# Appendix B - FEIS Forest Plan Amendments

## Background

Table 103 summarizes the proposed forest plan amendments by alternative and theme. For electronic copy viewers, hyperlinks to each amendment are provided. Since the DEIS was issued in 2012, a revised Kaibab NF Forest Plan became effective (USDA FS 2014). All forest plan amendments for the Kaibab NF have been removed from the FEIS because the alternatives are consistent with the revised Kaibab NF forest plan. The project's desired conditions for ponderosa pine were based on the best available science for the restoration of southwestern fire-adapted ecosystems (Reynolds et al. 2013). These desired conditions informed the Kaibab NF's plan revision process. The amendments for Mexican spotted owl were removed because the project is consistent with the forest plan in that a guideline for threatened, endangered and sensitive species directs projects to integrate management objectives and protection measures from approved recovery plans (KNF forest plan, p. 51).With design features and mitigation, alternatives B through E are consistent with forest plan objectives, desired conditions, standards and guidelines, although movement towards desired conditions varies by alternative. Kaibab NF forest plan consistency evaluations are located in each resource report. A consolidated evaluation is in the project record.

Three nonsignificant amendments for the Coconino NF were evaluated in the FEIS. The proposed forest plan amendments are authorized via 36 CFR 219, the Forest Service Planning Rule. Section 219.17(b)(3) of the Rule provides the transition language that allows this project to propose amendments to the Coconino NF forest plan using the provisions of the 1982 Planning Rule. All amendments are a specific, one-time variance for the Coconino NF restoration project. Once the project is complete, current forest plan direction would apply to the project area. The language proposed does not apply to any other forest project.

The purpose of amendment 1 is to bring the alternative in alignment with the revised Mexican Spotted Owl Recovery Plan (USDI FWS 2012) and defer monitoring to the U.S. Fish and Wildlife Service biological opinion that is specific to this project. Amendment 2 clarifies existing direction related to managing canopy cover and interspace in the forest plan. The purpose of amendment is to bring the project into alignment with the best available science (Reynolds et al. 2013) that provides desired conditions for restoring fire-adapted ponderosa pine in the Southwest. Amendment 3 resolves a forest plan error related to the management of heritage resources and is specific to this project. The detailed significance analysis for each amendment is located in appendix B of the FEIS.

Amendments 1 through 3 were evaluated in accordance with the significance amendment criteria in FSM 1926.51 and FSM 1926.52. The significance analysis for each amendment included in the selected alternative is displayed in this appendix.

No amendment alters multiple use forest plan goals and objectives, adjusts management area boundaries or management prescriptions. The changes in standards and guidelines are considered to be minor because they reflect the latest, best available science (Reynolds et al. 2013). The amendments bring the alternatives into alignment with the revised Mexican spotted owl Recovery Plan, although the degree of alignment varies by alternative. No amendment would alter the long-term relationship between levels of multiple-use goods and services originally projected for the

Coconino NF. These outputs were specific to a planning period ranging from 10 to 15 years (as identified in 1987). In the preferred alternative (alternative C):

- Amendment 1: The amendment would affect 6,906 acres or 18 percent of Mexican spotted owl PAC habitat on the Coconino NF.
- Amendment 2 is clarification amendment. The canopy cover portion of the amendment would generally affect 137,242 acres (15 percent) of all goshawk habitats on the Coconino NF. Managing 28,653 acres of ponderosa pine for an open reference condition would affect approximately 3 percent of all suitable goshawk habitats on the Forest.
- Amendment 3 is specific to the 355,707 acres of proposed treatments in this project. The amendment would affect about 20 percent of the Coconino NF (which totals 1,821,495 acres).

For these reasons, the amendments would not result in an important effect to the entire land management planning area. Each amendment is a specific, one-time variance for this restoration project. The best available science for management in Southwestern forests Reynolds et al. 2013), the (Coconino NF) forest plan revision process, is affecting ongoing and future analyses. The plan amendments that are specific to this project do not impose direction on ongoing or future analyses.

## Changes since Draft Environmental Impact Statement

A revised Mexican spotted owl Recovery Plan, issued by the U.S. Fish and Wildlife Service was finalized in December of 2012 (USDI FWS 2012). As consistency evaluation has been added to amendment 1 (Mexican spotted owl) for each alternative to demonstrate consistency with the 2012 recovery plan. The portion of the amendment that adjusted the percent to target and threshold habitat has been removed. The percentages of target and threshold habitat on the Coconino NF meet or exceed requirements.

Acreages in all amendments have been updated as needed (see chapter 1 for discussion on changes from DEIS to FEIS). Since the DEIS was released for public comment in 2013, a revised forest plan for the Kaibab NF became effective. No forest plan amendments would be needed on the Kaibab NF. All Kaibab NF plan amendments were removed (see Background section).

## Related Planning Efforts

Currently, the Coconino NF is revising its forest plan. A DEIS and draft revised land and resource management plan (hereafter referred to as “Coconino NF draft revised plan” was released for comment in January of 2014 (USDA FS 2013). An analysis was conducted to determine how the proposed amendments align with the Coconino NF draft revised plan (as currently written in 2013). The evaluation is located in the project record.

**Table 103. Summary of Coconino NF forest plan amendments by alternative and theme**

| Alternative | Mechanical Treatments in PACs | Treatments in PAC Core Areas | Restricted Habitat Management | Basal Area in Restricted Target and Threshold Habitat | Population and Habitat Monitoring | Habitat Treatment in Incremental Percentages |
|---|---|---|---|---|---|---|
| **Forest Plan Amendment 1: Theme - Management in Mexican Spotted Owl Habitat on the Coconino NF** | | | | | | |
| A, E | N/A | | | | | |
| B | Amendment 1: Allows mechanical treatment up to 16 inches d.b.h. in 18 PACs | N/A: No PAC core area treatments | Amendment 1: Adds definitions for target and threshold habitat | N/A—basal area in restricted target and threshold habitat remains 150 on both forests | Amendment 1: Defers monitoring to the project's U.S. Fish and Wildlife Service (FWS) biological opinion | Amendment 1: Defers treatment design to the project's FWS biological opinion |
| C | Amendment 1: Allows mechanical treatment up to 17.9 inches d.b.h. in 18 PACs and decreases the minimal basal area from 150 to 110 in the 18 PACs | Amendment 1: Allows prescribed fire in 54 core areas | Amendment 1: Adds definitions for target and threshold habitat | Amendment 1:Allows for managing 6,299 acres of restricted target and threshold habitat for a minimum range of 110 to 150 basal area | Amendment 1: Defers monitoring to the project's FWS biological opinion | Amendment 1: Defers treatment design to the project's FWS biological opinion |
| D | Amendment 1: Allows mechanical treatment up to 16 inches d.b.h. in 18 PACs | N/A: No PAC core area treatments | Amendment 1: Adds definitions for target and threshold habitat | N/A—basal area in restricted target and threshold habitat remains 150 | Amendment 1: Defers MSO monitoring to the project's FWS biological opinion | Amendment 1: Defers treatment design to the project's FWS biological opinion |
| **Forest Plan Amendment 2: Theme - Management of Canopy Cover and Ponderosa Pine with an Open Reference Condition within Goshawk Habitat on the Coconino NF** | | | | | | |
| A | N/A | | | | | |
| B-D | Amendment 2: (1) adds the desired percentage of interspaces within uneven-aged stands to facilitate restoration, (2) adds the interspaces distance between tree groups, (3) adds language clarifying where canopy cover is and is not measured, (4) allows 28,952 acres (alternatives B and D) and 28,653 (alternative C only) to be managed for an open reference condition (up to 90 percent open with less than 3 to 5 reserve trees), and (5) adds a definition to the forest plan glossary for the terms: interspaces, open reference condition, and stands. | | | | | |
| E | N/A: No desired percentage of interspaces would be added. No language clarifying where canopy cover is and is not measured would be added. Zero acres would be managed for up to 90 percent open with less than 3 to 5 reserve trees. No definition of interspace and stands would be added. | | | | | |
| **Forest Plan Amendment 3: Theme - Effect Determination for Cultural Resources on the Coconino NF** | | | | | | |
| A | N/A | | | | | |
| B-D | Amendment 3: The amendment deletes the standard that would require achieving a "no effect" determination and adds the words "or no adverse effect" to the remaining standard. In effect, management strives to achieve a "no effect" or "no adverse effect" determination. | | | | | |
| E | N/A: Forest plan standard that would require achieving a "no effect" determination would remain in place. | | | | | |

# Alternative B – Coconino National Forest
# Site-Specific Nonsignificant Forest Plan Amendments

## Amendment 1. Mexican Spotted Owl Habitat Management (Coconino NF)

### Background

The treatment area contains about 35,019 total acres of Mexican spotted owl protected habitat, most of which occurs in Restoration Unit 1. There are 193 PACs occurring completely or partially on the Coconino and Kaibab National Forests. There are 70 PACs (about 34,183 acres) in the 4FRI treatment area (in areas proposed for mechanical and prescribed fire treatments). The remaining protected habitat (836 acres) occurs on steep slopes where timber harvest has not occurred in the previous 20 years and is not proposed for mechanical treatment. Proposed treatments for steep-slope protected habitat consist of prescribed fire only – no mechanical treatments are proposed for this category of habitat.

In 2011, biologists from the Coconino and Kaibab NFs, the 4FRI team, and the U.S. Fish and Wildlife Service worked together to review individual Mexican spotted owl PACs within the project area. Prior to conducting site visits, the team met with the Rocky Mountain Research Station (RMRS) and requested a summary and synthesize of existing knowledge on the status and ecology of Mexican spotted owls within the ecosystem management unit. Dr. William Block, Program Manager and Supervisory Research Wildlife Biologist at the RMRS and also senior author of the Recovery Plan for the Mexican spotted owl, and Dr. Joseph Ganey, Research Wildlife Biologist at the RMRS, member of the Mexican spotted owl recovery team, and lead scientist on multiple Mexican spotted owl research projects, agreed to our request. Dr. Ganey and other Mexican spotted owl experts published the “Status and ecology of Mexican spotted owls in the Upper Gila Mountains Recovery Unit, Arizona and New Mexico” in 2011 (RMRS-GTR-256). The intent of this report is to aid planners in evaluating potential benefits or impacts of management actions for Mexican spotted owls and their habitat.

The evaluation process included site visits and modeling silvicultural treatments and prescribed fire to move existing owl habitat toward the desired conditions described in the former 1995 Mexican spotted owl recovery plan (USDI FWS 1995) and forest plan. A total of 117 PACs were evaluated within and near the project area. Of this total, 18 were identified as having habitat that could be improved with vegetation treatments. No PACs proposed for treatment are located in designated wilderness. Each stand within the 18 PACs was modeled to identify treatments that would yield the best existing and future Mexican spotted owl habitat conditions. See the wildlife specialist report “Methodology” section for complete details on the habitat evaluation process.

Also in 2011, a geographic layer for restricted habitat across the 4FRI treatment area was developed. Data from the Kaibab and Coconino NFs (based on polygons) was merged with pine-oak data from the Lab of Landscape Ecology and Conservation Biology (raster data; Dr. Steve Sesnie and Jill Rundall, Northern Arizona University). This landscape-scale approach better met the goal of providing continuous replacement nesting and roosting habitat over space and time, as described in the previous (1995) recovery plan and the 1996 “Record of Decision for the Amendment of Eleven Forest Plans.” A new restricted layer was created within the 4FRI treatment area, including designation of target and threshold habitat as described in the former Mexican spotted owl recovery plan.

### Mechanical Treatment Up to 16 inches d.b.h. in select PACs (6,906 acres)

Mexican spotted owl PAC field reviews, data evaluation, and vegetation simulation modeling indicated 18 Mexican spotted owl PACs (approximately 3,378 acres) would move toward revised Mexican spotted owl Recovery Plan desired conditions from mechanically cutting trees up to 9 inches d.b.h. Treatments up to 9 inches d.b.h. are consistent with the current Coconino NF forest plan.

An additional 6,906 acres within 18 PACs would have nesting and roosting habitat benefits from cutting trees up to 16 inches d.b.h. Mechanical treatments above 9 inches d.b.h. would facilitate the removal of ladder and canopy fuels which would reduce the fire risk in the 18 PACs (to the extent possible). Increasing the range of the mechanical treatment thresholds up to 16 inches d.b.h. within 18 Mexican spotted owl PACs would provide for a higher degree of stand structure improvements to nesting and roosting habitat. The treatments (as allowed by the amendment) would address comments from the U.S. Fish and Wildlife Service and meet the intent of the Revised Mexican spotted owl Recovery Plan by improving nesting roosting habitat (USDI FWS 2012). Figure 54 displays the general location of mechanical treatment up to 16 inches d.b.h., prescribed fire, and areas where no treatment is proposed within Mexican spotted owl PACs.

### Incremental Treatments and Monitoring Responses to Spotted Owl Treatments

Monitoring assesses the effectiveness of management actions and provides the adaptive framework for more successful management guidelines. Monitoring habitat allows for modeling future forest conditions to determine if there will be adequate habitat to support Mexican spotted owl populations. Occupancy, reproduction and habitat monitoring and final project design for all proposed activities in all Mexican spotted owl habitat was developed in consultation with the U.S. Fish and Wildlife Service. Monitoring requirements from the biological opinion have been incorporated into the FEIS in appendix E.

### Target and Threshold Restricted Habitat

Because this project was developed while the former recovery plan was in place, many treatments were modeled specifically to meet target and threshold (future nesting and roosting) habitat requirements. Definitions of target and threshold habitat would be added since the current forest plan refers to “threshold” in terms of values and desired conditions (see Coconino NF forest plan, page 65-3.) within restricted habitat and there is no reference to “target” conditions. The continued use of the terms (and definitions) of target and threshold habitat (considered future nesting and roosting habitat as part of restricted habitat is consistent with Revised Mexican spotted owl Recovery Plan’s direction for nesting and roosting in recovery habitat (table C.1 to C.3).

### Amendment Description

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 defers final project design and monitoring to the U.S. Fish and Wildlife Service biological opinion specific to Mexican spotted owl for the project. The final designs for the project (as required by the biological opinion) have been incorporated into the FEIS appendix D implementation plan.

The amendment would add language to allow mechanical treatments up to 16 inches d.b.h. to improve habitat structure (nesting and roosting habitat) in 18 Mexican spotted owl PACs (recovery habitat).

Edited or added text is shown in **bold** in table 104.

**Table 104. Alternative B amendment 1; current and proposed Mexican spotted owl forest plan language (Coconino NF)**

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| **Mexican spotted owl Standards** | |
| No corresponding direction currently exists | **The project will comply with biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| Provide three levels of habitat management – protected, restricted, and other forest and woodland types to achieve a diversity of habitat conditions across the landscape (Coconino NF forest plan, page 65)**.** | No Change |
| Protected areas include delineated protected activity centers; mixed conifer and pine-oak forests with slopes greater than 40 percent where timber harvest has not occurred in the last 20 years; and reserved lands which include wilderness, research natural areas, wild and scenic rivers, and congressionally recognized wilderness study areas (Coconino NF forest plan, page 65)**.** | No Change |
| Restricted areas include all mixed-conifer, pine-oak, and riparian forests outside of protected areas (Coconino NF forest plan, page 65). | No Change |
| Other forest and woodland types include all ponderosa pine, spruce-fir, woodland, and aspen forests outside protected and restricted areas (Coconino NF forest plan, page 65). | No Change |
| Survey all potential spotted owl areas including protected, restricted, and other forest and woodland types within an analysis area plus the area 1/2 mile beyond the perimeter of the proposed treatment area (Coconino NF forest plan, page 65). | No Change |
| Establish a protected activity center at all Mexican spotted owl sites located during surveys and all management territories established since 1989 (Coconino NF forest plan, page 65). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Allow no timber harvest except for firewood and fire risk abatement in established protected activity centers. For protected activity centers destroyed by fire, windstorm, or other natural disaster, salvage timber harvest or declassification may be allowed after evaluation on a case-by-case basis in consultation with U.S. Fish and Wildlife Service (Coconino NF forest plan, page 65). | Allow no timber harvest except for firewood, fire risk abatement, in established protected activity centers **except as follows: Allow firewood, fire risk abatement, and habitat structure improvement in the following established protected activity centers: Lake No. 1/Seruchos, Archies, Red Hill, Crawdad, Holdup, Bonita Tank, Red Raspberry, Bear Seep, Mayflower Tank, Knob, T6 Tank, Iris Tank, Frank, Rock Top, Lee Butte, Foxhole, Bar M, and Sawmill Spring.** For protected activity centers destroyed by fire, windstorm, or other natural disaster, salvage timber harvest or declassification may be allowed after evaluation on a case-by-case basis in consultation with U.S. Fish and Wildlife Service. |
| Allow no timber harvest except for fire risk abatement in mixed conifer and pine-oak forests on slopes greater than 40 percent where timber harvest has not occurred in the last 20 years (Coconino NF forest plan, page 65). | No Change |
| Limit human activity in protected activity centers during the breeding season (Coconino NF forest plan, page 65). | No Change |
| In protected and restricted areas, when activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements; consult with US Fish and Wildlife Service to resolve the conflict (Coconino NF forest plan, page 65-1). | No Change |
| Monitor changes in owl populations and habitat needed for delisting (Coconino National Forest plan, page 65-1). | **The project will comply with biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| **Guidelines – General – No Change** | |
| **Guidelines – Protected Areas, Protected Activity Centers** | |
| Delineate an area of not less than 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided (Coconino National Forest plan, page 65-1). | No Change |
| The protected activity center boundary should enclose the best possible owl habitat configured in as compact a unit as possible, with the nest or activity center located near the center (Coconino National Forest plan, page 65-1). | No Change |
| The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nesting and roosting habitat (Coconino NF forest plan, page 65-1). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Protected activity center boundaries should not overlap (Coconino NF forest plan, page 65-1). | No Change |
| Submit protected activity center maps and descriptions to the recovery unit working group for comment as soon as possible after completion of surveys (Coconino NF forest plan, page 65-1). | No Change |
| Road or trail building in protected activity centers should be avoided but maybe permitted on a case-by-case basis for pressing management reasons (Coconino NF forest plan, page 65-1). | No Change |
| Generally allow continuation of the level of recreation activities that was occurring prior to listing (Coconino NF forest plan, page 65-1). | No Change |
| Require bird guides to apply for and obtain a special use permit. A condition of the permit shall be that they obtain a subpermit under the U.S. Fish and Wildlife Service Master Endangered Species permit. The permit should stipulate the sites, dates, number of visits, and maximum group size permissible (Coconino NF forest plan, page 65-1). | No Change |
| Harvest firewood when it can be done in such a way that effects on the owl are minimized. Manage within the following limitations to minimize effects on the owl (Coconino NF forest plan, page 65-2).<br>Retain key forest species such as oak.<br>Retain key habitat components such as snags and large downed logs.<br>Harvest conifers less than 9 inches in diameter only within those protected activity centers treated to abate fire risk as described below, except for the Clark PAC where trees less than 16 inches diameter will be harvested. | Harvest firewood when it can be done in such a way that effects on the owl are minimized. Manage within the following limitations to minimize effects on the owl.<br>Retain key forest species such as oak.<br>Retain key habitat components such as snags and large downed logs.<br>Harvest conifers less than 9 inches in diameter only within those protected activity centers treated to abate fire risk as described below, except for the Clark PAC where trees less than 16 inches diameter will be harvested area except as follows:<br>**Harvest conifers up to 16 inches diameter within the Lake No. 1/Seruchos, Archies, Red Hill, Crawdad, Holdup, Bonita Tank, Red Raspberry, Bear Seep, Mayflower Tank, Knob, T6 Tank, Iris Tank, Frank, Rock Top, Lee Butte, Foxhole, Bar M, and Sawmill Spring PACs to abate fire risk and improve habitat structure.** |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Treat fuel accumulations to abate fire risk.<br>–Select for treatment 10 percent of the protected activity centers where nest sites are known in each recovery unit having high fire risk conditions. Also select another 10 percent of the protected activity centers where nest sites are known as a paired sample to serve as control areas (Coconino National Forest plan, page 65-2).<br>–Designate a 100-acre "no treatment" area around the known nest site of each selected protected activity center. Habitat in the no treatment area should be as similar as possible in structure and composition as that found in the activity center.<br>–Use combinations of thinning trees less than 9 inches in diameter (or less than 16 inches in the Clark PAC), mechanical fuel treatment and prescribed fire to abate fire risk in the remainder of the selected protected activity center outside the 100-acre "no treatment" area. | Treat fuel accumulations to abate fire risk.<br>–Designate a 100-acre "no treatment" area around the known nest site of each selected protected activity center. Habitat in the no treatment area should be as similar as possible in structure and composition as that found in the activity center.<br>– Use combinations of thinning trees less than 9 inches in diameter (or less than 16 inches in the Clark PAC), mechanical treatment and prescribed fire to abate fire risk in the remainder of the selected protected activity center outside the 100-acre "no treatment" area **except as follows:**<br>**Use combinations of thinning trees up to 16 inches d.b.h. within the Lake No. 1/Seruchos, Archies, Red Hill, Holdup, Rock Top, Foxhole, Bar M, PACs, Crawdad, Bonita Tank, Red Raspberry, Bear Seep, Mayflower Tank, Knob, T6 Tank, Iris Tank, Frank, Lee Butte, and Sawmill Springs PACs**, mechanical fuel treatment and prescribed fire to abate fire risk **and improve habitat structure** in the remainder of the selected protected activity center outside the 100-acre "no treatment" area. |
| Treat fuel accumulations to abate fire risk. Pre- and post-treatment monitoring should be conducted in all protected activity centers treated for fire risk abatement. (See monitoring guidelines) (Coconino National Forest plan, page 65-2). | **The project will comply with biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| **Steep Slopes (Mixed conifer and pine-oak forests outside protected activity centers with slopes greater than 40 percent that have not been logged within the past 20 years): No seasonal restrictions apply.** | |
| Treat fuel accumulations to abate fire risk.<br>–Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.<br>–Retain woody debris larger than 12 inches in diameter, snags, clumps of broadleafed woody vegetation, and hardwood tress larger than 10 inches in diameter at the root collar.<br>– Pre and post treatment monitoring should occur within all steep slopes treated for fire risk abatement. (See monitoring guidelines). | Treat fuel accumulations to abate fire risk.<br>–Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.<br>–Retain woody debris larger than 12 inches in diameter, snags, clumps of broadleafed woody vegetation, and hardwood tress larger than 10 inches in diameter at the root collar.<br>**–The project will comply with biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| **Reserved Lands (Wilderness, Research Natural Areas, Wild and Scenic Rivers, and Congressionally Recognized Wilderness Study Areas):**<br>**Allow prescribed fire where appropriate – No change.** | |
| **Restricted Areas (Mixed conifer, pine-oak, and riparian forests)** | |
| No corresponding direction | **Target habitat is a category of restricted habitat intended to provide future nesting and roosting habitat (see glossary definition for restricted habitat). The minimum values identified for the forest attributes represent the threshold for meeting nesting and roosting conditions (see the definition for threshold habitat). They can also be targets to be achieved with time and management. If less than 10 percent of the restricted habitat in ponderosa pine-Gambel oak qualifies as threshold habitat, the areas that can eventually achieve all threshold conditions simultaneously should be identified as target habitat and managed to achieve threshold conditions as rapidly as possible. Because no known nests or roosts occur in restricted habitat, target habitat is considered future nesting and roosting habitat.** |
| No corresponding direction | **Threshold habitat is a category of restricted habitat intended to provide for future nesting and roosting habitat (see definition for restricted habitat). A variety of forest structural attributes is used to define when nesting and roosting habitat is achieved (summarized in table III.B.1 of the 1995 recovery plan and table C-2 of the 2012 recovery plan). Threshold habitat meets or exceeds these values. When the minimum values identified for the forest attributes are met simultaneously, they represent the threshold of nesting and roosting conditions. Up to 10 percent of restricted habitat in ponderosa pine-Gambel oak should be designated as threshold habitat. Management in threshold habitat cannot lower any of the forest attribute values below the nesting and roosting threshold unless a landscape analysis demonstrates an abundance of this habitat. Because no known nests or roosts occur in restricted habitat, target habitat is managed as future nesting and roosting habitat.** |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Mixed Conifer and Pine-oak Forests (see glossary definition): Manage to ensure a sustained level of owl nesting and roosting habitat well distributed across the landscape. Create replacement owl nesting and roosting habitat where appropriate while providing a diversity of stand conditions across the landscape to ensure habitat for a diversity of prey species. The following table displays the minimum percentage of restricted area which should be managed to have nesting and roosting characteristics. The minimum mixed conifer restricted area includes 10 percent at 170 square feet of basal area and an additional amount of area at 150 square feet of basal area. The additional area of 150 square feet basal area is +10 percent in BR-E and +15 percent in all other recovery units. The variables are for stand averages and are minimum threshold values and must be met simultaneously. In project design, no stands simultaneously meeting or exceeding the minimum threshold values should be reduced below the threshold values unless a districtwide or larger landscape analysis of restricted areas shows that there is a surplus of restricted area acres simultaneously meeting the threshold values. Management should be designed to create minimum threshold conditions on project areas where there is a deficit of stands simultaneously meeting minimum threshold conditions unless the districtwide or larger landscape analysis shows there is a surplus. This table has been modified to contain only information pertinent to the Coconino NF. (Coconino NF forest plan, pages 65-3 to 65-5). | Mixed Conifer and Pine-oak Forests (See glossary definition): Manage to ensure a sustained level of owl nesting and roosting habitat well distributed across the landscape. Create replacement owl nesting and roosting habitat where appropriate while providing a diversity of stand conditions across the landscape to ensure habitat for a diversity of prey species. The following table displays the minimum percentage of restricted area which should be managed to have nesting and roosting characteristics. The minimum mixed conifer restricted area includes up to 10 percent at 170 square feet of basal area and an additional amount of area at 150 square feet basal area. The additional area of 150 square feet of basal area is +10 percent in BR-E and +15 percent in all other recovery units. The variables are for stand averages, are minimum **target and** threshold **habita**t values, and must be met simultaneously. In project design, no stands simultaneously meeting or exceeding the minimum **target and** threshold **habita**t values should be reduced below **target and** threshold values unless a districtwide or larger landscape analysis of restricted areas shows that there is a surplus of restricted area acres simultaneously meeting **target and** threshold values. Management should be designed to create minimum **target and** threshold **habitat** conditions on project areas where there is a deficit of stands simultaneously meeting minimum **target and** threshold **habitat** conditions unless the districtwide or larger landscape analysis shows there is a surplus. This table has been modified to contain only information pertinent to the Coconino NF. |

| Variable | Mixed Conifer All Restoration Units | Mixed Conifer Other Restoration Units | Pine-Oak Target and Threshold Habitat |
|---|---|---|---|
| Restricted Area percent | 10 percent | +15 percent | 10 percent |
| **Stand Averages for:** | | | |
| Basal Area | 170 | 150 | 150 |
| 18 inch+ trees/acre | 20 | 20 | 20 |
| Oak Basal Area | NA | NA | 20 |
| **Percent total existing:** | | | |
| 12–18 inch | 10 | 10 | 15 |
| 18–24 inch | 10 | 10 | 15 |
| 24+ inch | 10 | 10 | 15 |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Attempt to mimic natural disturbance patterns by incorporating natural variation, such as irregular tree spacing and various patch sizes, into management prescriptions (Coconino National Forest plan, page 65-4). | No Change |
| Maintain all species of native trees in the landscape including early seral species (Coconino National Forest plan, page 65-4). | No Change |
| Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure (Coconino National Forest plan, page 65-4). | No Change |
| Emphasize uneven-aged management systems. However, both even-aged and uneven-aged systems may be used where appropriate to provide variation in existing stand structure and species diversity. Existing stand conditions will determine which system is appropriate (Coconino National Forest plan, page 65-4). | No Change |
| Extend rotation ages for even-aged stands to greater than 200 years. Silvicultural prescriptions should explicitly state when vegetative manipulation will cease until rotation age is reached (Coconino National Forest plan, page 65-4). | No Change |
| Save all trees greater than 24 inches d.b.h. In pine-oak forests, retain existing large oaks and promote growth of additional large oaks (Coconino National Forest plan, page 65-4). | No Change |
| In pine-oak forests, retain existing large oaks and promote growth of additional large oaks (Coconino National Forest plan, page 65-4). | No Change |
| Encourage prescribed and prescribed natural fire to reduce hazardous fuel accumulation. Thinning from below may be desirable or necessary before burning to reduce ladder fuels and the risk of crown fire (Coconino National Forest plan, page 65-4). | No Change |
| Retain substantive amounts of key habitat components:<br>• Snags 18 inches in diameter and larger<br>• Down logs over 12 inches midpoint diameter<br>• Hardwoods for retention, recruitment, and replacement of large hardwoods | No Change |
| **Riparian Areas – No Change** | |
| **Domestic Livestock Grazing – No Change** | |
| **Old-Growth – No Change** | |
| **Other Forest and Woodland Types – No Change** | |
| **Guidelines for Specific Recovery Units – No Change** | |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| **Monitoring Guidelines** | |
| Monitoring and evaluation should be collaboratively planned and coordinated with involvement from each national forest, U.S. Fish and Wildlife Service Ecological Services Field Office, U.S. Fish and Wildlife Service Regional Office, USFS Regional Office, Rocky Mountain Research Station, recovery team, and recovery unit working groups. | **The project will comply with biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| Population monitoring should be a collaborative effort with participation of all appropriate resource agencies. (Coconino National Forest plan, page 65-6). | |
| Habitat monitoring of gross habitat changes should be a collaborative effort of all appropriate resource agencies. (Coconino National Forest plan, page 65-6). | |
| Habitat monitoring of treatment effects (pre- and post-treatment) should be done by the agency conducting the treatment. (Coconino National Forest plan, page 65-6). | |
| Prepare an annual monitoring and evaluation report covering all levels of monitoring done in the previous year. The annual report should be forwarded to the regional forester with copies provided to the recovery unit working groups, U.S. Fish and Wildlife Service Ecological Services field offices, and the U.S. Fish and Wildlife Service Regional Office (Coconino National Forest plan, page 65-6). | |
| Rangewide: Track gross changes in acres of owl habitat resulting from natural and human-caused disturbances. Acreage changes in vegetation composition, structure, and density should be tracked, evaluated, and reported. Remote sensing techniques should provide an adequate level of accuracy. (Coconino National Forest plan, page 65-6)<br>In protected and restricted areas where silvicultural or fire abatement treatments are planned, monitor treated stands pre- and post-treatment to determine changes and trajectories in fuel levels; snag basal areas; live tree basal areas; volume of down logs over 12 inches in diameter; and basal area of hardwood trees over 10 inches in diameter at the root crown (Coconino National Forest plan, page 65-6). | |
| Upper Gila Mountain, Basin and Range East, and Basin and Range West Recovery Units: Assist the recovery team and recovery unit working groups to establish sampling units consisting of 19 to 39 square mile quadrats randomly allocated to habitat strata. Quadrats should be defined based on ecological boundaries such as ridge lines and watersheds. Quadrat boundaries should not traverse owl territories. Twenty percent of the quadrats will be replaced each year at random.<br>Using the sample quadrats, monitor the number of territorial individuals and pairs per quadrat; reproduction; apparent survival; recruitment; and age structure. Track population density both per quadrat and habitat stratum. | **The project will comply with biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |

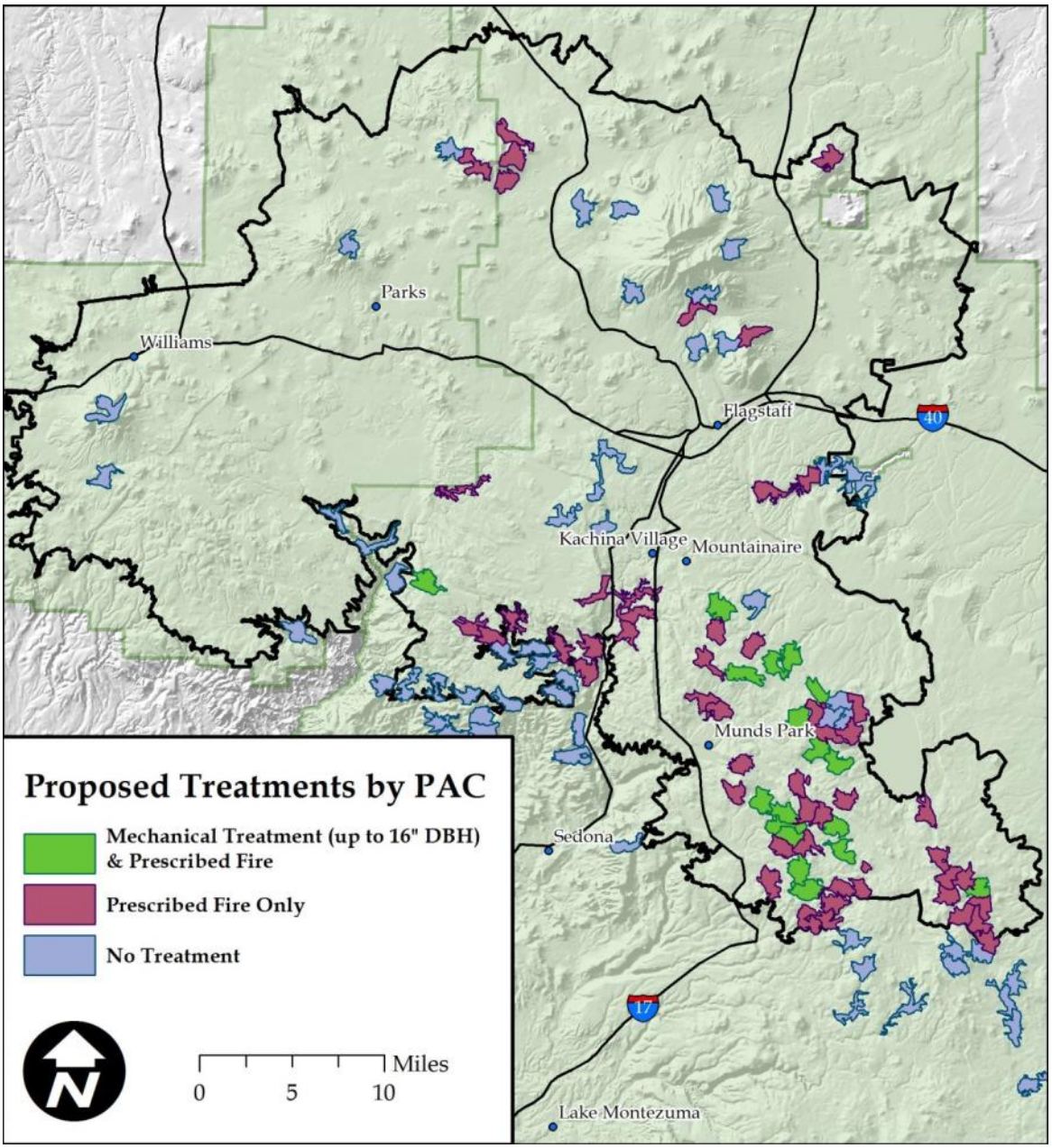


**Figure 54. Alternative B amendment 1 Mexican spotted owl PAC treatments**

## Consistency with the Mexican Spotted Owl Recovery Plan

A revised Mexican spotted owl recovery plan, issued by the U.S. Fish and Wildlife Service was finalized in December of 2012 (USDI FWS 2012). The current (1987) Coconino NF forest plan as amended is consistent with the previous Mexican spotted owl recovery plan (USDI FWS 1995). For this analysis, a forest plan amendment is needed because the current Coconino forest plan provides direction from the former Mexican spotted owl Recovery Plan. Since the DEIS was released for public comment in 2013, direction from the current 2012 revised recovery plan has been incorporated.

The need to evolve from managing solely for firewood collection and fire risk abatement is reflected in the revised 2012 recovery plan. In the revised plan, the U.S. Fish and Wildlife Service states, “Management recommendations are most conservative within PACs, but by no means advocate a “hands-off” approach. The recovery team recognizes situations exist where management is needed to sustain or enhance desired conditions for the owl, including fire-risk reduction, as well as monitoring owl response. Mechanical treatments in some PACs may be needed to achieve these objectives; determining which PACs may benefit from mechanical treatments requires a landscape analysis to determine where the needs of fire risk reduction and habitat enhancement are greatest (USDA FS 2012, page VIII).

The continued use of the terms (and definitions) of target and threshold habitat (considered future nesting and roosting habitat as part of restricted habitat is consistent with Revised Mexican spotted owl Recovery Plan’s direction for nesting and roosting in recovery habitat.

The plan amendment defers Mexican spotted owl occupancy and reproduction monitoring to the project’s biological opinion from the U.S. Fish and Wildlife Service. The monitoring plan developed in cooperation with U.S. Fish and Wildlife Service is in FEIS, Appendix E. Following the current forest plan direction would have resulted in few PACs being treated during the life of the project. Current plan direction suspends treatments until monitoring of the initial sample shows there are no negative impacts, or negative impacts are mitigated by modifying treatments. Following this direction could delay implementation for years, potentially decades’ if changes in populations had to be documented before additional treatments were implemented. Following the current forest plan direction would have resulted in few PACs being treated with the objective of fire-risk reduction or improving condition for the owl during the life of the project.

The deviation from selecting PACs and monitoring in 10 percent increments is consistent with the revised 2012 Mexican spotted owl recovery plan. As noted above, the plan amendment defers monitoring to the project’s biological opinion from the U.S. Fish and Wildlife Service.

### Significance Evaluation

Per FSM 1926.51, changes to the land management plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further onsite analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long-term land and resource management.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

Per FSM 1926.52, circumstances that may cause a significant change to a land management plan include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (see section 219.10(e) of the planning regulations in effect before November 9, 2000 (see 36 CFR parts 200 to 299, revised as of July 1, 2000)), and

2. 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 during the planning period.

Analysis demonstrated that the proposed amendment is nonsignificant (FSM 1926.51) because the actions would not measurably alter the multiple-use goals and objectives for long term land and resource management. How actions could potentially affect timing, location, and size, relationship to forest goals, objectives, outputs, and management prescriptions was evaluated.

**Timing**: In terms of timing, the forest plan has been in place and amended several times since 1987, and revision efforts are underway. The forest plan incorporated direction (via an amendment) from the Forest Service Southwestern Region's 1996 "Amendment of Forest Plans Record of Decision" (USDA FS 1996). The actions allowed via the amendment are consistent with existing forest plan direction in that it improves nesting and rooting habitat, reduces the risk of loss from fire, and will comply with the site-specific treatment and monitoring requirements in the U.S. Fish and Wildlife Service biological opinion. Forest plan direction may be amended to incorporate the revised Mexican spotted owl recovery plan (USDI FWS 2012) which recognizes that habitat restoration, in addition to the reduction of fire risk, is key to improving habitat quality.

**Location and Size**: The treatment area contains about 35,019 total acres of Mexican spotted owl protected habitat, most of which occurs in restoration unit 1. There are 70 PACs (about 34,183 acres) in the 4FRI treatment area. The remaining protected habitat (836 acres) occurs on steep slopes where timber harvest has not occurred in the previous 20 years and is not proposed for mechanical treatment. Proposed treatments for steep-slope protected habitat consist of prescribed fire only – no mechanical treatments are proposed for this category of habitat. There are 187 PACs entirely on or overlapping Coconino National Forest lands.

The amendment would affect 18 (10 percent) of the 187 Coconino NF PACs. The amendment would affect 6,906 acres (20 percent) of PAC habitat in the entire treatment area. Work would be accomplished incrementally over a 10-year period. On average, less than 1,000 acres of PAC habitat would be treated per year. This is expected to balance the need to reduce the risk of crown fire while allowing for monitoring and feedback loops that would allow management to be adaptive.

**Relationship to Forest Goals and Objectives**: The amendment is consistent with forest plan goals for wildlife and fish of managing habitat to maintain viable populations of wildlife and fish species and improve habitat for selected species (Coconino National Forest plan, replacement page 22-1) and to improve habitat for listed threatened, endangered, or sensitive species of plants and animals and other species as they become threatened or endangered (Coconino National Forest plan, replacement page 23). The amendment is consistent with goals and objectives by protecting conditions and structures used by spotted owls where they exist and to set other stands on a trajectory to grow into replacement nest habitat or to provide conditions for foraging and dispersal (USDI FWS 2012).

The amendment removes language that addresses pre- and post-treatment, population, and habitat monitoring and replaces it with language that focuses on implementing the requirements in the U.S. Fish and Wildlife Service biological opinion for this project. Delaying treatment in PACs would leave occupied Mexican spotted owl habitat at risk of loss from high-severity fire. Arizona's two largest fires account for nearly a million and half acres of forested land burned since 2002. Both fires included high-severity fire in PAC habitat. Other fires in the Upper Gila Recovery Unit have charred additional acres of Mexican spotted

owl protected habitat. Most climate models suggest that the Southwest will experience higher temperatures and increased variability in precipitation, which will significantly affect fire regimes and forest health (Aumack et al. 2007).

The U.S. Fish and Wildlife Service urges a deliberate and cautious approach to management activities within PACs (USDI FWS 2012). Silvicultural modeling of the proposed treatments indicates limited change to forest structure after implementation (FEIS, chapter 3). However, the treatments are expected to include increased tree growth rates to reduce the time needed for developing large trees (defined as 18 inches d.b.h. and greater in the current recovery plan for the Mexican spotted owl), maintaining existing large trees, and decreasing surface fuels and increasing crown base height. Combined, this should develop and maintain Mexican spotted owl nesting and roosting habitat, a key aspect of the Mexican spotted owl recovery plan.

Forest restoration treatments would be evaluated over time (at least a 10-year period). Through formal consultation with U.S. Fish and Wildlife Service, occupancy, reproduction and habitat monitoring would be designed and implemented to evaluate the effects of prescribed fire and treatments on spotted owl habitat, and to retain or move toward Mexican spotted owl desired future conditions, as described in the recovery plan. The details on accomplishing the monitoring goals have been developed specifically through coordination with the U.S. Fish and Wildlife Service under formal consultation, as described in the Endangered Species Act. In this way, work to protect and improve PAC habitat can be accomplished in a timely manner while emphasizing monitoring and feedback loops to allow management to be adaptive. For these reasons, the amendment as it relates to pre- and post-treatment occupancy, reproduction and habitat monitoring is consistent with forest plan goals and objectives.

Designating target or threshold habitat in the project with the best potential would move toward desired percentages in restricted (recovery) habitat, consistent with forest plan goals and objectives.

**Relationship to Management Prescriptions**: Table 105 displays the forestwide management area acres that would be affected. The amendment would affect about 4,916 acres (1 percent) of MA 3 and about 1,773 acres (3 percent) of MA 35. Acres within other management areas (MA 4, MA 10, MA 5, MA 9, MA 12, and MA 6) are minor, totaling 217 acres.

**Table 105. Alternative B amendment 1 management area acres (Coconino NF)**

| Management Area | Management Area Description | Forestwide Acres | Proposed Amendment Acres | Forestwide Acres Affected (Percent) |
|---|---|---|---|---|
| MA 3 | Ponderosa Pine Below 40 Percent Slopes | 511,015 | 4,916 | 1 |
| MA 35 | Lake Mary Watershed | 62,536 | 1,773 | 3 |
| MA 4, 10, 5, 9, 12, and 6 | See chapter 1, table 14 | 307,011 | 217 | less than 1 |

The amendment intent is consistent with the management emphasis in MA 3 and MA 35 which stresses improving and maintaining the quality of the habitat (MA 3) and moving ponderosa pine toward the desired forest structure, including northern goshawk and Mexican spotted owl habitats (MA 35). The amendment would not impose requirements on future management of Mexican

spotted owl PACs as the amendment is site specific to this analysis and only addresses current conditions within protected habitat.

**Relationship to Outputs:** Outputs identified in the forest plan are associated with million board feet (MMBF) of sawtimber sales and products (meet demand for timber while reducing conflict with other resources), MMBF of firewood sold and free use (provide access to firewood), grazing capacity, and permitted livestock use. Due to the minimal acres affected, the amendment would not alter outputs on a forestwide basis or change the long-term relationship between levels of goods (timber, firewood) and services.

> In comparison to the forest's total suitable timber lands (626,326 acres), the amendment affects about 1 percent of those lands. For this reason, treatments within PACs do not measurably increase or decrease timber outputs or firewood availability. Treatment within PACs would not affect decisions that have been made through separate analyses on grazing capacity or permitted livestock use. There would be no measurable effect to outputs on a forestwide basis or the long-term relationship between levels of goods (timber, firewood) and services from managing restricted habitat up to 10 percent or deferring the final design of treatments and monitoring to the project's biological opinion.

## Amendment 2. Management of Canopy Cover and Ponderosa Pine with an Open Reference Condition within Goshawk Habitat (Coconino NF)

### Background

Canopy cover is defined as "the percentage of a fixed area covered by the crowns of plants delimited by a vertical projection of the outermost perimeter of the spread of foliage" (Reynolds et al. 1992). Obtaining consistent results has been difficult; even the definition of the term is dependent on the method of measurement. To resolve this issue, the Forest Service used the Forest Vegetation Simulation (FVS) crown width model as the basis for developing stocking densities that would achieve desired canopy cover levels. Figure 55 displays general locations of goshawk habitat that is subject to canopy cover requirements in VSS 4 through VSS 6 on the forests.

Nonforested areas (interspaces) occur between individual trees, tree clumps, and tree groups. These nonforested areas (interspaces) are not equivalent to VSS 1. Whereas VSS 1 may provide openings in the short term, this structural stage is expected to regenerate tree cover in the long term. Refer to the silviculture report and the implementation plan (appendix D) which provides minimum stocking guidelines that have been developed to assure canopy cover requirements are met.

Approximately 195,640 acres (61 percent) of the forested areas (within the project area on the Coconino NF) have an open reference condition that corresponds to mollic-integrade soils. The desired condition is to have a portion of these acres (28,952 acres) managed as a relatively open forest with trees typically aggregated in small groups within a grass/forb/shrub matrix (Woolsey 1911, Cooper 1960, White 1985, Pearson 1950, Covington et a1.1997, Abella and Denton 2009). See the soils specialist report for detailed information. Figure 56 displays the location of acres that would be managed for an open reference condition.

## Amendment Description

In the "Vegetation Management – Landscapes Outside Goshawk Post-fledging Family Areas" and "Vegetation Management –Within Post-fledging Family Areas" section of the forest plan, a site-specific, nonsignificant plan amendment would: (1) add the desired percentage of interspace within uneven-aged stands to facilitate restoration, (2) add the interspace distance between tree groups, (3) add language clarifying where canopy cover is and is not measured, (4) allow 28,952 acres to be managed for an open reference condition (which affects canopy cover guidelines for VSS 4 through VSS 6 groups and reserve trees), and (5) add a definition to the forest plan glossary for the terms interspaces, open reference condition, and stands. Edited or added text is shown in **bold** in the "Proposed New Guideline Language" column in table 106.

The forest plan directs projects to manage for uneven-aged stand conditions within goshawk habitat. Forested groups consist of an interspersion of six vegetation structural stages (VSS 1 to VSS 6). For the purposes of this amendment, the following definitions apply:

- Stands are defined as a contiguous area of trees sufficiently uniform in forest type, composition, structure, and age class distribution, growing on a site of sufficiently uniform conditions to be a distinguishable unit. Four classification characteristics are generally used to distinguish forest stands: biophysical site (soils, aspect, elevation, plant community association, climate, etc.), species composition, structure (density, and age (1-aged, 2-aged, uneven-aged)), and management emphasis (administrative requirements and local management emphasis that will shape structure over time). Based upon Agency guidelines, the minimum stand mapping size is 10 acres.
- Interspaces are defined as the open space between tree groups intended to be managed for grass/forb/shrub vegetation during the long term. Interspaces may include scattered single trees.
- 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.

**Table 106. Alternative B Amendment 2 Management of Canopy Cover and Ponderosa Pine with an Open Reference Condition in Goshawk Habitat (Coconino NF)**

| Current Coconino NF Forest Plan Direction | |
|---|---|
| **Landscapes Outside Goshawk Post-fledging Family Areas** | |
| No similar direction in forest plan | **General: Within ponderosa pine stands, manage over time for uneven-aged stand conditions composed of heterogeneous mosaics of tree groups and single trees, with interspaces between tree groups. The size of tree groups, as well as sizes and shapes of interspaces, should be variable. Over time, the spatial location of the tree groups and interspaces may shift within the uneven-aged stand.** |

| Current Coconino NF Forest Plan Direction | Proposed New Guideline Language |
|---|---|
| General: The distribution of vegetation structural stages for ponderosa pine, mixed conifer and spruce-fir forests is 10 percent grass/forb/shrub (VSS 1), 10 percent seedling-sapling (VSS 2), 20 percent young forest (VSS 3), 20 percent mid-aged forest (VSS 4), 20 percent mature forest (VSS 5), 20 percent old forest (VSS 6). NOTE: The specified percentages are a guide and actual percentages are expected to vary + or – up to 3 percent (Coconino NF forest plan, page 65-9). | General: **For the areas managed for tree crown development**, the distribution of vegetation structural stages for ponderosa pine, mixed conifer, and spruce-fir forests is 10 percent grass/forb/shrub (VSS 1), 10 percent seedling-sapling (VSS 2), 20 percent young forest (VSS 3), 20 percent mid-aged forest (VSS 4), 20 percent mature forest (VSS 5), and 20 percent old forest (VSS 6). Note: the specified percentages are a guide and actual percentages are expected to vary plus or minus up to 3 percent. |
| The distribution of VSS, tree density, and tree age are a product of site quality in the ecosystem management area. Use site quality to guide in the distribution of VSS, tree density and tree ages. Use site quality to identify and manage dispersal post-fledging family areas and nest habitat at 2–2.5 mile spacing across the landscape (Coconino NF forest plan, page 65-9). | No change |
| Snags are 18" or larger d.b.h. and 30 feet or larger in height, downed logs are 12 inches in diameter and at least 8 feet long, woody debris is 3 inches or larger on the forest floor, canopy cover is measured with vertical crown projection on average across the landscape (Coconino NF forest plan, page 65-9). | Snags are 18" or larger d.b.h. and 30 feet or larger in height, downed logs are 12 inches in diameter and at least 8 feet long, woody debris is 3 inches or larger on the forest floor, **canopy cover as defined by vertical crown projection is evaluated within mid-aged to old forest vegetation structural stage groups (VSS 4, 5, and 6).** |
| No corresponding forest plan direction | **Develop and maintain a highly diverse vegetation mosaic: 30 to 90 percent of the uneven-aged stand should be under ponderosa pine and deciduous tree crowns. Within areas managed for an open reference condition, 10 to 30 percent of the uneven-aged stand should be under ponderosa pine and deciduous tree crowns.** |
| No corresponding forest plan direction | **Tree group spatial distribution may be highly variable based on local site and current conditions; the interspaces between groups may range from 20 to 200 feet, but generally between 25 and 100 feet apart from drip line to adjacent drip line. This spacing of groups is not affected by single trees in the interspace.** |
| No corresponding forest plan direction | **Each tree group is generally dominated by one vegetation structure stage. The spatial arrangement of trees, high dispersion of VSS structural stage diversity, and interspaces comprise each uneven-aged forest stand. Collectively these stands aggregate to uneven-aged forest landscapes, similar to natural conditions.** |
| The order of preferred treatment for woody debris is: (1) prescribed burning, (2) lopping and scattering, (3) hand piling or machine grapple piling, (4) dozer piling (Coconino NF forest plan, page 65-9). | No change |

| Current Coconino NF Forest Plan Direction | Proposed New Guideline Language |
|---|---|
| Canopy Cover: Canopy cover guidelines apply only to mid-aged to old forest structural stages (VSS 4, VSS 5, and VSS 6) and not to grass/forb/shrub to young forest structural stages (VSS 1, VSS 2, and VSS 3) (Coconino NF forest plan, page 65-9). | Canopy Cover: Canopy cover guidelines apply only to mid-aged to old forest structural stage **groups** (VSS 4, VSS 5, and VSS 6) and not to grass/forb/shrub to young forest structural stage **groups** (VSS 1, VSS 2, and VSS 3) **or in interspaces, natural meadows, grasslands, or other areas not managed for forest cover.** |
| Spruce-Fir: Canopy cover for mid-aged forest (VSS 4) should average 1/3 60 percent and 2/3 40 percent, mature forest (VSS 5) should average 60+ percent, and old forest (VSS 6) should average 60+ percent. Maximum opening size is 1 acre with a maximum width of 125 feet. Provide 2 groups of reserve trees per acre with 6 trees per group when opening size exceeds 0.5. Leave at least 3 snags, 5 downed logs, and 10–15 tons of woody debris per acre (Coconino NF forest plan, page 65-9). | No Change |
| Mixed Conifer: Canopy cover for mid-aged forest (VSS 4) should average 1/3 60+ percent and 2/3 40+ percent, mature forest (VSS 5) should average 50+ percent, and old forest (VSS 6) should average 60+ percent. Maximum opening size is up to 4 acres with a maximum width of up to 200 feet. Retain 1 group of reserve trees per acre of 3–5 trees per group for openings greater than 1 acre in size. Leave at least 3 snags, 5 downed logs, and 10–15 tons of woody debris per acre (Coconino NF forest plan, page 65-10). | No Change |
| Ponderosa Pine: Canopy Cover for mid-aged forest (VSS 4) should average 40+ percent, mature forest (VSS 5) should average 40+ percent, and old forest (VSS 6) should average 40+ percent. Opening size is up to 4 acres with a maximum width of up to 200 feet. One group of reserve trees, 3–5 trees per group, will be left if the opening is greater than an acre in size. Leave at least 2 snags per acre, 3 downed logs per acre, and 5–7 tons of woody debris per acre (Coconino NF forest plan, page 65-10). | Ponderosa Pine: Canopy cover for mid-aged forest (VSS 4) should average 40+ percent, mature forest (VSS 5) should average 40+ percent, and old forest (VSS 6) should average 40+ percent. Opening size is up to 4 acres with a maximum width of up to 200 feet. One group of reserve trees, three to five trees per group, will be left if the **created regeneration** opening is greater than an acre in size. Leave at least two snags per acre, three downed logs per acre, and 5 to 7 tons of woody debris per acre.<br>**In acres managed for an open reference condition, canopy cover guidelines for VSS 4 through VSS 6 groups do not apply. One group of reserve trees, with a minimum of one to two trees per group will be left if the interspace size is greater than an acre in size. Interspace size is up to 4 acres.** Leave at least two snags per acre, three downed logs per acre, and 5 to 7 tons of woody debris per acre |
| Woodland: manage for uneven-age conditions to sustain a mosaic of vegetation densities (overstory and understory), age classes, and species composition well distributed across the landscape. Provide for reserve trees, snags, and down woody debris (Coconino NF forest plan, page 65-10). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Guideline Language |
|---|---|
| **Vegetation Management – Within Post-fledging Family Areas** | |
| General: Provide for a healthy sustainable forest environment for the post-fledging family needs of goshawks. The principle difference between within the post-fledging family area and outside the post-fledging family area is the higher canopy cover within the post-fledging family area and smaller opening size within the post-fledging family area. Vegetative structural stage distribution and structural conditions are the same within and outside the post-fledging family area (Coconino NF forest plan, page 65-10). | No Change |
| No similar direction in forest plan | **Canopy cover is evaluated at the group level within mid-aged to old forest structural stages groups (VSS 4, VSS 5 and VSS 6) and not within grass/forb/shrub to young forest structural stage groups (VSS 1, VSS 2, and VSS 3) or in interspaces, natural meadows and grasslands, or other areas not managed for forest conditions.** |
| Spruce-fir: Canopy Cover for mid-aged forest (VSS 4) should average 60+ percent and for mature (VSS 5) and old forest (VSS 6) should average 70+ percent (Coconino NF forest plan, page 65-10). | No Change |
| Mixed Conifer: Canopy Cover for mid-aged (VSS 4) to old forest (VSS 6) should average 60+ percent. | No Change |
| Ponderosa Pine: Canopy Cover for mid-aged forest (VSS 4) should average 1/3 60+ percent and 2/3 50+ percent. Mature (VSS 5) and old forest (VSS 6) should average 50+ percent (Coconino NF forest plan, page 65-10). | No Change |
| No corresponding forest plan direction | **Develop and maintain a highly diverse vegetation mosaic: 30 to 90 percent of the uneven-aged stand should be under ponderosa pine and deciduous tree crowns.** |
| No corresponding forest plan direction | **Tree group spatial distribution may be highly variable based on local site and current conditions; the interspaces between groups may range from 20 to 200 feet, but generally between 25 and 100 feet apart from drip line to adjacent drip line. This spacing of groups is not affected by single trees in the interspace.** |
| No corresponding forest plan direction | **Each tree group is generally dominated by one vegetation structure stage. The spatial arrangement of trees, high dispersion of vegetation structural stage diversity, and interspaces comprise each uneven-aged forest stand. Collectively these stands aggregate to uneven-aged forest landscapes, similar to natural conditions.** |

| Current Coconino NF Forest Plan Direction | Proposed New Guideline Language |
|---|---|
| **Glossary** | |
| No corresponding forest plan language | **Interspaces: The open space between tree groups intended to be managed for grass/forb/shrub vegetation during the long term. Interspaces may include scattered single trees.** |
| No corresponding forest plan language | **Open reference condition: 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.** |
| No corresponding forest plan language | **Stands: Contiguous area of trees sufficiently uniform in forest type, composition, structure, and age class distribution, growing on a site of sufficiently uniform conditions to be a distinguishable unit.** |

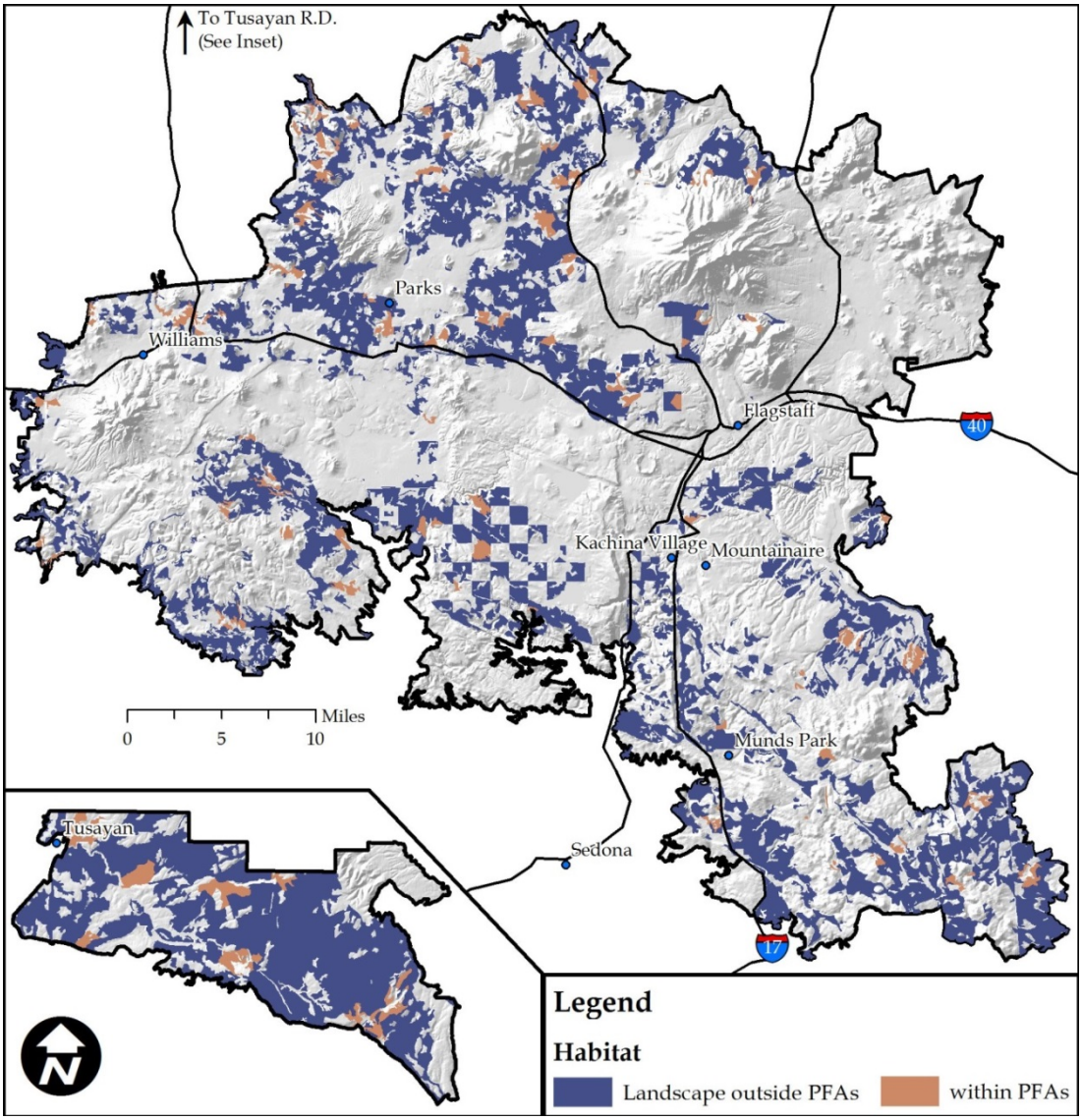


**Figure 55. Alternative B goshawk habitat subject to canopy cover requirements in VSS 4 and VSS 6 (Coconino NF)**

Note: Although goshawk habitat on the Kaibab NF is reflected in this figure, only the Coconino NF plan has explicit canopy cover requirements in VSS4 to VSS 6 and subject to a plan amendment.

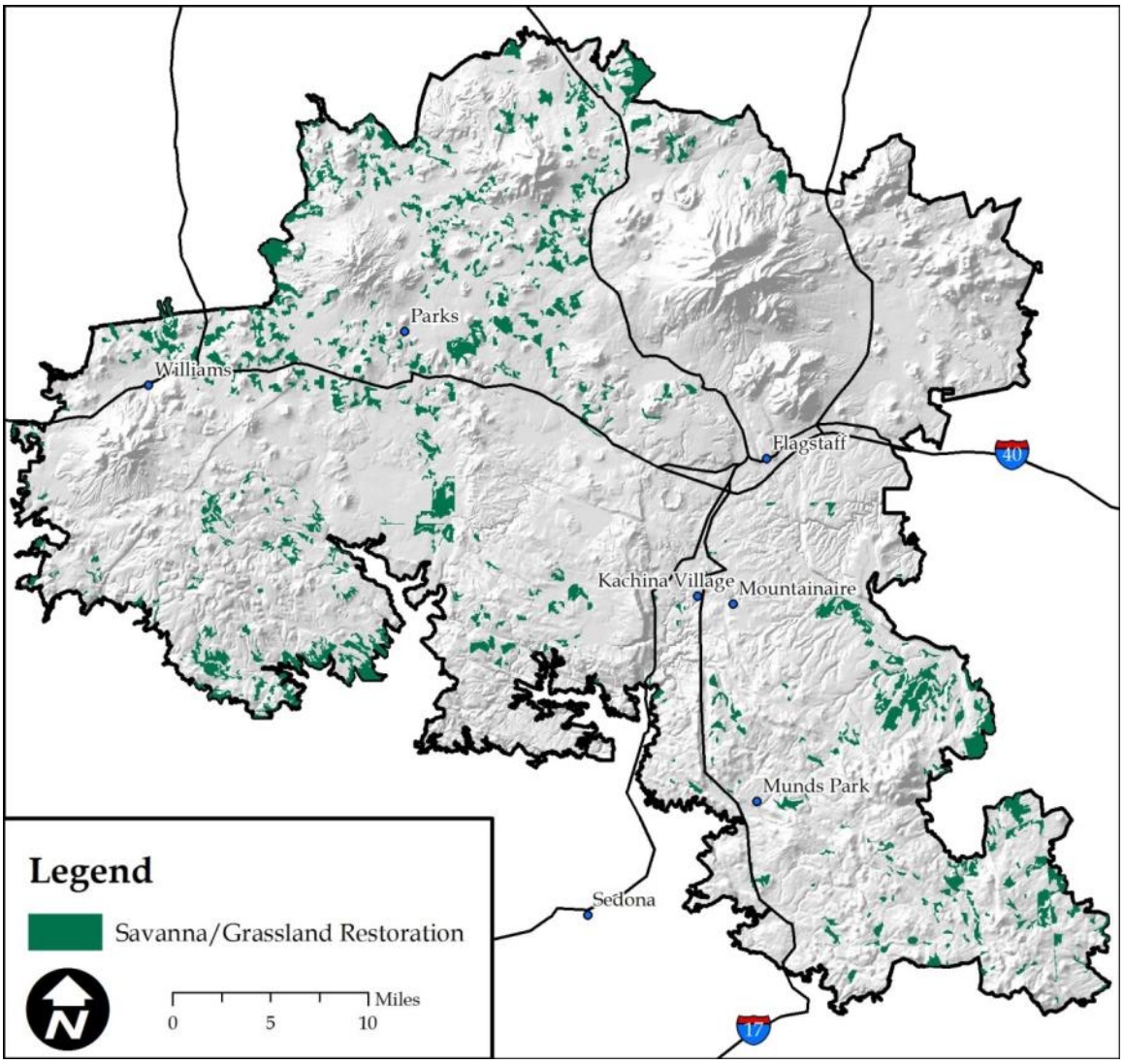


**Figure 56. Alternative B general locations of savanna and grassland restoration treatments (Coconino NF and Kaibab NF*)**

*Note: Although Kaibab NF treatments are reflected in this figure, only the Coconino NF is subject to a plan amendment.

## Significance Evaluation

Per FSM 1926.51, changes to the land management plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for long term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further onsite analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long term land and resource management.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

Per FSM 1926.52, circumstances that may cause a significant change to a land management plan include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (see section 219.10(e) of the planning regulations in effect before November 9, 2000 (see 36 CFR parts 200 to 299, revised as of July 1, 2000)), and
2. 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 during the planning period.

Analysis demonstrated that the proposed amendment is nonsignificant (FSM 1926.51) because the actions would not measurably alter the multiple-use goals and objectives for long term land and resource management and the actions. How actions could potentially affect timing, location and size, relationship to forest goals, objectives, outputs, and management prescriptions was evaluated.

**Timing**: In terms of timing, the forest plan has been in place (and amended) since 1987 and plan revision efforts are underway.

**Location and Size**: There is approximately 892, 545 acres of goshawk habitat on the Coconino NF (Cote and Green 2014 personal communication email).

- The canopy cover portion of the amendment would affect 137,313 acres (15 percent) of all goshawk habitat on the Coconino N. For this reason, location and size was determined to be nonsignificant.
- Managing 28,952 acres of ponderosa pine for an open reference condition would affect approximately 3percent of all suitable goshawk habitats on the forest.

For these reasons, location and size was determined to not have an important effect on the entire forest plan or affect a large portion of the planning area during the planning period. The “planning period” (estimated in the forest plan to be 10 to 15 years, page 1) for the 1987 plan has passed and a revised forest plan is imminent (by 2015).

The amendment would facilitate moving over 137,000 acres toward the desired forest structure (tree groups and herbaceous openings) that maximizes prey base species habitat and allows for reintroduction of fire into the ecosystem; and moves approximately 29,000 acres toward historic reference conditions.

**Relationship to Forest Goals and Objectives**: Alternative B would meet goshawk forest plan canopy cover requirements in VSS 4 to 6 in all acres except the 28,952 acres managed for an open reference condition. In all acres but the open reference condition acres, actions would move toward forest plan desired VSS size class distribution.

The amendment is consistent with forest goals for wildlife and fish of managing habitat to maintain viable populations of wildlife and fish species and improve habitat for selected species (Coconino National Forest Plan, replacement page 22-1) and to improve habitat for listed threatened, endangered, or sensitive species of plants and animals and other species as they become threatened or endangered (Coconino National Forest Plan, replacement page 23).

**Relationship to Management Prescriptions:** Table 107 displays the acres associated with Coconino NF management areas (MAs).

**Canopy Cover:** Approximately 137,313 acres of forestwide management areas would be affected by the canopy cover portion of the amendment. This equates to affecting less than 1 percent to 9 percent of the management areas (see table 107).The amendment is specific to this project and would not impose definition and clarification requirements on the future management of canopy cover within goshawk habitat.

**Open Reference Condition**: Approximately 28,952 acres of forestwide management areas would be affected by the open reference condition portion of the amendment. This equates to affecting less than 1 percent to 35 percent of the management areas (see table 107). The amendment is consistent with the management emphasis of providing for multiple uses that includes wildlife habitat (MA 3) and moving ponderosa pine toward desired forest structure, including northern goshawk habitats (MA 35). The amendment is specific to this project and would not impose requirements on the future management of the 28,952 acres of goshawk landscapes outside of goshawk post-fledging areas; however, forest plan revision decisions may change future management.

**Table 107. Alternative B amendment 2 management area (MA) acres (Coconino NF)**

| MA | MA Description | Forestwide Acres | Proposed Amendment Acres | Forestwide Acres Affected (Percent) |
|---|---|---|---|---|
| **Canopy Cover** | | | | |
| MA 3 | Ponderosa pine below 40 percent slopes | 511,015 | 92,251 | 18 |
| MA 35 | Lake Mary watershed | 62,536 | 14,334 | 23 |
| MA 38 | West | 36,298 | 12,844 | 35 |
| MA 6 | Unproductive Timber Lands | 67,146 | 4,929 | 7 |
| MA 37 | Walnut Canyon | 20,566 | 3,656 | 18 |
| MA 20 | Highway 180 corridor | 7,608 | 2,087 | 27 |
| MA 4 | Ponderosa pine and mixed conifer greater than 40 percent | 46,382 | 1,612 | 3 |
| MA 36 | Schultz | 21,289 | 798 | 4 |
| *MA 9, 28, 5, 4, 10, 36, 34, 7, 12, 18, 15, and 14 | See chapter 1, table 14 | 549,579 | 4,804 | less than 1 |
| **Open Reference Condition** | | | | |
| MA 3 | Ponderosa pine below 40 percent slopes | 511,015 | 19,010 | 4 |
| MA 35 | Lake Mary watershed | 62,536 | 5,840 | 9 |
| MA 10 | Transition grassland | 160,494 | 1,288 | 1 |
| MA 38 | West | 36,298 | 1,073 | 3 |
| **MA 10, 9, 7, 12, 34, 28, and 5 | See chapter 1, table 14 | 474,169 | 1,740 | less than 1 |

*Acres of MAs range from less than 1 to 1,232 and were aggregated into one category.

**Acres of MAs range from less than 1 to 655 and were aggregated into one category.

**Relationship to Outputs**: Outputs identified in the current forest plan are associated with MMBF of sawtimber sales and products (meet demand for timber while reducing conflict with other resources), MMBF of firewood sold and free use (provide access to firewood), grazing capacity,

and permitted livestock use. No portion of the amendment would affect decisions that have been made through separate analyses on grazing capacity or permitted livestock use.

**Timber Suitability**: The silviculture analysis evaluated the impact of treatments on timber suitability (see silviculture report). Within the analysis area approximately 214,200 acres on the Coconino NF were considered in the timber suitability class. Unsuitable lands include areas where prescription would preclude timber production such as critical wildlife habitat and developed recreation sites as well as areas where irreversible resource damage occur. Table 108 shows total acres for the Coconino NF as reported in the forest plan and used in the timber suitability calculation.

**Table 108. Timber suitability calculation for the Coconino NF**

| Land Category | Coconino Acres |
|---|---|
| Gross area | 1,821,495* |
| **Area not administered by the Forest Service (Camp Navajo and private lands)** | |
| NFS lands | 1,821,495 |
| Non-forested | -325,945 |
| Irreversible resource damage | |
| Adequate restocking not assured | |
| Withdrawn (219.14(a)(4)) | -101,401 |
| **Subtotal: Not-suitable for timber production** | **-427,346** |
| **Lands Tentatively Suitable for Timber production** | **1,394,149** |
| Management prescriptions preclude timber production | -593,102 |
| Management requirements cannot be met | -154,214 |
| Not cost efficient in meeting timber objectives | |
| Forested Lands not appropriate for timber harvest | -13,359 |
| Experimental Forest | -6,148 |
| **Subtotal: Not appropriate for timber production** | **-766,823** |
| **Lands suitable for timber production** | **627,326** |

Note: Acreages of NFS lands may vary slightly over time due to factors such as resurvey, improved mapping technology, and updates to corporate GIS layers.

*Based on 1987 Coconino Forest Plan (Appendix H)

The Coconino Forest Plan contains the following guidance that directs the management of suitable and unsuitable land.

- On forested lands identified as suitable for commercial timber production, design timber management activities to integrate considerations for economics, water quality, soils, wildlife habitat, recreation opportunities, visual quality, and other values.

- Evaluate timber lands adjacent to the Rim within the first decade to determine timber suitability.
- Management for the ponderosa pine/mixed conifer stands and the big tooth maple stands is the same as MA 3, foreground retention and for areas adjacent to foreground Retention lands. See MA 5 for direction for the aspen stands.
- Manage the timber resource to provide a sustained-yield of forest products through integrated stand management.
- Develop and implement a sustained-yield program for firewood and other miscellaneous forest products including posts, poles, Christmas trees, and wildings. Emphasize uneven-aged management for timber cutting areas.

Unsuitable lands within the Coconino NF are unproductive timber lands are within the ponderosa pine vegetation types.

- They are unsuitable for timber harvest because they fall in at least one of the following two categories.
- They do not meet the minimum standards for productivity which is Site Index 40 and/or 20 cubic feet per acre per year.
- There is not reasonable assurance that such lands can be adequately restocked as required by section 219.27(c)(13) of the planning regulations.

### *Timber Suitability Consistency Evaluation by Forest Vegetation Community*

#### Ponderosa Pine (PP)

The ponderosa pine forest vegetation community generally occurs at elevations ranging from 5,800 to 9,200 feet and is dominated by ponderosa pine and commonly includes other species such as oak, juniper, and pinyon. Species such as aspen, Douglas-fir, white fir, and blue spruce may also be present, but occur infrequently as small groups or individual trees. This forest vegetation community typically occurs with an understory of grasses and forbs although it sometimes includes shrubs.

The majority of the project area is the ponderosa pine plant association. Associations are named for the most shade tolerant tree species successfully regenerating, and for an understory species (shrub or herb) which is most diagnostic of the site. The ponderosa pine associations within the project area include two major sub-types: Ponderosa pine-bunchgrass and ponderosa pine-Gambel oak.

Ponderosa pine commonly grows in pure stands and currently is found in even-aged[1] and uneven-aged[2] structural conditions across the area. The open park-like stands characteristic of the reference conditions for ponderosa pine forests promoted greater faunal diversity and fire resilience than the dense stands of today. Ponderosa pine forests within the project are generally denser and more continuous than in reference conditions (See Chapter 1) and accumulations of forest litter and woody debris are much higher than would have occurred under the historic disturbance regime. Lack of fire disturbance has led to increased tree density and fuel loads that increase the risk of uncharacteristically intense wildfire and drought-related mortality. When fires

[1] Even-aged – pertaining to a stand composed of a single age class in which the tree ages are within + 20 percent variability based upon the mature stand age (SAF 1998).
[2] Uneven-aged – pertaining to a stand with trees of three or more distinct age classes (SAF 1998).

occur under current conditions, they tend to kill a lot of trees, including the large and old trees. These trees take longer to replace, moving the forest further from desired conditions, and increasing the time it would take to return to desired conditions. There is a high risk of insect and/or disease outbreak, which is also a function of increased tree density (see Forest Health Section). Within this plant series this project would not change any of the timber suitability acres with the proposed treatments.

#### Gambel Oak within Ponderosa Pine Forest

Gambel oak is frequently the only deciduous tree in otherwise pure ponderosa pine forests in the 4FRI analysis area, adding diversity to these forests. A portion of the stands have a large enough component of Gambel oak to be considered pine-oak habitat for Mexican spotted owl (as described in the 1996 forest plan amendment for Mexican spotted owl and Mexican spotted owl Recovery Plan). Similar to pure ponderosa pine forests, pine-Gambel oak forests have become altered since Euro-American settlement in the late 1800s resulting in an overall increase in small- and medium sized Gambel oak stems and a more simplified forest structure (Abella, 2008). Oak management strategies within this project includes conservation of all existing large, old oaks, maintaining a variety of growth forms and managing for densities similar to the range of variability of oak's evolutionary environment. Within this plant series this project would not change any of the timber suitability acres with the proposed treatments.

## Amendment 3. Effect Determination for Cultural Resources (Coconino NF)

### Background

The Coconino NF forest plan as written has some conflicting direction regarding managing significant or potentially significant sites. One standard (which would be amended for this project) directs management to **strive** to achieve a "no effect" determination. A second standard (which would be deleted for this project) directs management to achieve a "no effect" determination in consultation with SHPO and ACHP (36 CFR 800). An amendment is proposed to recognize that there could be effects that are not adverse, and that there could be adverse effects that may or may not be fully mitigated. Table 109 displays current and proposed forest plan language. New or edited text is displayed in **bold** type.

### Amendment Description

The amendment deletes the standard that addresses achieving a "no effect" determination and adds the words "or no adverse effect" to the remaining standard. Management strives to achieve a "no effect" or "no adverse effect" determination. Edited or added text is shown in bold.

**Table 109. Alternative B amendment 3 effect determination for cultural resources (Coconino NF)**

| Current Coconino NF Forest Plan Direction | Proposed New Standards and Guidelines Language |
|---|---|
| **Cultural Resources** | |
| Consult with Native Americans when projects and activities are planned in sites or areas of known religious or cultural importance (Coconino NF forest plan, page 52). | No Change |
| Make boughs and herbaceous plant parts used for Native American religious and ceremonial purposes available under conditions and procedures that minimize restrictions, consistent with laws, regulations, and agreements with tribes. The written authorization to the Hopi Tribe for gathering without specific individual permits is an example. This authorization does not include such items as firewood removed from the forest or Kiva logs, which do require a permit (Coconino NF forest plan, page 52). | No Change |
| The forest complies with the National Historic Preservation Act (NHPA) in decisions involving interactions between cultural and other resources. Cultural resources are managed in coordination with the State Historic Preservation Plan (SHPO). Until evaluated, the minimal level of management for all sites is avoidance and protection (Coconino NF forest plan, page 52). | No Change |
| Specific standards and guidelines derived from the settlement agreement for the Save the Jemez lawsuit are subject to adjustment, should that agreement be modified. In that event an amendment to the forest plan will be issued (Coconino NF forest plan, page 52). | No Change |
| Project undertakings are inventoried for cultural resources and areas of Native American religious use. Inventory intensity complies with regional policy, and the settlement agreement for the Save The Jemez Lawsuit, and is determined in consultation with the State Historic Preservation Officer (SHPO). Generally, inventory standards are: One hundred percent survey of all projects causing complete surface disturbance; when less than 100 percent survey is deemed appropriate, the specific sample fraction surveyed is determined in consultation with the State Historic Preservation Officer and is generally greater than 10 percent. Factors determining when sampling is appropriate include projects with dispersed or minimal impacts, low expected archaeological site density, ground cover, and types of archaeological sites present in the area; consultation with appropriate Native American groups; consultation with the SHPO, and if necessary, the Advisory Council on Historic Preservation (ACHP), before project implementation (Coconino NF forest plan, page 52-1). | No Change |
| Significant, or potentially significant, inventoried sites are managed to achieve a "No Effect" determination, in consultation with the SHPO and ACHP (36 CFR 800) (Coconino National Forest plan, page 53). | **Deleted** |
| Monitoring during and after project implementation is done to document site protection and condition (Coconino National Forest plan, page 53). | No Change |
| Management strives to achieve a "No Effect" determination (Coconino National Forest plan, page 53). | **Management strives to achieve a "no effect" or "no adverse effect" determination** |

| Current Coconino NF Forest Plan Direction | Proposed New Standards and Guidelines Language |
|---|---|
| When sample surveys, rather than 100 percent survey coverage, are done for project clearances, survey locations and sample intensity are based on areas of greatest project impact, likely locations for cultural resource sites based on archaeological experience, land management planning, dispersion of sample coverage, certain topographic features specified in the Save the Jemez lawsuit settlement agreement, and likely areas based on the forest site density predictions (Coconino National Forest plan, page 53). | No Change |
| Identified sites are evaluated for their National Register eligibility when they are severely damaged, when they will be impacted by an undertaking, or information about the uniqueness, commonness, and characteristics of their site class are sufficiently known to make an informed decision. Sites for which determinations of eligibility have not been made are managed as if they are eligible, unless consultation with the SHPO indicates otherwise (Coconino National Forest plan, page 53). | No Change |
| For each full-time professional cultural resource specialist employed by the forest, at least two site nominations, one archaeological district nomination, or one thematic or multiple resource nomination will be made each year to the National Register of Historic Places. Or, alternatively, the forest will coordinate with other forests to prepare a joint district, thematic, or multiple resource nomination (Coconino National Forest plan, page 53). | No Change |
| Inventoried sites allocated to management categories, and/or eligible or potentially eligible for the NRHP or potentially eligible for the NRHP are systematically revisited by regularly scheduled patrols, and by cultural resources specialists to assess natural deterioration, vandalism, or pilfering. Inspections are made at least biannually of properties that have been listed in or nominated to the National Register. Sites most susceptible to natural deterioration and/or human disturbance are monitored frequently. Rapid natural deterioration, or susceptibility to such, requires stabilization, restoration, and/or data recovery. Vandalism or pilfering requires protective measures such as signing, remote sensing, increased patrolling, investigations, stabilization, restoration, and/or data recovery. Specific sites or areas may be closed to off-road driving and withdrawn from mineral entry. Law enforcement is planned and implemented to minimize resource damage and user conflicts. Signing is appropriate to inform and educate the public and minimize direct law enforcement activity. Aggressively pursue violations (Coconino National Forest plan, page 53). | No Change |
| Continue to interpret cultural resources through lectures, tours, papers, reports, publications, brochures, displays, films, trails, signs, and other opportunities (Coconino National Forest plan, page 54). | No Change |
| Develop a program to complete 100 percent coverage of the forest's cultural resource inventory by 2000 (Coconino National Forest plan, page 54). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Standards and Guidelines Language |
|---|---|
| The first priorities for cultural resources protection, enhancement, and interpretation are those sites that are easily accessible, have major interpretive potential, or are in major need of repair. Priority sites for signing are the C. Hart Merriam Base Camp, Honanki Cliff Dwellings, Elden Pueblo, Sacred Mountain, Palatki Cliff Dwellings, and Clear Creek Ruins. Priority sites for repair and stabilization are Honanki Cliff Dwellings, Palatki Cliff Dwellings, Sacred Mountain, Clear Creek Cliff Dwelling, and General Springs Cabin. Priority sites for developing interpretive brochures are Elden Pueblo, Sacred Mountain, Red Tank Draw Petroglyphs, Honanki Cliff Dwellings, Palatki Cliff Dwellings, and Clear Creek Ruins. Priorities are to:<br>Survey to clear projects.<br>Survey to fill in gaps in existing inventory coverage.<br>Survey areas of known high site densities.<br>Survey areas that would do the most to answer current archaeological questions (Coconino National Forest plan, page 54). | No Change |
| Computerize cultural resource site information by 1990 (Coconino National Forest plan, page 54). | No Change |
| Maintain a form for tracking compliance of each undertaking with the requirements of the National Historic Preservation Act (Coconino National Forest plan, page 54). | No Change |
| Stabilize or repair damaged National Register sites or other sites funded by regional priority (Coconino National Forest plan, page 54). | No Change |
| Continue to develop the Elden Pueblo Interpretive Site and the cooperative education program with the Museum of Northern Arizona (Coconino National Forest plan, page 54). | No Change |
| Encourage universities to conduct summer field schools to assist in cultural resource survey and excavation work and to provide the forest with scientific knowledge (Coconino National Forest plan, page 54). | No Change |
| Periodically focus media attention on Elden Pueblo and/or other sites to educate the public and further volunteer interest in resource management. Work with community organizations, businesses, and other agencies to promote Arizona Archaeology Week. Feature significant finds and significant damage in the media to increase public awareness of benefits and problems (Coconino National Forest plan, page 54). | No Change |

* Edited and added text is shown in **bold.**

## Significance Evaluation

Per FSM 1926.51, changes to the land management plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for long term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further onsite analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long term land and resource management.
3. Minor changes in standards and guidelines.

4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

Per FSM 1926.52, circumstances that may cause a significant change to a land management plan include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (see section 219.10(e) of the planning regulations in effect before November 9, 2000 (see 36 CFR parts 200 to 299, revised as of July 1, 2000)), and
2. 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 during the planning period.

The proposed amendment is nonsignificant (FSM 1926.51) because multiple-use goals and objectives for long term land and resource management and its actions would not be altered. How the amendment could potentially affect timing, location and size, relationship to forest goals, objectives, outputs, and management prescriptions was evaluated.

**Timing**: In terms of timing, the forest plan has been in place (and amended) since 1987 and plan revision efforts are underway.

**Location and Size**: Amendment 3 is specific to the 351,529 acres of proposed treatments in this project. This amendment would affect about 19 percent of the Coconino NF (which totals 1,821,495 acres).

This would not have an important effect on the entire land management plan or a large portion of the planning area. For this reason, location and size was determined to be nonsignificant.

**Relationship to Forest Goals and Objectives**: The amendment would not affect attainment of forest goals and objectives for cultural resources. Cultural resource sites would be located and protected from project activities according to direction in FSM 2360 and 2430 (Coconino NF Forest Plan, page 50) and the requirements of 36 CFR 800 including 36 CFR 800.5, which provides direction for assessing adverse effects and proposing a finding of no adverse effect. Consultation with AZ SHPO would occur as required, and regulation 36 CFR 800 would be followed and met.

**Relationship to Management Prescriptions**: The amendment would apply to all 23 management areas (MA) as described in the Coconino National Forest plan (pages 46 to 206-113) and in chapter 1 of the DEIS. The amendment would not affect management of the management areas. All cultural resources are currently managed to minimize impacts and to achieve a “no effect” or “no adverse effect” determination whenever possible, in consultation with AZ SHPO, the council, and other consulting parties.

**Relationship to Outputs:** Outputs identified in the forest plan are associated with MMBF of sawtimber sales and products (meet demand for timber while reducing conflict with other resources), MMBF of firewood sold and free use (provide access to firewood), grazing capacity, and permitted livestock use.The amendment would not affect outputs or change the long-term relationship between levels of goods (timber, firewood) and services. All cultural resources are managed to minimize impacts and to achieve a “no effect” or “no adverse effect” determination whenever possible, in consultation with AZ SHPO, the council, and other consulting parties regardless of forest plan desired outputs.

# Alternative C – Coconino National Forest Site-Specific Nonsignificant Forest Plan Amendments

## Amendment 1. Mexican Spotted Owl Habitat Management (Coconino NF)

### Background

How Mexican spotted owl PACs were initially identified for treatment is the same as described for alternative B, amendment 1. However, the additional treatments in Mexican spotted owl core areas and the change in basal area in target and threshold restricted habitat is a result of comments from the U.S. Fish and Wildlife Service on the proposed action (see chapter 2). The amendment directly aligns treatments with the revised Mexican spotted owl Recovery Plan (see table C.1 to C.3).

### Mechanical Treatment Up to 17.9 inches d.b.h. in Select PACs (6,942 acres)

Mexican spotted owl PAC field reviews, data evaluation, and vegetation simulation modeling indicated 18 Mexican spotted owl PACs (approximately 3,378 acres or 10 percent of all PACs acres within the treatment area) would move toward recovery plan desired conditions from mechanically cutting trees up to 9 inches d.b.h. Treatments up to 9 inches d.b.h. are consistent with the forest plan. See the wildlife specialist report “Methodology” section for complete details on the habitat evaluation process.

An additional 6,942 acres within 18 PACs would have nesting and roosting habitat benefits from cutting trees up to 17.9 inches d.b.h. Mechanical treatments above 9 inches d.b.h. would facilitate the removal of ladder and canopy fuels which would reduce the fire risk in the 18 PACs (to the extent possible). Increasing the range of the mechanical treatment thresholds up to 18 inches d.b.h. within 18 Mexican spotted owl PACs would provide for a higher degree of stand structure improvements to nesting and roosting habitat. The proposal addresses comments from the U.S. Fish and Wildlife Service and is in alignment with the revised Mexican spotted owl recovery plan (USDI FWS 2012). Figure 57 displays the general location of mechanical treatment up to 17.9-inch d.b.h., prescribed fire, and areas where no treatment is proposed within Mexican spotted owl PACs.

### Prescribed Fire within 54 PAC Core Areas (About 5,400 acres)

In order to improve habitat conditions outside of the 100-acre core area within 54 PACs, there is a need to use prescribed fire within select PAC core areas. Without the use of low-intensity prescribed fire within the core, each core area would need to have fire line constructed around it to prevent fire from entering the nest site during treatment in the surrounding PAC habitat. Depending on site and weather conditions, this could be anything from a 3-foot-wide hand line to a dozer line. The number of acres potentially affected from fire line activities within PACs would likely range from 0.80 (hand line) acre to 3.2 (dozer) acres. Most fire line would require post-treatment habitat rehabilitation.

Burning in Mexican spotted owl PACs is difficult as there is a need to address the high fuel loadings while maintaining many of the habitat elements that contribute to fuel loading. Burning has to be conducted in a very short timeframe to avoid the breeding season (i.e., the nonbreeding season – September 1 to February 28). Lining 54 core areas greater than or equal to 100 acres would be expensive in terms of time, money, and other resource commitments. In many projects,

PAC treatments have been eliminated for these reasons. Applying low intensity prescribed burning within the 100-acre core areas would eliminate the need for fire line construction and would potentially minimize impacts to protected habitat. Figure 58 displays the general location of Mexican spotted owl PACs proposed for prescribed burning including where burning would occur within core areas.

### Manage 6,299 Acres of Mexican spotted owl Restricted Target and Threshold Habitat for a Minimum of 110 to 150 Square Feet Basal Area

The development of 6,299 acres of restricted target and threshold habitats would be managed toward meeting a 110 to 150 square feet basal area for Mexican spotted owl nest and roost habitat as recommended in the revised Mexican spotted owl recovery plan (USDI FWS 2012). It would allow more of the uncharacteristic in-growth of mid-aged and mid-sized trees that currently dominate the 4FRI landscape to be removed while retaining nesting and roosting habitat components. Thinning more of these trees would improve forest health, increasing the ability to retain large trees and increase large tree growth rates as described in the revised recovery plan (USDI FWS 2012). This would increase forest spatial heterogeneity, improve tree age diversity, and benefit prey habitat. Increasing the basal area range would provide opportunities to mimic canopy gap processes which produce horizontal variation in stand structure. These changes would both increase and retain nesting and roosting structure and increase understory cover. Research suggests that small mammal biomass (including voles and mice) drives spotted owl reproductive output, and thinning smaller trees would improve subcanopy flight zone, thereby increasing Mexican spotted owl foraging effectiveness. Figure 59 displays the extent of the landscape analysis conducted to designate Mexican spotted owl restricted habitat for the project. Figure 60 displays the project's designated Mexican spotted owl restricted habitat. Figure 61 displays treatments in Mexican spotted owl target and threshold habitat.

### Incremental Treatments and Monitoring Responses to Spotted Owl Treatments

Monitoring assesses the effectiveness of management actions and provides the adaptive framework for more successful management guidelines. Monitoring habitat allows for modeling future forest conditions to determine if there will be adequate habitat to support Mexican spotted owl populations. Occupancy, reproduction and habitat monitoring and final project design for all proposed activities in all Mexican spotted owl habitat was developed in consultation with the U.S. Fish and Wildlife Service. Monitoring requirements from the biological opinion have been incorporated into the FEIS in appendix E.

### Target and Threshold Restricted Habitat

Because this project was developed while the former recovery plan was in place, many treatments were modeled specifically to meet target and threshold (future nesting and roosting) habitat requirements. Definitions of target and threshold habitat would be added since the current forest plan refers to "threshold" in terms of values and desired conditions (see Coconino NF forest plan, page 65-3.) within restricted habitat and there is no reference to "target" conditions. The continued use of the terms (and definitions) of target and threshold habitat (considered future nesting and roosting habitat as part of restricted habitat is consistent with Revised Mexican spotted owl Recovery Plan's direction for nesting and roosting in recovery habitat (table C.1 to C.3).

## Amendment Description

Amendment 1 would allow mechanical treatments up to 17.9 inches d.b.h. to improve habitat structure (nesting and roosting habitat) in 18 Mexican spotted owl PACs. It would allow low intensity prescribed fire within 54 Mexican spotted owl 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 U.S. Fish and Wildlife Service' biological opinion specific to Mexican spotted owl for the project (see table 110; replacement language is shown in **bold** throughout the table).

Definitions of target and threshold habitat would be added since the current forest plan refers to "threshold" in terms of values and desired conditions (see Coconino NF forest plan, page 65-3.) within restricted habitat, and there is no reference to "target" conditions. In restricted pine-oak habitat, it would allow 6,299 acres of restricted target or threshold habitat to be managed for a minimum range of 110 to 150 feet of basal area.

**Table 110. Alternative C amendment 1 Mexican spotted owl current and proposed forest plan language (Coconino NF)**

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| **Mexican spotted owl Standards** | |
| No corresponding direction currently exists | **The project will comply with the biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| Provide three levels of habitat management - protected, restricted, and other forest and woodland types to achieve a diversity of habitat conditions across the landscape (Coconino NF forest plan, page 65). | No Change |
| Protected areas include delineated protected activity centers; mixed conifer and pine-oak forests with slopes greater than 40 percent where timber harvest has not occurred in the last 20 years; and reserved lands which include wilderness, research natural areas, wild and scenic rivers, and congressionally recognized wilderness study areas (Coconino NF forest plan, page 65). | No Change |
| Restricted areas include all mixed-conifer, pine-oak, and riparian forests outside of protected areas (Coconino NF forest plan, page 65). | No Change |
| Other forest and woodland types include all ponderosa pine, spruce-fir, woodland, and aspen forests outside protected and restricted areas (Coconino NF forest plan, page 65). | No Change |
| Survey all potential spotted owl areas including protected, restricted, and other forest and woodland types within an analysis area plus the area 1/2 mile beyond the perimeter of the proposed treatment area (Coconino NF forest plan, page 65). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Establish a protected activity center at all Mexican spotted owl sites located during surveys and all management territories established since 1989 (Coconino NF forest plan, page 65). | No Change |
| Allow no timber harvest except for firewood and fire risk abatement in established protected activity centers. For protected activity centers destroyed by fire, windstorm, or other natural disaster, salvage timber harvest or declassification may be allowed after evaluation on a case-by-case basis in consultation with US Fish and Wildlife Service (Coconino NF forest plan, page 65). | Allow no timber harvest except for firewood and fire risk abatement in established protected activity centers **except as follows: Allow firewood, fire risk abatement, and habitat structure improvement in the following established protected activity centers: Lake No. 1/Seruchos, Archies, Red Hill, Crawdad, Holdup, Bonita Tank, Red Raspberry, Bear Seep, Mayflower Tank, Knob, T6 Tank, Iris Tank, Frank, Rock Top, Lee Butte, Foxhole, Bar M, and Sawmill Spring.** For protected activity centers destroyed by fire, windstorm, or other natural disaster, salvage timber harvest or declassification may be allowed after evaluation on a case-by-case basis in consultation with the U.S. Fish and Wildlife Service. |
| Allow no timber harvest except for fire risk abatement in mixed conifer and pine-oak forests on slopes greater than 40 percent where timber harvest has not occurred in the last 20 years (Coconino NF forest plan, page 65). | No Change |
| Limit human activity in protected activity centers during the breeding season (Coconino NF forest plan, page 65). | No Change |
| In protected and restricted areas, when activities conducted in conformance with these standards and guidelines may adversely affect other threatened, endangered, or sensitive species or may conflict with other established recovery plans or conservation agreements; consult with U.S. Fish and Wildlife Service to resolve the conflict (Coconino NF forest plan, page 65-1). | No Change |
| Monitor changes in owl populations and habitat needed for delisting (Coconino NF forest plan, page 65-1). | **The project will comply with the biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| **Guidelines – General – No Change** | |
| **Guidelines – Protected Areas, Protected Activity Centers** | |
| Delineate an area of not less than 600 acres around the activity center using boundaries of known habitat polygons and/or topographic features. Written justification for boundary delineation should be provided (Coconino NF forest plan, page 65-1). | No Change |
| The protected activity center boundary should enclose the best possible owl habitat configured in as compact a unit as possible, with the nest or activity center located near the center (Coconino NF forest plan, page 65-1). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| The activity center is defined as the nest site. In the absence of a known nest, the activity center should be defined as a roost grove commonly used during breeding. In the absence of a known nest or roost, the activity center should be defined as the best nesting and roosting habitat (Coconino NF forest plan, page 65-1). | No Change |
| Protected activity center boundaries should not overlap (Coconino NF forest plan, page 65-1). | No Change |
| Submit protected activity center maps and descriptions to the recovery unit working group for comment as soon as possible after completion of surveys (Coconino NF forest plan, page 65-1). | No Change |
| Road or trail building in protected activity centers should be avoided but maybe permitted on a case-by-case basis for pressing management reasons (Coconino NF forest plan, page 65-1). | No Change |
| Generally allow continuation of the level of recreation activities that was occurring prior to listing (Coconino NF forest plan, page 65-1). | No Change |
| Require bird guides to apply for and obtain a special use permit. A condition of the permit shall be that they obtain a subpermit under the U.S. Fish and Wildlife Service Master Endangered Species permit. The permit should stipulate the sites, dates, number of visits, and maximum group size permissible (Coconino NF forest plan, page 65-1). | No Change |
| Harvest firewood when it can be done in such a way that effects on the owl are minimized. Manage within the following limitations to minimize effects on the owl (Coconino NF forest plan, page 65-2).<br>Retain key forest species such as oak.<br>Retain key habitat components such as snags and large downed logs.<br>Harvest conifers less than 9 inches in diameter only within those protected activity centers treated to abate fire risk as described below, **except for the Clark PAC where trees less than 16 inches diameter will be harvested**. | Harvest firewood when it can be done in such a way that effects on the owl are minimized. Manage within the following limitations to minimize effects on the owl.<br>Retain key forest species such as oak.<br>Retain key habitat components such as snags and large downed logs.<br>Harvest conifers less than 9 inches in diameter only within those protected activity centers treated to abate fire risk as described below, except for the Clark PAC where trees less than 16 inches diameter will be harvested area except as follows:<br>**Harvest conifers up to 17.9 inches diameter within the Lake No. 1/Seruchos, Archies, Red Hill, Crawdad, Holdup, Bonita Tank, Red Raspberry, Bear Seep, Mayflower Tank, Knob, T6 Tank, Iris Tank, Frank, Rock Top, Lee Butte, Foxhole, Bar M, and Sawmill Spring PACs to abate fire risk and improve habitat structure.** |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Treat fuel accumulations to abate fire risk.<br>–Select for treatment 10 percent of the protected activity centers where nest sites are known in each recovery unit having high fire risk conditions. Also select another 10 percent of the protected activity centers where nest sites are known as a paired sample to serve as control areas (Coconino NF forest plan, page 65-2).<br>–Designate a 100-acre "no treatment" area around the known nest site of each selected protected activity center. Habitat in the no treatment area should be as similar as possible in structure and composition as that found in the activity center.<br>–Use combinations of thinning trees less than 9 inches in diameter (or less than 16 inches in the Clark PAC), mechanical fuel treatment and prescribed fire to abate fire risk in the remainder of the selected protected activity center outside the 100-acre "no treatment" area. | Treat fuel accumulations to abate fire risk.<br>–Designate a 100-acre "no treatment" area around the known nest site of each selected protected activity center. Habitat in the no treatment area should be as similar as possible in structure and composition as that found in the activity center.<br>– Use combinations of thinning trees less than 9 inches in diameter (or less than 16 inches in the Clark PAC), mechanical treatment and prescribed fire to abate fire risk in the remainder of the selected protected activity center outside the 100-acre "no treatment" area **except as follows:**<br>**Use combinations of thinning trees up to 17.9 inches d.b.h. within the Lake No. 1/Seruchos, Archies, Red Hill, Holdup, Rock Top, Foxhole, Bar M, PACs, Crawdad, Bonita Tank, Red Raspberry, Bear Seep, Mayflower Tank, Knob, T6 Tank, Iris Tank, Frank, Lee Butte, and Sawmill Springs PACs**, mechanical fuel treatment and prescribed fire to abate fire risk **and improve habitat structure in the remainder of the selected protected activity center outside the 100-acre "no treatment" area. Use low intensity prescribed fire within 54 select 100-acre core areas to eliminate the need for fire line construction.**<br>**–** Retain woody debris larger than 12 inches in diameter, snags, clumps of broad-leafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar.<br>–Use light prescribed burns in nonselected protected activity centers on a case-by-case basis. Burning should avoid a 100-acre "no treatment" area around the activity center except as follows: **Use low intensity prescribed fire within 54 select 100-acre core areas to eliminate the need for fire line construction.** Large woody debris, snags, clumps of broad-leafed woody vegetation should be retained and hardwood trees larger than 10 inches diameter at the root collar.<br>**– The project will comply with the biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| Treat fuel accumulations to abate fire risk. Pre and post treatment monitoring should be conducted in all protected activity centers treated for fire risk abatement. (See monitoring guidelines) (Coconino NF forest plan, page 65-2) | |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| **Steep Slopes (Mixed conifer and pine-oak forests outside protected activity centers with slopes greater than 40 percent that have not been logged within the past 20 years): No seasonal restrictions apply.** | |
| Treat fuel accumulations to abate fire risk.<br>–Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.<br>–Retain woody debris larger than 12 inches in diameter, snags, clumps of broadleafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar.<br>– Pre and post treatment monitoring should occur within all steep slopes treated for fire risk abatement. (See monitoring guidelines) | Treat fuel accumulations to abate fire risk.<br>–Use combinations of thinning trees less than 9 inches in diameter, mechanical fuel removal, and prescribed fire.<br>–Retain woody debris larger than 12 inches in diameter, snags, clumps of broadleafed woody vegetation, and hardwood trees larger than 10 inches in diameter at the root collar.<br>**– The project will comply with the biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| **Reserved Lands (Wilderness, Research Natural Areas, Wild and Scenic Rivers, and Congressionally Recognized Wilderness Study Areas):**<br>**Allow prescribed fire where appropriate – No change.** | |
| **Restricted Areas (Mixed conifer, pine-oak, and riparian forests)** | |
| No corresponding direction | **Target habitat is a category of restricted habitat intended to provide future nesting and roosting habitat (see glossary definition for restricted habitat). The minimum values identified for the forest attributes represent the threshold for meeting nesting and roosting conditions (see the definition for threshold habitat). They can also be targets to be achieved with time and management. If less than 10 percent of the restricted habitat in ponderosa pine-Gambel oak qualifies as threshold habitat, the areas that can eventually achieve all threshold conditions simultaneously should be identified as target habitat and managed to achieve threshold conditions as rapidly as possible. Because no known nests or roosts occur in restricted habitat, target habitat is considered future nesting and roosting habitat.** |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| No corresponding direction | **Threshold habitat is a category of restricted habitat intended to provide for future nesting and roosting habitat (see definition for restricted habitat). A variety of forest structural attributes are used to define when nesting and roosting habitat is achieved (summarized in table III.B.1 of the 1995 recovery plan and table C-2 of the 2012 recovery plan). Threshold habitat meets or exceeds these values. When the minimum values identified for the forest attributes are met simultaneously, they represent the threshold of nesting and roosting conditions. Up to 10 percent of restricted habitat in ponderosa pine-Gambel oak should be designated as threshold habitat. Management in threshold habitat cannot lower any of the forest attribute values below the nesting and roosting threshold unless a landscape analysis demonstrates an abundance of this habitat. Because no known nests or roosts occur in restricted habitat, target habitat is managed as future nesting and roosting habitat.** |
| Mixed Conifer and Pine-oak Forests (See glossary definition): Manage to ensure a sustained level of owl nesting and roosting habitat well distributed across the landscape. Create replacement owl nesting and roosting habitat where appropriate while providing a diversity of stand conditions across the landscape to ensure habitat for a diversity of prey species. The following table displays the minimum percentage of restricted area which should be managed to have nesting and roosting characteristics. The minimum mixed conifer restricted area includes 10 percent at 170 square feet basal area and an additional amount of area at 150 square feet basal area. The additional area of 150 square feet basal area is +10 percent in BR-E and +15 percent in all other recovery units. The variables are for stand averages and are minimum threshold values and must be met simultaneously. In project design, no stands simultaneously meeting or exceeding the minimum threshold values should be reduced below the threshold values unless a district-wide or larger landscape analysis of restricted areas shows that there is a surplus of restricted area acres simultaneously meeting the threshold values. Management should be designed to create minimum threshold conditions on project areas where there is a deficit of stands simultaneously meeting minimum threshold conditions unless the district-wide or larger landscape analysis shows there is a surplus. This table has been modified to contain only information pertinent to the Coconino NF. (Coconino NF forest plan, pages 65-3 to 65-5). | Mixed Conifer and Pine-oak Forests (See glossary definition): Manage to ensure a sustained level of owl nesting and roosting habitat well distributed across the landscape. Create replacement owl nesting and roosting habitat where appropriate while providing a diversity of stand conditions across the landscape to ensure habitat for a diversity of prey species. The following table displays the minimum percentage of restricted area which should be managed to have nesting and roosting characteristics. The minimum mixed conifer restricted area includes up to 10 percent at 170 square feet basal area and an additional amount of area at 150 square feet basal area. The additional area of 150 square feet basal area is +10 percent in BR-E and +15 percent in all other recovery units. **In pine-oak, the minimum restricted area includes up to 10 percent at 110 to 150 square feet basal area.** The variables are for stand averages and are minimum **target and** threshold **habitat** values and must be met simultaneously. In project design, no stands simultaneously meeting or exceeding the minimum **target and** threshold **habitat** values should be reduced below **target and** threshold values unless a districtwide or larger landscape analysis of restricted areas shows that there is a surplus of restricted area acres simultaneously meeting **target and** threshold values. Management should be designed to create minimum **target and** threshold **habitat** conditions on project areas where there is a deficit of stands simultaneously meeting minimum **target and** threshold **habitat** conditions unless the districtwide or larger landscape analysis shows there is a surplus. This table has been modified to contain only information pertinent to the Coconino NF. |

| Variable | Mixed Conifer All Restoration Units | Mixed Conifer Other Restoration Units | Pine-Oak Target and Threshold Habitat |
|---|---|---|---|
| Restricted Area percent | 10 percent | +15 percent | 10 percent |
| **Stand Averages for:** | | | |
| Basal Area | 170 | 150 | **110**-150 |
| 18 inch+ trees/acre | 20 | 20 | 20 |
| Oak Basal Area | NA | NA | 20 |
| **Percent total existing:** | | | |
| 12–18 inch | 10 | 10 | 15 |
| 18–24 inch | 10 | 10 | 15 |
| 24+ inch | 10 | 10 | 15 |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Attempt to mimic natural disturbance patterns by incorporating natural variation, such as irregular tree spacing and various patch sizes, into management prescriptions (Coconino National Forest plan, page 65-4). | No Change |
| Maintain all species of native trees in the landscape including early seral species (Coconino National Forest plan, page 65-4). | No Change |
| Allow natural canopy gap processes to occur, thus producing horizontal variation in stand structure (Coconino National Forest plan, page 65-4). | No Change |
| Emphasize uneven-aged management systems. However, both even-aged and uneven-aged systems may be used where appropriate to provide variation in existing stand structure and species diversity. Existing stand conditions will determine which system is appropriate (Coconino National Forest plan, page 65-4). | No Change |
| Extend rotation ages for even-aged stands to greater than 200 years. Silvicultural prescriptions should explicitly state when vegetative manipulation will cease until rotation age is reached (Coconino National Forest plan, page 65-4). | No Change |
| Save all trees greater than 24 inches d.b.h. In pine-oak forests, retain existing large oaks and promote growth of additional large oaks (Coconino National Forest plan, page 65-4). | No Change |
| In pine-oak forests, retain existing large oaks and promote growth of additional large oaks (Coconino National Forest plan, page 65-4). | No Change |
| Encourage prescribed and prescribed natural fire to reduce hazardous fuel accumulation. Thinning from below may be desirable or necessary before burning to reduce ladder fuels and the risk of crown fire (Coconino National Forest plan, page 65-4). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Retain substantive amounts of key habitat components:<br>• Snags 18 inches in diameter and larger<br>• Down logs over 12 inches midpoint diameter<br>• Hardwoods for retention, recruitment, and replacement of large hardwoods | No Change |
| **Riparian Areas – No Change** | |
| **Domestic Livestock Grazing – No Change** | |
| **Old-Growth – No Change** | |
| **Other Forest and Woodland Types – No Change** | |
| **Guidelines for Specific Recovery Units – No Change** | |
| **Monitoring Guidelines** | |
| Monitoring and evaluation should be collaboratively planned and coordinated with involvement from each national forest, U.S. Fish and Wildlife Service Ecological Services Field Office, U.S. Fish and Wildlife Service Regional Office, FS Regional Office, Rocky Mountain Research Station, recovery team, and recovery unit working groups. | **The project will comply with biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |
| Population monitoring should be a collaborative effort with participation of all appropriate resource agencies. (Coconino National Forest plan, page 65-6). | |
| Habitat monitoring of gross habitat changes should be a collaborative effort of all appropriate resource agencies. (Coconino National Forest plan, page 65-6). | |
| Habitat monitoring of treatment effects (pre- and post-treatment) should be done by the agency conducting the treatment. (Coconino National Forest plan, page 65-6). | |
| Prepare an annual monitoring and evaluation report covering all levels of monitoring done in the previous year. The annual report should be forwarded to the regional forester with copies provided to the recovery unit working groups, U.S. Fish and Wildlife Service Ecological Services field offices, and the U.S. Fish and Wildlife Service Regional Office (Coconino National Forest plan, page 65-6). | |
| Rangewide: Track gross changes in acres of owl habitat resulting from natural and human-caused disturbances. Acreage changes in vegetation composition, structure, and density should be tracked, evaluated, and reported. Remote sensing techniques should provide an adequate level of accuracy. (Coconino National Forest plan, page 65-6)<br>In protected and restricted areas where silvicultural or fire abatement treatments are planned, monitor treated stands pre- and post-treatment to determine changes and trajectories in fuel levels; snag basal areas; live tree basal areas; volume of down logs over 12 inches in diameter; and basal area of hardwood trees over 10 inches in diameter at the root crown (Coconino National Forest plan, page 65-6). | |

| Current Coconino NF Forest Plan Direction | Proposed New Standard or Guideline Language |
|---|---|
| Upper Gila Mountain, Basin and Range East, and Basin and Range West Recovery Units: Assist the recovery team and recovery unit working groups to establish sampling units consisting of 19 to 39 square mile quadrats randomly allocated to habitat strata. Quadrats should be defined based on ecological boundaries such as ridge lines and watersheds. Quadrat boundaries should not traverse owl territories. Twenty percent of the quadrats will be replaced each year at random.<br>Using the sample quadrats, monitor the number of territorial individuals and pairs per quadrat; reproduction; apparent survival; recruitment; and age structure. Track population density both per quadrat and habitat stratum. | **The project will comply with biological opinion that has been developed in consultation with the U.S. Fish and Wildlife Service.** |

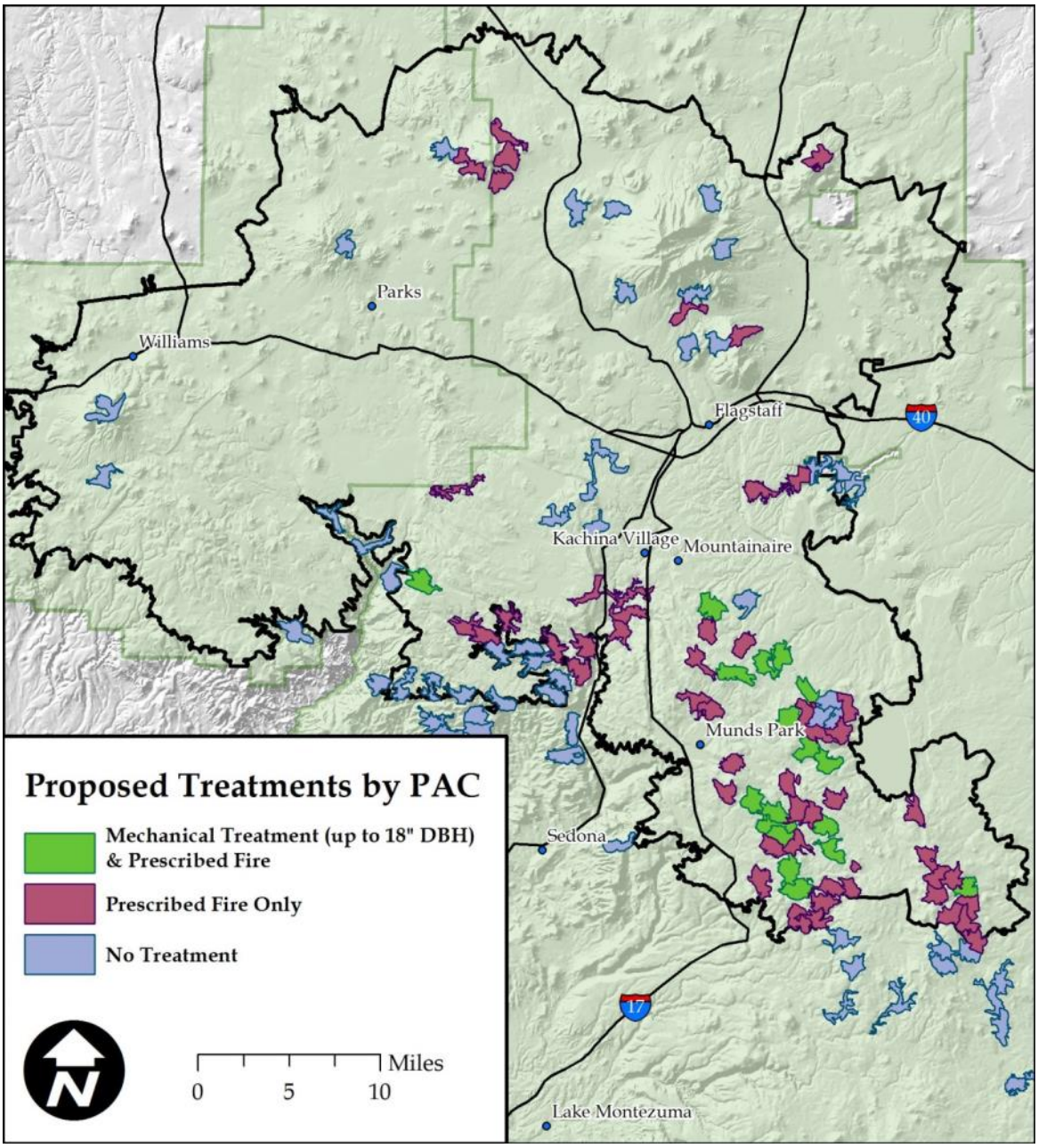


**Figure 57. Alternative C amendment 1 proposed activities in Mexican spotted owl PACs in relation to no treatment areas (Coconino NF)**

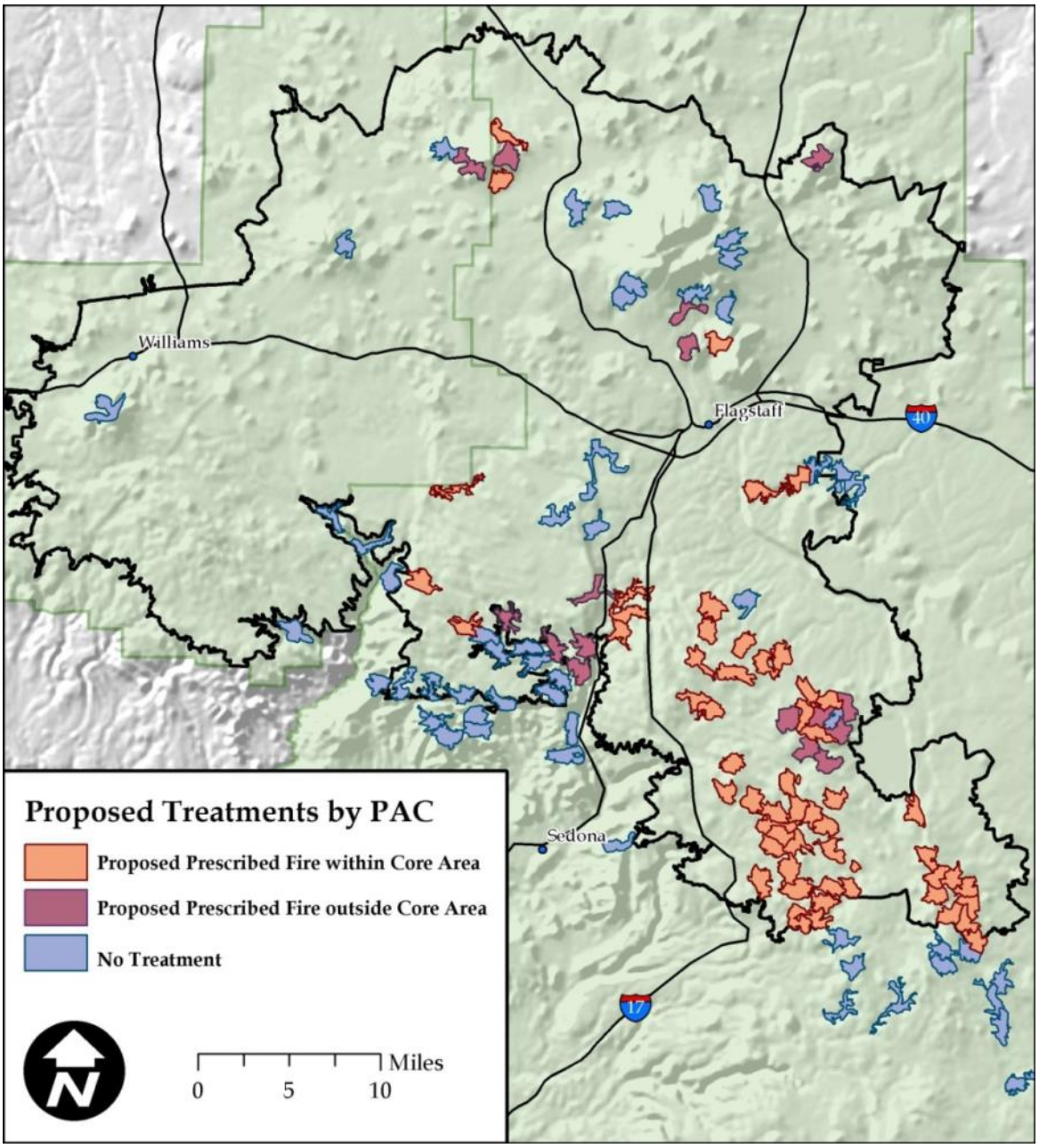


**Figure 58. Alternative C amendment 1 prescribed fire within and outside of Mexican spotted owl core areas**

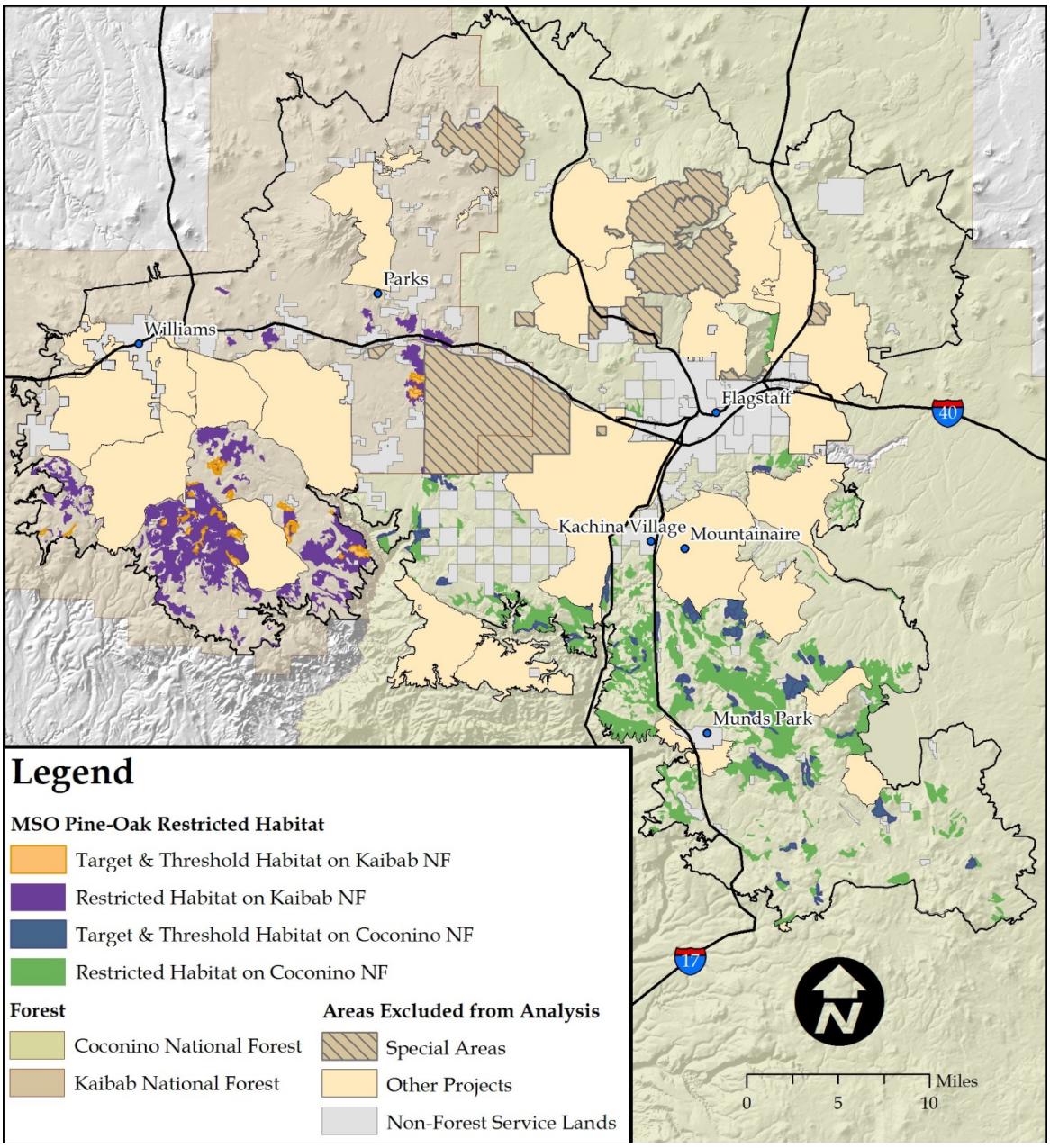


**Figure 59. Alternative C amendment 1 landscape target and threshold analysis**

Note: Although the Kaibab NF is displayed on the figure, no plan amendments are needed/proposed.

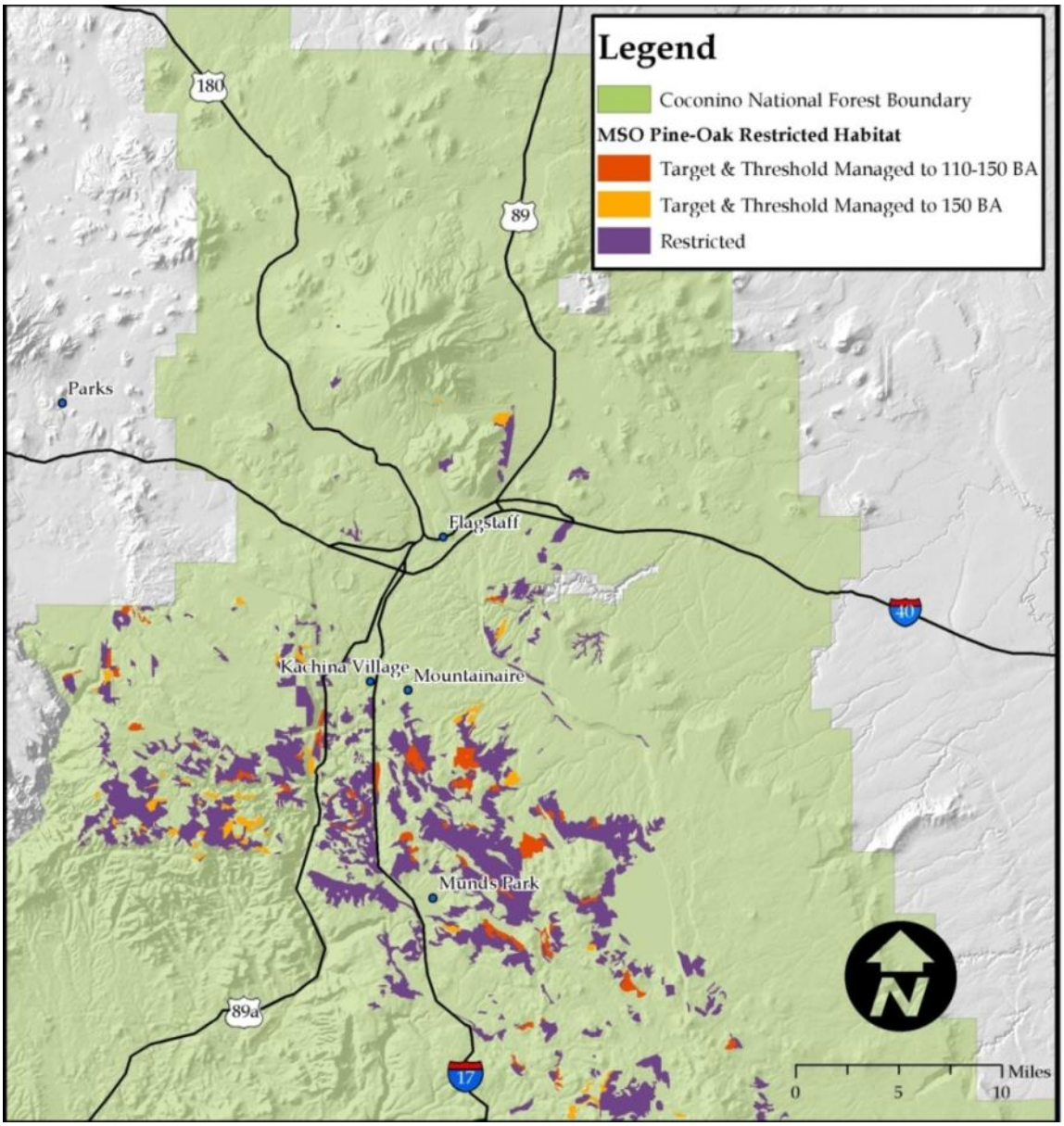


**Figure 60. Alternative C amendment 1 general locations of Mexican spotted owl target and threshold habitat managed from 110 to 150 square feet basal area (Coconino NF)**

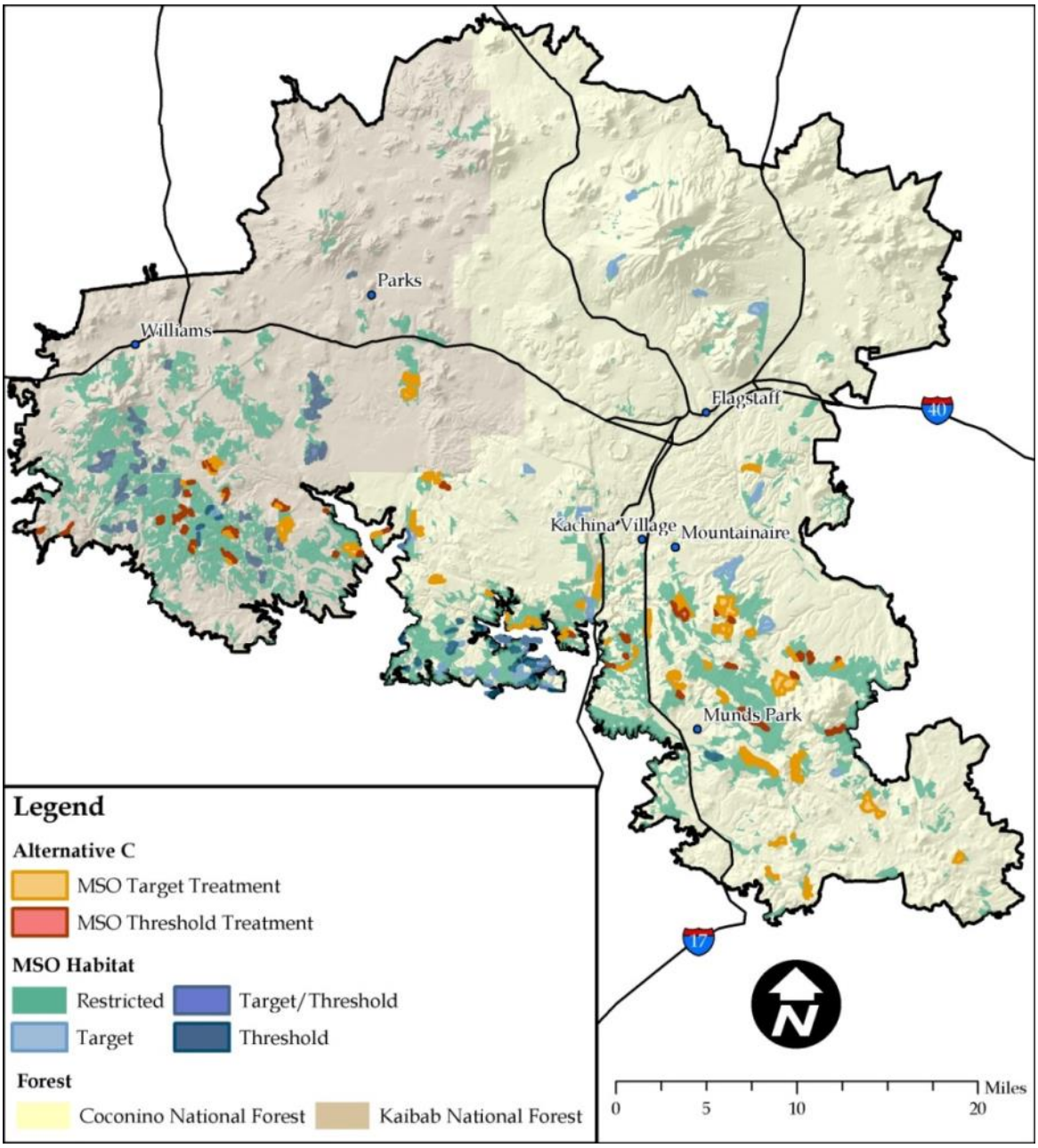


**Figure 61. Alternative C amendment 1 locations of Mexican spotted owl target and threshold treatments**
Note: Although the Kaibab NF is displayed on the figure, no plan amendments are needed/proposed.

## Consistency with the Revised Mexican spotted owl Recovery Plan

The need to evolve from managing solely for firewood collection and fire risk abatement is reflected in the revised 2012 recovery plan. In the revised plan, the U.S. Fish and Wildlife Service states, “Management recommendations are most conservative within PACs, but by no means advocate a “hands-off” approach. The recovery team recognizes situations exist where management is needed to sustain or enhance desired conditions for the owl, including fire-risk reduction, as well as monitoring owl response. Mechanical treatments in some PACs may be

needed to achieve these objectives; determining which PACs may benefit from mechanical treatments requires a landscape analysis to determine where the needs of fire risk reduction and habitat enhancement are greatest. PACs are the only form of protected habitat included in this revised Plan" (USDA FS 2012, page VIII). Treatments that would improve habitat by treating up to 17.9 inches d.b.h. is consistent with direction for retaining large trees in the revised Mexican spotted owl recovery plan (page 268 and table C.1-C.3 on pages 274 to 278).

By definition, PAC habitat and especially core areas have high fuel loading and the uncharacteristic accumulation of ground fuels puts them at further risk. Reducing fuels to reduce the risk of high-severity fire in these important habitats would contribute toward conservation of this threatened species. The amendment (allowing low intensity prescribed burning within the 100-acre core area) would eliminate the need for hand line and/or dozer line construction, allow for the maximum number of surrounding PAC acres to be treated with prescribed fire, and would potentially minimize up to 560 acres of ground disturbance to PAC habitat. Reducing fire risk in core areas is consistent with the direction in the Mexican spotted owl recovery plan, "Planned ignitions (prescribed fire) and unplanned ignitions (wildland fire) should be allowed to enter cores only if they are expected to burn with low fire severity and intensity. Fire lines, check-lines, backfiring, and similar fire management tactics can be used to reduce fire effects and to maintain key habitat elements (e.g., hardwoods, large downed logs, snags, and large trees)" (Revised Mexican spotted owl Recovery Plan, page 263).

Managing for 110 to 150 square feet basal area is consistent with the minimum desired conditions for pine-oak forests managed for Recovery nesting/roosting habitat (page 278, table C.3). The continued use of the terms (and definitions) of target and threshold habitat (considered future nesting and roosting habitat as part of restricted habitat is consistent with Revised Mexican spotted owl Recovery Plan's direction for nesting and roosting in recovery habitat (see page 274, table C1).

The plan amendment defers monitoring to the project's biological opinion from the U.S. Fish and Wildlife Service. Following the current forest plan direction would have resulted in few PACs being treated during the life of the project. Current plan direction suspends treatments until monitoring of the initial sample shows there are no negative impacts, or negative impacts are mitigated by modifying treatments. Following this direction could delay implementation for years, potentially decades' if changes in populations had to be documented before additional treatments were implemented. Following the current forest plan direction would have resulted in few PACs being treated with the objective of fire-risk reduction or improving condition for the owl during the life of the project.

The deviation from selecting PACs and monitoring in 10 percent increments is consistent with the revised 2012 Mexican spotted owl recovery plan which states mechanical treatments can be conducted in up to 20 percent of the total non-core PAC area within each ecosystem management unit (treatments can exceed 20 percent of the non-core acreage a single PAC (page 274, table C.1). As noted above, the plan amendment defers monitoring to the project's biological opinion from the U.S. Fish and Wildlife Service. This amendment meets the intent of the revised (2012) recovery plan by reducing the potential for creating excessively fragmented habitat and managing stands based on their capability to attain desired stand conditions. This amendment does not affect habitat designated in previous projects or in mixed-conifer habitat.

## Significance Evaluation

Per FSM 1926.51, changes to the land management plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for long term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further onsite analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long term land and resource management.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

Per FSM 1926.52, circumstances that may cause a significant change to a land management plan include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (see section 219.10(e) of the planning regulations in effect before November 9, 2000 (see 36 CFR parts 200 to 299, revised as of July 1, 2000)), and
2. 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 during the planning period.

Analysis demonstrated that the proposed amendment is nonsignificant (FSM 1926.51) because the actions would not measurably alter the multiple-use goals and objectives for long term land and resource management and the actions. How actions could potentially affect timing, location and size, relationship to forest goals, objectives, outputs, and management prescriptions was evaluated.

**Timing:** In terms of timing, the forest plan has been in place and amended several times since 1987, and revision efforts are underway. The forest plan incorporated direction (via an amendment) from the Forest Service Southwestern Region's 1996 "Amendment of Forest Plans Record of Decision" (USDA FS 1996). ). The actions allowed via the amendment are consistent with existing forest plan direction in that it improves nesting and rooting habitat, reduces the risk of loss from fire, and will comply with the site-specific treatment and monitoring requirements in the U.S. Fish and Wildlife Service biological opinion. Forest plan direction may be amended to incorporate the revised Mexican spotted owl recovery plan (USDI FWS 2012) which recognizes that habitat restoration, in addition to the reduction of fire risk, is key to improving habitat quality.

**Location and Size**: The treatment area contains about 35,019 total acres of Mexican spotted owl protected habitat, most of which occurs in restoration unit 1. There are 70 PACs (about 34,183 acres) in the 4FRI treatment area. The remaining protected habitat (836 acres) occurs on steep slopes where timber harvest has not occurred in the previous 20 years and is not proposed for mechanical treatment. Proposed treatments for steep-slope protected habitat consist of prescribed fire only – no mechanical treatments are proposed for this category of habitat. There are 187 PACs entirely on or overlapping Coconino National Forest lands.

Mechanical treatment would affect 18 (10 percent) of the 187 Coconino NF PACs and 6,942 acres (20 percent) of PAC habitat in the entire treatment area. Prescribed burning within 54 core areas

would potentially result in 5,400 acres of ground disturbance (100 acres per PAC). About 29 percent of all Coconino NF PAC core areas would be affected by the amendment.

Changing the minimum basal area value in restricted habitat would only apply to target and threshold acres (those restricted acres being managed for nesting/roosting habitat as defined in the forest plan). About 6,299 acres (8 percent) of restricted target or threshold habitat would be affected by using a basal area range of 110 to 150 within the treatment area. This equates to affecting about 13 percent of the total (48,292 acres) Mexican spotted owl restricted habitat on the Coconino NF's portion of the project area. Note: There are 8,388 acres of restricted habitat total across both forests that would be managed for 110-150 square feet basal area.

Work would be accomplished incrementally over a 10-year period. On average, less than 1,000 acres of PAC habitat would be treated per year. This is expected to balance the need to reduce the risk of crown fire while allowing for monitoring and feedback loops that would allow management to be adaptive.

**Relationship to Forest Goals and Objectives**: The amendment is consistent with forest plan goals for wildlife and fish of managing habitat to maintain viable populations of wildlife and fish species, and improving habitat for selected species (Coconino National Forest plan, replacement page 22-1). It is consistent with the goal to improve habitat for listed threatened, endangered, or sensitive species of plants and animals, and other species as they become threatened or endangered (Coconino National Forest plan, replacement page 23). The amendment is consistent with goals and objectives by protecting conditions and structures used by Mexican spotted owls where they exist and to set other stands on a trajectory to grow into replacement nest habitat or to provide conditions for foraging and dispersal (USDI FWS 1995, 2012).

**Relationship to Management Prescriptions**: Mechanical thinning up to 17.9 inches d.b.h. in 18 Mexican spotted owl PACs would affect less than 1 to 3 percent of the forestwide management area acres (table 111). Using prescribed fire within 54 Mexican spotted owl PAC core areas (about 5,400 acres) would affect between 1 and 5 percent of the forestwide management area acres. Managing 6,299 acres of restricted habitat to a range of 110 to 150 square feet basal area would affect less than 1 percent to 3 percent of the forestwide management areas. The amendment intent is consistent with the management emphasis of providing for multiple uses that includes wildlife habitat and meeting Mexican spotted owl standards and guidelines which emphasize improving and maintaining the quality of the habitat (MA 3) and moving ponderosa pine toward desired forest structure, including northern goshawk and Mexican spotted owl habitats (MA 35).

**Relationship to Outputs:** Outputs identified in the forest plan are associated with MMBF of sawtimber sales and products (meet demand for timber while reducing conflict with other resources), MMBF of firewood sold and free use (provide access to firewood), grazing capacity, and permitted livestock use. The amendment would not affect outputs or change the long-term relationship between levels of goods (timber, firewood) and services. Due to the minimal acres affected, the amendment would not alter outputs on a forestwide basis or change the long-term relationship between levels of goods (timber, firewood) and services.

In comparison the forest's total suitable timber lands (626,326 acres), the amendment would affect about 1 percent of those lands. For this reason, mechanical treatment within PACs and the minimal (6,299) acres treated in restricted habitat do not measurably increase or decrease timber outputs or firewood availability. There would be no measurable effect to outputs on a forestwide basis or the long-term relationship between levels of goods (timber, firewood) and services from using prescribed fire in 54 core areas, managing restricted habitat up to 10 percent, managing restricted habitat for a basal area of 110 to 150 square feet, or deferring the final design of treatments and monitoring to the project's biological opinion. The amendment would not affect decisions that have been made through separate analyses on grazing capacity or permitted livestock use.

**Table 111. Alternative C Mexican spotted owl amendment 1 management area (MA) acres**

| MA | MA Description | Forestwide Acres | Proposed Amendment Acres | Forestwide Acres Affected (Percent) |
|---|---|---|---|---|
| **Mechanical Treatment Up to 17.9 inches d.b.h.** | | | | |
| MA 3 | Ponderosa pine below 40 percent slopes | 511,015 | 4,941 | 1 |
| MA 35 | Lake Mary watershed | 62,536 | 1,782 | 3 |
| MA 4, 10, 5, 9, 12, and 6 | See chapter 1, table 14 | 307,011 | 218 | less than 1 |
| **Prescribed Fire within 54 Mexican Spotted Owl PAC Core Areas** | | | | |
| MA 3 | Ponderosa pine below 40 percent slopes | 511,015 | 3,600 | 1 |
| MA 35 | Lake Mary watershed | 62,536 | 1,614 | 3 |
| MA 5 | Aspen | 3,450 | 186 | 5 |
| **110 to 150 Square Feet Basal Area in Mexican Spotted Owl Restricted Habitat** | | | | |
| MA 3 | Ponderosa pine below 40 percent slopes | 511,015 | 3,957 | 1 |
| MA 35 | Lake Mary watershed | 62,536 | 1,903 | 3 |
| MA 37 and MA 38 | Walnut Canyon and West | 20,566 to 36,298 | 312 | less than 1 |
| Various MAs | Various | | 127 | |

## Amendment 2. Management of Canopy Cover and Ponderosa Pine with an Open Reference Condition within Goshawk Habitat (Coconino NF)

### Background

Canopy cover is defined as "the percentage of a fixed area covered by the crowns of plants delimited by a vertical projection of the outermost perimeter of the spread of foliage" (Reynolds et al. 1992). Obtaining consistent results has been difficult; even the definition of the term is dependent on the method of measurement. To resolve this issue, the Forest Service used the Forest Vegetation Simulation (FVS) crown width model as the basis for developing stocking densities that would achieve desired canopy cover levels. Figure 62 displays general locations of goshawk habitat that is subject to canopy cover requirements in VSS 4 through VSS 6 on the forests.

Nonforested areas (interspaces) occur between individual trees, tree clumps, and tree groups. These nonforested areas (interspaces) are not equivalent to VSS 1. Whereas VSS 1 may provide openings in the short term, this structural stage is expected to regenerate tree cover in the long term. Refer to the silviculture report and the implementation plan (appendix D) which provides minimum stocking guidelines that have been developed to assure canopy cover requirements are met.

Approximately 195,640 acres (61 percent) of the forested areas (within the project area on the Coconino NF) have an open reference condition that corresponds to mollic-integrade soils. The desired condition is to have a portion of these acres (28,653 acres) managed as a relatively open forest with trees typically aggregated in small groups within a grass/forb/shrub matrix (Woolsey 1911, Cooper 1960, White 1985, Pearson 1950, Covington et a1.1997, Abella and Denton 2009). See the soils specialist report for detailed information.

## Amendment Description

In the "Vegetation Management – Landscapes Outside Goshawk Post-fledging Family Areas" and "Vegetation Management –Within Post-fledging Family Areas" section of the forest plan, a site-specific, nonsignificant plan amendment would: (1) add the desired percentage of interspace within uneven-aged stands to facilitate restoration, (2) add the interspace distance between tree groups, (3) add language clarifying where canopy cover is and is not measured, (4) allow 28,653 acres to be managed for an open reference condition which affects canopy cover guidelines for VSS 4 through VSS 6 groups and reserve trees, and (5) add a definition to the forest plan glossary for the terms interspaces, open reference condition, and stands.

The forest plan directs projects to manage for uneven-aged stand conditions within goshawk habitat. Forested groups consist of an interspersion of six vegetation structural stages (VSS 1 to VSS 6). For the purposes of this amendment, the following definitions apply:

- **Stands** are defined as a contiguous area of trees sufficiently uniform in forest type, composition, structure, and age class distribution, growing on a site of sufficiently uniform conditions to be a distinguishable unit. Four classification characteristics are generally used to distinguish forest stands: biophysical site (soils, aspect, elevation, plant community association, climate, etc.), species composition, structure (density, and age (1-aged, 2-aged, uneven-aged)), and management emphasis (administrative requirements and local management emphasis that will shape structure over time). Based upon Agency guidelines, the minimum stand mapping size is 10 acres.
- **Interspaces** are defined as the open space between tree groups intended to be managed for grass/forb/shrub vegetation during the long term. Interspaces may include scattered single trees.
- **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.

Edited or added verbiage is shown in **bold** in table 112.

**Table 112. Alternative C amendment 2 management of canopy cover and ponderosa pine with an open reference condition in goshawk habitat (Coconino NF)**

| Current Coconino NF Forest Plan Direction | Proposed New Guideline Language |
|---|---|
| **Landscapes Outside of Goshawk Post-fledging Areas** | |
| No similar direction in forest plan | **General: Within ponderosa pine stands, manage over time for uneven-aged stand conditions composed of heterogeneous mosaics of tree groups and single trees, with interspaces between tree groups. The size of tree groups, as well as sizes and shapes of interspaces, should be variable. Over time, the spatial location of the tree groups and interspaces may shift within the uneven-aged stand.** |
| General: The distribution of vegetation structural stages for ponderosa pine, mixed conifer and spruce-fir forests is 10 percent grass/forb/shrub (VSS 1), 10 percent seedling-sapling (VSS 2), 20 percent young forest (VSS 3), 20 percent mid-aged forest (VSS 4), 20 percent mature forest (VSS 5), 20 percent old forest (VSS 6). NOTE: The specified percentages are a guide and actual percentages are expected to vary + or – up to 3 percent (Coconino NF forest plan, page 65-9). | General: **For the areas managed for tree crown development**, the distribution of vegetation structural stages for ponderosa pine, mixed conifer and spruce-fir forests is 10 percent grass/forb/shrub (VSS 1), 10 percent seedling-sapling (VSS 2), 20 percent young forest (VSS 3), 20 percent mid-aged forest (VSS 4), 20 percent mature forest (VSS 5), and 20 percent old forest (VSS 6). Note: the specified percentages are a guide, and actual percentages are expected to vary plus or minus up to 3 percent. |
| The distribution of VSS, tree density, and tree age are a product of site quality in the ecosystem management area. Use site quality to guide in the distribution of VSS, tree density, and tree ages. Use site quality to identify and manage dispersal post-fledging family areas and nest habitat at 2 - 2.5 mile spacing across the landscape (Coconino NF forest plan, page 65-9). | No Change |
| Snags are 18" or larger d.b.h. and 30 feet or larger in height, downed logs are 12 inches in diameter and at least 8 feet long, woody debris is 3 inches or larger on the forest floor, canopy cover is measured with vertical crown projection on average across the landscape (Coconino NF forest plan, page 65-9). | Snags are 18" or larger d.b.h. and 30 feet or larger in height, downed logs are 12 inches in diameter and at least 8 feet long, woody debris is 3 inches or larger on the forest floor, **canopy cover as defined by vertical crown projection is evaluated within mid-aged to old forest vegetation structural stage groups (VSS 4, 5, and 6).** |
| No corresponding forest plan direction | **Develop and maintain a highly diverse vegetation mosaic: 30 to 90 percent of the uneven-aged stand should be under ponderosa pine and deciduous tree crowns. Within areas managed for an open reference condition, 10 to 30 percent of the uneven-aged stand should be under ponderosa pine and deciduous tree crowns.** |
| No corresponding forest plan direction | **Tree group spatial distribution may be highly variable based on local site and current conditions; the interspaces between groups may range from 20 to 200 feet, but generally between 25 and 100 feet apart from drip line to adjacent drip line. This spacing of groups is not affected by single trees in the interspace.** |

| Current Coconino NF Forest Plan Direction | Proposed New Guideline Language |
|---|---|
| No corresponding forest plan direction | **Each tree group is generally dominated by one vegetation structure stage. The spatial arrangement of trees, high dispersion of vegetation structural stage diversity, and interspaces comprise each uneven-aged forest stand. Collectively these stands aggregate to uneven-aged forest landscapes, similar to natural conditions.** |
| The order of preferred treatment for woody debris is: (1) prescribed burning, (2) lopping and scattering, (3) hand piling or machine grapple piling, (4) dozer piling (Coconino NF forest plan, page 65-9). | No Change |
| Canopy Cover: Canopy cover guidelines apply only to mid-aged to old forest structural stages (VSS 4, VSS 5, and VSS 6) and not to grass/forb/shrub to young forest structural stages (VSS 1, VSS 2, and VSS 3) (Coconino NF forest plan, page 65-9). | Canopy Cover: Canopy cover guidelines apply only to mid-aged to old forest structural stage **groups** (VSS 4, VSS 5, and VSS 6) and not to grass/forb/shrub to young forest structural stage **groups** (VSS 1, VSS 2, and VSS 3) **or in interspaces, natural meadows, grasslands, or other areas not managed for forest cover.** |
| No corresponding forest plan direction | **Canopy cover is evaluated at the group level within mid-aged to old forest structural stages groups (VSS 4, VSS 5 and VSS 6) and not within grass/forb/shrub to young forest structural stage groups (VSS 1, VSS 2, and VSS 3) or in interspaces, natural meadows and grasslands, or other areas not managed for forest conditions.** |
| Spruce-Fir: Canopy cover for mid-aged forest (VSS 4) should average 1/3 60 percent and 2/3 40 percent, mature forest (VSS 5) should average 60+ percent, and old forest (VSS 6) should average 60+ percent. Maximum opening size is 1 acre with a maximum width of 125 feet. Provide 2 groups of reserve trees per acre with 6 trees per group when opening size exceeds 0.5. Leave at least 3 snags, 5 downed logs, and 10–15 tons of woody debris per acre (Coconino NF forest plan, page 65-9). | No Change |
| Mixed Conifer: Canopy cover for mid-aged forest (VSS 4) should average 1/3 60+ percent and 2/3 40+ percent, mature forest (VSS 5) should average 50+ percent, and old forest (VSS 6) should average 60+ percent. Maximum opening size is up to 4 acres with a maximum width of up to 200 feet. Retain 1 group of reserve trees per acre of 3–5 trees per group for openings greater than 1 acre in size. Leave at least 3 snags, 5 downed logs, and 10–15 tons of woody debris per acre (Coconino NF forest plan, page 65-10). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Guideline Language |
|---|---|
| Ponderosa Pine: Canopy Cover for mid-aged forest (VSS 4) should average 40+ percent, mature forest (VSS 5) should average 40+ percent, and old forest (VSS 6) should average 40+ percent. Opening size is up to 4 acres with a maximum width of up to 200 feet. One group of reserve trees, 3–5 trees per group, will be left if the opening is greater than an acre in size. Leave at least 2 snags per acre, 3 downed logs per acre, and 5–7 tons of woody debris per acre (Coconino NF forest plan, page 65-10). | Ponderosa Pine: Canopy cover for mid-aged forest (VSS 4) should average 40+ percent, mature forest (VSS 5) should average 40+ percent, and old forest (VSS 6) should average 40+ percent. Opening size is up to 4 acres with a maximum width of up to 200 feet. One group of reserve trees, three to five trees per group, will be left if the **created regeneration** opening is greater than an acre in size. Leave at least two snags per acre, three downed logs per acre, and 5–7 tons of woody debris per acre.<br>**In acres managed for an open reference condition, canopy cover guidelines for VSS 4 through VSS 6 groups do not apply. One group of reserve trees, with a minimum of one to two trees per group will be left if the interspace size is greater than an acre in size. Interspace size is up to 4 acres.** Leave at least two snags per acre, three downed logs per acre, and 5–7 tons of woody debris per acre |
| Woodland: manage for uneven age conditions to sustain a mosaic of vegetation densities (overstory and understory), age classes, and species composition well distributed across the landscape. Provide for reserve trees, snags, and down woody debris (Coconino NF forest plan, page 65-10). | No Change |
| **Vegetation Management – Within Post-fledging Family Areas** | |
| General: Provide for a healthy sustainable forest environment for the post-fledging family needs of goshawks. The principle difference between within the post-fledging family area and outside the post-fledging family area is the higher canopy cover within the post-fledging family area and smaller opening size within the post-fledging family area. Vegetative Structural Stage distribution and structural conditions are the same within and outside the post-fledging family area (Coconino NF forest plan, page 65-10). | No Change |
| No similar direction in forest plan | **Canopy cover is evaluated at the group level within mid-aged to old forest structural stages groups (VSS 4, VSS 5 and VSS 6) and not within grass/forb/shrub to young forest structural stage groups (VSS 1, VSS 2, and VSS 3) or in interspaces, natural meadows and grasslands, or other areas not managed for forest conditions.** |
| Spruce-fir: Canopy Cover for mid-aged forest (VSS 4) should average 60+ percent and for mature (VSS 5) and old forest (VSS 6) should average 70+ percent (Coconino NF forest plan, page 65-10). | No Change |
| Mixed Conifer: Canopy Cover for mid-aged (VSS 4) to old forest (VSS 6) should average 60+ percent. | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Guideline Language |
|---|---|
| Ponderosa Pine: Canopy Cover for mid-aged forest (VSS 4) should average 1/3 60+ percent and 2/3 50+ percent. Mature (VSS 5) and old forest (VSS 6) should average 50+ percent (Coconino NF forest plan, page 65-10). | No Change |
| No corresponding forest plan direction | **Develop and maintain a highly diverse vegetation mosaic: 30 to 90 percent of the uneven-aged stand should be under ponderosa pine and deciduous tree crowns.** |
| No corresponding forest plan direction | **Tree group spatial distribution may be highly variable based on local site and current conditions; the interspaces between groups may range from 20 to 200 feet, but generally between 25 and 100 feet apart from drip line to adjacent drip line. This spacing of groups is not affected by single trees in the interspace.** |
| No corresponding forest plan direction | **Each tree group is generally dominated by one vegetation structure stage. The spatial arrangement of trees, high dispersion of VSS structural stage diversity, and interspaces comprise each uneven-aged forest stand. Collectively these stands aggregate to uneven-aged forest landscapes, similar to natural conditions.** |
| **Glossary** | |
| No corresponding forest plan language | **Interspaces: The open space between tree groups intended to be managed for grass/forb/shrub vegetation during the long term. Interspaces may include scattered single trees.** |
| No corresponding forest plan language | **Open reference condition: 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.** |
| No corresponding forest plan language | **Stands: Contiguous area of trees sufficiently uniform in forest type, composition, structure, and age class distribution, growing on a site of sufficiently uniform conditions to be a distinguishable unit.** |

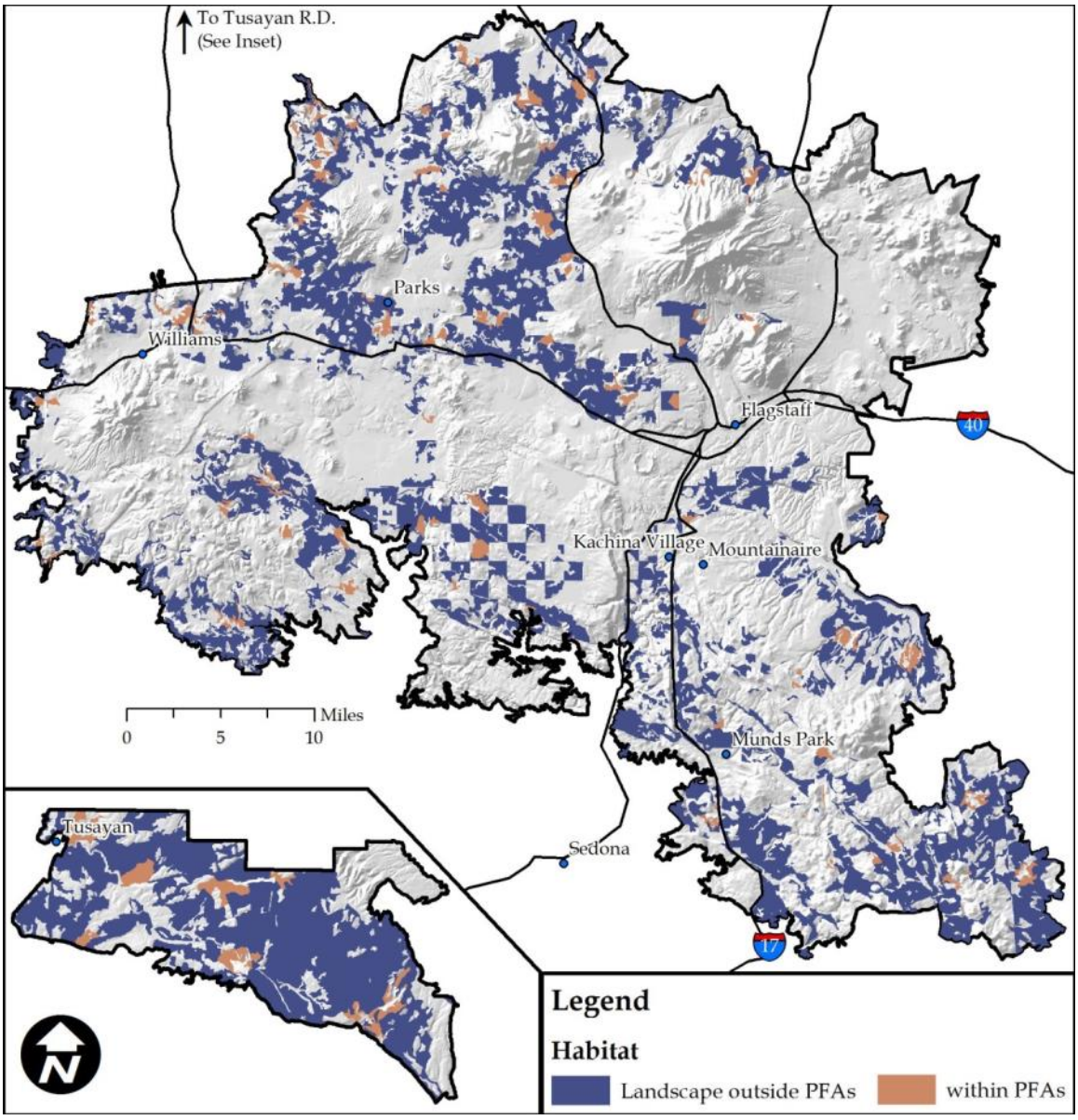


**Figure 62. Alternative C general location of goshawk habitat subject to canopy cover requirements in VSS 4 to VSS 6 (Coconino NF and Kaibab NF)**

*Note: Although goshawk habitat on the Kaibab NF is reflected in this figure, only the Coconino NF plan has explicit canopy cover requirements in VSS4 to VSS 6 and subject to a plan amendment.

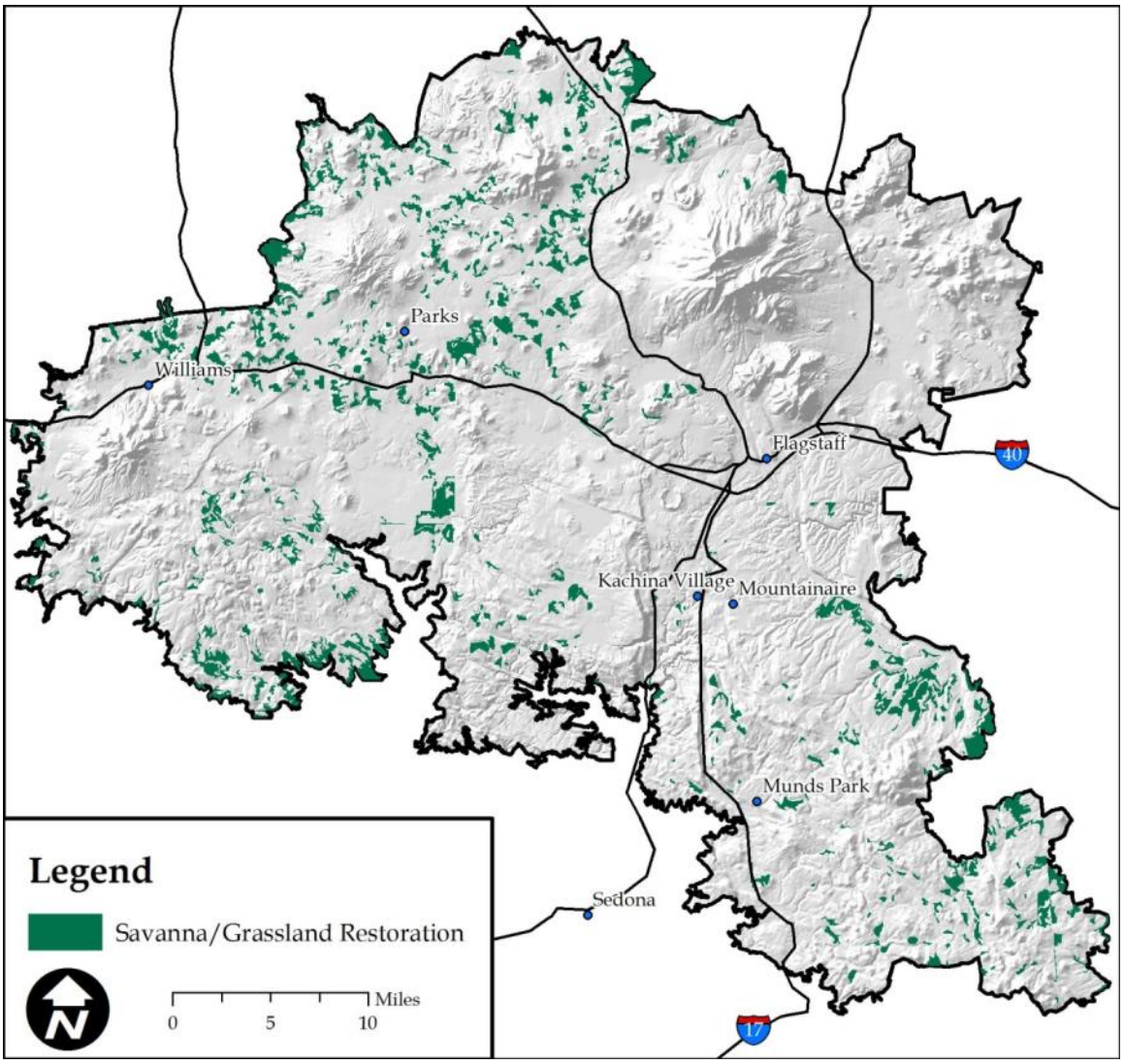


**Figure 63. Alternative C amendment 2 general locations of savanna and grassland restoration treatments (Coconino NF)**

*Note: Although Kaibab NF treatments are reflected in this figure, only the Coconino NF is subject to a plan amendment.

## Significance Evaluation

Per FSM 1926.51, changes to the land management plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for long-term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further onsite analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long term land and resource management.
3. Minor changes in standards and guidelines.
4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

Per FSM 1926.52, circumstances that may cause a significant change to a land management plan include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (see section 219.10(e) of the planning regulations in effect before November 9, 2000 (see 36 CFR parts 200 to 299, revised as of July 1, 2000)), and
2. 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 during the planning period.

Analysis demonstrated that the proposed amendment is nonsignificant (FSM 1926.51) because the actions would not significantly alter the multiple-use goals and objectives for long term land and resource management and the actions. How actions could potentially affect timing, location and size, relationship to forest goals, objectives, outputs, and management prescriptions was evaluated.

**Timing**: In terms of timing, the forest plan has been in place (and amended) since 1987 and plan revision efforts are underway.

**Location and Size**: There is approximately 892, 545 acres of goshawk habitat on the Coconino NF (Cote and Green 2014 personal communication email).

The canopy cover portion of the amendment would generally affect 137,242 acres (15 percent) of all goshawk habitat on the Coconino NF.

- The canopy cover portion of the amendment that clarifies measurement occurs at the group level-only would affect 98,986 acres (11 percent) of all goshawk habitat on the Coconino NF.
- Managing 28,653 acres of ponderosa pine for an open reference condition would affect approximately 3 percent of all suitable goshawk habitats on the forest.

For these reasons, location and size was determined to be nonsignificant. The amendment would facilitate moving over 137,000 acres toward the desired forest structure (groups and clumps with herbaceous openings) that maximizes prey base species habitat and allows for the reintroduction of fire into the ecosystem; and moves over 28,000 acres toward historic reference conditions.

**Relationship to Forest Goals and Objectives**: Alternative C would meet goshawk forest plan canopy cover requirements in VSS 4 to 6 in all acres except the 28,653 acres managed for an open reference condition. In all acres but the open reference condition acres, actions would move toward the desired VSS size class distribution.

The amendment is consistent with forest goals for wildlife and fish of managing habitat to maintain viable populations of wildlife and fish species and improve habitat for selected species (Coconino National Forest plan, replacement page 22-1). It is consistent with the goal to improve habitat for listed threatened, endangered, or sensitive species of plants and animals and other species as they become threatened or endangered (Coconino National Forest plan, replacement page 23).

**Relationship to Management Prescriptions:** Table 113 displays the acres associated with Coconino NF management areas (MAs).

**Canopy Cover:** The acres of forestwide management areas affected by the canopy cover portion of the amendment (137,242 acres total) would range from 3 percent (MA 4) to 35 percent (MA 38). The amendment is specific to this project and would not impose definition and clarification requirements on the future management of canopy cover within goshawk habitat.

**Open Reference Condition:** The acres of forestwide management areas affected by the open reference condition portion of the amendment (28,653 acres total) would range from 1 percent (MA 10) to 9 percent (MA 35). The amendment is consistent with the management emphasis of providing for multiple uses that includes wildlife habitat (MA 3) and moving ponderosa pine toward desired forest structure, including northern goshawk habitats (MA 35). The amendment is specific to this project and would not impose requirements on future management of the 28,653 acres of goshawk non- post-fledging family areas; however, forest plan revision decisions may.

**Table 113. Alternative C amendment 2 management area (MA) acres**

| MA | MA Description | Forestwide Acres | Proposed Amendment Acres | Forestwide Acres Affected (Percent) |
|---|---|---|---|---|
| **Canopy Cover** | | | | |
| MA 3 | Ponderosa pine below 40 percent slopes | 511,015 | 92,251 | 18 |
| MA 35 | Lake Mary watershed | 62,536 | 14,263 | 23 |
| MA 38 | West | 36,298 | 12,844 | 35 |
| MA 6 | Unproductive timber lands | 67,146 | 4,929 | 7 |
| MA 37 | Walnut Canyon | 20,566 | 3,656 | 18 |
| MA 20 | Highway 180 corridor | 7,608 | 2,087 | 27 |
| MA 4 | Ponderosa pine and mixed conifer greater than 40 percent | 46,382 | 1,612 | 3 |
| MA 36 | Schultz | 21,289 | 798 | 4 |
| *MA 28, 4, 9, 5, 8, 10, 7, 34, 12, 15, 14 | See chapter 1, table 14 | 511,301 | 4,804 | less than 1 |
| **Open Reference Condition** | | | | |
| MA 3 | Ponderosa pine below 40 percent slopes | 511,015 | 19,010 | 4 |
| MA 35 | Lake Mary watershed | 62,536 | 5,840 | 9 |
| MA 10 | Transition grassland | 160,494 | 1,288 | 1 |
| MA 38 | West | 36,298 | 1,073 | 3 |
| **MA 6, 20, 4, 37, 9, 36, 7, 12, 34, 28, 5 | See chapter 1, table 14 | 221,928 | 1,806 | less than 1 |

*All MA acres ranging from 1 to 1,215 were aggregated into the various categories.
**All MA acres ranging from 3 to 655 were aggregated into the various categories.

**Relationship to Outputs:** Outputs identified in the forest plan are associated with MMBF of sawtimber sales and products (meet demand for timber while reducing conflict with other resources), MMBF of firewood sold and free use (provide access to firewood), grazing capacity,

and permitted livestock use. The amendment would not affect outputs or change the long-term relationship between levels of goods (timber, firewood) and services. No portion of the amendment would affect decisions that have been made through separate analyses on grazing capacity or permitted livestock use.

The canopy cover portion of the amendment provides clarification and disclosure of methods for meeting forest plan requirements. It has no relationship to outputs or to the relationship between the level of goods (timber, firewood) and services and would not result in a change in land productivity or timber suitability classification.

**Timber Suitability**: The silviculture analysis evaluated the impact of treatments on timber suitability (see silviculture report). Within the analysis area approximately 214,200 acres on the Coconino NF were considered in the timber suitability class. Unsuitable lands include areas where prescription would preclude timber production such as critical wildlife habitat and developed recreation sites as well as areas where irreversible resource damage occur. Table 114 shows total acres for the Coconino NF as reported in the forest plan and used in the timber suitability calculation.

**Table 114. Timber suitability calculation for the Coconino NF**

| Land Category | Coconino Acres |
|---|---|
| Gross area | 1,821,495* |
| Area not administered by the Forest Service (Camp Navajo and private lands) | |
| NFS lands | 1,821,495 |
| Non-forested | -325,945 |
| Irreversible resource damage | |
| Adequate restocking not assured | |
| Withdrawn (219.14(a)(4)) | -101,401 |
| **Subtotal: Not-suitable for timber production** | **-427,346** |
| **Lands Tentatively Suitable for Timber production** | **1,394,149** |
| Management prescriptions preclude timber production | -593,102 |
| Management requirements cannot be met | -154,214 |
| Not cost efficient in meeting timber objectives | |
| Forested Lands not appropriate for timber harvest | -13,359 |
| Experimental Forest | -6,148 |
| **Subtotal: Not appropriate for timber production** | **-766,823** |
| **Lands suitable for timber production** | **627,326** |

Note: Acreages of NFS lands may vary slightly over time due to factors such as resurvey, improved mapping technology, and updates to corporate GIS layers.

*Based on 1987 Coconino Forest Plan (Appendix H)

The Coconino Forest Plan contains the following guidance that directs the management of suitable and unsuitable land.

- On forested lands identified as suitable for commercial timber production, design timber management activities to integrate considerations for economics, water quality, soils, wildlife habitat, recreation opportunities, visual quality, and other values.
- Evaluate timber lands adjacent to the Rim within the first decade to determine timber suitability.
- Management for the ponderosa pine/mixed conifer stands and the big tooth maple stands is the same as MA 3, foreground retention and for areas adjacent to foreground Retention lands. See MA 5 for direction for the aspen stands.
- Manage the timber resource to provide a sustained-yield of forest products through integrated stand management.
- Develop and implement a sustained-yield program for firewood and other miscellaneous forest products including posts, poles, Christmas trees, and wildings. Emphasize uneven-aged management for timber cutting areas.

Unsuitable lands within the Coconino NF are unproductive timber lands are within the ponderosa pine vegetation types.

- They are unsuitable for timber harvest because they fall in at least one of the following two categories.
- They do not meet the minimum standards for productivity which is Site Index 40 and/or 20 cubic feet per acre per year.
- There is not reasonable assurance that such lands can be adequately restocked as required by section 219.27(c)(13) of the planning regulations.

### *Timber Suitability Consistency Evaluation by Forest Vegetation Community*

#### Ponderosa Pine (PP)

The ponderosa pine forest vegetation community generally occurs at elevations ranging from 5,800 to 9,200 feet and is dominated by ponderosa pine and commonly includes other species such as oak, juniper, and pinyon. Species such as aspen, Douglas-fir, white fir, and blue spruce may also be present, but occur infrequently as small groups or individual trees. This forest vegetation community typically occurs with an understory of grasses and forbs although it sometimes includes shrubs.

The majority of the project area is the ponderosa pine plant association. Associations are named for the most shade tolerant tree species successfully regenerating, and for an understory species (shrub or herb) which is most diagnostic of the site. The ponderosa pine associations within the project area include two major sub-types: Ponderosa pine-bunchgrass and ponderosa pine-Gambel oak.

Ponderosa pine commonly grows in pure stands and currently is found in even-aged[3] and uneven-aged[4] structural conditions across the area. The open park-like stands characteristic of the

[3] Even-aged – pertaining to a stand composed of a single age class in which the tree ages are within + 20 percent variability based upon the mature stand age (SAF 1998).

reference conditions for ponderosa pine forests promoted greater faunal diversity and fire resilience than the dense stands of today. Ponderosa pine forests within the project are generally denser and more continuous than in reference conditions (See Chapter 1) and accumulations of forest litter and woody debris are much higher than would have occurred under the historic disturbance regime. Lack of fire disturbance has led to increased tree density and fuel loads that increase the risk of uncharacteristically intense wildfire and drought-related mortality. When fires occur under current conditions, they tend to kill a lot of trees, including the large and old trees. These trees take longer to replace, moving the forest further from desired conditions, and increasing the time it would take to return to desired conditions. There is a high risk of insect and/or disease outbreak, which is also a function of increased tree density (see Forest Health Section). Within this plant series this project would not change any of the timber suitability acres with the proposed treatments.

#### Gambel Oak within Ponderosa Pine Forest

Gambel oak is frequently the only deciduous tree in otherwise pure ponderosa pine forests in the 4FRI analysis area, adding diversity to these forests. A portion of the stands have a large enough component of Gambel oak to be considered pine-oak habitat for Mexican spotted owl (as described in the 1996 forest plan amendment for Mexican spotted owl and Mexican spotted owl Recovery Plan). Similar to pure ponderosa pine forests, pine-Gambel oak forests have become altered since Euro-American settlement in the late 1800s resulting in an overall increase in small- and medium sized Gambel oak stems and a more simplified forest structure (Abella, 2008). Oak management strategies within this project includes conservation of all existing large, old oaks, maintaining a variety of growth forms and managing for densities similar to the range of variability of oak's evolutionary environment. Within this plant series this project would not change any of the timber suitability acres with the proposed treatments.

## Amendment 3. Effect Determination for Cultural Resources

### Background

The Coconino NF forest plan as written has some conflicting direction regarding managing significant or potentially significant sites. One standard (which would be amended for this project) directs management to strive to achieve a "no effect" determination. A second standard (which would be deleted for this project) directs management to achieve a "no effect" determination in consultation with SHPO and ACHP (36 CFR 800). An amendment is proposed to recognize that there could be effects that are not adverse, and that there could be adverse effects that may or may not be fully mitigated.

### Amendment Description

The amendment deletes the standard that addresses achieving a "no effect" determination and adds the words "or no adverse effect" to the remaining standard. Management strives to achieve a "no effect" or "no adverse effect" determination. Table 115 displays current and proposed forest plan language. New or edited text is displayed in **bold** text.

[4] Uneven-aged – pertaining to a stand with trees of three or more distinct age classes (SAF 1998).

**Table 115. Alternative C amendment 3 effect determination for cultural resources**

| Current Coconino NF Forest Plan Direction | Proposed New Standards and Guidelines Language |
|---|---|
| **Cultural Resources** | |
| Consult with Native Americans when projects and activities are planned in sites or areas of known religious or cultural importance (Coconino NF forest plan, page 52). | No Change |
| Make boughs and herbaceous plant parts used for Native American religious and ceremonial purposes available under conditions and procedures that minimize restrictions, consistent with laws, regulations, and agreements with tribes. The written authorization to the Hopi Tribe for gathering without specific individual permits is an example. This authorization does not include such items as firewood removed from the forest or Kiva logs, which do require a permit (Coconino NF forest plan, page 52). | No Change |
| The forest complies with the National Historic Preservation Act (NHPA) in decisions involving interactions between cultural and other resources. Cultural resources are managed in coordination with the State Historic Preservation Plan (SHPO). Until evaluated, the minimal level of management for all sites is avoidance and protection (Coconino NF forest plan, page 52). | No change |
| Specific standards and guidelines derived from the settlement agreement for the Save the Jemez lawsuit are subject to adjustment, should that agreement be modified. In that event an amendment to the forest plan will be issued (Coconino NF forest plan, page 52). | No Change |
| Project undertakings are inventoried for cultural resources and areas of Native American religious use. Inventory intensity complies with regional policy, and the settlement agreement for the Save The Jemez Lawsuit, and is determined in consultation with the State Historic Preservation Officer (SHPO). Generally, inventory standards are:<br>One hundred percent survey of all projects causing complete surface disturbance;<br>When less than 100 percent survey is deemed appropriate, the specific sample fraction surveyed is determined in consultation with the State Historic Preservation Officer and is generally greater than 10 percent. Factors determining when sampling is appropriate include projects with dispersed or minimal impacts, low expected archaeological site density, ground cover, and types of archaeological sites present in the area;<br>Consultation with appropriate Native American groups;<br>Consultation with the SHPO, and if necessary, the Advisory Council on Historic Preservation (ACHP), before project implementation (Coconino NF forest plan, page 52-1). | No Change |
| Significant, or potentially significant, inventoried sites are managed to achieve a “No Effect” determination, in consultation with the SHPO and ACHP (36 CFR 800) (Coconino NF forest plan, page 53). | **Standard would be removed** |
| Monitoring during and after project implementation is done to document site protection and condition (Coconino NF forest plan, page 53). | No Change |
| Management strives to achieve a “No Effect” determination (Coconino NF forest plan, page 53). | **Management strives to achieve a “no effect” or “no adverse effect” determination** |

| Current Coconino NF Forest Plan Direction | Proposed New Standards and Guidelines Language |
|---|---|
| When sample surveys, rather than 100 percent survey coverage, are done for project clearances, survey locations and sample intensity are based on areas of greatest project impact, likely locations for cultural resource sites based on archaeological experience, land management planning, dispersion of sample coverage, certain topographic features specified in the Save the Jemez lawsuit settlement agreement, and likely areas based on the Forest site density predictions (Coconino NF forest plan, page 53). | No Change |
| Identified sites are evaluated for their National Register eligibility when they are severely damaged, when they will be impacted by an undertaking, or information about the uniqueness, commonness, and characteristics of their site class are sufficiently known to make an informed decision. Sites for which determinations of eligibility have not been made are managed as if they are eligible, unless consultation with the SHPO indicates otherwise (Coconino NF forest plan, page 53). | No Change |
| For each full-time professional cultural resource specialist employed by the forest, at least two site nominations, one archaeological district nomination, or one thematic or multiple resource nomination will be made each year to the National Register of Historic Places. Or, alternatively, the forest will coordinate with other forests to prepare a joint district, thematic, or multiple resource nomination (Coconino NF forest plan, page 53). | No Change |
| Inventoried sites allocated to management categories, and/or eligible or potentially eligible for the NRHP or potentially eligible for the NRHP are systematically revisited by regularly scheduled patrols, and by cultural resources specialists to assess natural deterioration, vandalism, or pilfering. Inspections are made at least biannually of properties that have been listed in or nominated to the National Register. Sites most susceptible to natural deterioration and/or human disturbance are monitored frequently. Rapid natural deterioration, or susceptibility to such, requires stabilization, restoration, and/or data recovery. Vandalism or pilfering requires protective measures such as signing, remote sensing, increased patrolling, investigations, stabilization, restoration, and/or data recovery. Specific sites or areas may be closed to off-road driving and withdrawn from mineral entry. Law enforcement is planned and implemented to minimize resource damage and user conflicts. Signing is appropriate to inform and educate the public and minimize direct law enforcement activity. Aggressively pursue violations (Coconino NF forest plan, page 53). | No Change |
| Continue to interpret cultural resources through lectures, tours, papers, reports, publications, brochures, displays, films, trails, signs, and other opportunities. (Coconino NF forest plan, page 54). | No Change |
| Develop a program to complete 100 percent coverage of the Forest's cultural resource inventory by 2000 (Coconino NF forest plan, page 54). | No Change |

| Current Coconino NF Forest Plan Direction | Proposed New Standards and Guidelines Language |
|---|---|
| The first priorities for cultural resources protection, enhancement, and interpretation are those sites that are easily accessible, have major interpretive potential, or are in major need of repair. Priority sites for signing are the C. Hart Merriam Base Camp, Honanki Cliff Dwellings, Elden Pueblo, Sacred Mountain, Palatki Cliff Dwellings, and Clear Creek Ruins. Priority sites for repair and stabilization are Honanki Cliff Dwellings, Palatki Cliff Dwellings, Sacred Mountain, Clear Creek Cliff Dwelling, and General Springs Cabin. Priority sites for developing interpretive brochures are Elden Pueblo, Sacred Mountain, Red Tank Draw Petroglyphs, Honanki Cliff Dwellings, Palatki Cliff Dwellings, and Clear Creek Ruins. Priorities are to:<br>Survey to clear projects.<br>Survey to fill in gaps in existing inventory coverage.<br>Survey areas of known high site densities.<br>Survey areas that would do the most to answer current archaeological questions (Coconino NF forest plan, page 54). | No Change |
| Computerize cultural resource site information by 1990 (Coconino NF forest plan, page 54). | No Change |
| Maintain a form for tracking compliance of each undertaking with the requirements of the National Historic Preservation Act (Coconino NF forest plan, page 54). | No Change |
| Stabilize or repair damaged National Register sites or other sites funded by regional priority (Coconino NF forest plan, page 54). | No Change |
| Continue to develop the Elden Pueblo Interpretive Site and the cooperative education program with the Museum of Northern Arizona (Coconino NF forest plan, page 54). | No Change |
| Encourage universities to conduct summer field schools to assist in cultural resource survey and excavation work and to provide the forest with scientific knowledge (Coconino NF forest plan, page 54). | No Change |
| Periodically focus media attention on Elden Pueblo and/or other sites to educate the public and further volunteer interest in resource management. Work with community organizations, businesses, and other agencies to promote Arizona Archaeology Week. Feature significant finds and significant damage in the media to increase public awareness of benefits and problems (Coconino NF forest plan, page 54). | No Change |

## Significance Evaluation

Per FSM 1926.51, changes to the land management plan that are not significant can result from:

1. Actions that do not significantly alter the multiple-use goals and objectives for long term land and resource management.
2. Adjustments of management area boundaries or management prescriptions resulting from further onsite analysis when the adjustments do not cause significant changes in the multiple-use goals and objectives for long term land and resource management.
3. Minor changes in standards and guidelines.

4. Opportunities for additional projects or activities that will contribute to achievement of the management prescription.

Per FSM 1926.52, circumstances that may cause a significant change to a land management plan include:

1. Changes that would significantly alter the long-term relationship between levels of multiple-use goods and services originally projected (see section 219.10(e) of the planning regulations in effect before November 9, 2000 (see 36 CFR parts 200 to 299, revised as of July 1, 2000)), and
2. 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 during the planning period.

The proposed amendment is nonsignificant (FSM 1926.51) because multiple-use goals and objectives for long term land and resource management and its actions would not be altered. How the amendment could potentially affect timing, location and size, relationship to forest goals, objectives, outputs, and management prescriptions was evaluated.

**Timing**: In terms of timing, the forest plan has been in place (and amended) since 1987, and plan revision efforts are underway.

**Location and Size**: Amendment 3 is specific to the 355,707 acres of proposed treatments in this project. In alternative C this would affect about 20 percent of the Coconino NF (which totals 1,821,495 acres).

This would not have an important effect on the entire land management plan or a large portion of the planning area. For this reason, location and size was determined to be nonsignificant.

**Relationship to Forest Goals and Objectives**: The amendment would not affect attainment of forest goals and objectives for cultural resources. Cultural resource sites would be located and protected from project activities according to direction in FSM 2360 and 2430 (Coconino NF forest plan, page 50) and the requirements of 36 CFR 800 including 36 CFR 800.5 which provides direction for assessing adverse effects and proposing a finding of no adverse effect. Consultation with AZ SHPO would occur as required and regulation 36 CFR 800 would be followed and met.

**Relationship to Management Prescriptions**: The amendment would apply to all 23 management areas (MAs) as described in the Coconino National Forest plan (pages 46 to 206-113) and in chapter 1 of the DEIS. The amendment would not affect the management of the management areas. All cultural resources are currently managed to minimize impacts and to achieve a “no effect” or “no adverse effect” determination whenever possible, in consultation with AZ SHPO, the council, and other consulting parties.

**Relationship to Outputs:** Outputs identified in the forest plan are associated with MMBF of sawtimber sales and products (meet demand for timber while reducing conflict with other resources), MMBF of firewood sold and free use (provide access to firewood), grazing capacity, and permitted livestock use. The amendment would not affect outputs or change the long-term relationship between levels of goods (timber, firewood) and services.

The amendment would not affect outputs or change the long-term relationship between levels of goods (timber, firewood) and services. All cultural resources are managed to minimize impacts and to achieve a “no effect” or “no adverse effect” determination whenever possible, in

consultation with AZ SHPO, the council, and other consulting parties regardless of forest plan desired outputs.

# Alternative D – Coconino National Forest Site-Specific Nonsignificant Forest Plan Amendments

## Amendment 1. Mexican Spotted Owl Habitat Management (Coconino NF)

### Amendment Description

This amendment is the same as described for alternative B in that the amendment allows mechanical treatment up to 16 inches d.b.h. in 18 PACs Mexican spotted owl PACs. Although alternative D reduces the acres that would receive prescribed fire, the amendment would still be required to address mechanical treatment above 9 inches d.b.h., eliminating incremental treatments within PACs, and deferring monitoring to the project's U.S. Fish and Wildlife Service biological opinion. Figure 64 displays mechanical Mexican spotted owl PAC treatments locations. No prescribed fire would occur within PACs.

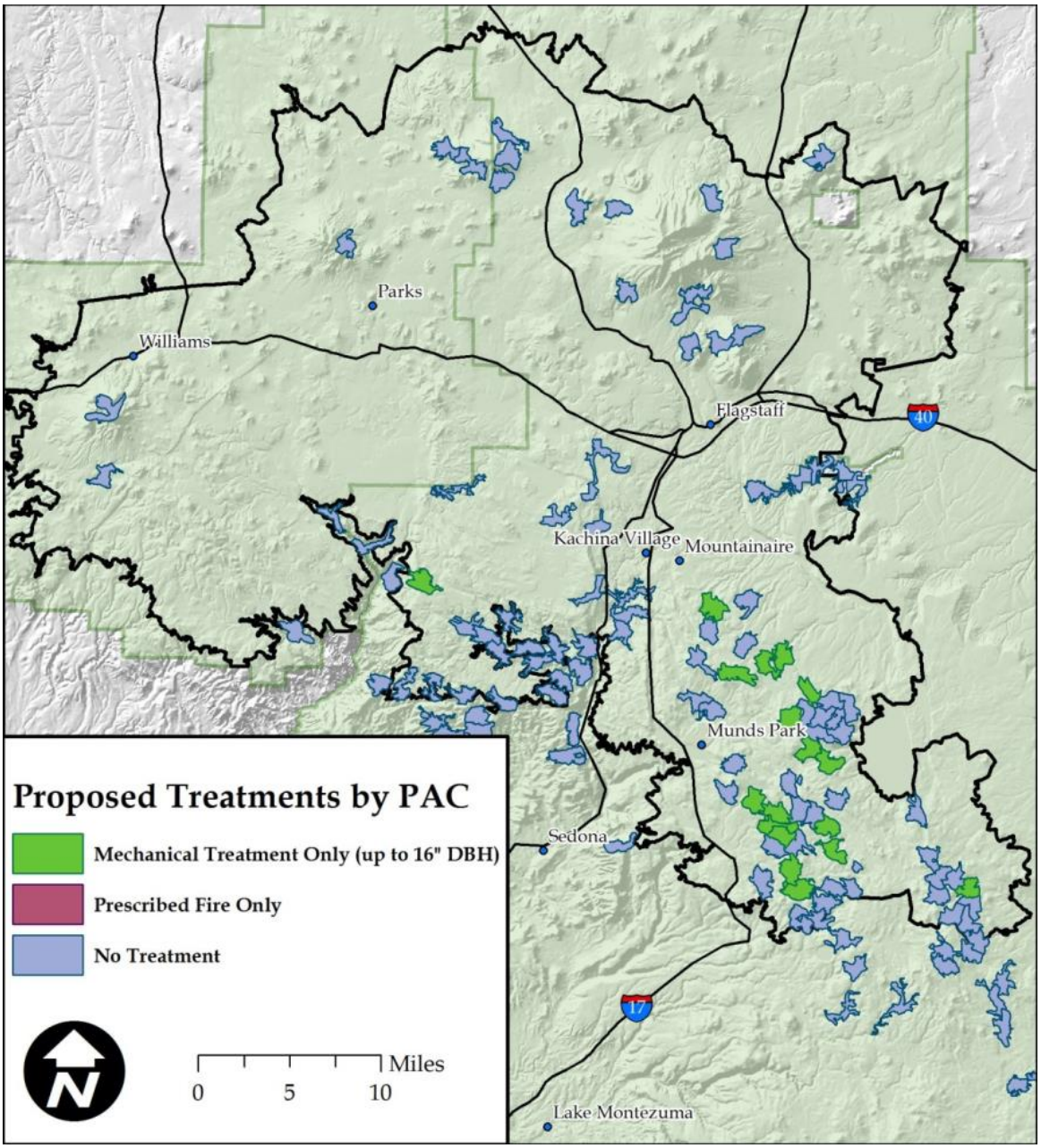


**Figure 64. Alternative B amendment 1 Mexican spotted owl PAC treatments**

## Amendment 2. Management of Canopy Cover and Ponderosa Pine with an Open Reference Condition within Goshawk Habitat (Coconino NF)

This amendment is similar to alternative B. The key difference between the alternatives is the acres that would receive prescribed fire. In alternative D, the acres of prescribed fire would be reduced by about 69 percent, from 583,330 acres in alternative B to 178,441 acres. Any difference in acres of prescribed fire would not eliminate the need for a plan amendment that addresses managing acres for an open reference condition.

## Amendment 3. Effect Determination for Cultural Resources (Coconino NF)

Amendment 3 is the similar to alternative B. However, 331,794 acres or 18 percent of the Coconino NF would be affected by the amendment. The reduction in acres to receive prescribed fire in alternative D would not eliminate the need for a plan amendment that addresses managing for “no effect” or “no adverse effect” for heritage resources.