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Lands Special Uses and Minerals Report

Four Forest Restoration Coconino and Kaibab National Forests Final Environmental Impact Statement

Submitted by: _/s/ Julie Rowe_10/10/2014_____

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Summary of Affected Environment

The Four Forest Restoration Initiative is a planning effort designed to restore forest resiliency and function across four National Forests in Arizona: the Coconino, Kaibab, Apache-Sitgreaves and Tonto. The current analysis focuses on the Coconino National Forest (Coconino) and Kaibab National Forest (Kaibab). The Forest Service is proposing to conduct restoration activities on approximately 586,110 acres of the Coconino and Kaibab. Of this total, approximately 355,707 acres would be treated on the Coconino NF and 230,402 acres would be treated on the Kaibab NF (Alternative C, preferred alternative). Restoration actions would focus on the Flagstaff district with fewer acres included on the Mogollon Rim and Red Rock districts of the Coconino. On the Kaibab, activities would occur on the Williams and Tusayan districts (figure 1).

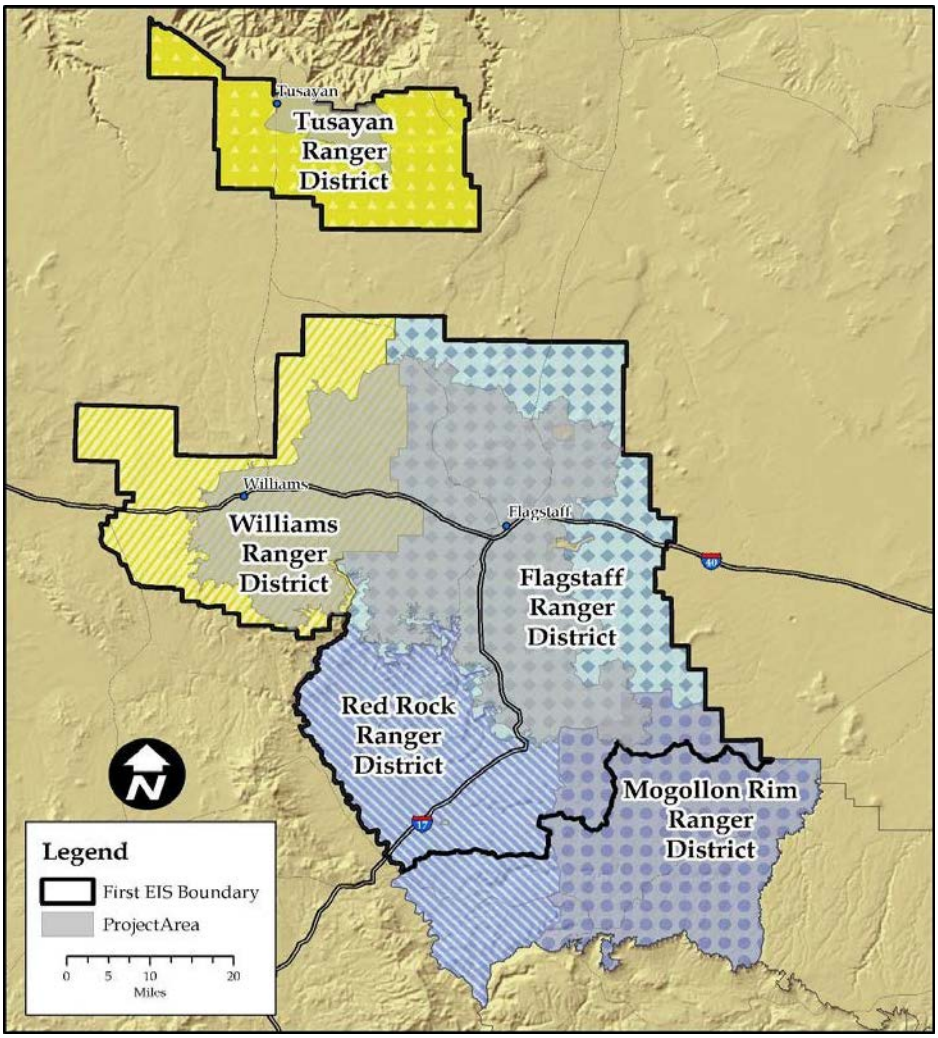

Figure 1. Coconino and Kaibab National Forests, showing ranger districts and the project area.

Forest Plan Consistency

The Land and Resource Management Plans (Forest Plans) for the Coconino and Kaibab National Forests provide direction and desired conditions for the management of lands special uses and minerals. Proposed actions should be consistent with this direction. Where it is not, a forest plan amendment may be enacted to address the inconsistency.

Primary direction for lands special uses within the project area is aimed at protecting special use sites from interruptions in service caused by wildland fires. As the all action alternatives reduce the risk of wildland fire, the project is consistent with forest plan for lands special uses.

Direction for minerals is to reduce or mitigate impacts from resource projects on the availability of minerals for development. As the proposed restoration projects would be of a short duration, the project is consistent with forest plan direction for minerals.

This project is consistent with the 1987 Coconino Forest Plan, as amended, and the 2014 Kaibab Forest Plan. The relevant forest plan direction is cited below.

Coconino Forest Plan (1987, as amended)

Forestwide Standards & Guidelines - Minerals: Surface resource projects and plans which have the potential for conflict with the development of the minerals resource…..will receive input from a Forest Service mineral resource specialist regarding potential impacts on mineral exploration and development and on ways to avoid unnecessary conflicts between surface and mineral resources. (p. 76)

Management Areas: The project area contains several management areas. The Forest Plan does not provide any specific guidance for lands special uses or minerals within the management area-specific direction.

Evaulation of Consistency: Direction for minerals is to reduce or mitigate impacts from resource projects on the availability of minerals for development. As the proposed restoration project would be of a short duration, it would not impact the availability of minerals for development. It is, therefore, consistent with forest plan direction for minerals.

Kaibab Forest Plan (2014)

Desired Conditions for Communication and Electronic Sites: Wildland fires do not interrupt the operation of communication and electronic facilities. (p.80)

Objectives, Standards, and Guidelines for Communication and Electronic Sites: There are no objectives, standards, or guidelines for Communication and Electronic Sites.

Desired Conditions for Energy Transmission and Development: Energy corridors provide a reliable supply of energy essential to meet local, regional, and national economic demands. Wildland fires do not interrupt the delivery of energy resources within the rights-of-way. (p. 81)

Objectives for Energy Transmission and Development: There are no objectives for energy transmission and development.

Standards and Guidelines for Energy Transmission and Development: The standards and guidelines for energy transmission are not applicable to the restoration project.

Evaluation of Consistency: Primary direction for lands special uses is aimed at protecting special use sites from interruptions in service caused by wildland fires. As the all action alternatives reduce the risk of wildland fire, the project is consistent with the forest plan direction.

Relevant Laws, Regulations, and Policy

Act of 1866, General Mining Law. This act authorizes rights-of-way across public lands for ditches and roads.

The Act of March 4, 1915, as amended July 28, 1956, (16 U.S.C. 497). This act authorizes term permits for structures or facilities on National Forest System land, and sets maximum limits of 80 acres and 30 years.

The Act of November 16, 1973, (30 U.S.C. 185). This act, amending Section 28 of the 1920 Mineral Leasing Act, authorizes the Forest Service to issue authorizations for oil and gas pipelines and related facilities

Alaska National Interest Lands Conservation Act, 1980 provides direction for providing access to non-federally owned land within the boundaries of the Forest.

An Act to Repeal Timber-Culture Laws, 1891 authorizes ditch easements across public lands and Forest Reserves.

Archaeological Resources Protection Act of 1979 provides the authority for archeological investigations and research permits.

Bankhead-Jones Farm Tenant Act of 1937, Section 31-33 authorizes most rights-of-way, except those on National Grasslands.

Colorado Ditch Act of 1986 (FLPMA amendment) resolves title claims for certain water uses and provides authority for easements for water conveyances.

Energy Policy Act of 2005 directed the Secretaries of Agriculture, Commerce, Defense, Energy, and the Interior to designate energy transport corridors for oil, gas, and hydrogen pipelines and electricity transmission and distribution facilities on Federal lands in portions of Arizona, California, Colorado, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington and Wyoming.

Executive Order 11990 (Wetlands) and Executive Order 11988 (Floodplains)

Federal Land Policy and Management Act of 1976 updated authority for management of National Forest lands, provided general authority for use and occupancy of Forest lands, required fair market value for uses on the Forest, and repealed sections of many previous acts.

Forest Service Handbook 2709.11 Special Uses Management

Forest Service Manual 2700 Special Uses Management

Forest Service Facilities Realignment Act of 2005 (119 Stat 559-563; 16 U.S.C. 580d, as amended).

Highway Act of August 27, 1958, (23 U.S.C. 317), supplemented by the Act of October 15, 1966 (49 U.S.C. 1651) This act authorizes the Federal Highway Administration to grant easements to States for highways that are part of the Federal-aid system or that are constructed under the provision of Chapter 2 of the Highway Act.

Land and Water Conservation Fund Act of September 3, 1964

Mineral Leasing Act of 1920, as amended on November 16, 1973, (30 U.S.C. 185(1)) authorizes the issuance of permits and easements for oil and gas pipelines. It requires annual payments in advance which represent fair market rental value and provides for reimbursement to the Government for administrative and other costs incurred in monitoring, construction (including costs for preparing required environmental analysis and documentation), operation, maintenance, and termination of oil and gas pipelines.

National Forest Roads & Trails Act 1964 authorizes construction and/or use of roads and trails by public road agencies and also landowners who join the Forest Service in operating mutually beneficial road systems.

Oil and Gas Pipeline amendment to the Mineral Leasing Act, Section 28 authorizes oil and gas pipelines.

Organic Act of 1897 provides for rules to regulate occupancy and use of the Forest Reserves.

Occupancy Permits Act (March 4, 1915) authorizes use and occupancy of National Forest land for recreation purposes including resorts and recreation residences.

Public Land Order 7787 – Withdrawal of Public and National Forest System Lands in the Grand Canyon Watershed, Arizona (January 21, 2012) withdrew lands of the Tusayan District from new mineral entry for 20 years.

Preservation of American Antiquities Act of June 8, 1906 provides authority for cultural resource survey permits, including site disturbance, excavation and collection.

Small Tracts Act of January 12, 1983 (96 Stat. 2535; 16 U.S.C. 521c-i).

Telecommunications Act of 1996 (Public Law 104-104) provides rules for competition and reduced regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications. The goal of this new law is to let anyone enter any communications business -- to let any communications business compete in any market against any other.

Term Permit Act of March 4, 1915, amended July 28, 1956 authorizes recreation residences, hotels, resorts and other industrial and commercial public service facilities.

Title 36, Code of Federal Regulations, part 254, subpart A (36 CFR part 254, subpart A).

National Forest Townsite Act of July 31, 1958 (72 Stat. 483; 7 U.S.C. 1012a; 16 U.S.C. 478a) as amended by Section 213 of the Federal Land Policy and Management Act of 1976 (90 Stat. 2760).

Water Conveyance Act of 1986 amended FLMPA to authorize permanent easements for agricultural water systems.

Issues

Issues 1 to 4 were edited to reflect public comments on the DEIS related to canopy cover, post-treatment openness and the conservation of old and large trees. In summary, this final environmental impact statement responds to four issues and evaluates five alternatives: the no action alternative (alternative A) required by the regulations, the proposed action (alternative B), and three alternatives (alternative C-E) to provide sharp contrast and comparison to the proposed action.

Two procedural concerns related to the range of alternatives and plan amendments were added to chapter 1 to highlight concerns raised by the public. Public concerns that are routine disclosures (see chapter 3) were not considered to be issues. For example, consultation with the U.S. Fish and Wildlife Service on endangered species is a requirement. Therefore, comments that stated consultation needed to occur were not considered a key issue. Appendix I of the FEIS provides a summary of comments as well as individual responses to comments received on the DEIS. Many public comments submitted during the scoping period suggested alternatives that were either considered in detail or eliminated from detailed analysis (see chapter 2).

Issue 1: Prescribed Fire Emissions

This issue relates to the emissions from prescribed fire activities and the impact on air and water quality, public health, quality of life, and the economy of northern Arizona. In response to comments on the DEIS, emissions include, but are not limited to, radionuclide particles and mercury.

An alternative that would eliminate all prescribed fire was considered but eliminated from detailed study as it did not adequately meet the purpose and need for restoring the fire-adapted southwestern ponderosa pine ecosystem. Alternatives B, C, and E propose using prescribed fire across the entire project area and alternative C adds acres on which prescribed fire would be used to restore additional acres of grasslands. Alternative D was developed to respond to the emissions/smoke issue by decreasing the acres proposed for prescribed fire by 69 percent (when compared to alternative B). This equates to removing fire on about 404, 889 acres. All action

alternatives include design criteria aimed at reducing impacts to air quality (as practicable) and increasing coordination efforts amongst neighboring forests.

Issue 2: Conservation of Large Trees

This issue focuses on the conservation of large trees and the inclusion of the large tree retention strategy (LTRS), which was developed by the 4FRI stakeholders, into the action alternatives. Large post-settlement trees, as defined by a socio-political process, are those greater than 16-inch d.b.h.

Commenters stated alternatives B (proposed action alternative) and D do not incorporate the LTRS. Alternative C and E respond to this issue by incorporating key components of the LTRS and focusing on ecological desired conditions. In response, an implementation plan that is integral to all action alternatives was developed. The plan identifies ecological conditions where large, post-settlement trees may be removed in order to move towards or meet desired conditions. The intent of the LTRS has been incorporated into the alternative's design criteria, the monitoring and adaptive management plan, and the project implementation plan. All resource reports have analyzed and disclosed how the modified LTRS (the Large Tree Implementation Plan) has been addressed in the environmental consequences section of the FEIS.

Issue 3: Post-treatment Canopy Cover and Landscape Openness

This issue focuses on retaining closed canopy conditions for species including, but not limited to, goshawk and Mexican spotted owl. Commenters stated measuring canopy cover in goshawk habitat at the group level would not meet forest plan stand- scale canopy requirements. Commenters stated a reduction in canopy and large tree densities have never been analyzed under the National Environmental Policy Act and National Forest Management Act and could have deleterious effects to goshawk, its prey species, and those wildlife species that are dependent on that cover. Because natural openings would no longer be included within the vegetation structural stages (VSS) classification, it would result in significantly more lands being in an open condition or outside of the VSS 4 to 6 classifications. This could substantially increase the logging of mature and old trees and negatively affect wildlife, including goshawk and its prey species.

Action alternatives B through E are designed to provide closed canopy conditions and comply with the forest plans. The vegetation analysis addresses the inter-relationship between canopy cover and old and large trees. To address post-treatment openness and canopy cover, a nonsignificant forest plan amendment for the Coconino NF was developed for alternatives B, C, and D. Alternative E does not propose a forest plan amendment.

Issue 4: Increased Restoration and Research

This issue focuses on recommendations to increase the acres and type of restoration treatments. Commenters recommended including additional acres of grassland restoration. The FWS recommended increasing prescribed fire and mechanical treatments within Mexican spotted owl habitat (to improve the quality of the habitat and be in alignment with the revised Mexican Spotted Owl Recovery Plan (USDI FWS 2012)). Commenters recommended including a paired

watershed study and small mammal research to evaluate the impact of landscape-scale restoration. Alternative C was developed to respond to this issue.

Procedural Concerns

Range of Alternatives and Comparison of Alternatives

This procedural concern was raised in comments to the DEIS. There is a concern that the action alternatives proposed in the DEIS were virtually identical except for the variation in acreages. Some commenters stated there is no (action) alternative where a plan amendment would not take place. Commenters stated it is not possible to understand the environmental effects and tradeoffs for resources that result from the amendments themselves.

Alternative E may address this concern. In alternative E, no forest plan amendment would occur and treatments would be in compliance with the current Coconino NF forest plan. In sum, the FEIS includes eleven alternatives including no action, four action alternatives and six alternatives that were considered but eliminated from detailed study.

Significant Forest Plan Amendments

This procedural concern is based on comments on the DEIS. Commenters stated the plan amendments are significant because they may bring about changes that may have an important effect on the entire land management plan (or affect land and resources throughout a large portion of the planning area) see FSM 1926.52 (Jan. 31, 2006). Some commenters stated the plan amendments are significant because the Forests are including identical plan amendments in similar projects.

In the FEIS, the analysis has been updated to clarify methodology and data used for the significance evaluation. Alternative E, which proposes no forest plan amendments, provides a point of comparison to alternatives B-D which do include plan amendments. This concern is also partially addressed with the revised Kaibab NF forest plan. In the FEIS, no plan amendment is proposed for the Kaibab NF in alternatives B-D because the treatments are in alignment with the plan's objectives, desired conditions, and standards and guidelines. Also see appendix I, DEIS Response to Comments.

Summary of Alternatives

This FEIS documents the analysis of five alternatives, including the no action (alternative A), the final proposed action (alternative B), and three additional alternatives (alternatives C -E). Alternatives C through D respond to recommendations and issues raised by the public during the extended scoping period. These issues were addressed in the DEIS. Alternative E was developed in response to comments on the DEIS. A brief summary of the alternatives is provided below.

- **Alternative A** is the no action alternative as required by 40 CFR 1502.14(c). There would be no changes in current management and the forest plans would continue to be implemented. Approximately 166,897 acres of current and ongoing vegetation treatments and 195,076 acres of prescribed fire projects would continue to be implemented within and adjacent to the project area. Approximately 43,041 acres of vegetation treatments and 58,714 acres of prescribed fire and maintenance burning would be implemented adjacent to the project area by the Forests in the foreseeable future (within 5 years). Alternative A is the point of reference for assessing action alternatives B-E.
- **Alternative B** is the proposed action. This alternative would mechanically treat 384,966 acres of vegetation and utilize prescribed fire on 583,330 acres. It incorporates comments and recommendations received during eight months of collaboration with individuals, agencies, and organizations. It proposes mechanically treating up to 16-inch d.b.h. in 18 Mexican spotted owl (MSO) Protected Activity Areas (PACs) and includes low-severity prescribed fire within 70 MSO PACs, excluding 54 core areas. Three non-significant forest plan amendments on the Coconino NF would be required to be in compliance with the plans (see table 2).
- **Alternative C** is the **preferred alternative.** This alternative would mechanically treat 431,049 acres of vegetation and utilize prescribed fire on 586,110 acres. It responds to **Issue 2** (conservation of large trees), and **Issue 4** (increased restoration and research). It adds acres of grassland treatments on the Kaibab NF and incorporates wildlife and water yield/watershed research on both forests. It proposes to mechanically treat up to 17.9-inch d.b.h. in 18 MSO PACs and includes low-severity prescribed fire within 70 MSO PACs, including 54 core areas. Key components of the stakeholder-created Large Tree Retention Strategy are incorporated into the alternative's implementation plan. Three non-significant forest plan amendments on the Coconino NF would be required (see table 2).
- **Alternative D** would mechanically treat 384,966 acres of vegetation and utilize prescribed fire on 178,441 acres. This alternative was developed in response to **Issue 1**, Prescribed Fire Emissions. It decreases the acres that would receive prescribed fire by 69 percent (when compared to alternative B, proposed action). This equates to removing fire on about 404, 889 acres. It proposes mechanically treating up to 16-inch d.b.h. in 18 Mexican spotted owl (MSO) Protected Activity Areas (PACs) but the PACs would not be treated with prescribed fire. Three non-significant forest plan amendments on the Coconino NF would be required (see table 2).
- **Alternative E** was developed in response to comments on the DEIS. This alternative would mechanically treat 403,218 acres of vegetation and utilize prescribed fire on 581,020 acres. Alternative E responds to **Issue 3** (post-treatment landscape openness and canopy cover), and may resolve concerns the public had related to the range of alternatives and forest plan amendments. It is similar to alternative C in that it adds acres of grassland treatments on the Kaibab NF and incorporates wildlife and watershed research on both forests. It proposes to mechanically trea up to 9-inch d.b.h. in 18 MSO PACs and includes low-severity prescribed fire within 70 MSO PACs, excluding 54 core areas. Key components of the stakeholder-created large tree retention strategy are incorporated into the alternative's implementation plan. No forest plan amendments are proposed.

Alternative Descriptions

Actions Common to Alternatives B, C, D, and E

- All alternatives (B through E) propose additional actions including restoring springs and ephemeral channels, constructing protective fencing in select aspen stands, constructing (and decommissioning) temporary roads, reconstructing and improving roads, relocating a minimal number of road miles, and decommissioning existing roads and unauthorized routes (table 19).
- On those acres proposed for prescribed fire, two fires would be conducted over the 10-year period.
- Design features, best management practices (BMPs), and mitigation to be used as part of alternatives B through E are located in volume 1, appendix C.

All alternatives incorporate key components of the Old Tree Protection Strategy into the alternative's design features (volume 1, appendix C), implementation plan (volume 1, appendix D), and the adaptive management, biophysical and socioeconomic monitoring plan (volume 1, appendix E). The Forest Service worked collaboratively with stakeholders to develop the final monitoring and adaptive management and implementation plan. Appendix E also includes the MSO and Arizona bugbane monitoring plan as approved (through formal consultation) by the FWS.

All action alternatives include adaptive management actions that would be taken as needed to restore springs, ephemeral channels, and naturalize decommissioned and unauthorized roads (table 19).

Alternative A

Alternative A is the no action alternative as required by 40 CFR 1502.14(c). There would be no changes in current management and the forest plans would continue to be implemented. Those forest plan actions and allocations are incorporated by reference. Approximately 166,897 acres of current and ongoing vegetation treatments and 195,076 acres of prescribed fire projects would continue to be implemented within and adjacent to the project area. Approximately 43,041 acres of vegetation treatments and 58,714 acres of prescribed fire and maintenance burning would be implemented within and adjacent to the project area by the Forests in the foreseeable future (within 5 years). Alternative A is the point of reference for assessing action alternatives B through E.

Alternative B – Proposed Action

The Coconino and Kaibab NFs propose to conduct approximately 583,330 acres of restoration activities over approximately 10 years or until objectives are met. On average, 45,000 acres of vegetation would be mechanically treated annually. On average, 40,000 to 60,000 acres of prescribed fire would be implemented annually across the Forests (within the treatment area). Up to two prescribed fires would be conducted on all acres proposed for treatment over the 10-year period. Restoration actions would:

- Mechanically cut trees on approximately 384,966 acres. This includes mechanically treating up to 16-inch d.b.h. within 18 MSO PACs.

- Apply prescribed fire on approximately 384,966 acres where mechanical treatment occurs and use low severity prescribed fire within 70 MSO PACs (excluding core areas).
- Utilize prescribed fire only on approximately 198,364 acres.
- Construct approximately 520 miles of temporary roads for haul access and decommission when treatments are complete (no new permanent roads would be constructed).
- Reconstruct up to 40 miles of existing, open roads for resource and safety concerns (no new permanent roads would be constructed). Of these miles, approximately 30 miles would be improved to allow for haul (primarily widening corners to improve turn radiuses) and about 10 miles of road would be relocated out of stream bottoms. Relocated roads would include rehabilitation of the moved road segment.
- Decommission 726 miles of existing system and unauthorized roads on the Coconino NF.
- Decommission 134 miles of unauthorized roads on the Kaibab NF.
- Restore 74 springs and construct up to 4 miles of protective fencing.
- Restore 39 miles of ephemeral channels.
- Construct up to 82 miles of protective (aspen) fencing.
- Allocate/manage as old growth 40 percent of the ponderosa pine type and 77 percent of the pinyon-juniper woodland on the Coconino NF.
- Manage and develop uneven-aged stands with a representation of old growth components across most of the project area on the Kaibab NF

No forest plan amendments would be needed on the Kaibab NF. The proposed actions are consistent with forest plan objectives, desired conditions, and standards and guidelines (see forest plan consistency section). Three nonsignificant forest plan amendments (see appendix B) would be required on the Coconino NF to implement alternative B:

Amendment 1 would add language to allow mechanical treatments up to 16-inch d.b.h. to improve habitat structure (nesting and roosting habitat) in 18 MSO PACs The amendment would remove language that limits PAC treatments in the recovery unit to 10 percent increments and language that requires the selection of an equal number of untreated PACs as controls. The amendment would remove language referencing monitoring (pre and post treatment, population, and habitat monitoring). Replacement language would defer final project design and monitoring to the FWS biological opinion specific to MSO for the project. The amendment, which is specific to restricted habitat in pine-oak, would add definitions of target and threshold habitat.

Amendment 2 would add the desired percentage of interspace within uneven-aged stands to facilitate restoration in goshawk habitat (excluding nest areas), add the interspace distance between tree groups, add language clarifying where canopy cover is and is not measured, allow 28,952 acres to be managed for an open reference condition, and add a definition to the forest plan glossary for the terms interspaces, open reference condition, and stands.

Amendment 3 would remove the cultural resource standard that requires achieving a “no effect” determination and would add the words “or no adverse effect” to the remaining standard. In effect, management would strive to achieve a “no effect” or “no adverse effect” determination.

Alternative C (Preferred Alternative)

The Coconino and Kaibab NFs would conduct restoration activities on approximately 586,110 acres over a period of 10 years or until objectives are met. On average, 45,000 acres of vegetation would be mechanically treated annually. On average, 40,000 to 60,000 acres of prescribed fire would be implemented annually across the Forests (within the treatment area). Up to two prescribed fires[1] would be conducted on all acres proposed for treatment over the 10-year period. Restoration activities would:

- Mechanically cut trees on approximately 431,049 acres. This includes: (1) mechanically treating up to 17.9-inch d.b.h. within 18 Mexican spotted owl protected activity centers.
- Apply prescribed fire on approximately 431,049 acres where mechanical treatment occurs; this includes using low-severity prescribed fire within 70 Mexican spotted owl protected activity areas (including 54 core areas).
- Utilize prescribed fire only on approximately 155,061 acres.
- Construct approximately 520 miles of temporary roads for haul access and decommission when treatments are complete (no new permanent roads would be constructed).
- Reconstruct up to 40 miles of existing, open roads for resource and safety concerns (no new permanent roads would be constructed). Of these miles, approximately 30 miles would be improved to allow for haul (primarily widening corners to improve turn radiuses) and about 10 miles of road would be relocated out of stream bottoms. Relocated roads would include rehabilitation of the moved road segment.
- Decommission 726 miles of existing system and unauthorized roads on the Coconino NF.
- Decommission 134 miles of unauthorized roads on the Kaibab NF.
- Restore 74 springs and construct up to 4 miles of protective fencing.
- Restore 39 miles of ephemeral channels.
- Construct up to 82 miles of protective (aspen) fencing.
- Construct up to 12 flumes and 12 weather stations and associated instrumentation (up to 3 total acres of soil disturbance) to support the paired watershed study.
- Allocate/manage as old growth 40 percent of the ponderosa pine type and 77 percent of the pinyon-juniper woodland on the Coconino NF.
- Manage and develop uneven-aged stands with a representation of old growth components across most of the project area on the Kaibab NF

No forest plan amendments would be needed on the Kaibab NF. The proposed actions are consistent with forest plan objectives, desired conditions, and standards and guidelines. Three nonsignificant forest plan amendments (see appendix B) would be required on the Coconino NF to implement alternative C:

[1] A single prescribed fire may include burning piles and a follow-up broadcast burn. Prescribed fire would be implemented as indicated by monitoring data to augment wildfire acres, with the expectation that desired conditions would require a fire return interval of about 10 years.

Amendment 1 would allow mechanical treatments up to 17.9-inch d.b.h. to improve habitat structure (nesting and roosting habitat) in 18 MSO PACs. These PACs would be managed for a minimum basal area of 110. It would allow low-intensity prescribed fire within 54 MSO PAC core areas. The amendment would remove language that limits PAC treatments in the recovery unit to 10 percent increments and language that requires the selection of an equal number of untreated PACs as controls. The amendment would remove language referencing monitoring (pre- and post-treatment, population, and habitat). Replacement language would defer final project design and monitoring to the FWS biological opinion specific to MSO for the project.

The amendment, which is specific to restricted habitat in pine-oak, would add definitions of target and threshold habitat. It would allow 6,299 acres of restricted target and threshold habitat to be managed for a minimum range of 110 to 150 basal area.

Amendment 2 would add the desired percentage of interspace within uneven-aged stands to facilitate restoration in goshawk habitat (excluding nest areas), add the interspace distance between tree groups, add language clarifying where canopy cover is and is not measured, allow 28,653 acres to be managed for an open reference condition, and add a definition to the forest plan glossary for the terms interspaces, open reference condition, and stands.

An exception to this amendment applies to about 38,256 acres of goshawk habitat. In response to feedback and comments received on treating less aggressively and leaving more large trees, canopy cover will be measured at the stand level on about 38,256 acres of goshawk habitat where there is a preponderance of VSS 4, 5 and 6.

Amendment 3 would remove the cultural resource standard that requires achieving a “no effect” determination and would add the words “or no adverse effect” to the remaining standard. In effect, management would strive to achieve a “no effect” or “no adverse effect” determination.

Alternative D

Alternative D responds to Issue 2 (prescribed fire emissions) by decreasing prescribed fire acres by 69 percent (when compared to alternative B, proposed action). This equates to removing fire on about 404, 889 acres. A select number of MSO PACs would be mechanically treated but would not be treated with prescribed fire. All other components of the alternative are the same as described in alternative B.

The Coconino and Kaibab NFs would conduct restoration activities on approximately 563,407 acres over a period of 10 years or until objectives are met. On average, 45,000 acres of vegetation would be mechanically treated annually. On average, 40,000 acres of prescribed fire would be implemented annually across the Forests (within the treatment area). Two prescribed fires would occur over the 10-year treatment period. Restoration activities would:

- Mechanically cut trees on approximately 384,966 acres. This includes: (1) mechanically treating up to 16-inch d.b.h. within 18 MSO PACs, and, (2) disposing of slash through various methods including chipping, shredding, mastication, and removal of biomass off-site
- Utilize prescribed fire only on approximately 178,441 acres.

- Construct 520 miles of temporary roads for haul access and decommission when treatments are complete (no new permanent roads would be constructed).
- Reconstruct up to 40 miles of existing, open roads for resource and safety concerns (no new permanent roads would be constructed). Of these miles, approximately 30 miles would be improved to allow for haul (primarily widening corners to improve turn radiuses) and about 10 miles of road would be relocated out of stream bottoms. Relocated roads would include rehabilitation of the moved road segment.
- Decommission 726 miles of existing system and unauthorized roads on the Coconino NF.
- Decommission 134 miles of unauthorized roads on the Kaibab NF.
- Restore 74 springs and construct up to 4 miles of protective fencing.
- Restore 39 miles of ephemeral channels.
- Construct up to 82 miles of protective (aspen) fencing.
- Allocate/manage as old growth 40 percent of the ponderosa pine type and 77 percent of the pinyon-juniper woodland on the Coconino NF.
- Manage and develop uneven-aged stands with a representation of old growth components across most of the project area on the Kaibab NF

No forest plan amendments would be needed on the Kaibab NF. The proposed actions are consistent with forest plan objectives, desired conditions, and standards and guidelines. Three nonsignificant forest plan amendments (see appendix B) would be required on the Coconino NF to implement alternative D:

Amendment 1 would add language to allow mechanical treatments up to 16-inch d.b.h. to improve habitat structure (nesting and roosting habitat) in 18 MSO PACs. These PACs would be managed for a minimum basal area of 110. The amendment would remove language that limits PAC treatments in the recovery unit to 10 percent increments and language that requires the selection of an equal number of untreated PACs as controls. The amendment would remove language referencing monitoring (pre- and post-treatment, population, and habitat). Replacement language would defer final project design and monitoring to the FWS biological opinion specific to MSO for the project.

The amendment, which is specific to restricted habitat in pine-oak, would add definitions of target and threshold habitat.

Amendment 2 would add the desired percentage of interspace within uneven-aged stands to facilitate restoration in goshawk habitat (excluding nest areas), add the interspace distance between tree groups, add language clarifying where canopy cover is and is not measured, allow 28,952 acres to be managed for an open reference condition, and add a definition to the forest plan glossary for the terms interspaces, open reference condition, and stands.

Amendment 3 would remove the cultural resource standard that requires achieving a “no effect” determination and would add the words “or no adverse effect” to the remaining standard. In effect, management would strive to achieve a “no effect” or “no adverse effect” determination.

Alternative E

In alternative E eighteen MSO PACs would be mechanically treated to 9-inch d.b.h. No prescribed fire would be utilized within MSO PAC core areas. No acres would be managed for an open reference condition[2]. No treatments would occur within the Garland Prairie management area. MSO population and habitat monitoring would follow current forest plan direction and the FWS biological opinion. The paired watershed study and small mammal research would occur. Key components of the stakeholder-created large tree retention strategy are incorporated into the alternative's implementation plan.

The Coconino and Kaibab NFs would conduct restoration activities on approximately 581,020 acres over a period of 10 years or until objectives are met. On average, 45,000 acres of vegetation would be mechanically treated annually. On average, 40,000 acres of prescribed fire would be implemented annually across the Forests (within the treatment area). Two prescribed fires would occur over the 10-year treatment period.

Restoration activities would:

- Mechanically cut trees on approximately 403,218 acres. This includes: (1) mechanically treating up to 9-inch d.b.h. within 18 MSO PACs, and, (2) disposing of slash through various methods including chipping, shredding, mastication, and removal of biomass off-site.
- Apply prescribed fire on approximately 403,218 acres where mechanical treatment occurs.
- Utilize prescribed fire only on approximately 177,801 acres.
- Construct 520 miles of temporary roads for haul access and decommission when treatments are complete (no new permanent roads would be constructed).
- Reconstruct up to 40 miles of existing, open roads for resource and safety concerns (no new permanent roads would be constructed). Of these miles, approximately 30 miles would be improved to allow for haul (primarily widening corners to improve turn radiuses) and about 10 miles of road would be relocated out of stream bottoms. Relocated roads would include rehabilitation of the moved road segment.
- Decommission 726 miles of existing system and unauthorized roads on the Coconino NF.
- Decommission 134 miles of unauthorized roads on the Kaibab NF.
- Restore 74 springs and construct up to 4 miles of protective fencing.
- Restore 39 miles of ephemeral channels.
- Construct up to 82 miles of protective (aspen) fencing.
- Construct up to 12 flumes and 12 weather stations and associated instrumentation (up to 3 total acres of soil disturbance) to support the paired watershed study.
- Allocate/manage as old growth 40 percent of the ponderosa pine type and 77 percent of the pinyon-juniper woodland on the Coconino NF.

[2] Open Reference Condition is defined as forested ponderosa pine areas with mollic integrade soils to be managed as a relatively open forest with trees typically aggregated in small groups within a grass/forb/shrub matrix.

- Manage and develop uneven-aged stands with a representation of old growth components across most of the project area on the Kaibab NF.

Note: Measuring canopy cover at the stand level on about 38,256 acres of goshawk habitat where there is a preponderance of VSS 4, 5 and 6 represents no change to the current Coconino NF forest plan.

Methodology and Analysis Process

The Special Uses Database System (SUDS) was used to generate a list of all special use authorizations within the project area. This report was sorted by use type; recreation special uses were then removed from the analysis. The remaining lands special use authorizations were then sorted by status; they were considered as part of the existing condition if they had statuses of application accepted, pending signature, or issued. Short-term uses such as commercial filming were removed from the analysis, though it is noted that these uses occur regularly within the project area. Research permits were also removed, as many of them are also short-term in nature. However, the analysis notes that some long-term research permits exist within the project area.

Some inaccuracies are commonly known to exist in the SUDS. Permits are sometimes shown as "issued" even after they have expired, or sometimes are shown as expired when in fact they have been reissued and the activity continues. Where it was known or suspected that these permits were still in place and in the process of reissuance, they were considered in the analysis.

Mineral resources were identified using the specialist reports and supporting materials for the Forest Land and Resource Management Plan Revisions for each Forest in the project area.

Assumptions

The following assumptions were made for this analysis:

- Forest Plan direction will be followed when planning or implementing site-specific projects and activities resulting from this decision.
- Applicable laws, regulations, and policies will be followed when planning or implementing site-specific projects and activities resulting from this decision.
- With population growth in the communities within and surrounding the forest, as well as throughout the State of Arizona there will be increased demand for uses such as alternative energy development, utility corridors, and transportation systems.
- Community and public needs for use of federal land for services and infrastructure, including roads and energy corridors, will continue.
- Proposals for lands special uses, mineral exploration, and energy development on the National Forests will increase in the foreseeable future.

Description of Affected Environment

Lands Special Uses

Lands special use authorizations include permits, term permits, leases, and easements that authorize occupancy and use of National Forest System lands. Authorized activities include uses such as utility corridors, roadways, communications sites, and research projects, as well as many other uses. The terms of these authorizations vary based upon the type of use.

As of March 2012, there were 496 active lands special use permits in the project area. Additionally, there are approximately 30-40 temporary permits issued each year for commercial filming, photography, and other short term uses. Research permits are also regularly issued within the project area; while many are short term in nature, there are also long-term research permits.

Most lands special use permits allow vegetation clearing around the facilities they authorize, to provide for access and/or fuel reduction. Within the project area, the bulk of this vegetation treatment occurs in association with power, gas, and other utility corridors. Of the 496 permits in the project area, 37 fall into this category. They represent approximately 32,345 acres of vegetation that are being managed regularly. Not all of these acres lie within the project area, however, as permit acreages are recorded for the entire authorization and generally not broken down by township and range.

Recent years show an increasing demand for lands special uses. As communities in and around the Forests increase in development, their need to utilize public lands in support of their infrastructure also increases. Proposals for power lines, rights of way, communications sites, water transmission lines, and roadways have increased steadily and will continue to do so in future years. Increased interest in renewable energy sources, such as wind and solar, has also contributed to the increased demand.

Minerals

Minerals of economic interest are classified as leasable, locatable, or salable. Coal, oil shale, oil and gas, phosphate, potash, sodium, geothermal resources, and all other minerals that may be acquired under the Mineral Leasing Act of 1920, as amended, are referred to as leasable minerals. Common varieties of sand, stone, gravel, pumice, and clay that may be acquired under the Materials Act of 1947 are considered salable minerals. Any minerals that are not salable or leasable, such as gold, silver, copper, tungsten, and uranium, are referred to as locatable minerals. These mineral deposits include most metallic mineral deposits and certain nonmetallic and industrial minerals. Locatable minerals are subject to the Mining Act of 1872.

Locatable mineral production on the Coconino National Forest includes manganese, gypsum, flagstone, and pumice. Saleable minerals production includes cinders, crushed aggregate, fill rock and dirt, and landscape rock. There are no oil or gas leases. Potential geothermal resources are associated with the San Francisco Volcanic Field.

Presently, no known coal, oil, or gas reserves are located on the Kaibab National Forest. The primary economic mineral resource consists of limited locatable mineral deposits. Many are small and, in today economic climate, not commercially viable. There are, however, uranium deposits that are of higher grade than approximately 85% of the world's known uranium deposits (International Atomic Energy Agency 2009; World Nuclear Association 2009; as cited in the Special uses-Minerals-Lands Specialist Report for the Kaibab Forest Plan Revision, 2011). Salable minerals consist of sand and gravel deposits, building materials, and cinders. The area of the Tusayan District that was designated as part of the Grand Canyon Game Preserve is withdrawn from mineral entry.

The Coconino-Kaibab Rock Pit Environmental Analysis, currently underway, would allow the use and development of 19 rock pits on the Coconino and 20 on the Kaibab; many of these pits would be new sources. Most of the rock would be used by the Forests, but some may be made available for sale to counties, cities, and other agencies.

Environmental Consequences

None of the issues raised during scoping or during the comment period for the DEIS relate to the potential effects on lands special uses and/or minerals, and therefore they do not serve as indicators for analyzing the effects of the project on these resources. However, the project would have an indirect effect in the form of reduced fire risk. Therefore, the indicator used for this analysis is the number of acres with reduced fire risk.

Under all alternatives, there is no foreseeable irretrievable or irreversible commitment of resources.

Direct and Indirect Effects

Alternative A – No Action

Under this alternative, no restoration activities would occur. Stand and vegetation structures would not be improved, which would make the landscape in the project area less resilient to disturbance and would provide increased fuels for wildland fires. Increased fire danger, and the potential for increased intensity of wildland fires, would impact lands special uses by threatening the structures they authorize in both the short term (10 years) and long term (20 years and more). Any structures associated with active minerals sites would also be similarly threatened. Long-term effects could be the destruction of these facilities by fire, and possibly the closure of fire-damaged areas for rehabilitation. There may be short-term, temporary effects in the form of restricted access to sites during fire suppression activities or post-fire rehabilitation. See fire ecology report for detailed information on existing and foreseeable fire risk.

Effects of All Action Alternatives (B-E)

All action alternatives would improve forest health, by providing for a variety of restoration activities. While they vary in specific approaches, the overall effect on lands special uses and

minerals would be the same. Increased forest health would lower the risk of uncharacteristic wildland fires and lower the potential for fires of high intensity. This would reduce the threat to the structures authorized for lands special uses and mineral projects.

Of the action alternatives, alternative C treats the most acres (Table 1) and therefore provides the greatest improvement to forest health and reduced risk of fire.

All action alternatives would require construction of 520 miles of temporary roads and the reconstruction of up to 40 miles of existing roads, which would result in increased demand for mineral materials for road surfacing. This could result in the need for new source pits, if existing pits proved insufficient. It could also result in the need for new source pits in the future, if existing pits are depleted by this project.

Table 1. Total acres treated under each alternative.

Alternative	Acres Treated Under Project
A	0
B	583,330
C	586,110
D	563,407
E	581,301

There could be short-term, temporary impacts to land special uses and mineral projects as site-specific restoration activities were implemented. For example, access to sites may be temporarily restricted while thinning or burning was occurring. The duration of these impacts would be only as long as the site-specific activities were occurring – for example, the amount of time that thinning was occurring in the vicinity of a particular permit area or mineral site. Prior to any site-specific implementation, the Forest Service would work with affected permit or claim holders to determine site-specific concerns, such as timing restoration activities to avoid periods of high use or access need by the permit holders. Such mitigation would minimize potential adverse effects to these resources. Based on the fire analysis (and degree of change in acres with the potential for crown fire) treating 38,256 acres less aggressively would have no impact on lands and special uses. Infrastructure related to special uses would continue to be protected.

Cumulative Effects

Actions considered in determining cumulative environmental effects are those known or anticipated to occur within the project area over the next 10 to 15 years. The cumulative effects analysis area is the same as the project area.

Appendix F of the Four Forests Restoration Initiative FEIS lists all past, present, and future projects that may have a cumulative effect on the current project.

Appendix F shows that the Forest Service has completed 270,295 acres of vegetation and prescribed fire treatments within the project area. Additionally, examination of existing special use authorizations for power and gas lines reveals that approximately 32,345 additional acres have been treated by permit holders as part of routine maintenance around authorized facilities (SUDS record search, April 2012). These actions have indirectly reduced the risk of fire to infrastructure authorized by lands special use permits and minerals permits.

Appendix F also lists ongoing and future fuels treatment projects within the project area, which are summarized in Table 2 below. Under all alternatives, these actions would continue, as well as the routine clearing done by permit holders. These projects would contribute to forest health and restoration of the forest to its natural vegetative structure, which would in turn contribute to the reduction of fires that could produce severe effects to lands special uses and minerals (such as damaging or destroying infrastructure).

Table 2. Past, present, and future F actions with vegetation and/or fuels treatments within the project area.

Project Type	**Acres Treated (prescribed fire and vegetation treatments)**
Past (2000-2013)	270,295
Current/Ongoing	361,973
Reasonably Foreseeable (Future)	102,194
Private/State/Other non NFS lands (Past/Current/Ongoing/Future)	144,673
Lands Special Uses – routine maintenance	32,345
TOTAL	**911,480**

Alternative A – No Action

Permit holders would continue to conduct routine vegetation clearing on 32,345 acres as part of routine facilities maintenance, and 879,135 acres would be treated in planned fuels projects. Fire risk would be reduced on a total of 911,480 acres. Forest health would only be increased within those acres, not across the project area as a whole. Therefore the risk of wildland fires of uncharacteristic intensity would be reduced somewhat within the project area, but not as much as under the Action Alternatives.

All Action Alternatives

Under all Action Alternatives, the number of treated acres would be increased approximately 1.6 times over those under the No Action Alternative, to nearly 1.5 million acres (Table 3). This would more than double the number of acres with reduced risk of wildfire. Overall forest health would be improved and the risk of severe wildland fires that could endanger lands special use and mineral sites would be reduced. Alternative C treats the greatest number of acres and

therefore contributes the most to forest health. Alternatives B and E treat fewer acres than Alternative C, but the difference is not significant to lands special uses. Alternative D would treat the fewest acres.

Table 3. Combined Acres Treated Under Current Project and Past, Present, and Foreseeable Projects.

Alternative	Acres Treated Under This Project	Total Treated Acres in Project Area
A	0	911,480
B	583,330	1,494,810
C	586,110	1,497,590
D	563,407	1,474,887
E	581,301	1,492,781

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