214*

    Resource indicators and measures were used to analyze effects to all aquatic species and are in chapter 3 of the FEIS, Aquatics section and the Aquatic Specialist report. Riparian Condition is the resource indicator used to assess effects to aquatic habitat quality and quantity as described in chapter 3 of the FEIS. The statement "Watershed Condition Framework assessments utilized for existing condition accurately reflect indicators for aquatic species and habitats" is listed as one of the assumptions for the aquatic species analysis. Given the scope and scale of Rim Country, watershed condition assessment tracking tool was used in the watershed and cumulative effects analyses to describe streams and riparian areas.

    The aquatic analysis used the riparian condition watershed condition assessment tracking tool score to further define the affected environment. Within the watershed condition framework, there are three attributes that are used in assessing the aquatic habitat condition indicator for each subwatershed rated. These attributes are habitat fragmentation, large woody debris, and channel shape and function. For the aquatic biotic condition indicator there are also three attributes: Life form presence, native species, and exotic and/or aquatic invasive species. Available field data at the time when the original watershed condition classification was completed were incorporated in developing attribute scores which are in turn reflected in the overall indicator ratings. Factors affecting current riparian condition are discussed in chapter 3 of the FEIS in the water and riparian resources section.

Implementation Comments

General Concern: Commenters provided comments related to best management practices for roads and water quality.

1. *The DEIS does not truly consider the overall effectiveness of BMPs. Without the sufficient funding to maintain its road system in a timely manner, all the BMP implementation that can be mustered in the context of a "project" such as this will only be a short-term fix, and the road system will remain an ecological liability. 42.241*

   The water and riparian resources section in chapter 3 of the FEIS discusses best management practice effectiveness.

2. *The DEIS makes no commitments to bring all the roads up to BMP standards or otherwise fix the damage. The DEIS fails to consider the resulting impacts on water quality and fish habitat. 42.243*

   Chapter 3 of the FEIS provides a discussion of water quality impacts, fish habitat, and roads.

Recommendation Comments

General Concern: Commenters provided recommendations for the EIS. These recommendations are to provide a short description of riparian treatments; add new language to page 21; include analysis on climate change in the water and riparian sections of the EIS; clarify a statement regarding stream reaches; add clarification for short-term degradation of water quality; add a full range of literature to the EIS; include information to the soil section on page 124, to complement the analysis; include a description of the potential for increased yields during moderate runoff years; apply statement mentioned in comment 40.55 to the road activities; clarify that water bars could be seeded, mulched, and/or cross-ripped; and add assessment of sediment erosion/transport/accumulation.

1. *SRP recommends that USFS provide a short description of the riparian treatments in the last paragraph similar to the spring's description, "spring restoration would include reducing tree encroachment and noxious weeds, returning fire to the system (through prescribed fire)," etc. 40.13*

   Although the specific language the commenter recommended for inclusion into the purpose and need cannot be added at this time, similar language is included in the description of riparian treatments in FEIS volume 1, table 15 (Alternatives 2 and 3 mechanical and prescribed fire treatment descriptions and objectives). More details about specific activities can be found in the description of aquatics and watershed condition-based management.

2. *We recommend new language that is in alignment with the 5th bullet on page 21 related to "Restore woody riparian vegetation." 40.14, 48.2*

   The phrase "restore woody riparian vegetation" is included in the purpose and need for action section in chapter 1 of the FEIS.

3. *SRP recommends that USFS include analysis related to climate change in the water and riparian section similar in scope to other sections.40.46*

   A climate change section is included in the Water and Riparian Resource Report.

4. *SRP recommends that USFS clarify that the statement: "stream reaches within the Rim Country Project area are experiencing increased water flows" relates to increased peak flows during high precipitation events. 40.47*

   The Water and Riparian Resources Report and the Water and Riparian environmental consequences section of the FEIS has been updated, with addition information in the affected environment section describing stream reaches.

5. *In the last paragraph, USFS describes how BMPs are effective in preventing long-term degradation of water quality. SRP recommends that USFS also include a similar statement related to BMPs reducing any potential short-term degradation of water quality. 40.48*

   The commenter's recommendation and the requested information has been added to the Water and Riparian Resources Specialist report and the Water and Riparian section of the FEIS.

6. *USFS includes a short analysis on increased water yields stemming from mechanical treatments. SRP recommends that USFS expand upon this analysis in the EIS to include the full range of literature that exists on this topic. 40.49*

   The Water and Riparian Resources Specialist report includes a more detailed description of best available science including potential for increased yields following vegetation treatments.

7. *SRP also recommends including a statement that mechanical treatments could see reductions in evapotranspiration and that additional water could be recharged in environment. SRP recommends that USFS use language in the soil section on page 124 to complement the analysis in Water Quantity analysis. 40.50*

   The recommended information about additional water recharge has been adequately covered in the soils analysis in the FEIS and the Soils Specialist report for this project.

8. *USFS states that "In drier ponderosa pine stands, increased yields the observed response would be greatest in wet years and smallest or non-detectable in dry years." SRP suggest that in addition to explaining the relationship between thinning and extremes in seasonal precipitation, the EIS should include a description of the potential for increased yields during moderate runoff years. 40.51*

   The Water and Riparian Resources Specialist report and Water and Riparian Environmental Consequences section of the FEIS provides a more detailed description of potential for increased yields following vegetation treatments. See response to watershed recommendation 6.

9. *USFS states that "It should be noted that a potential increase in the magnitude or duration of effects from a greater number of temporary roads will likely be spread over a larger geographical area, including many additional watersheds, this in essence spreading out potential effects". SRP recommends the USFS apply this statement to the Road Activities subsection in the Riparian and Wetland Resources. 40.55, 40.56*

   On page 115 in the Road Activities subsection in the Riparian and Wetlands Resources section it states that "No temporary roads are to be located in close proximity (as defined as the AMZ width) to these resources." Regarding temporary roads outside AMZs, we have incorporated the same recommended language into this section of the FEIS. "It should be noted that a potential increase in the magnitude or duration of effects from a greater number of temporary roads outside AMZs will likely be spread over a larger geographical area, including many subwatersheds, thus in essence spreading out potential effects to riparian and wetland resources."

10. *USFS states that "no long-term, cumulative adverse effects from ground disturbance caused by mechanical thinning... are anticipated". SRP recommends that USFS include a similar statement related to short-term localized effects and that the inclusion of the Best Management Practices would minimize any potential impacts. 40.57*

    The recommendation has been incorporated in the Soils and Watershed section of the FEIS. This statement has been moved to the cumulative effects analysis, where reference to design features is included as well.

11. *SRP suggests USFS update this item to allow for the water bar lead outs to be long enough to function and remove the minimum length requirement. In addition, SRP recommends removal of the references to specific equipment used to install water bars. USFS should clarify that water bars could be seeded, mulched, and/ or cross-ripped. 40.81*

    The recommendations for the design feature have been added in appendix C of the FEIS (design feature SW021). Seeding, mulching or cross-ripping of water bars could occur when the temporary roads and or skid trails are decommissioned or closed.

12. *USFS should consider adding an assessment of sediment erosion/transport/accumulation. 40.103*

    The Soil and Watershed Report and the Soils and Watershed section of the FEIS includes an analysis of sediment delivery and average annual hillslope sedimentation.

General Concern: The DEIS does not propose to address existing damage to watersheds caused by roads or other human activities. It is uncertain if restoration actions will be implemented.

13. *But a major concern we have is that there isn't enough certainty those restoration actions will come to pass. The DEIS doesn't identify a single watershed-damaging road segment for decommissioning, for example. It doesn't specify for rehabilitation any particular spring or riparian area where human activities have caused, or are causing chronic erosion or sediment pollution. 42.4*

    Up to 490 miles of road are proposed for decommissioning, up to 800 miles of unauthorized routes are proposed for decommissioning, and road relocation and reconstruction is proposed for roads that are in poorly located areas such as canyon bottoms, meadows or riparian areas. Up to 184 springs are also proposed for restoration. Considerations for prioritizing specifically where and when these treatments are implemented using the aquatic and riparian condition-based management approach are displayed in table 116 in section D of appendix D in the draft environmental impact statement and included in the FEIS implementation plan in appendix D, Table D-3.

General Concern: Commenters provided a recommendation to combine paragraphs in the EIS.

14. *USFS states that "detrimental effects to surface water quality and water storage capacity in livestock and wildlife waters." SRP suggests USFS combine this paragraph with the 4th paragraph that provides more in- depth analysis on the impacts of sedimentation on water quality, supplies and infrastructure. 40.58*

    The FEIS has been updated with the recommended combination of paragraphs.

15. *SRP recommends that erosion control measures could include the use of slash material. 40.85*

    The design feature for SW042 (FEIS SW040) does include the use of slash for erosion mitigation on skid trails and landings, clarification to SW040 has been added with a correct reference to SW021 which states "Slash is the preferred method for diverting water if of sufficient quantity and size is available to maintain complete contact with the ground."

16. *SRP recommends that USFS increase the allow able depth of a rut, and recognize that any rutting that occurs would be restored as soon as possible. 40.86*

    The design feature has been updated. This design feature was developed by the Forest Soil Scientists on the 4FRI forests with consideration of the Forest Soil Disturbance Monitoring Protocol (USFS 2009) in maintaining overall satisfactory soil conditions across a mechanically treated unit. Limits on rutting depth are necessary to prevent erosion, detrimental soil disturbance to depths that are difficult to adequately ameliorate and that could lead to broken tree roots resulting in drought stress of remaining trees. Ruts deeper than 10 inches make difficult the ability of contractors to comply with provisions such as B6.6 of timber sale contracts.

Watershed and Aquatics

General Concern Comments

General Concern: Commenters provided comments related to water resources.

1. *However, we are still concerned that the water resources, watersheds, and considerations for aquatics are not being addressed with the same importance and attention as called out for the timber resources and their management in the DEIS. 46.3*

   Effects to water resources, watersheds, and aquatic species are included in the analysis and are given equal consideration in the analysis as other resources such as timber. The watershed and aquatics analysis can be found in chapter 3 of the FEIS and the specialist reports are available in the project record.

Analysis Comments

General Concern: Commenters provided comments related to analysis areas, cumulative effects, and the lack of data presented with analytic support.

1. *DEIS doesn't analyze and disclose the condition of analysis area streams in terms of their sediment levels, comparing normal to elevated. The same can be said for stream temperatures, large wood, alteration of flows from NRV, etc. Cumulative effects on aquatic species was not analyzed. 42.218*

   Within the Rim Country project area, 274 miles of streams and 739 acres of lakes were assessed by the Arizona Department of Environmental Quality for the water quality information referenced in affected environment sections of the Water and Riparian Resource Specialist report and in chapter 3 of the FEIS. A discussion of those water bodies with exceedances, including for suspended sediment concentrations, was included. Water temperature is not a parameter evaluated under any of the designated uses recognized by the State of Arizona, therefore no information regarding this parameter was provided. Although not analyzed specifically, presence and future availability of woody material in stream systems and stream flow alterations are included as indicators in the proper functioning condition ratings for riparian systems which were summarized in tabular form by subwatershed in the aforementioned specialist report and

summarized in chapter 3 of the FEIS. Cumulative effects to aquatic species were analyzed on pages 442-447 in the draft environmental impact statement.

2. *The DEIS has little in the way of analysis of impacts on habitat features needed by species. For example, for the Little Colorado spinedace, lots of metrics occur disclosing acres or miles of actions, but nothing about how the proposal affects key habitat features relied upon by the spinedace. Direct, indirect, and cumulative effects cannot be understood with this approach. So assumptions such as "Design Features, Best Management Practices, and Conservation Measures…are expected to minimize effects throughout the analysis" stand without any analytic support. 42.215*

   Resource indicators and measures were used in the analysis for all species to provide a basis for comparison of alternatives. The overall analysis is at the broad scale. This is described in the Aquatic Report and chapter 3, Aquatics section of the FEIS.

3. *The DEIS doesn't analyze and disclose the condition of analysis area streams in terms of their sediment levels, comparing normal to elevated. The same can be said for stream temperatures, large wood, alteration of flows from NRV, etc. Cumulative effects on aquatic species was not analyzed. 42.218*

   Temporary roads were analyzed in the Soils and Watershed Specialist report under Temporary Road Construction and Road improvements. Several design features (SW013, SW040, SW048, TR001, and TR008) restrict location temporary roads and/or minimize potential impacts including upland erosion/sedimentation. Since these are "temporary" roads and will be decommissioned at the conclusion of treatments, elevated erosion rates will revert to the background levels within three to five years post treatment.

4. *The sedimentation analysis should have used buffer distances consistent with the aquatic species and habitat analysis. Further, though the Forest Service provides tables and model result summaries showing potential sedimentation for each TES Strata, the analysis fails to adequately synthesize this information into any clear analysis of the potential environmental consequences under each alternative. Soil and Watershed Specialist report at 161-252. For example, the analysis fails to disclose how much sedimentation may result from the construction, reconstruction or use of forest roads, which is a major omission especially for temporary, unauthorized or those roads in ML 1 status.42.260*

   Temporary roads were analyzed in the Soils report under Temporary Road Construction and Road improvements. Several design features (SW013, SW040, SW048, TR001, and TR008) restrict location temporary roads and/or minimize potential impacts including upland erosion/sedimentation. Since these are "temporary" roads and will be decommissioned at the conclusion of treatments, elevated erosion rates will revert to the background levels within three to five years post treatment.

Clarification Comments

General Concern: Commenters proved comments that need clarification in the DEIS. These are related to aquatic and watershed restoration work; add descriptions to the wet meadows and adjacent dry uplands; recognition of the importance of wet meadow hydrologic features impact; an agreement related to an overarching goal of watershed protection.

1. *How much aquatic and watershed restoration work is the FS guaranteeing, where exactly would it be? 42.235*

   The Rim Country project includes aquatic and watershed restoration as part of the purpose and need and these are important aspects of implementation.

2. *All perennial, ephemeral, or intermittent streams and stream segments in the RCP footprint, and including Wet Meadows and adjacent "Dry Uplands" without regard to arbitrary classification or description, should be eligible under the EIS to receive restoration and/or improvements, if needed and properly analyzed, without additional time consuming and expensive NEPA efforts. 45.3*

   The aquatic and watershed condition-based management approach (appendix D) has tools and treatments applicable to all stream categories and many ecological types. See response to watershed and aquatics analysis 2 and 3.

3. *The importance of Wet Meadow hydrologic features impact to overall watershed and aquatic ecosystem health and recognition of the need to address restoration of these forest features. 46.11*

   The aquatic and watershed condition-based management approach (appendix D) has tools and treatments applicable to many ecological types and features including wet meadow features.

4. *However, our goal is still to see more importance put on the hydrology and aquatic ecosystems in the footprint, as you cannot have a healthy forest or watershed without the cumulative health of the uplands and waterways, including the aquatic inhabitants. Given that the overarching purpose of these National Forests is protection of the Watersheds, we think that goal is appropriate. 46.21*

   The aquatic and watershed condition-based management approach (appendix D) was developed and will be used for restoring watershed health, waterways, and improving aquatic habitat. See watershed and aquatics clarification 1.

5. *Much of the riparian restoration involved removing or mitigating the negative influences from human actions, but the DEIS doesn't specify the degree actions would actually be carried out under the CFLRPlan.42.27a*

   The Aquatic and Watershed Condition-Based Management Approach (appendix D) discussed in Section F of Appendix D of the FEIS discusses the "degree of actions" that could be implemented by the proposed action.

Recommendations Comments

General Concern: Commenters provided a recommendation for restoration of hydrologic ecosystems.

1. *Audubon is in agreement with the following recommendations from Trout Unlimited. All waterways – perennial, ephemeral, or intermittent – as well as upland dry drainages, be eligible under the EIS to receive restoration and or improvements and 2) Prioritizing and formalizing evaluation of the*

hydrologic impacts to streams, aquatic ecosystems, and riparian areas prior to mechanical or fire restoration prescriptions in their watersheds. We further recommend including restoration of wet meadows. Our partner, the Arizona Elk Society, has had incredible success with wet meadow restoration on the Coconino National Forest. 38.3

Wetland restoration is included in the aquatic and watershed condition-based management approach (Appendix D, section F). See response to watershed and aquatics analysis 2 and 3.

2. *Ideas for using slash from tree thinning-Lay larger pieces across small, low gradient gullies, pack small branches and twigs as sediment filter to create stepped series of little ponds along gully. Should be done at the same time as tree thinning due to presence of labor force on site. Eliminates having to return with vehicular traffic later, reducing impact of work. 9.1*

   The Aquatic and Watershed Condition-Based Management Approach discussed in Section F of Appendix D, Chapter 5 of the FEIS discusses the types of actions" that could be implemented by the proposed action including the use of natural woody materials for use in erosion control and stabilization structures.

Watershed and Soils

Clarification Comments

General Concern: Commenters provided comments requesting more information to be added to the EIS for snowpacks such as monitoring, indicators, and thresholds/triggers.

1. *In the 3rd bullet, USFS should include trends of decreasing snowpack to the soil moisture trigger. In reference to Table 131, USFS should:*
   a. *Add Snowpack monitoring to assessment for forest structure (indicator no. 6 or 16) or with soil moisture. Revise Indicator No. 28 to assess snowpack and soil moisture, removing other components evaporation, surface water flow, groundwater that may have been addressed in new questions.*
   b. *Indicators 33 and 34 Surface water and Ground water would fall under Tier 1.*
   c. *Indicators 35-40 would be Tier 2 based on text for suggested indicators.*
   d. *Several of the thresholds/ triggers and cost have TBD, USFS should provide updated information. 40.99*

   The threshold/trigger referenced has been updated in the Monitoring Plan (Appendix E) to include reference to snowpack: Trends of decreasing soil moisture or snowpack depth and persistence (after adjusting for climatic variability) in stands with similar treatment types and/or physiographic characteristics.

   a. Snowpack monitoring has been added to the soil moisture indicator in the table of suggested indicators. The version of indicator 28 that appeared in the draft environmental impact statement has been deleted from the table of suggested indicators. Snowpack and soil moisture are now grouped together in the same indicator. The indicators related to surface water and groundwater flow are stand-alone indicators. Evapotranspiration as a metric has been removed from the plan, though that doesn't preclude it from being monitored in the future if the 4FRI Multi-Party Monitoring Board, 4FRI Stakeholder Group, and/or the Forest Service prioritize it.

b. The referenced surface water and groundwater indicators have been included in tier 1 indicators.

c. The 4FRI Multi-Party Monitoring Board and the Forest Service have collaboratively categorized indicator 35 (aquatic habitat suitability and related metrics), indicator 36 (riparian morphology), indicator 37 (native riparian obligate plant species), and indicator 40 (watershed condition) from the draft environmental impact statement as tier 1 indicators. Indicators 38 (native riparian obligate animal species) and 39 (riparian soil condition) from the draft environmental impact statement have been categorized as tier 2 indicators.

d. In some cases, the most current scientific knowledge does not provide sufficient information to identify quantitative thresholds/triggers and adaptive management recommendations. When this occurs, available monitoring data would be analyzed, and the best available science reviewed to help develop thresholds/triggers and adaptive management recommendations for future management. Because of the long term over which the Monitoring and Adaptive Management Plan would be implemented, the Forest Service and the 4FRI Multi-Party Monitoring Board decided to remove the cost column from the table of suggested indicators, as any cost information could quickly become outdated and misleading. The Forest Service and 4FRI Multi-Party Monitoring Board will continue to track costs associated with monitoring.

2. *SRP recommends that USFS not specify the specific methods used to protect or cover exposed soil. This approach allows for flexibility and site- specific techniques over the next 20 years. 40.52*

   The Soils and Watershed section of the FEIS and the Soils Specialist report analyzes soil compaction.

3. *SRP suggests USFS include the use on in-woods processing sites in the list of areas that may cause short-term accelerated soil erosion. 40.60*

   In-woods processing sites are analyzed in the in Soils and Watershed section of the FEIS. In-woods processing sites constitute an irretrievable commitment of soils and vegetation resources since soils would be committed to nonproductive status for the duration of each wood processing site's existence and vegetation removal would be required for establishing sites, reducing the areal extent of available forage or forest cover.

4. *SRP recommends that USFS include a sub-section that includes analysis related to effects of Alternative 2 and 3 related to increased carbon sequestration in the soil from mechanical treatment. 40.62, 42.279*

   See Climate Change, clarification, 3.

5. *CONCERN: Rim Country LTIP eliminates a key phrase which would limit application on limestone soils. The 4FRI Stakeholders Old Growth Protection and Large Tree Retention Strategy describes within stand openings as being "most pronounced on sites with heavy textured (e.g., silt-clay loam) soils."56 This language was brought verbatim into the LTIP in the first 4FRI EIS.57 Interestingly, this phrase has been removed from the Rim Country DEIS. In a seminal work, Covington and Moore (1994) reported that "soils, developed on basalt and cinders, are mostly silty clays and silty clay loams" and that "soils, developed from limestone, are mostly sandy and gravelly loams and loams."58 As a large proportion of the Rim Country landscape is derived from limestone and sandstone, it is quite important that this reference to soil structure influences on tree aggregation is included.*
   RECOMMENDATIONS: 1) Consistent with the Old Growth Protection and Large Tree Retention Strategy and the first 4FRI EIS, any subsequent NEPA document prepared as part of the Rim Country analysis should include the line "These openings are most pronounced on sites with heavy textured (e.g., silt-clay loam) soils" in the discussion of within stand openings in the LTIP. 2) In light of the risk posed by over- thinning on sedimentary soils, we also request that the intensity of treatments is evaluated for their response on tree regeneration and increases in ladder fuels. 3) The language used in this exception category should be subject to change to accommodate other changes related to the use of the term interspace, discussed elsewhere in these comments as well as in the Stakeholders comment letter. 48.40, 48.41, 48.42, 48.43

   This information on connection between soil type and level of tree aggregation has been moved to section E of the implementation plan for consistency with other similar project implementation guidance. Additional literature (Rodman et al. 2017) has also been added to support this connection. Appendix D, the Implementation Plan has been modified to include a consideration that post-treatment natural regeneration may be more prolific on sedimentary soils than on coarse textured soils. This should be considered when assessing desired post-treatment stand density and regeneration needs. The use of interspace has been removed as a treatment metric and replaced with basal area. This was done in a collaborative manner with the stakeholder group.

Analysis Comments

1. *The DEIS totally ignores the damage to native microbiotic crusts, which potentially occur on much of the 1,000,000 or so acres where cattle graze. 42.71*

   Modeled biological soil crust (BSC) based on the latest BASI research indicates that about 6,000 acres of potential habitat exists in the proposed treatment areas. These areas associated with grasslands would generally not have large amounts of mechanical treatments due to lack of encroaching conifers. Rosentreter et al. 2008 shows that prescribed burns will not impact BSC. Proposed treatment areas and temporary road locations would be surveyed prior to implementation. Areas with BSCs would have equipment exclusion zones established around them and no temporary roads would be built. An analysis of the impacts from project implementation has been added to the FEIS, Soils and Watershed section.

2. *Cumulatively, rilling, gullying, and soil erosion will accelerate due to logging, burning, and continued chronic grazing stress and overarching climate stress. 42.78*

   Upland erosion and sedimentation into stream channels have been analyzed in detail in the Soils and Watershed and the Water and Riparian Resources Specialist reports and the corresponding section of the FEIS. FSWEPP Model runs have been included in the Soils Specialist report.

3. *Statements in alternatives comparison section. Soils and watershed cumulative effects section claims that "[s]ince Alternative 3 results in greater areal extent of areas that remain untreated, these areas will remain at risk of high severity wildfire, concentrated recreational uses,* ***and erosion and sediment delivery from roads that are not decommissioned****."[350] These statements are unsubstantiated. Since Alternative 3 would treat the areas most departed from NRV, untreated areas are by nature those areas which are at the least risk of high severity fire. 48.199*

   The number one driver of upland erosion and sedimentation into stream channels originates from roads. As proposed, less road decommissioning would occur in alternative 3 than alternative 2. Therefore, alternative 3 would maintain a higher sedimentation load in the watersheds.

4. *The Soil and Watershed report states, "many of the wet meadows, or slope wetlands in the project area exhibit erosion features such as gully erosion or development of channels in the meadows where they did not originally exist. Gullies and channels in wet meadows have resulted in drying of meadow systems since the channels tend to behave as drainage ditches." What causes this? The report also states "only minor, short term increases in water yield are expected." What are the numerical estimates that go with "minor, short term increases"? "upland treatments in watersheds may also improve water infiltration rates and increase subsurface flows higher in stream system that provide cool perennial water to streams which help to maintain stream temperatures." What research supports this statement? 42.234*

   There are many causative factors that may create gully features or development of channels in wet meadows. Some of which include road building, timber harvesting, range use, and changes to hydrological soil group from Class C to Class B that lowers the water table and thus creating channel development.

   Erosion modeling using FSWEPP can show increases in runoff from thinning treatments based on local climate, slopes, and surface soil texture. Infiltration rates would increase based on the lower amount of evapotranspiration used by a reduction of overstory vegetation.

5. *The lack of detail is an inherent flaw in the agency's use of the WCF because it precludes our ability to determine if the action alternatives will improve the road and trail indicator, and more generally if watershed condition class scores will actually improve as a result of decommissioning actions. For example, will the proposed action change any of the 111 watersheds functioning at risk to a condition where they are functioning properly? The analysis fails to provide any predicted changes to WCF scores for those indicators the Forest Service did include. 42.261*

   As detailed in the Soils and Watershed Specialist report, Water Quality (metric 1), aquatic habitat (metric 3), riparian/wetland habitat (metric 5), roads and trails (metric 6), and soils (metric 7), would generally be upward trending in those WCC watersheds where roads are decommissioned. Fire regime (metric 8), forest cover (metric 9), and forest health (metric 12) would have an upward trend post treatment. With all of these metrics, a particular watershed may have an improved WCC "score" based on the amount of the watershed that is treated. Overall, the watersheds would be improving in several metrics.

6. *Road construction and reconstruction should not be permitted in areas of landslide-prone soils. 42.259*

   The Rim Country project design features, best management practices, and conservation/mitigation measures (Appendix C) were created to minimize or avoid effects from the proposed activities; this would include road construction and reconstruction. See FEIS Appendix C design feature SW013. National Core BMP (USDA 2012b) Road-2 addresses this issue and is implemented as part of the proposed action.

7. *The problems Lacy identifies are evident in the CFLRPlan, resulting in inadequate assurances of long-term soil productivity in the DEIS. 42.289*

   Soil production is expected to be stable based on treatments. Soils, Analysis, Comment 28 below indicates that perhaps 6.3 percent of a watershed may have short term compaction and is not significant to impact the overall soil organism populations.

8. *Is there some research or monitoring on the Forests which has quantified the overall reductions of soil productivity due to past management activities? 42.290*

   Monitoring reports are available on each of the forest website (https://www.fs.usda.gov/). Detrimental soil disturbance surveys are conducted pre and post project implementation.

9. *The Soils analysis relies in part on the "Terrestrial Ecosystem Survey (TES) map unit stratification and soil interpretations." It doesn't seem like TES-based analyses take into account past impacts on soil productivity due to management actions. 42.291*

   TES based analysis takes into account the base soil characteristics, soil surveys, and monitoring data to determine the impacts of soil productivity due to management actions.

10. *Has the FS validated these TES erosion hazard ratings based upon monitoring or measuring on the ground? Has the FS compared WEPP or other modeling results to the ratings (i.e., in recent wildland fire areas, or areas disturbed by management)? 42.292*

    Burn area emergency rehabilitation surveys have been conducted on post fire areas. These are compacted to FSWEPP upland erosion and sedimentation rates and the TES. FSWEPP is the latest and best science.

11. *What is the threshold for exceeding "tolerance" soil loss rates leading to classification as moderate instead of slight? How does the FS measure soil loss rates? 42.293*
    What is the definition of "soil loss"? What is the definition of "site productivity" and how does the FS measure it? Has the FS performed validation studies comparing measures of soil productivity with model predictions? 42.294

    Soil loss tolerance thresholds refer to the rates of soil loss than can occur while sustaining inherent site productivity (Miller et al. 1995). Soils in each TES ecological unit are assigned tolerance soil loss rates based on individual soil and climate properties and approximate annual soil development rates.

    Maintaining soil erosion below soil tolerance levels assures soil productivity will be maintained with regard to activity-related soil erosion.

12. *"Where uncharacteristic, or high severity wildfires have occurred, eleven of the TES strata (strata numbers 2, 4, 7, 9, 12, 14, 16, 17, 19, 20, and 29), or 36 percent tend to exhibit erosion and sediment delivery rates above soil loss tolerance thresholds." (Id.) The Report isn't citing specific surveys, so is this just a modeling prediction? If there is field data, please present details on the locations of the surveys the sample size, the amount of erosion in tons, and the reliability of the data. 42.295*

    Current and predicted soil erosion rates were modeled for all alternatives using the Water Erosion Prediction Project (WEPP), Fuels Management (FuME) and Erosion Risk Management Tool (ERMiT) (USDA 2006) models. The FuME model is designed to predict sediment delivery from a variety of conditions, including undisturbed forest, wildfire, prescribed fire, thinning, and forest access roads. The ERMiT model is used to predict soil erosion and sediment delivery rates for undisturbed forest conditions and for post-fire scenarios of low, moderate and high soil burn severities. Table 14 of the Soils and Watershed Specialist report provides the predicted sediment delivery rates for each TES stratum for each of the forest conditions for which WEPP FuME is designed to model. Model outputs are included in appendix C of the Soils and Watershed Specialist report. The DEIS stated that this information is from the modeling results.

13. *Please display a map showing the locations of each TES Stratum plus the treatment unit boundaries. 42.297*

    A map has been added to the Soils and Watershed Specialist report that shows the TES stratum within the Rim Country project area.

14. *The Soil and Watershed Report states "Soils and watershed issues include:*

    - *Percent of soil exposure across treatment areas*
    - *Percent of soil disturbance across the treatment areas*
    - *Severity of soil disturbance across treatment areas*
    - *Construction of new roads could increase surface runoff, erosion, and sediment delivery to ephemeral drainages.*
    - *The amount of sediment that reaches ephemeral streams or drainages (displayed as embeddedness) could increase." 42.298*

    Why doesn't the DEIS present estimates or measures of the above analysis indicators? 42.298

    The soil and water resources condition indicators are the acres and severity of ground disturbance from equipment use and acres subjected to high-severity fire, as detailed in the Soils and Watershed Report. The list mentioned, are issues, or issue statements, the Soils and Watershed Specialist Report has been updated to reflect that soil exposure and soil disturbance across the treatment acres are issue statements by deleting percent, the above mentioned indicators capture the impacts from the proposed actions.

15. *The Soil and Watershed Report states: "Approximately 15 percent (142,969 acres) are estimated to exhibit varying degrees of soil compaction. …It is assumed that between harvest and fuel reduction treatment activities, every acre in each proposed treatment unit would be affected. Therefore, the total project acreage is assumed to be at risk for some level of soil disturbance." Has the FS estimated total reductions in tree growth, other vegetation growth, and site productivity due to this large areal extent of soil damage? 42.299*

Detrimental soil disturbance will not exceed the 15 percent standard. As the Forest Vegetation Simulator was calibrated using growth and yield data from mechanically treated stands, assumptions related to reductions in tree growth, other vegetation growth and site productivity are accounted for during modeling efforts.

16. *What is the predicted areal extent of hydrophobic soils in the analysis area? 42.300*

    Burning of large debris piles can create enough heat to sterilize the underlying soils and create hydrophobic conditions, exposing those sites to erosion for an extended period of time.

    Piling of activity-related debris (slash) would disturb soil surfaces, exposing them to direct raindrop impact and wind. On steep terrain this would increase localized, short-term erosion rates in areas where pile burning is conducted. These areas would constitute a very small percentage of the overall treatment area (i.e., less than 10 percent), so these effects are expected to be minor. Use of appropriate design features and BMPs as outlined in FEIS Appendix C would mitigate most adverse effects from piling of woody debris created during forest thinning operations. Additionally, use of excavators with hydraulic bucket thumb attachments would minimize soil disturbance resulting from machine piling more effectively than dozer piling.

17. *Why doesn't the DEIS present estimates of tons of soil eroded into water bodies? 42.302*

    Nonpoint sources of erosion cannot be measured accurately.

18. *How long does it take for these mitigations to return the soil to natural, non-compacted conditions with full site productivity? How long would it take without the mitigations? 42.303*

    Returning to "Full Site Productivity" is largely a function of soil surface texture, hydrological soil group (HSG), depth to restrictive layer, local weather conditions affecting the freeze/thaw cycles, and types of equipment used. Estimates for HSG A and B soils are twenty years and HSG C and D soils 30 years. Design criteria and BMPs in FEIS, Appendix C will reduce the time required to return to "Full Site Productivity" based on the total factors mentioned.

19. *Has the FS measured soil organism populations and trends on these Forests, especially in relation to management impacts ?42.304*

    Soil organism populations are expected to be stable based on treatments. Watershed and Soils Comment 28 below indicates that perhaps 6.3 percent of a watershed may have short-term compaction and is not significant to impact the overall soil organism populations.

20. *Soil interpretations are based on models used to predict soil behavior for specified soil uses and under specified soil management practices." (Id.) Has the FS validated these models? What are their limitations? 42.305*

    Soil interpretations are based on field surveys of the past three decades or so to develop the current TES.

21. *Which "past studies and relevant literature" (which the DEIS says support it soil analyses) demonstrate a correlation between measures of soil productivity and "acres and severity of ground disturbance from equipment use"? Which studies and literature demonstrate a correlation between measures of soil productivity and "acres subjected to high soil burn severity"? 42.306*

    Literature used includes USDA Forest Service. 1990. Soil and Water Conservation Practices Handbook. Forest Service Handbook 2509.22. USDA Forest Service, Southwestern Region. pp 83.

22. *But the DEIS doesn't define any threshold of ground disturbance or burn severity so that something about soils can be measured. It really is that vague. Perhaps this is why for existing conditions, no numbers are presented as estimates of soil disturbance or burns—not overall in the analysis area, and not site-specifically. 42.307*

    Erosion modeling using FSWEPP takes into account site-specific data of sloped, soil texture, distance to stream channels, and climate.

23. *The DEIS presents no site specific analysis disclosing erosion problems currently found in the analysis area, and fails to present any estimates of any measure of erosion or sedimentation into stream channels. 42.308*

    Erosion modeling using FSWEPP takes into account site specific data of sloped, soil texture, distance to stream channels, and climate.

24. *How many acres of the analysis area has experienced site potential alteration, because erosion of soils there will take hundreds or thousands of years to recover? 42.309*

    The Soils and Watershed report, affected environment section (that was incorporated by reference in the FEIS), identifies the existing soil condition acres of the analysis area, these acres include acres in impaired and unsatisfactory condition.

25. *Regarding predicted direct impacts of action alternatives, the DEIS is also lacking in numbers of acres to be disturbed by machines or from burning. It also fails to present FSWEPP model numbers representing erosion or sediment. As with the water quality analysis, the soils analysis contains a lot of general cause and effect statements without site specificity. 42.310*

    Erosion modeling using FSWEPP takes into account site-specific data of sloped, soil texture, distance to stream channels, and climate.

26. *"If the FS were to do it, how would "soil compaction, puddling, displacement erosion, loss of soil organic matter, short-term changes in soil moisture content or retention, changes in nutrient cycles, changes in soil fauna, and introduction of invasive and noxious weeds" be measured? 42.311*

    Many of these soil values are field reviewed during soil monitoring surveys.

27. *How would this improvement be measured, in terms of soil or site productivity and/or its correlates? And please explain how that "improvement" claim consistent with the following DEIS statements suggesting just the opposite: The amount of disturbance as a percentage of a typical harvest unit (such as, area included in a thinning contract) affected by compaction, rutting, and/or exposure of bare mineral soil from this type of harvesting has been estimated to be roughly 15 percent associated with feller-buncher and skidding operations, three percent associated with machine piling of slash, three percent associated with landings, and three percent associated with temporary roads*

(MacDonald 2013). … 5,223 acres (21 percent) could be affected by compaction, rutting, and/or exposure of bare mineral soil from mechanical thinning operations. 42.312

Improvements to the soils resource occur overtime. HSG class A and B soils return back to full soil production within 20 years and class C and D soils about 30 years before BMPs and Design features are implemented. Completing detrimental soil disturbance surveys would determine if there is a positive or negative trend.

28. *Also, regarding the above DEIS statements, how much total reduction in forest and site productivity would that soil disturbance cause? 42.313*

    On a watershed condition class watershed (averaging 40,000 acres), that value may be 30 percent times 15 to 21 percent potential compaction, which totals about 6.3 percent of a hypothetical watershed.

29. *How many acres of soils which "constitute an irretrievable commitment of soils and vegetation resources" would exist for Alternatives 1, 2, and 3? (Roads, rock pits, processing facilities, landings, etc.) 42.314*

    Expansion of 12 rock pits totaling 106 acres constitutes an irreversible and irretrievable commitment of soils and mineral resources under both action alternatives. This activity permanently alters or removes currently productive soils where the expansions would occur and commits them nonproductive status in perpetuity. It also commits rock material to a current use (road aggregate) thereby eliminating future opportunity to use those materials for another purpose. Wood processing sites totaling up to 128 acres commits soils to an unproductive status throughout the duration that wood processing sites exist and for several years following decommissioning of wood processing sites since it would likely take several years for recovery to be fully realized. This activity therefore constitutes an irretrievable commitment of soils and vegetation resources for the creation of wood processing sites. Reactivation of system roads that are currently in storage (i.e., ML-1) and relocating or realignment of existing system roads constitutes an irretrievable commitment of soils and vegetation resources since roads commit soils to an unproductive status for the duration of the road's existence and vegetation is removed from the area where the road is constructed and used. Overall, rock pits, wood processing sites, and roads constitute a small percentage of the total Rim Country project area. Adverse effects to soils, vegetation, water quality and watershed condition would be relatively small in areal extent when viewed in the context of the total project area.

30. *What is the empirical basis for the statement, "Surface disturbing activities that are older than 20 years are assumed to be contributing negligible or no measurable cumulative effect within the analysis area"? 42.317*

    Based on field experience of numerous earth scientists completing detrimental soil disturbance surveys throughout the western US for NEPA planning (Regions 1 through 6) and largely based on the hydrological soils group (HSG) of the soils in the harvest stands.

31. *What are the scientific and regulatory bases for SW041: "Heavy ground disturbance activity areas (landings, major skid trails, unsurfaced haul roads, etc.) and excessive ground disturbance in any location (i.e., exceeding the rutting guidelines) should aim to* ***not exceed 15 percent - areal extent of a treatment unit within a timber sale area****" and SW051 "Allow up 6 inches of rutting over no more than 15 percent areal extent along a skid trail (two or more drags being considered a skid trail)…"? 42.318*

    USDA Forest Service. 1990. Soil and Water Conservation Practices Handbook. Forest Service Handbook 2509.22. USDA Forest Service, Southwestern Region. pp 83.

32. *Cumulative effects … Add a one or two sentences that clarify the substantially reduced areal extent blurb." We add the following: Alternative 3 would add untold thousands of acres more "localized soil compaction, puddling, displacement, erosion, loss of soil organic matter, short-term changes in soil moisture content or retention, changes in nutrient cycles, changes in soil fauna, and introduction of invasive and noxious weeds" above and beyond the unquantified but substantial amounts of those damages past management has already inflicted upon the analysis area, but at least it wouldn't add as much as Alternative 2. 42.319*

    Cumulative effects for alternative 3 are less than alternative 2 based on the reduced amount of acreage of treatments. Design features, BMPS, etc., will maintain water and soil standards throughout the proposed treatment areas.

33. *The DEIS doesn't consider how management-induced damage to Ectomycorrhizal networks reduces site productivity. 42.321*

    Ectomycorrhizal networks are expected to be stable based on treatments. Perhaps 6.3 percent of a watershed may have short term compaction and is not significant to impact the overall soil organism populations.

34. *The DEIS states, "treatments would also expose more of the forest floor to direct sunlight which could remove the microsite habitat for mycorrhizal fungi production" but the significance on the ectomycorrhizal networks is not analyzed or disclosed. 42.322*

    Mycorrhizal fungi are expected to be stable based on treatments. Perhaps 6.3 percent of a watershed may have short-term compaction and is not significant to impact the overall soil organism populations.

35. *In areas of high stand densities …soils in these areas have reduced moisture storage and infiltration capacity." How have these changes in moisture storage and infiltration been measured in such stands? This is an extremely important question, because the analysis assumes that 953,130 acres (at least) need improvement (p. 122). 42.323*

    Reduced moisture storage and infiltration capacity is largely a function of the amount of biomass on a site. A stand with 400 square feet of biomass per acre will have a reduced storage and increase infiltration as compared to a pre settlement stand of 80 to 120 square feet per acre.

36. *And of the 21,280 acres of riparian areas, wet meadows, and stream channels needing improvement (p. 122), what units of measure have been used to determine they are not meeting desired conditions? 42.324*

    See response to watershed, clarification, 3.

37. *NEPA requires the FS to specify the effectiveness of its mitigations. (40 C.F.R. 1502.16.) The DEIS fails to specify the effectiveness of its soil and water mitigations. 42.320*

    Arizona Department of Environmental Quality via their biennial 305 Water Quality Assessment Report does review Forest Service BMPS and their effectiveness. ADEQ has repeatedly supported the effectiveness of BMPs.

38. *Since skid trail stream crossings can be approved during implementation (SW031, SW037), how does the DEIS analyze the amount of sedimentation this would cause in a given stream? 42.220*

    A sediment delivery analysis was not completed as part of the FEIS. Design Features are included, such as those related to AMZs, to minimize sediment delivery to streams to maintain compliance with the Clean Water Act.

39. *What is the basis for analyzing cumulative effects on only 137,153 acres for soils (p. 132)? 42.316*

    This figure has been updated in the FEIS. The geographic setting for the cumulative effects analysis for soils and watersheds includes all the 6th level (HUC-12) hydrologic unit subwatersheds that include Rim Country project area, which comprises approximately 2.7 million acres.

Weeds

Clarification Comments

General Concern: Commenters provided comments regarding clarification needed in the EIS. These clarifications include providing information on preventing, remediating, or controlling invasive species; include a discussion on how particular weeds are spread; clarification on the Forest's weed programs; and clarification on design features for weeds.

1. *It also does not have a realistic chance of preventing, remediating, or controlling invasions of exotic species; [Sec. 4003 (b)(3)(D)]. 42.46*

    Mitigation measures such as pre-survey (NW001) and treatment before, during, or post implementation (NW004) would address noxious or invasive weed issues that are present. Monitoring for forest priority noxious or invasive weeds would occur for a minimum of 3 to 5 growing seasons after implementation (NW004). Design features which limit the amount of soil disturbance permitted during timber sales and regulate the depth of rutting by vehicles when soil conditions are wet (SW047, SW048), would help reduce the amount of disturbance during operations, consequently reducing the amount of bare ground for noxious or invasive weeds to occupy. Other design features such as vehicle washing before equipment enters the site, assuring that gravel and fill are weed free to the extent possible (NW002). There are several design features for other resources that would aid in noxious or invasive weed control as well. See appendix C of the FEIS for the mitigations and design features that would be incorporated into project implementation.

2. *The DEIS provides no discussion on how particular weed species are spread. It doesn't have any discussion of the prospects for weed species to come under any natural controls, or if under "No Action" the weed species could be expected to increase to epidemic proportions. 42.334*

   The noxious or invasive weeds addressed in the analyses are limited to those that were addressed in the previous analyses for noxious or invasive weeds on each forest. This information can be found in the affected environment section of the Botany Specialist report. Each of these prior analyses have detailed information on the ecology and known distribution of the weed species as well as control methods for each weed species addressed. All analyses for the species addressed are shown in tables 17 through 19 of the Botany Specialist report. Additionally, there are numerous publications available that discuss biology, ecology, and methods of distribution for these species.

3. *Under No Action, "Weed infestations that would have been detected and treated would go unnoticed and continue to expand unless detected by other surveys or independent observations." Does this mean the Forests' weed programs have no value in the absence of this CFLR Plan? 42.335*

   The forests' weed programs would continue to have value in the absence of the CFLRP. Survey and treatment of noxious or invasive weeds will continue on the forests as part of the annual program of work for each forest, though pre-implementation surveys for Rim Country would not occur. See the existing condition and last few paragraphs of cumulative effects in the Botany Specialist report for more information on the past accomplishments of each forest's weeds program. Past surveys and treatments helped define the existing condition for weeds (see Botany Specialist report).

4. *"Preventative actions pre-treatment will be just as critical as adaptive management responses post-treatment, and will require identification of areas at risk for cheatgrass invasion prior to project implementation, such as areas where cheatgrass is already present or ecotonal areas adjacent to existing cheatgrass populations." This is not a part of the Design Features, which is where it belongs. 42.337*

   The Forest Service based discussions on the weed species addressed in each forest's past weed analyses, and cheatgrass was not included in any of these analyses. The Forest Service acknowledges cheatgrass and other non-native grasses are of weeds of concern, but they are widespread and difficult to treat. The design features provided in this analysis are designed to help mitigate the introduction and expansion of all noxious or invasive weeds and not just those known to be present in the project area.

5. *Why is the weed suppression part of the 4FR scope and allowed to continue by the contractors? Please Discontinue Weed Suppression Chemical application by the 4FRI contractors. Our pristine aquifers and public health should be protected by the government now contaminated by them. 1.1, 1.2.*

   Contractors are required to meet all the requirements and design criteria in the authorizing NEPA. Additionally, they must follow the herbicide label instructions to comply with Federal law. The use of contractors for this task is an efficient use of USFS resources.

General Concern: Commenters provided a comment for which clarification is needed regarding vegetation treatments.

6. *The DEIS says vegetation treatments can "provide favorable conditions for noxious or invasive weeds and could increase the size and density of existing populations, especially in areas where weed infestations already exist." Then it says, "These effects are reduced to a non-significant level by incorporating the mitigation measures and design features and by incorporating survey and treatment in the project." If there exists any empirical basis for that statement, please cite it so we understand what is meant by "non-significant." 42.336*

   This statement and judgement is based on the implementation of design criteria and mitigation measures in numerous projects throughout the USFS system. Land management plan monitoring has determined these measures effectively reduce the spread of noxious weeds post treatment. In addition, surveying for noxious weeds and treating them while infestations are small is the most cost effective and efficient way to reduce the spread of noxious weeds.

Missing Data Comments

General Concern: Commenters provided a comment regarding missing data for noxious weed infestation within the analysis area.

1. *The DEIS has no estimates of noxious weed infestations in the analysis area. There appears to be no on-the-ground survey data. The FS apparently does not know the landscape trend in noxious weed infestation, in acres or any meaningful metric. 42.331*

   On the ground surveys for noxious or invasive weed treatments are generally done as part of pre-implementation surveys. Therefore, much of the project area has not been recently surveyed. Instead, surveys would be executed prior to implementation of treatments in each area. The official database of record for the Forest Service is NRM/NRIS/TESP-IS. The database records occurrences of threatened, endangered, and sensitive plants as well as invasive species. Public facing data are available on the Southwestern Region website.

   Data collected from surveys for other previous projects or as independent observations exist for parts of the project area. However, these data cannot be used to address landscape scale trends for the species addressed in tables 17 through 19 of the Botany Specialist report. Current infestation and treatment data from the database of record are not included in the Botany Specialist report for the sake of brevity and because they would become obsolete over time as more surveys and treatments are done.

2. *The FS has no estimate of how the productivity of the land been affected in the Rim Country area and forestwide due to noxious weed infestations, nor how that situation is expected to change. 42.327*

   Forest Service Manual 2900 requires units to analyze the risk of project activities spreading noxious weeds. The analysis indicates that the impacts will be kept to a minimal amount due to the use of design criteria and mitigations in concert with project specific surveys and weed treatments. Soil productivity is not a measure used to determine the project's risk of spreading noxious weed, so it was not analyzed in the botany/weeds report.

3. *There is no cumulative effects analysis of how the spread of noxious weeds impacts land and soil productivity.42.332*

   Soil productivity is not a measure used to determine the project's risk of spreading noxious weed, so it was not analyzed in the botany/weeds report.

4. *The DEIS says firewood cutters are the only sanctioned general public activity allowed off motorized routes. How many acres of potential soil disturbance, and how many acres of potential weed spread does that represent?42.338*

   Impacts from firewood cutting are discussed qualitatively in the effects common to alternatives 2 and 3 section of the Botany/Weeds Specialist report (pp. 88-92). These impacts are discussed qualitatively because the number of permits and location of impacts can't be predicted.

Cumulative Impacts Comments

General Concern: Commenters provided comments related to the lack of analysis for cumulative effects.

1. *Exotic plant spread is a potentially significant cumulative impact of the proposed action. 48.174*

   The Botany Specialist report includes a discussion on the existing condition, which includes other activities that may have contributed to the past introductions or increases in noxious or invasive weeds. Many factors may contribute to introduction and increases in noxious or invasive weeds in an area. These are discussed in the Botany Specialist report and include activities such as vehicle travel, wildfire, fire exclusion, timber harvest, grazing by domestic and wild animals, and activities by the public such as recreation and firewood cutting. All these activities individually and collectively can contribute to the introduction and expansion of noxious or invasive weeds.

2. *The DEIS lacks analysis of the cumulative effects of these programs (noxious or invasive weed treatment). 42.330*

   The cumulative effects of noxious or invasive weed treatments are briefly addressed in the Botany Specialist report. The three forests have been treating noxious or invasive weeds for many years, even before the integration of herbicide into treatment, using mechanical, cultural, and grazing treatments.

Wilderness

Analysis Comments

General Concern: Commenters provided comments related to a lack of analysis for wilderness areas and wild and scenic rivers.

3. *The DEIS fails to present an analysis which demonstrates these actions would with maintain the outstandingly remarkable values which make them eligible. In fact, the DEIS analysis for scenic integrity, which would be changes to outstandingly remarkable values, is strongly biased toward conclusions of minimum impacts. 42.339*

   The Scenic Resource Specialist report has been expanded to highlight the existing design features specific to eligible wild and scenic rivers. These design features were included specifically for the purpose of adjusting proposed treatments in the future as eligibility and suitability are determined. Any management activities proposed in eligible wild and scenic river corridors would have the purposes of restoring natural geomorphic and ecological processes and the specific outstandingly

remarkable values of the river. These activities are proposed to move the vegetation within the corridor toward desired conditions outlined in the land management plan and according to the standards and guidelines for the river corridors. In addition, the proposed activities would help to protect potential scenic values of the eligible wild and scenic river from the effects of catastrophic wildfire. There is anticipated to be a range of low to moderate effects to scenic resources in the short-term associated with mechanical treatments and prescribed fire within these areas.

4. *The DEIS doesn't include an analysis of CFLRPlan impacts on visitor experience within Mazatzal and Hellsgate Wildernesses. 42.340*

   There are no treatments proposed in wilderness under the Rim Country Project. The Scenic Resource and Recreation Specialist reports and FEIS Chapter 3, Scenery section has been updated to include more details on the potential in-direct impacts to visitor experience from treatment activities occurring adjacent within wilderness areas.

Clarification Comments

General Concern: Commenters provided a comment in which clarification is needed for management impacts on areas for future wilderness designations.

1. *The FS is required to discuss management impacts on areas of "sufficient size" for future wilderness designation, per Lands Council and 16 USC 1131(c). 42.342*

   See response to wilderness analysis 2.

2. *Maximize Wilderness Areas! 2.1*

   The Rim Country project does not designate wilderness and there are no treatments in wilderness.

3. *The FS must analyze and disclose impacts on the Roadless Characteristics and Wilderness Attributes of any Rim Country analysis area roadless expanse. The public must be able to understand if management activities would cause irreversible and irretrievable impacts on the suitability of any portion of roadless expanse for future consideration for Recommended Wilderness or for Wilderness designation. The FS must acknowledge the best scientific information that recognizes the high ecological integrity and functioning of roadless and unmanaged areas. Management activities have damaged the streams and other natural features found in the Rim Country watersheds. The FS has yet to demonstrate it can conduct large scale resource extraction sustainably in roaded areas. 42.343, 42.344*

   An analysis of the project's impacts to inventoried roadless area characteristics has been added to the FEIS, chapter 3, inventoried roadless areas. There are no wilderness areas in the project area. There are no recommended wilderness areas within the project area.

4. *The DEIS also doesn't consider impacts on uninventoried roadless areas. There must be public procedures to evaluate unroaded areas contiguous with IRAs and existing Wilderness 42.341b*

   There are no uninventoried roadless areas in the project area, the forest's land management plans do not provide management direction for these areas because they are not recognized designations. Refer to IRA analysis for inventoried roadless areas.

Inventoried Roadless Areas

5. *The DEIS doesn't contain the word "roadless" but the Recreation Report states, "Temporary roads will not be constructed within inventoried roadless areas (IRAs)." 42.341a*

   Information on IRAs has been added to Chapter 1, Existing Conditions. Chapter 2 now contains information in IRA treatments by alternative. A separate analysis of inventoried roadless areas has been added to the FEIS in chapter 3 This analysis identifies impacts to the nine inventoried roadless area characteristics. Additionally, a Regional Forester Briefing Paper was submitted to the Regional Forests for authorization of treatments in IRAs.

Wildlife

General Comments

General Concern: Commenters provided comments related to lack of inclusion of recommendations not being fully incorporated; and a request that the exception criteria for "MSO Recovery Habitat" in the large tree implementation plan should only apply to 20,726 acres.

1. *The Department is concerned that some if its environmental analysis and recommendations have not been fully incorporated into the DEIS, such as the inclusion of Species of Economic and Recreational Importance (SERI) provided to the USFS and identified in the Arizona State Wildlife Action Plan. It is also unclear if this information was used in the resource specialist reports that assist in the underlying assumptions and analysis for the DEIS. 28.1*

   The wildlife analysis includes an analysis of species that are required to be analyzed by law, regulation, and policy for forest system lands. This does not include species of economic and recreational importance identified in the Arizona State Wildlife Action Plan. The wildlife biologist worked closely with the Arizona Game and Fish Department to ensure they are aware of the species that are required to be analyzed for this project. Habitat recommendations for wildlife, including game species, were provided by the Arizona Game and Fish Department for the Rim Country design features. Some of these species are also management indicator species which only occur on the Tonto National Forest. An initial assessment of Rim Country-related effects on each species are incorporated into the management indicator species analysis.

2. *In the Rim Country DEIS, habitat criteria for Nest/Roost recovery habitat was met for 39,461 acres which includes 20,726 acres of pine-oak, 14,407 acres of mixed conifer, and 4,328 acres of GeoPhys model (unsure of what this means). 53 Therefore, we would argue that the exception criteria for "in MSO Recovery Habitat" in the LTIP should only apply to 20,726 acres. 48.33*

   The geophysical model is a geographic information system modeling method for determining recovery habitat that is cited in the revised Mexican spotted owl recovery plan (Johnson 2003). All 36,691 acres of nest/roost recovery habitat would be managed following recommendations from the revised Mexican spotted owl recovery plan for the Rim Country project. The large tree implementation plan exception criteria would apply specifically to all Mexican spotted owl nest/roost recovery habitat.

3. *SRP recommends that USFS incorporate the best management practices into the effects analysis for each species, which minimize or mitigate potential impacts. In addition, USFS should ensure that analysis for each species includes a discussion of the beneficial long-term effects that Alternative 2 and 3 would provide by reducing the threat of uncharacteristic wildfire. 40.74*

Appendix C lists all design features and best management practices for wildlife species. The design features may not specifically call out the specific species that the design feature is intended to alleviate impacts to because they reduce or eliminate impacts to multiple species. The design features are part of the alternatives and therefore the effects analysis reflects this. The effects analysis includes an analysis of the beneficial and adverse effects of the alternatives. Best management practices are called Design Features for this project. Design Features were discussed for each species analyzed in the Terrestrial and Aquatics Wildlife Specialist reports and in the Biological Assessment (BA). The effects to each species analyzed in these reports from each alternative were included and considered. Long-term beneficial effects from alternatives 2 and 3 are discussed and compared to alternative 1, no action, and FVS and Fire modeling show that over the 20-year span of the project, if alternative 2 or 3 is implemented, risk of wildfire is greatly reduced. See Mexican spotted owl and northern goshawk analysis of effects in the Wildlife Specialist report.

4. *SRP suggests that USFS consider, in consultation with U.S. Fish and Wildlife Service, that limited waivers for northern goshawks be available during the breeding seasons. 40.90*

   Northern goshawk and its management is not consulted on with the USFWS. Management actions and analysis toward the northern goshawk wouldn't be included in the BA. Design features (FEIS appendix C) were added that state that seasonal restrictions can be waived if northern goshawk are not nesting in a given post-fledging area that season or year (WL019, WL022).

Analysis Comments

General Concern: Commenters provided comments regarding insufficient information for population numbers; a request for information on significant changes to wildlife habitat caused by fires; lack of disclosure for critical habitat current conditions; land management plan consistency; lack of analysis for supporting the condition-based management approach; need for clarification regarding adverse impacts to sensitive species; lack of analysis for opening maintenance level 1 roads and the impacts to narrow headed garter snake populations; lack of analysis for Gila trout; no quantitative analysis for aquatic macroinvertebrates; and misleading information for mitigations.

1. *The DEIS contains insufficient information to determine population numbers, distribution of individuals and subpopulations, and population trends of the species of concern. 42.175*

   The Forest Service analyzes at-risk species directed by law, regulation, and policy. This includes federally listed and Forest Service sensitive species. Federally listed species will be analyzed with concurrence from the U.S. Fish and Wildlife Service in a biological assessment. National Forest Management Act and National Environmental Policy Act requirements must document species and habitat presence and the specific effects mechanisms that would cause effects to species. Effects to Threatened and endangered species requires the Forest Service to complete Section 7 Consultation with a Biological Opinion from U.S. Fish and Wildlife Service. Sensitive species require an analysis of the population viability trend and a determination if the project would affect this trend.

2. *The DEIS provides a list of 22 fires in the analysis area under the section, "Severe Disturbance Area Treatments." Where is the analysis of the effects of those fires, which examined and considered significant changes to wildlife habitat caused by those fires? 42.176*

   Severe disturbance areas are included in the existing conditions and have altered the vegetation in some areas and surrounding stands. Mechanical treatment would be required to remove the high volume of small sized trees or shrubs that are encroaching. Removal would be necessary so as not to increase fuel loading in these areas.

3. *Current conditions within critical habitat and including the Primary Constituent Elements (PCEs) are not adequately analyzed and disclosed. 42.191*

   Current conditions in Rim Country Mexican spotted owl critical habitat are reviewed in the biological assessment and Wildlife Report as part of protected activity centers, and recovery habitats which are included in Mexican spotted owl critical habitat analyses. Primary constituent elements are disclosed and analyzed in the FEIS, Chapter 3 Terrestrial Wildlife section, in the biological assessment for alternative 2, and Terrestrial Wildlife Specialist report by alternative.

4. *The analysis in the DEIS is insufficient to comply with the agency's legal requirements under the National Forest Management Act to maintain viable populations and maintain biodiversity, and to take a hard look at potential impacts per NEPA. We are concerned that the FS will fail to protect the northern goshawk's habitat needs, including the retention of large trees, snags, and dense forest cover. Protections are required for nesting, foraging, and non-breeding season habitat. Northern goshawks use a variety of coniferous and deciduous forests. The FS proposes to cut a lot of large aspen trees in efforts to restore stands, but the DEIS fails to consider these trees' importance for northern goshawks. 42.197*

   The Terrestrial Wildlife Specialist report analyzes northern goshawk (a Forest Service sensitive species and not federally listed) and documents a determination that the project may affect individual northern goshawks but is not likely to cause a trend toward Federal listing or loss of viability for the action alternatives. This analysis addresses policy requirements and responds to key issues raised by the public including issue 2, treatments in northern goshawk habitat and issue 3, large tree retention. Indicators include changes in the amount and/or quality of northern goshawk nesting and post-fledging family area habitat. Specific measures are included in the Terrestrial Wildlife Specialist report.

5. *The FS proposes no analysis and provides no evidence supporting its FTA. Assertions that management activities will sustain the viability of the northern goshawk forest-wide or otherwise meet the biodiversity goals of the National Forest Management Act, or will avoid potentially significant impacts to the species, are arbitrary and capricious, and a violation of NFMA and NEPA. 42.202*

   See response to wildlife analysis 4. Specific design features and analysis related to northern goshawk are included in the Terrestrial Wildlife Specialist report and chapter 3 and appendix C of the FEIS respectively. Seasonal restrictions within a quarter mile buffer of post-fledging family areas are incorporated into the Rim Country project to protect northern goshawk (see Appendix C – Design Features WL019, WL020, WL021, WL022). In areas where northern goshawk surveys have not occurred, the project would require either pre-treatment goshawk surveys or implementation outside of the breeding season with low-severity fire and thinning treatments that promote large trees. Condition-based management includes a place holder for northern goshawk

post-fledging family areas. When in a post-fledging family area, the silvicultural prescription calls for retaining canopy cover and large trees and snags at the maximum end of the range.

6. *"Alternative 2 would have no effect on burrowing owls but would improve potential future habitat for the species." This is self-contradiction. It also ignores direct and indirect impacts on potential nesting sites and foraging areas. As discussed above in Viability, adverse impacts on such sensitive species would be perpetrated and exacerbated without a known threshold triggering deeper viability concerns. 42.213*

   The analysis has been updated in the Wildlife Report and chapter 3 of the FEIS. The determinations of effects to burrowing owls for the proposed action and alternative 3 were changed from "no effect" to "may affect individuals but will not likely cause a trend toward Federal listing or loss of viability for the species." This is in accordance with what the Forest Service is required to analyze for Forest Service sensitive species. Treatments within the Rim Country Project would increase habitat used by the species (meadows and savannas).

7. *The DEIS is misleading to suggest proposed actions "reduce" effects since they really mitigate increased effects. Plus, the DEIS doesn't analyze the effectiveness of the mitigations. 42.227*

   The draft environmental impact statement states that the proposed action would reduce effects from severe wildfire when compared with no treatment. Mitigations were added to the project through design features to reduce effects from implementation, such as best management practices to reduce erosion or timing restrictions around Mexican spotted owl and northern goshawk nest sites. The effectiveness of these mitigations was considered in each species analysis of effects. Mitigations were considered in determination of effects to each species.

8. *The CFLRPlan does not represent an appropriately conservative approach to areas of mature riparian cottonwood-willow woodlands and dense mesquite associations; areas with a closed canopy and sub-canopy layer, and dense understory foliage in potential nest sites close to water and cottonwood trees important foraging. 42.205*

   The intent of 4 FRI Rim Country is to restore riparian areas and preserve desired conditions. This includes promoting large trees to grow in riparian woodlands. Design Features have been included to ensure burn plans and fire effects are minimal. For example, SW009 states: "No more than 5 percent mortality should occur in the mature desired riparian canopy along a streamside in each burn unit, with this mortality occurring as discontinuous patches" From Design Feature SW053: "Burn plans will be designed to promote resource benefits to riparian and wetland areas. Minimize fire severity in areas where degradation to riparian or wetland existing condition is a concern."

9. *Unfortunately, the DEIS assumes that treatments will yield desired results despite the stark fact that "No empirical studies have evaluated these management activities [restoration thinning or logging] on the Mexican spotted owl."[326] As is implied in the Notice of Intent to sue filed against the Forest Service by WildEarth Guardians, the current iteration of the monitoring plan does not provide adequate assurances that real science-based learning will be achieved. 48.190*

   Monitoring MSO PACs prior to implementation and post-implementation (thinning and burning) has been conducted under the first 4 FRI decision and for the Flagstaff Watershed Protection Plan (FWPP). In cooperation with USFWS, and to satisfy the concerns from stakeholders such as WildEarth Guardians, the Forest Service has set up a framework by which adequate monitoring

and careful planning can assist land management agencies in applying the best treatment to preserve MSO habitat and promote variables important to the species such as large snags, and large trees, and multi-storied canopy. All Rim Country treatments in PACs and Recovery Habitat are being consulted on with USFWS, with a Biological Opinion expected in late 2021. A monitoring plan for the MSO and MSO habitat in Rim Country will be developed with USFWS to ensure that real science-based learning will be achieved.

10. *Decision of Rim Country EIS determines where MSO recovery habitat stratification in the project area." Where in the DEIS is this habitat stratification delineated on maps? 42.193*

    There is a figure in the Terrestrial Wildlife Specialist report (USDA FS 2022, Figure 7. Mexican spotted owl habitat in the Rim Country project area) and within the FEIS chapter 3, Terrestrial Wildlife Section (figure 81 in volume 1 of the FEIS). It is a large-scale map but has Protected and Recovery habitat shown. Table 55 in volume 1 of the FEIS shows acres of Mexican spotted owl habitat within the project area across each of the three forests. The Terrestrial Wildlife Specialist report and the FEIS disclose in depth how the habitat was selected in the affected environment section.

11. *The CFLRPlan would result in "take" in designated critical habitat by the risky logging and prescribed burning. Finally, the DEIS fails to consider cumulative effects on land of all ownership across the known or expected range of the MSO. 42.194*

    "Take" will be determined by the U.S. Fish and Wildlife Service if it is warranted. Design features will ensure desired conditions are promoted over the long term. Short-term disturbance brought a Likely to Adversely Affect determination in Mexican spotted owl critical habitat as a result of the action alternatives, with long-term beneficial results as implementation of Rim Country restoration continues over the next 20 years. The Fish and Wildlife Service concurs with these findings.

    Cumulative effects are discussed in the Terrestrial Wildlife Specialist report and the FEIS in the section called ESA MSO Cumulative Effects and include the past, current, and reasonably foreseeable future actions from both Federal and non-Federal entities.

<u>Clarification Comments</u>

General Concern: Commenters provided comments in which clarification is needed.

1. *You can thin the forest using mechanical devices but first be sure that an animal isn't using that part of the forest as a home. If they are then they must be re-homed before destruction begins. 3.2*

    The project includes design features to mitigate effects from thinning and burning on federally listed species and forest sensitive species. For example, seasonal restrictions may apply so treatments do not disturb nesting species.

2. *In describing the effects of Alternative 2 on the northern goshawk, the DEIS states that "Mid-aged forest in age class 3 (5-12" in diameter), and age class 4 (12-18") would be greatly reduced, meeting desired conditions for these age classes in 30 years."99. Thirty years is far beyond the planning window for this project, and this statement indicates that intense treatments in northern goshawk habitat will push mid-size trees below desired conditions for three decades. In addition, modelling appears to fail to distinguish between landscape strata, and as such areas like northern goshawk*

PFAs in wet mixed conifer forest are considered to be above desired conditions, even though specific criteria for desired conditions apply to those strata. 48.74

The date of 30 years was an error in the Wildlife Report. The life of the project for the wildlife analysis is 20 years. Forest Vegetation Simulator modeling in ponderosa pine forests predicted one treatment and two wildfires where applicable. The Wildlife Report shows through Forest Vegetation Simulator modeling that in post-fledging family areas, and in areas outside of post-fledging family areas, mid-sized trees in age classes 3 and 4 are highly departed (increased) from the natural range of variability. The Wildlife Report states that after treatment these age classes would decrease from existing condition to be closer to the natural range of variability allowing for release of large trees so that they might grow larger. Further, the analysis shows that large trees in the 5 (18 to 24 inches diameter at breast height) and 6 (greater than 24 inches diameter at breast height) age classes both increase after 20 years of treatment in both post-fledging family areas and areas outside of post-fledging family areas. Where post-fledging family areas occur in mixed conifer if treatments do occur, they would follow management recommendations to promote large trees. If stands currently meet desired conditions, these stands would be deferred from treatment. Forest Vegetation Simulator modeling is included in the analysis.

3. *It doesn't make sense from an ecological perspective for the DEIS to be attributing a benefit for action alternatives because they would reduce the incidence of bark beetles—which cause tree mortality. Many of the ESA-listed, Sensitive, and Management Indicator Species rely heavily upon snags and other dead tree habitat structures. There is far less old growth (with its disproportionately more snags per definition), and decades of other snag loss from logging and firewood gathering. 42.161*

   By restoring southwestern ponderosa pine forest structure composition and pattern across the landscape the project would move these stands to be more resilient to fire, insect, and disease. Forest Vegetation Simulator modeling shows that after 20 years of treatment, there would be an increase in older trees per acre (trees greater than 18 inches diameter at breast height) in the ponderosa pine cover type across the Rim Country project area. Snags would remain above land management plan recommendations (one to two snags greater than or equal to 18-inches diameter per acre in ponderosa pine and three snags greater than or equal to 18-inches diameter per acre in mixed conifer). Design features (FEIS appendix C) are included in the project planning to protect large trees and snags.

4. *The DEIS acknowledges Alternative 2 "is likely to adversely affect" listed species and their critical habitat. It is unclear whether the FS has completed the required programmatic USFWS consultation for ESA listed species. 42.163*

   The consultation process for this project is not programmatic. Consultation discussions with the U.S. Fish and Wildlife Service have been occurring throughout the Rim Country planning process as Section 7 consultation under the Endangered Species Act and will be completed for the final preferred alternative prior to release of the draft record of decision.

5. *The DEIS states Alternative 1 (No Action) adversely affects ESA listed species. Is this consistent with all existing programmatic Biological Assessments and Biological Opinions for these ESA listed species? 42.164*

   The no action alternative is not the selected alternative to consult on with the USFWS.

6. *The FS did not publish the Biological Assessment (BA) on the 4FRI Rim Country website. This impedes the public from making informed comments on management actions likely to adversely affect listed species. The DEIS doesn't adequately analyze and disclose impacts of past management actions therefore no proper determination of baseline conditions has been completed, as required of a BA. 42.168*

   See response to wildlife, clarification, 4. Past management actions are included in the cumulative effects and existing condition summaries in the Terrestrial Wildlife Specialist report, the biological assessment, and FEIS.

7. *The DEIS does not describe the quantity and quality of habitat that is needed to ensure viability of ESA-listed, Sensitive, Management Indicator Species (MIS), or any other special status species present or having historic range in the Rim Country CFLRPlan area. 42.170*

   Population viability of species is only analyzed under the National Forest Management Act for land management plans. Species distributions and presence of habitat are included in the Wildlife Specialist report and chapter 3 of the FEIS.

8. *It doesn't explain its methodology for measuring the habitat for many of these species. It does not identify the best available science information the agency relies upon for complying with NFMA diversity requirements and planning processes. For Sensitive and MIS, it doesn't disclose or analyze the best available science on their population trends and habitat trends. 42.171, 42.172*

   The Tonto National Forest is the only forest whose land management plan includes management indicator species. Acres of habitat in the project area and species trends for Tonto National Forest management indicator species are summarized in the Wildlife Specialist report with a determination for each species. Each species' distribution in the project area is summarized in the Wildlife Specialist report and the FEIS.

9. *The DEIS does not estimate wildlife species' populations. It does not present the results of population or habitat monitoring as directed in the forest plans regarding the MIS. 42.173*

   Species distributions and presence of habitat are included in the Wildlife Specialist report and chapter 3 of the FEIS. Management indicator species population trends need to be monitored as the land management plans are implemented and relationships to habitat change over time. The Tonto National Forest is the only forest whose land management plan includes management indicator species. Acres of habitat in the project area and species trends for Tonto National Forest management indicator species are summarized in the Wildlife Report with a determination for each species.

10. *The Upper Gila Mountain Recovery Unit (UGM) "supports over half the known population of MSOs" and is vital for connectivity to other populations, according to Ganey et al., 2011. Due to the scale of management actions proposed in both 4FRI EISs, our comments urged the FS to act conservatively within MSO habitat and consider all cautions identified in the 2012 revised Recovery Plan. Still, the DEIS states, "Under Alternative 2, 81,624 acres (73 percent) of protected MSO habitat are proposed for thinning and/or burning or other restoration activities." The Forest Service acknowledges that "the 4FRI Rim Country Project may affect, is likely to adversely affect the Mexican spotted owl." 42.179*

    After revisions to protected activity center boundaries between the draft environmental impact statement and the FEIS, the Rim Country Project is proposing 18,371 acres of mechanical treatments in protected activity centers which represents 16 percent of all the protected activity

centers in the project area. The proposed acres to be treated in protected activity centers represent areas that are accessible and require treatment for restoration and fuel reduction to protect the rest of the protected activity center from prevailing wind driven fire.

These acres were developed with local district staff (wildlife biologists, silviculture, timber, and fuels specialists). These acres are included in the protected activity center atlas and are usually on ridgetops above the core area for the protected activity center which typically includes riparian habitat as well. Silvicultural prescriptions would improve habitat conditions for the Mexican spotted owl. For example, treatments would aim to reduce encroachment and create foraging opportunities, releasing large trees from encroachment to grow larger, faster, and/or creating opportunities for native hardwoods to return to the understory. Prescribed burning would have little to no effect on the Mexican spotted owl on 73,133 acres (60 percent of the total protected activity centers in the project area) as it would occur outside of the breeding season and would be low severity, cool season burns with the goal of reducing fuels and protecting the habitat from wildfire.

11. *Scoping comments requested that the FS not experiment with new management protocols across the 4FRI Rim Country which are inconsistent with the 1996 northern goshawk plan amendments. 42.195*

    Where treatment in post-fledging family areas occurs, all post-fledging family area management recommendations would be followed. This leaves large trees in nest stands and throughout the rest of the post-fledging family area. The focus in these areas is to reduce encroachment of small and medium trees where conditions are highly departed from the natural range of variability. Forest Vegetation Simulator modeling predicts that throughout the project area, both within and outside post-fledging family areas, large ponderosa pine trees, in age classes 5 and 6, would increase as a result of treatment over 20 years. See northern goshawk analysis in the Wildlife Specialist report.

12. *Clearcutting could effectively remove all northern goshawk habitat within aspen and other stands. The DEIS does not provide protections for nesting areas/stands (whether occupied or not, nor for alternative nest stands) which is inconsistent with best available science. In short, there are no real protections proposed for nests, even though northern goshawks are known to reuse breeding sites. 42.198*

    Clear cutting is not proposed in this project. Management direction for the northern goshawk and design features (FEIS Appendix C) are included in the analysis. Condition-based management for mechanical treatments includes requirements for post-fledging family areas. See response to wildlife, clarification, 11.

13. *The entirety of nesting areas in post-fledging family areas (PFAs) could be logged because the proposal does not identify which of several treatments could occur where, and clearcutting is not sufficiently limited. Such an action would have the potential to significantly impact the northern goshawk. 42.200*

    Nesting areas in post-fledging family areas would be treated to promote large trees and reduce encroachment that impedes northern goshawk foraging and flight. Clearcutting is not proposed in the Rim Country Project so it would not impact the northern goshawk nor its habitat.

14. *The DEIS mentions a revised proposed rule, which may include additional critical habitat, is being developed. It doesn't explain why a revision is believed necessary. 42.204*

    The U.S. Fish and Wildlife Service revised the critical habitat for yellow-billed cuckoo in 2020. No designated critical habitat occurs in the project area.

15. *There doesn't seem to be a survey protocol included, which would prevent "take." 42.227*

    Analysis of Chiricahua leopard frog and its critical habitat and northern leopard frog was in the wildlife section in the draft environmental impact statement; it is now in the aquatic analysis section in the FEIS. Project design features (appendix C) for northern leopard frogs have been updated/improved based on comments and collaboration with partners/stakeholders. Surveys following guidelines in the 2012 Chiricahua leopard frog recovery plan are included in the project design criteria. Taking is determined by the U.S. Fish and Wildlife Service during Section 7 consultation under the Endangered Species Act.

16. *The DEIS lacks meaningful direction maintaining landscape connectivity for wildlife. 42.229*

    Rim Country treatments would seek to restore forest conditions to allow for frequent fire to return to the landscape. Landscape connectivity for wildlife would be maintained, with short term alteration of habitat occurring with long term benefits of reduced severe wildfire effects while promoting overall restoration of the ecosystem.

17. *Include wildlife-related recreational statistics for the counties and across the Game Management Units (GMU's) within the footprint, including the most-valued hunting and fishing locations; and analyze in the EIS. The final EIS should also incorporate (a) the information and analysis provided by the Arizona Game and Fish Department (AZGFD) on Species of Greatest Conservation Need and Species of Economic and Recreational Importance (SERI), and (b) information/maps on the areas that sportsmen value most for hunting and fishing as identified by the Arizona Sportsmen's Values Mapping Project (ASVMP). 28.19, 31.6*

    We are not required by law, regulation, or policy to include recreational hunting data in the NEPA analysis for this project. Wildlife game species will benefit greatly from restoration actions as a result of this project and that is stated in the MIS analysis section of the Wildlife Specialist report for Rocky Mountain Elk and Merriam's Turkey. The wildlife analysis includes an analysis of species required to be analyzed by law, regulation, and policy for National Forest System lands. This does not include the species of economic and recreational importance identified in the Arizona State Wildlife Action Plan. The Forest Service is not required to supply information/maps on the areas that sportsmen value most for hunting and fishing as identified by the Arizona Sportsmen's Values Mapping Project. The wildlife biologist worked closely with the Department to ensure they are aware of the species that are required to be analyzed for this project. Habitat recommendations for wildlife, including game species, were provided by the Department and most were included in the Rim Country design features. Game species population trends are included in the wildlife analysis for the Tonto National Forest management indicator species analysis by alternative. The action alternatives would not result in a type conversion of mixed conifer or ponderosa pine habitat on the Tonto National Forest and therefore would have no effect on population trend for Arizona Game and Fish Department species of concern.

18. *Portions of the Rim Country footprint are identified in the ASVMP as highly valued for elk, mule deer, white-tailed deer and turkey. The information was gathered specifically to give hunters/anglers a voice in Arizona wildlife management, help prioritize areas for conservation/management, and to identify areas where access should be maintained for hunting and fishing. Given the economic importance of hunting and fishing to Arizona, especially communities near the Rim Country project, we believe the AGFD's information on SERI and the ASVMP should be included in the Final EIS and used in the planning and implementation phase of the project. 31.7*

    See response to wildlife, clarification, 17.

19. *Additional comments are necessary because (1) in the Four Forests Restoration Initiative ("4FRI") Rim Country Draft Environmental Impact Statement ("DEIS"), the Forest Service inappropriately and inaccurately claims that concern that the "proposed action may have negative effects" on MSO "is addressed" because the "wildlife analysis will reference all available monitoring information from the 1st 4FRI EIS and from other sources across the region" [DEIS page 25.]; and (2) the Forest Service inaccurately claims, in WildEarth Guardians v. U.S. Fish and Wildlife Service and U.S. Forest Service, Case No. 4/13-cv-151-RCC ("WildEarth Guardians v. USFWS"), that the current MSO monitoring plan is sufficient. 52.1*

    The Forest service will consult with the U.S. Fish and Wildlife Service on proposed treatments and effects to the Mexican spotted owl. The Mexican spotted owl monitoring for the first 4FRI analysis would be completed in 2021 and the results of these treatments will help guide future treatments, in close consultation with the U.S. Fish and Wildlife Service for Rim Country. Design features, such as buffering the protected activity centers during the breeding season by a quarter mile, seasonal restrictions within protected activity centers, speed limit restrictions, and other mitigations, would minimize effects to breeding Mexican spotted owl. Owls could over-winter in protected activity centers in the project area and could experience disturbance, which contributes to the final effects determination. The U.S. Fish and Wildlife Service will issue an incidental take statement if they determine it is necessary, with further guidance included in the biological opinion as required. The concerns regarding monitoring have been resolved with the Forest Service and Wild Earth Guardians through a cooperative agreement, whereby the Forest Service is standardizing its analysis for the Mexican spotted owl and developing a monitoring plan for large scale restoration projects in the region that would meet the monitoring needs and requirements of the Mexican spotted owl revised recovery plan.

20. *The Wildlife Report and Aquatic Specialist report mentions a Recovery Plan for the Mexican spotted owl, Chiricahua leopard frog, Little Colorado spinedace, razorback sucker, and loach minnow. Has a recovery plan been written for any of the other above ESA-listed species? 42.166*

    All existing recovery plans are cited in the FEIS and associated specialist reports.

21. *Notices of Intent to sue filed by Wild Earth Guardians, first at regional level, then more recently specifically with the Coconino, Kaibab and Apache/Sitgreaves forests over the monitoring of the Mexican Spotted Owl population, are likely to create considerable uncertainty with potential investors as to the stability of the 4FRI social license. 39.2*

    The Mexican spotted owl amendment exception would update the 1985 Tonto National Forest Land Management Plan, so it is consistent with the 2012 Mexican Spotted Owl Recovery Plan, which the Apache-Sitgreaves and Coconino Land Management Plans currently incorporate. This

plan amendment exception will update definitions, language, and treatments within Mexican spotted owl habitat.

22. *The DEIS states, "Prescribed fire is an appropriate and effective tool for improving habitat conditions within most PACs, including core areas." However, the DEIS admits this is highly risky. The FS is essentially proposing to engineer MSO habitat, without any track record of carrying it out successfully in the manner proposed. 42.144*

    See Wildlife, Analysis, 9 above. The Forest Service will learn from previous monitoring in other projects (1st 4 FRI and FWPP). Also, the Mexican Spotted Owl Recovery Plan recommends prescribed burning in Mexican spotted owl core areas and in the rest of the PACs as long as fire intensity is kept low. Thinning ahead of prescribed fire is the best way to keep fire severity low to moderate. All treatments in Mexican spotted owl PACs and recovery habitat have been consulted upon with USFWS, we received a Biological Opinion for the Forest Service determinations and terms and conditions from the BO will be applied.

23. *Which MIS/focal species and Sensitive species are indicators for the pinyon-juniper cover type? Which MIS/focal species and Sensitive species are indicators for the oak cover type? 42.151*

    Management indicator species in pinyon-juniper: Ash-throated flycatcher, gray vireo, Townsend's solitaire, juniper (plain) titmouse, and northern flicker. No management indicator species on the Tonto NF are only associated with oak cover type.

24. *The Wildlife report mentions critical habitat for the Mexican spotted owl and Chiricahua leopard frog and states critical habitat for the yellow-billed cuckoo has only been "proposed" in 214. The Aquatic Sp. Report discusses Critical habitat for Little Colorado spindace, Gila chub, razorback sucker, loach minnow, spikedace, narrow-headed gartersnake, and northern Mexican gartersnake. Has Critical habitat been designated or proposed for any of the other above ESA-listed species. 42.165*

    All species with critical habitat that occur in the project area are analyzed for both the species and for its critical habitat in the wildlife specialist reports and in the BA. Cuckoo critical habitat was designated in 2021 (see terrestrial wildlife specialist report (USDA FS 2022) and BA). No cuckoo critical habitat occurs in the project area.

25. *The Sierra Club scoping comments stress that enough acres of closed canopy habitat must remain to ensure survival of species that rely on mature forest structure. However, with implementation of the FTA including design specifications for the northern goshawk and Mexican spotted owl, in combination with the LTIP and OTIP, assurance for retention of sufficient closed canopy habitat is lacking. 42.169*

    Over 120,522 acres of the project area are in PACs, 36,691 acres of Mexican spotted owl recovery nest/roost habitat, 182,965 acres of foraging/non-breeding Mexican spotted owl habitat, and PFAs (55,608 acres in PFAs). Desired conditions on these acres will promote mature forest habitat. This represents 41percent of the project area that would be managed to promote older mature forest conditions. Further, FVS modeling over 20 years of implementation in the project area shows that large trees in these habitats are promoted and will come closer to desired condition (with more large trees on the landscape than if left untreated) as a result of treatments (see FVS modeling in the Wildlife Specialist report for the northern goshawk and Mexican spotted owl).

26. *Cumulative effects of past, ongoing and other foreseeable management activities in the analysis area, with only cursory mention in the DEIS, are not properly analyzed and disclosed. The DEIS doesn't analyze how populations have fared under FS management nor how much of their habitat has degraded. 42.177a*

    The Terrestrial Wildlife Specialist report analyzes cumulative effects to each species and includes current status of each species, which includes areas managed or implemented in the past (thinning and burning, wildfires, other past actions implemented).

27. *The timeframe for long-term effects is 30 years after treatment, or 2049." This is biologically too short a time frame for understanding cumulative effects. Old-growth conditions take well over a century, which is what it takes for some species' suitable habitat to develop. 42.177b*

    The cumulative effects timeframe is based on the duration of the direct and indirect effects of the proposed action and alternatives. This timeframe does not extend data and analytical requirements beyond those relevant to decision making. The analysis seeks to capture effects from treatment and 10 years after in an attempt to understand effects from past and reasonably foreseeable future projects. One hundred years would be too long a timeframe and would not allow managers to correct direction to achieve desired conditions.

28. *The FS has not demonstrated that "designation of recovery nest/roost and foraging habitat as described in the Recovery Plan" is anything more speculative recovery, or that it will boost populations enough to lead to recovery and delisting of the MSO. The USFWS has stated that is it not certain MSOs are nesting and roosting in areas outside of PACs. 42.189*

    Designation of Recovery Habitat is what the Mexican Spotted Owl Recovery Plan recommends. The Forest Service has followed USFWS recommendations and designated recovery habitat. The Forest Service will manage Mexican spotted owl recovery habitat as per the recovery plan recommendations according to recovery habitat type (Nest/Roost or Foraging/Non-breeding) as stated in the land management plan for each forest.

29. *The DEIS describes MSO habitat almost like it's something that doesn't belong in the landscape: Where there are nest cores, in particular, there is a need, legally and biologically, to manage those areas for denser vegetation that may have existed there historically. That means that, in most cases, fire will need to be less frequent that it would have been historically, and there is a desire to prevent high severity fire in those areas. The most obvious questions this raises (and not answered in the DEIS) is: How did this species happen to establish portions of its historic range here, if the historic fire regimes were constantly working against its habitat down through the centuries? Also, what sort of management moonscape mist be maintained around these owl enclaves, if fire is to be staved off indefinitely? It is of great concern that, whether we're talking about PACs, recovery nest/roost and foraging habitat or any important habitat classification, the CFLRPlan represents heavy treatments as "restoration" actions—without sufficient scientific support, monitoring backstops, and follow-up recommendations. This involves 24, 875 acres of "mechanical treatments" inside PACs alone. 42.190*

    See the revised Wildlife Specialist report for Terrestrial Species (USDA FS 2022). Treatments in Mexican spotted owl PACS have been designed to mitigate the risk of prevailing wind-driven wildfire from entering the core area and the rest of the PAC. Also, treatments seek to improve variables important to the Mexican spotted owl such as promoting large trees and snags, multi-storied canopy, and small openings (often where encroached trees have made conditions too dense after a wildfire). These treatments are being consulted upon with USFWS. In Mexican spotted owl recovery habitat, design features (FEIS Appendix C) have been added to assist land managers in prescribing treatments that the Mexican Spotted Owl Recovery Plan recommends.

30. *The DEIS indicates that the known population of the Mexican wolf is well below what science would consider to be viable. Due to its unfortunate and illogical designation as "experimental" government actions risk pushing this nonviable population to extinction. It is clear that the scale of the CFLRPlan activities is not consistent with maintaining a viable population. 42.206, 42.207*

    The experimental designation of the wolf is under the direction of our regulatory agency, USFWS.

31. *The analysis does not consider habitat security for the MIS elk. This includes changes in thermal hiding and escape cover. The analysis completely ignores the indirect impacts of roads. 42.211*

    Elk are analyzed in the Terrestrial Wildlife Specialist report as a management indicator species for the Tonto National Forest. It discusses alternatives 2 and 3: "Reducing tree densities and ladder fuels would reduce available thermal and hiding cover for elk. However, thermal protection for elk would continue to be available in areas maintained at higher BA and canopy density." See Wildlife, clarification, 25 above for acres managed for mature forest conditions.

32. *The WL report describes the habitat for the Abert's squirrel:" dense pole stands provide an important forage component for the species. The best squirrel habitat has some mature ponderosa pine trees with canopy cover exceeding 60 percent." This happens to be the kind of forest condition targeted for severe reduction under the CFLRPlan. 42.212*

    See Wildlife, Clarification, 25 above. Many acres in the project area will be suitable for Abert's squirrels. Alternatives 2 and 3 would reduce risk of wildfire while still providing habitat. The terrestrial wildlife specialist report and FEIS state: "Canopy connectivity would be retained, but would no longer occur across so much of the landscape. In the long term, this should provide for more sustainable squirrel habitat over time because the risk of high-severity fire, and therefore, long-term degradation or loss of squirrel habitat, would be significantly reduced (USDA FS 2010a). Landscape connectivity would be retained for canopy-dependent species."

33. *The DEIS does not state the Forest Plan direction relevant to MIS pronghorn habitat, nor explain how management under the CFLRPlan will be consistent with that direction and the biology of pronghorn. 42.210*

    The Terrestrial Wildlife Specialist report does not analyze for pronghorn because it is not management indicator species on the Tonto NF, and pronghorn are not a federally listed species or a Forest Service Sensitive Species. The Terrestrial Wildlife Specialist report and FEIS state: "The 36,340 acres of grassland restoration, 17,600 acres of ponderosa pine savanna treatments, and 6,760 acres of meadow treatments would benefit pronghorn and elk by creating forage and corridors for movement between areas."

General Concern: Commenters provided a comment regarding Mexican spotted owl and the Revised Recovery Plan (RRP) in relation to amendment 2 in the EIS.

34. *The DEIS basically says Amendment 2 is needed to manage consistent with the Revised Recovery Plan (RRP) for the Mexican Spotted Owl (MSO), but it doesn't explain how the Tonto Forest Plan expressly prohibits management from being consistent with the RRP. The DEIS doesn't contain the language of Amendment 2. The DEIS also doesn't explain what the benefit to the MSO would be by updated survey information and removing population and habitat monitoring direction. It appears the FS merely wants to remove constraints on exploiting forest lands that happen to be MSO habitat. Reynolds, et al., 2013 doesn't indicate that's necessary. 42.141*

The Mexican spotted owl amendment exception would update the 1985 Tonto National Forest Land Management Plan specifically for the Rim Country project, so it is consistent with the 2012 Mexican spotted owl recovery plan; which the Apache-Sitgreaves and Coconino Land Management Plans currently incorporate. This proposed plan amendment exception would update definitions, language, and treatments within Mexican spotted owl habitat.

Land Management Plan Consistency Comments

General Concern: Commenters provided a comment with a request for corrected species of conservation concern/focal species across land management plans.

1. *Include the corrected Species of Conservation Concern/Focal species across Forest Plans as they get amended. 28.23*

   Focal Species are determined at the forest level and will be assessed for land management plan revisions. Focal species lists would be shared with the public as they are determined by each forest after their plan is revised.

General Concern: Commenters provided a comment related to snags and land management plan consistency.

2. *This snag proposal is not consistent with science, and the DEIS doesn't state any snag-related direction from existing forest plans for anyone to evaluate consistency. 42.192*

   Snags will be managed according to land management plans (one to two snags greater than 18-inches diameter per acre in pine-oak and three snags greater than 18 inches diameter per acre in mixed conifer).

Collaboration/Consultation Comments

General Concern: Commenters provided comments related to consultation and collaboration between U.S. Fish and Wildlife Service regarding Endangered Species Act species.

1. *We anticipate clear communication between the Forest Service and the Fish and Wildlife Service to ensure that obligations are adhered to. 48.192*

   See response to wildlife, clarification, 4.

2. *It is hard to see how valid consultation with the USFWS can occur before locations of mechanical treatments are "filtered out." 42.187*

   Proposed mechanical treatments in protected activity centers and in Mexican spotted owl nest/roost recovery habitat are being consulted upon with the U.S. Fish and Wildlife Service. The biological assessment includes proposed acres to be thinned and the baseline condition in the protected activity center and within a half mile buffer of the protected activity center, showing all treatments from 2000 to present and wildfires since the early 1990s.

3. *Consultation for effects to ESA-listed species must involve the public. Detailed project design must occur prior to the NEPA decision. 42.188*

   Section 7 consultation under the Endangered Species Act is not a public process and occurs between a Federal action agency and the U.S. Fish and Wildlife Service in cooperation with prospective permit or license applicants if applicable. The implementation plan provides guidance for project designs.

Best Available Science and References Comments

General Concern: Commenters provided comments related to best available science and references needed for the EIS.

1. *The DEIS does not identify the best available scientific information the agency relies upon for complying with NFMA diversity requirements and planning processes. For Sensitive and MIS, it doesn't disclose or analyze the best available science on their population trends and habitat trends. 42.172*

   See response to wildlife, clarification, 8.

2. *The DEIS does not identify the best available science that provides scientifically sound, minimum viable populations of any special status species. Considering potential difficulties of using population viability analysis at the project analysis area level (Ruggiero, et al., 1994a), the cumulative effects of carrying out multiple projects simultaneously across wide landscape makes it imperative that population viability be assessed at least at forestwide scales (Marcot and Murphy, 1992). Also, analysis of temporal considerations of the cumulative impacts on wildlife population viability while implementing over 20 years of actions, must be considered (Id.). It is also of paramount importance to monitor populations during implementation in order to validate assumptions used about long-term species persistence i.e., population viability (Marcot and Murphy, 1992; Lacy and Clark, 1993). In the absence of meaningful thresholds of habitat loss and monitoring of wildlife populations at the forestwide level, management actions will continue to degrade wildlife habitat over time. (See also Schultz 2012.). 42.174*

   Population viability for the Rim Country Project for all wildlife species is not required. What is required is consultation with the U.S. Fish and Wildlife Service for federally threatened and endangered species. Population trends for management indicator species and viability analyses for Forest Service sensitive species are included for the wildlife species analyzed in the specialist reports.

   Given the various stages of planning and implementation, most project effects would be dispersed both spatially and temporally. Projects in threatened and endangered species habitat are designed to improve habitat, or to reduce elements of habitat structure while retaining habitat function, resulting in a decrease in risk of high-severity fire.

   Cumulatively, effects would likely increase disturbance to individuals of some species from noise or smoke in the short-term. Given restoration project objectives, the scale of the cumulative effects area, the distribution of wildlife habitat across the project area, and the length of time over which treatments would be implemented (20 or more years), cumulative effects would not be expected to negatively affect wildlife populations in the long-term. Overall, treatments would move forest conditions toward desired conditions and decrease the risk of habitat loss to large-scale high-severity fire.

3. *FS has not properly considered the scientific information in Ganey et al., 2011 regarding continuous replacement of nesting and roosting habitat over space and time by "designation of recovery nest/roost and foraging habitat as described in the Recovery Plan." 42.181*

   The Mexican spotted owl revised recovery plan recommendations have been followed by the 4FRI planning team which has designated approximately 36,691 acres of nest/roost recovery habitat and 182,965 acres of foraging/dispersal recovery habitat in the Rim Country project area. The revised recovery plan includes recommendations from Ganey et. al. 2011.

4. *What is the best science supporting the statement, "prescriptions would promote habitat variables needed by this species?" 42.196*

   This information comes from the Mexican spotted owl revised recovery plan which references key habitat variables (see table C.2 in appendix F of the FEIS) for Mexican spotted owl. Prescriptions in this project would follow these recommendations.

5. *The proposal is unlikely to retain enough snags for northern goshawks, other raptors, and snag-dependent prey species, such as woodpeckers. See Lorenz et. Al, 2015; Vizcarra, 2017; and Hutto, 2006 for science regarding suggested snag density targets to maintain [primary cavity excavators] or SCUs [secondary cavity users]. This means the primary excavators alone have the ability to decide if a tree is suitable for excavating, the implication being managers know little about how many snags per acre are needed to sustain populations of cavity nesting species. This must be considered best available science for snag retention. Instead, the DEIS (WL039) only requires "in ponderosa pine, protect/provide snags and logs wherever possible through site prep, implementation planning, green tree selection, and ignition techniques to retain 1-2 snags per acre greater than or equal to 18 inches in diameter." The DEIS and Forest Plan monitoring fail to disclose the abundance of such habitat components or population trends of such MIS. Please disclose the snag densities in the analysis area, and the method used to determine those densities. 42.199, 42.208, 42.209*

   The Forest Vegetation Simulator modeling shows that snags would be managed for a minimum of one to two snags greater than or equal to 18-inches diameter per acre in ponderosa pine and three snags greater than or equal to 18-inches diameter per acre in mixed conifer, which should provide ample habitat for cavity nesters.

6. *The FS must utilize northern goshawk survey methodology consistent with the best available science, including, for example, the comprehensive protocol, "Northern Goshawk Inventory and Monitoring Technical Guide" by Woodbridge and Hargis, 2006. Also, USDA Forest Service, 2000b. The FS does not acknowledge or address existing monitoring data concerning the presence of northern goshawks within the analysis area. 42.201*

   Forest Service direction is to use the inventory direction for northern goshawk on page 92 of the 1996 Record of Decision for Amendment of Land Management Plans, Arizona and New Mexico. This direction calls for audio surveys on parallel transects at 260 meters apart, and broadcast stations at 300 meters apart on each transect, staggered by 150 meters on adjacent transects. Additional direction included in the Rim Country project is to complete at least one year of survey with a second-year survey to verify questionable sightings, unconfirmed nests, etc.

   Background: A land management plan guideline that applies to the Coconino National Forest and Tonto National Forest states that the Region 3 protocol (Kennedy and Stahlecker 1993, modified 1994), is used to survey the management analysis area. However, a more recent protocol published in a General Technical Report by the Washington Office (Woodbridge and Hargis 2006)

was reviewed and considered for application for Rim Country surveys. The project area, timber sale areas, task order should be considered synonymous with the management analysis area described in the 1996 Record of Decision. (Coconino SO 2600 Letter to the File. March 23, 2017, 4 FRI NOGO Survey Protocol).

The Terrestrial Wildlife Specialist report and FEIS include an analysis for the northern goshawk including all the post-fledging family areas that have been identified in past surveys. Preference is to survey available habitat prior to treatment. Protocol in unsurveyed habitat is to treat outside of the breeding season and with the goal of achieving the highest desired conditions for canopy cover and large tree retention and minimum effects from high fire severity.

7. *The DEIS fails to specify how surveys will be conducted consistent with best available science, so that disturbing raptor nests will be minimized and thus avoiding destruction or disturbance to the point that nests or young would be abandoned or lost. 42.203*

   There is a design feature (FEIS Appendix C – WL031) included in the project to protect active raptor nest sites from project-related disturbance by restricting activities during nesting season as specified in the applicable land management plan, or as determined by a local wildlife biologist. Known nest trees for any raptor species would be prepped, as needed, to avoid negative impacts to survival or successful reproduction, prior to implementing management activities, including prescribed fire.

Data Comment

General Concern: Commenters provided a request for inclusion of field data for Mexican Spotted Owl to be used to inform modeling predictions.

1. *The DEIS proposes to use various modeling exercises to determine existing MSO habitat conditions, and conditions as a result of CFLRPlan activities. The DEIS doesn't establish the validity of the variables it utilizes, nor does the DEIS disclose the accuracy of data, and therefore validity of the modeling and other model limitations. The FS has apparently not used field data to verify modeling predictions. This exemplifies the problems of DEIS analyses for most wildlife. 42.186*

   The protected activity centers for the Rim Country project area were updated, collaboratively with the U.S. Fish and Wildlife Service, in 2020 to reflect the most current conditions and based on the most recent field data. The Forest Service assessed habitat outside of protected activity centers using three different modeling techniques. One technique was to follow the Tonto National Forest's geophysical model; a geographic information system modeling method for determining recovery habitat, cited in the revised Mexican spotted owl recovery plan (Johnson 2003). The second model used was Prather et al., which includes cover types commonly used by Mexican spotted owls. The third technique was modeling using threatened, endangered, and sensitive species maps, ecological response units, and midscale data collaboratively agreed to with the U.S. Fish and Wildlife Service.

   Modeling methodology to determine Mexican spotted owl recovery habitat is discussed in the Terrestrial Wildlife Specialist report and FEIS, and in the biological assessment submitted to the USFWS. Models were updated using stand exam data wherever it occurred, and the new recovery habitat layer would be updated using stand exam data or field verification by a qualified biologist prior to implementation. The modeling used to identify recovery habitat constitutes the best available information of high quality used in the analysis and it is the best available commercial

and scientific information used to determine effects to Endangered Species Act listed species and their critical habitat.

Monitoring Comment

General Concern: Commenters provided comments related to conducting proper Mexican spotted owl monitoring during the implementation of the project.

1. *Assertions in the 4FRI Rim Country DEIS that the agency will conduct proper MSO monitoring is not supported. The FS has not determined if MSO populations are gaining toward recovery, and has not even measured improving trends in recovery habitat, PACs or other MSO habitats. The DEIS also does not assure proper surveys for MSOs have been, or would be undertaken. The FS record for monitoring MSO habitat does not support claims in the DEIS that agency will do so in the future. To date, the agency is failing to ensure completion of previous monitoring commitments under the first 4FRI ROD and per the associated Objection Resolution Agreement with WildEarth Guardians. 42.182*

   The Forest Service conducts monitoring surveys in protected activity centers prior to implementation. The Forest Service is entering the sixth year of a 10-year study collecting occupancy data across the Southwest Region to assess trends in Mexican spotted owl populations on National Forest System lands. This is consistent with the recommendations in the 2012 Mexican spotted owl recovery plan, first revision for monitoring Mexican spotted owl population trends. The Forest Service is also utilizing existing habitat information to assess Mexican spotted owl nesting and roosting habitat trends from 1986 through 2020. The U.S. Fish and Wildlife Service and the Mexican spotted owl recovery team will use this information, upon completion of the 10-year population trend monitoring, to determine if adjustments need to be made to the management recommendations in the recovery plan. A monitoring plan for the 4FRI First Phase was developed collaboratively with the U.S. Fish and Wildlife Service and was followed during the implementation of projects within Mexican spotted owl habitat. The results of monitoring project activity effects on the Mexican spotted owl will be completed by 2021 and will be used to inform treatments in Mexican spotted owl habitat for the Rim Country Project.

   A monitoring plan for the Rim Country Project will be developed collaboratively with the U.S. Fish and Wildlife Service and yearly monitoring would follow the plan with updates to the U.S. Fish and Wildlife Service. This would include habitat monitoring as well. The Forest Service is standardizing its analysis, monitoring, and reporting for the Mexican spotted owl and developing a monitoring plan for each large scale restoration project in the region that will meet the monitoring needs and requirements of the Mexican spotted owl revised recovery plan while providing for transparency and availability of information, including implementation and monitoring results, to the public for review.

2. *We are concerned that the monitoring framework that was to be crafted as result of the first 4FRI objection will not become the robust process and product that was intended. 48.191*

   The monitoring plan that was developed for the first 4 FRI decision is on-going. Treatments and post-treatment vegetation monitoring have been completed for the PACs that were treated with prescribed fire only but monitoring of the owls in these PACs for one more breeding season is currently being considered by USFWS & USFS. The PACs where mechanical treatments and prescribed fire would occur are under contract to be mechanically treated Fall 2021/Winter 2022. The U.S. Fish and Wildlife Service Senior Supervisory Wildlife Biologist, is involved with all

phases of implementation of this monitoring. The first 6 years of owl monitoring reports (2016-2020) for this effort are available on the 4FRI website.

Implementation Comments

General Concern: Commenters provided comments related to implementation of the project.

1. *Also, we are concerned the FS has not incorporated lessons learned during implementation of the first 4FRI Record of Decision. For example, there is not enough monitoring to understand how logging trees almost up to 18" dbh will affect Protected Activity Centers (PACs), given that this contrasts greatly with previous direction prohibiting removal of trees greater than 9" dbh. "Whether nesting and roosting habitat would benefit from selectively cutting trees greater than 9 inches diameter at breast height would be determined with the USFWS." The DEIS doesn't have a science-based analysis to support its assumption that such benefit would be realized. Also, we note that trees up to 24" dbh would still be cut in protected MSO habitat (WL004) 42.180*

   See response to wildlife, monitoring, 1. Results from the first 4FRI project monitoring are forthcoming, as the protected activity centers that were to be thinned are under contract for thinning, with prescribed fire to follow. Based on the results of these data, any recommendations will be reviewed with the U.S. Fish and Wildlife Service and incorporated into the implementation of the Rim Country project through adaptive management. Specific treatments with acres identified in protected activity centers proposed for mechanical thinning are included in the Biological Assessment and will be consulted upon with the U.S. Fish and Wildlife Service. There may be cases where trees between 9 and 18 inches diameter at breast height would be cut to release larger trees. Prescriptions would follow recovery plan recommendations, maintaining large trees and snags wherever possible and by creating small openings (0.1 to 2.5 acres) for foraging opportunities. Implementation would also reduce the risk of severe wildfire effects.

2. *We are in support of the Flexible Tool Box Approach for Mechanical Treatments as it takes into consideration the need to be adaptable to site specific project design. Because of the vulnerability of the MSO to a drying and warming climate protection of suitable habitats within the deeper canyons and draws is very important. Close attention to preserving areas of older trees and maintaining canopy that when combined with slope and exposure creates the needed microclimiate for roosting and nesting sites for this bird. 38.1, 38.2*

   The FEIS, Terrestrial Wildlife Specialist report, and Biological Assessment analyzed proposed treatments in MSO PACs, Recovery habitat, and Critical Habitat. The condition-based management approach (formerly called the Flexible toolbox") has qualifiers for MSO habitats. It is meant to allow for site specificity to allow for the best treatment for that acre. Retention and promotion of large trees and snags is an objective from these treatments. FVS modeling and analyses showed that large trees and canopy cover in MSO habitat is maintained above recovery plan recommendations after 20 years of implementing the proposed action. The Forest Service consulted with USFWS, our regulatory agency when designing these proposed treatments in MSO habitat and the FS will follow the terms and conditions set forward by USFWS in their Biological Opinion.

Recommendation Comments

1. *There is extensive research concerning the requirements for the tassel-ear squirrel, a primary food item for the northern goshawk. We strongly recommend integrating the findings of Dodd, etal.2006 into the management strategies, with particular attention to identified northern goshawk occupied areas. 38.4*

   Implementation from the Rim Country project would improve forest conditions over time for squirrels and northern goshawk by increasing large trees and reducing small tree encroachment that restricts squirrel movements and limits foraging goshawk in ponderosa pine. Silvicultural prescriptions in post-fledging family areas would increase large trees in nest stands and reduce encroachment in the rest of the area to increase foraging opportunities while still promoting growth of larger tree size classes. Recommendations from Dodd et al. (2006) is to restore forest health. The following quoted information is directly from Dodd et al. (2006) and is included in the wildlife analysis, "Given the inverse relationship between small, sapling-size trees and squirrel recruitment and survival in HQ habitats, understory VSS 2 tree thinning (for example, "thinning-from-below" prescriptions) of mesoreserves is warranted, yielding benefit to squirrels and hypogenous fungi on which they feed (States and Gaud 1997), improving forest health (Mast 2003) and reducing wildfire risk (Zimmerman 2003). In the Rim Country project area, tree size classes 3 and 4 are highly departed from the natural range of variability. Desired conditions are for reduction of these size classes to better reflect the natural range of variability."

2. *Currently, Rim Country 4FRI proposes to institute another Mexican spotted owl project-level monitoring program prior to the initiation of the necessary broadscale, regionwide habitat monitoring plan. As stated above, this perpetuates a strategy that resulted in our August 24, 1995, injunction in Silver v. Babbitt. Please do not finalize your Rim Country 4FRI decision prior to initiation of a regionwide habitat monitoring plan so as to (1) avoid violating the Recovery Plan and the precedent set in Silver v. Babbitt, and (2) to avoid any unnecessary delay in moving forward with Rim Country 4FRI. We stand by to help the Forest Service to implement and initiate the necessary regionwide habitat to adequately protect the Mexican Spotted Owl. 52.11, 52.12*

   See response to wildlife, monitoring, 1. The concerns regarding monitoring have been resolved through a cooperative agreement whereby the Forest Service is standardizing its analysis for the Mexican spotted owl and developing a monitoring plan with the U.S. Fish and Wildlife Service for each large-scale restoration project in the region that will meet the monitoring needs and requirements of the Mexican spotted owl revised recovery plan.

   There are 214 protected activity centers in the 4FRI Rim Country project area. Of those, 171 have been surveyed within the last five years and are occupied. There are seven on the Tonto National Forest that have been surveyed but have not been occupied in the last five years. These seven locations still have Mexican spotted owl habitat, are considered protected activity centers, and could have owls in the future.

   The remaining 36 protected activity centers do not have survey information from the last five years. Twenty-nine of these are on the Coconino National Forest, and are either very remote, not associated with any implementation activities, and/or burned in large fires within the past 10 years, making it dangerous and unsafe to perform surveys. All 36 protected activity centers, except one, have been visited or surveyed in the past 20 years and were occupied at that time.

These 36 protected activity centers are considered occupied until surveyed, and any treatments would follow the revised Mexican spotted owl recovery plan recommendations.

3. *I sincerely recommend that the scheduling of controlled burns do not coincide with hunting season. Please coordinate with AZGFD. 8.1*

   Prescribed burning takes place when burn conditions are rated best by Forest Service Fire and Fuel specialists. Timing of some burns may coincide with the hunting season. Proper public notice and safety measures will be implemented to protect and inform the public.

4. *Recommendation-Under the wildlife portion, include the following BMP's/Mitigation/Conservation Measures "Coordination with the local AGFD Regional Habitat, Evaluation and Land Program manager will occur during prescription or burn plan development, layout, marking, thinning, and burning. This is to ensure that the most up-to-date site-specific wildlife information is considered, in order to minimize negative impacts, and maximize benefits to the extent practicable." 28.32*

   Numerous design features in FEIS appendix C call for coordination with a wildlife biologist prior to implementing to mitigate effects to wildlife species. Coordination between the districts in the 4FRI project area and AZGFD is typically done on a yearly basis. If AGFD wants to be involved in assisting district personnel in understanding wildlife resources that need protection, they can do so at this meeting or by directly contacting the district specialists or line officer.