



United States Department of Agriculture

Santa Fe Mountains Landscape Resiliency Project

Draft Decision Notice and Finding of No Significant Impact

Española and Pecos-Las Vegas Ranger Districts
Santa Fe County
Santa Fe National Forest
New Mexico



Forest Service

Santa Fe
National Forest

Española and Pecos-
Las Vegas Ranger Districts

December 2022

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ACRONYMS AND ABBREVIATIONS

ATV	all-terrain vehicle
BMP	best management practice
CFR	Code of Federal Regulations
dbh	diameter at breast height
drc	diameter at root collar
E	East
EA	environmental assessment
ERU	ecological response unit
ESA	Endangered Species Act
Fireshed	Greater Santa Fe Fireshed
the Forest	Santa Fe National Forest
Forest Plan	Santa Fe National Forest Land Management Plan, as amended
GIS	geographic information system
GNA	goshawk nest area
GPFA	goshawk post-fledging area
HGI	Holy Ghost ipomopsis
IDF	integrated design feature
IRA	inventoried roadless area
LOP	limited operating period
MSO	Mexican spotted owl
N	North
NEPA	National Environmental Policy Act
NFS	National Forest System
NRHP	National Register of Historic Places
PAC	protected activity center
project	Santa Fe Mountains Landscape Resiliency Project
R	Range
RMZ	riparian management zone
SFMLRP	Santa Fe Mountains Landscape Resiliency Project
SFNF	Santa Fe National Forest
SHPO	State Historic Preservation Office
T	Township
TCP	traditional cultural property
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
UTV	utility terrain vehicle

DECISION NOTICE

Santa Fe Mountains Landscape Resiliency Project

U.S. Forest Service

Española and Pecos-Las Vegas Ranger Districts

Santa Fe National Forest

Summary

The Santa Fe Mountains Landscape Resiliency Project (SFMLRP or project) is a restoration project proposed by the U.S. Forest Service within and immediately adjacent to the 107,000-acre Greater Santa Fe Fireshed. The project would treat approximately 38,680 acres of federal lands in the 50,566-acre planning area on the Española and Pecos-Las Vegas Ranger Districts of the Santa Fe National Forest (SFNF) (Figure 1). The SFMLRP does not include the majority of the Santa Fe Municipal Watershed, the La Cueva Fuelbreak Project in lower La Cueva, the Hyde Park Wildland Urban Interface Project, and the Pacheco Canyon Forest Resiliency Project because restoration work in these areas are covered under earlier National Environmental Policy Act (NEPA) decisions see Figure 2. A total of 16,501 acres within the Fireshed have received initial treatment. These existing treatment areas include acres treated within the Santa Fe Municipal Watershed, The Nature Conservancy, Santa Fe County and private lands (Figure 2). The project boundary does not align precisely with the Fireshed boundary, particularly in the southeast corner of the project area. In this area, the project boundary extends outside of the Fireshed to include high-priority treatment areas in the Pecos-Las Vegas Ranger District.

The legal description of the project area is:

- Township (T) 16 North (N), Range (R) 10 East (E), Sections 1–4, 10–15, 23–25
- T16N, R11E, Sections 1–21, 24, 25, 29–31
- T16N, R12E, Sections 6, 7, 18, 19
- T17N, R10E, Sections 1–5, 20, 21, 24–29, 32–36
- T17N, R11E, Sections 6–8, 17–20, 25–27, 29–36
- T17N, R12E, Sections 30, 31
- T18N, R10E, Sections 1–4, 9–13, 15, 16, 19–36

- T18N, R11E, Sections 5–10, 16–21, 28–32
- T19S, R10E, Section 34

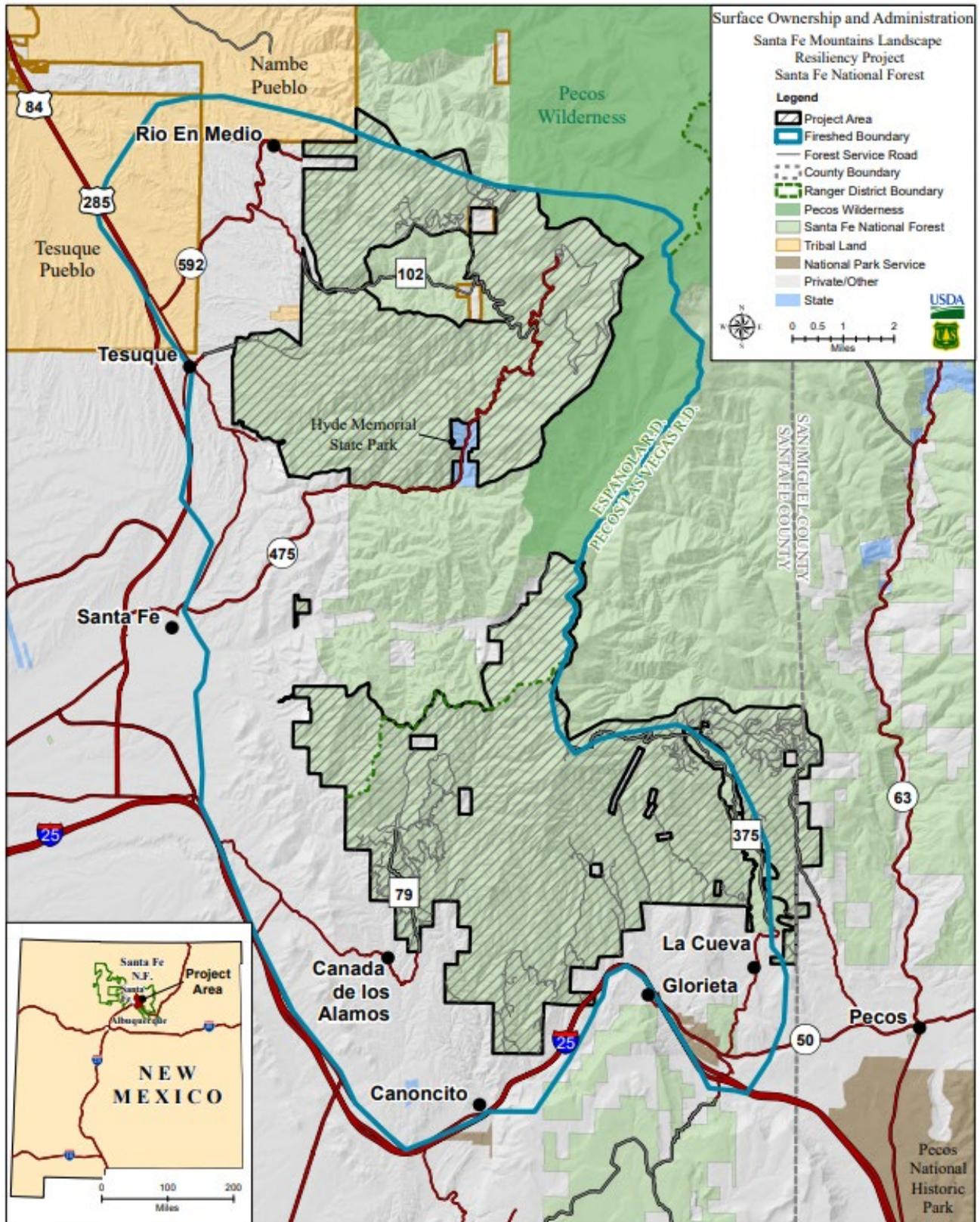
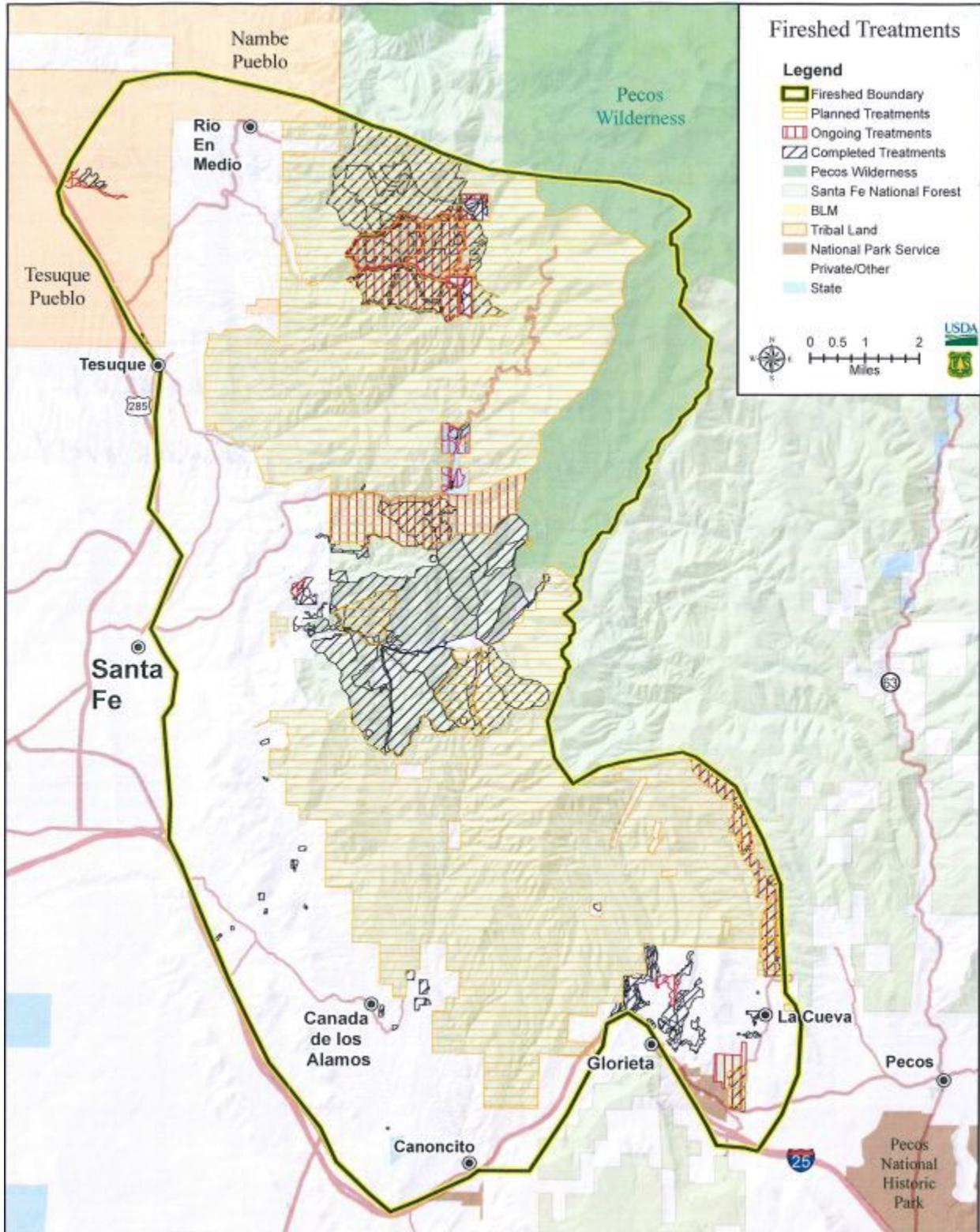


Figure 1. Project vicinity map.



The data used to create this map is intended for broad-scale planning purposes. The Forest Service provides no warranty regarding its accuracy or use for other purposes. \\Project\Esp\Fireshed\SFML\Workspace, SFNF SOGIS jw, Date: 11/2/2022

Figure 2 – Fireshed treatments completed

Purpose and Need

The purpose of the SFMLRP is to improve the ecosystem resilience of a priority landscape to future disturbances by restoring forest structure and composition and reducing the risk of catastrophic wildfire. Resilience is the “ability of a social or ecological system to absorb disturbance while retaining the same basic structure and ways of functioning, the capacity for self-organization, and the capacity to adapt to stress and change” (U.S. Forest Service Manual 2020.5). A critical component of improving resilience in the project area is creating conditions that facilitate the reintroduction of fire, a keystone ecological process, in the frequent-fire vegetation types found across this landscape (Margolis and Balmat 2009). This translates to managing forest structure, composition, and densities to reduce the potential for large, uncharacteristic wildfires and reduce the potential for active crown fire. Moreover, under desired conditions, prescribed burns and natural ignitions under most circumstances would remain at low to moderate intensities.

Fire has historically played an important ecological role burning at regular intervals approximately every 5-15 years) at low to moderate intensities in frequent fire ERUs of the project area (Bassett 2018). There is abundant evidence of the fire history in these types of forests from tree-ring data that have been collected within the Sangre de Cristo Mountains and within the project area (Margolis et al. 2007; Margolis and Balmat 2009). However, a combination of fire suppression, firewood gathering, and grazing that began in the late 1800s has contributed to departure from the natural vegetative conditions, disturbance regimes and desired conditions (Bassett 2018). As a consequence of over a century without natural fire patterns, these forests have become overly dense, less diverse in structure and spatial pattern, and have experienced shifts in species composition towards species that are less tolerant of frequent fire (for example, Douglas-fir [*Pseudotsuga menziesii*] and white fir [*Abies concolor*]). The presence of shade-tolerant tree species has increased significantly in these forests due to fire suppression, and in turn has resulted in increased ladder fuels and fire hazard while crowding out more characteristic tree species, such as ponderosa pine (*Pinus ponderosa*), southwestern white pine (*Pinus strobiformis*), and quaking aspen (*Populus tremuloides*). In addition to altering forest structure, spatial pattern, and composition, fire exclusion has also led to higher fuel loads.

These changes negatively impact ecosystem function and make the forests and watersheds of the project area less resilient to natural disturbances. For example, high tree density is associated with greater susceptibility to insect outbreaks, poor tree growth and vigor, and lower understory plant production (Allen et al. 2002; Fettig et al. 2007). With a changing climate, the frequency, intensity, and extent of disturbances are expected to worsen. The project area is identified as restoration need in the 2022 Santa Fe Forest Plan (page 232). Treatment of forest conditions to move toward the described desired conditions described in the Santa Fe National Forest Land Management Plan would improve these forests’ resilience to disturbances and improve ecosystem function.

The purpose and need of the project are in direct alignment with the Santa Fe County Community Wildfire Protection Plan (CWPP 2020) and the September 2020 New Mexico Forest Action Plan. The project area is located adjacent to wildland urban interface identified in Figure 2.3 of the CWPP, an area with frequent lightning strikes, and high values such as private residences and the Santa Fe municipal watershed. The project area is identified as having a high composite risk/hazard assessment in the CWPP due to human and lightning caused fire starts and the potential for large fire growth. The Project area is identified in the New Mexico Forest Action Plan as one of ten priority landscapes due to wildfire threats to resources and shared values including water supply, biodiversity and communities (State of New Mexico, 2020). In Mexican Spotted Owl (MSO) (*Strix occidentalis lucida*) habitat, there is a need to protect existing habitat and promote development of future habitat suitable for nesting, roosting, foraging, and dispersal to support further recovery of the species.

To increase the resilience of the forests and watersheds in the project area and to respond to the threats to high resources and community values posed by the current vegetation conditions, there is a need to:

- move frequent-fire ERUs vegetation types in the project area toward their characteristic species composition, structure, and spatial patterns in order to improve ecological function;
- create conditions that facilitate the safe reintroduction of fire, allowing fire to play its natural role in frequent-fire forest types;
- reduce the risk for large, high-intensity wildfires, create safe, defensible zones for firefighters and minimize the risk of fire to nearby valued resources;
- improve and maintain diverse wildlife habitats to provide a large array of habitat types, habitat components, seral states, and corridors for a variety of species that utilize the area; and
- improve watershed conditions by restoring the vegetation structure and composition of riparian ecosystems and by maintaining and improving water quality.

Summary of Public Involvement

The SFMLRP was developed over several years in close coordination with partners in the Greater Santa Fe Fireshed Coalition (GSFFC), including other federal agencies, state, county, local and Tribal governments, and non-governmental organizations (NGO) and other community groups who worked collaboratively to develop the proposal.

Public involvement opportunities for the SFMLRP included a public scoping period during which the U.S. Forest Service solicited input on the Proposed Action from interested parties, as well as a public comment period, which served as a review of the draft EA. During the 37-day scoping period, which began on June 10, 2019, and ended on July 17, 2019, SFNF personnel engaged in numerous outreach efforts, including hosting two public meetings, publishing news releases, and disseminating a scoping document for public review and comment. The two public meetings were held on Monday, June 24, 2019, and Saturday, June 29, 2019.

The draft EA public comment period consisted of a draft EA review period of 2 weeks to allow for a detailed reading and review by interested parties, followed by a 30-day public comment period. A notice was placed on the U.S. Forest Service website for this project on Monday, September 13, 2021 notifying the public of the comment period. During the public comment period, the SFNF also held two virtual public meetings on Wednesday, October 6, 2021, and Thursday, October 14, 2021, during which specialists summarized and presented information on the Alternatives and resource impact analysis contained within the EA. The U.S. Forest Service received 123 public comment letters during the draft EA public review period. These letters were reviewed and incorporated into the Final EA, as appropriate. A summary of the public comments received and the U.S. Forest Service's responses are included as Appendix G of the EA. Previously submitted comments received during project scoping and the responses to them based on the project analyses in the EA is captured in Table 6.

A Final EA, Draft Decision Notice (DN), Finding Of No Significant Impact (FONSI) and 45-day objection period was released on March 28th, 2022. On July 27th, 2022, during the Regional Office objection review the SFNF was directed to withdraw the Final EA and Draft DN FONSI for the Santa Fe Mountain Resiliency Project to focus resources on the suppression of the Hermits Peak-Calf Canyon Fire. Email correspondence and a press release were issued to inform objectors, partners, and the public about the decision on July 28th, 2022, as well as information on the forests' project plans moving forward. The March 28, 2022 objection period was set aside as per 36 CFR 218 subpart A and B.

Public Engagement After July 2022 Withdrawal

The withdrawal of the decision and subsequent NEPA revision effort provided additional time to reengage with partners and raise public awareness of the urgent need for forest and watershed restoration in the Sangre de Cristo Mountains adjacent to Santa Fe. Forest staff and I have participated in numerous discussions, meetings and listened to external partners since the EA and draft DN FONSI were withdrawn in July 2022. Participants in these events included, but were not limited to, the general public and community members, the City of Santa Fe, Santa Fe Board of Commissioners, GSFFC, tribal governments, non-governmental organizations (NGO), and other state and local entities.

There are several recurring topics that have come from these recent engagements. The topics include 1. Risk of starting a wildfire with project activities and need to conduct a risk assessment, 2. Whether or not this project should require an Environmental Impact Statement, and 3. Does this project reflect current understanding of climate science. 4. Concern about the future implementation processes for prescribed burning. I address these topics specifically in the Rationale for My Decision section.

Tribal Consultation

The SFNF has relationships with affiliated, sovereign, federally recognized Native American tribes, which are distinctly government-to-government relationships. This entails biannual consultation with Pueblos and communications throughout the year with Pueblos via their governors. Under the 2022 SFNF Land Management Plan (U.S. Forest Service 2022b), the SFNF consulted with both tribal and traditional communities on potential project impacts to their respective lifeways. The government-to-government relationship between the U.S. Forest Service and federally recognized tribes is distinct from that of other interests and constituencies under a variety of federal authorities. These authorities direct the agency to administer forest management activities and uses in a manner that is sensitive to traditional American Indian beliefs and cultural practices and are integral in our relationship with federally recognized tribes.

Treatments on and around known traditional cultural properties (TCPs), sacred sites, and traditional use areas would be developed and implemented through ongoing consultation with Native American tribes and other traditional communities throughout the life of this project. This consultation would take place during each implementation phase for proposed treatment units of the SFMLRP. Information about the location and current use of these sensitive areas would be incorporated into treatment unit planning and used to implement project-specific mitigation measures to protect sensitive sites.

As part of the NEPA scoping process, consultation letters were mailed to eight Pueblos: Cochiti Pueblo, Nambe Pueblo, Ohkay Owingeh Pueblo, Pojoaque Pueblo, San Ildefonso Pueblo, Santa Clara Pueblo, Santo Domingo Pueblo, and Pueblo of Tesuque. Pueblo of Tesuque provided a comment letter in response to scoping. The Pueblo Governor Milton Herrera expressed support for the forest restoration approach of the SFNF to protect Tesuque ancestral homelands. He also expressed that Pueblo of Tesuque considers the entirety of the Sangre de Cristo Mountains a TCP. Specific sacred site locations were not disclosed by the Pueblo. Concerns about limited recreational access, as well as the impact of grazing and the creation of new roads, were also raised in this letter.

Representatives of the SFNF met in person with the Pueblo of Tesuque and Nambe Pueblo to discuss the SFMLRP. On June 5, 2019, the SFNF met with Nambe Pueblo's environmental staff and Lieutenant Governor, Arnold Garcia, to brief them on the project prior to public scoping. The SFNF also has a quarterly meeting with the Pueblo of Tesuque that occurs as part of a Memorandum of Understanding

(MOU) between the SFNF and the Pueblo of Tesuque regarding the government-to-government working relationship. A briefing on the status of the SFMLRP is a standing agenda item at these meetings. The Pueblo of Tesuque is also a member of the Santa Fe Fireshed Coalition and regularly participates in these meetings.

On September 22, 2021, the SFNF mailed letters of notice regarding the availability of the draft EA to 10 tribes: Cochiti, Jemez, Nambe, Ohkay Owingeh, Picuris, Tesuque, Pojoaque, San Ildefonso, Santa Clara, Santo Domingo, and Taos.

On November 2, 2021, SFMLRP was one of two projects presented virtually to their full tribal council.

On December 16, 2021, the SFNF Heritage Program provided copies of cultural resource inventory reports and documents associated with the Ski Santa Fe area and the SFMLRP boundary per the request of Tesuque Pueblo. An external jump drive with electronic/digitized copies of 36 reports/documents was physically mailed to Governor Mark Mitchell and Tribal Historic Preservation Officer (THPO) Larry Samuel.

On August 31, 2022, the SFNF met with the Pueblo of Tesuque Tribal Council to discuss the July withdrawal of the Draft DN FONSI and Final EA. The anticipated release of the EA and Draft DN was also discussed with tribal representatives at the September, 2022 GSFFC quarterly meeting.

Decision

After thoroughly considering Alternative 1 (No Action Alternative) and Alternative 2 (Proposed Action) analyses presented in the Environmental Assessment (EA), as well as public comments that were received. Based upon my review of the Alternatives, I chose Alternative 2 and design features, mitigation measures and best management practices over the No Action Alternative. My decision meets the project's purpose and need, Alternative 2 is to improve the resiliency of the Santa Fe Mountains Fireshed to natural disturbances (e.g., lightning caused fire, insect and disease) and increased risk from climate change by treating the vegetation conditions on NFS lands. This decision is also consistent with the Santa Fe National Forest Land Management Plan (Forest Plan), the NM State Forest Action Plan, the Santa Fe County CWPP, and the Forest Services' January 2022 Wildfire Crisis Strategy. During project implementation, the U.S. Forest Service is required to adhere to all applicable project design features identified in Appendix A of this Decision Notice. Alternative 2 complements the thinning and prescribed burning treatments that have been conducted for 20 years in the Santa Fe Watershed, as well as the treatments of Hyde Park, La Cueva and Pacheco Canyon projects, which total about 16,000 acres treated, to date (Figure 2).

Selected Alternative Description

In response to the purpose and need, the U.S. Forest Service would conduct restoration activities under a collaborative framework on approximately 38,680 acres within the 50,566-acre planning area in the Santa Fe Mountains over the next 10 to 15 years to meet initial project objectives, with additional prescribed fire maintenance treatments beyond 20 years. Restoration activities will occur in multiple ecological response units (ERUs), including mixed conifer–frequent fire forest, ponderosa pine forest, pinyon-

juniper woodlands and grasslands, and riparian areas. Restoration activities will focus on vegetation thinning and prescribed fire treatments to improve forest resiliency by reducing stand density, stand continuity, and stand homogeneity (sameness of forest structure and species composition) and increase heterogeneity (diverse forest structure and species composition) at a landscape scale, mid-scale, and fine scale.

Alternative 2 is designed to provide a wide range of restoration methods that would be used to achieve desired conditions at the fine scale, mid-scale, and landscape scale. Each restoration method has a related set of tools that may be used at specific location depending on the characteristics of the specific treatment site, such as vegetation type, topography, presence of federally listed species, etc. This approach provides flexibility and is known as conditions-based management. Conditions-based management is defined by the U.S. Forest Service as a system of management practices based on implementation of specific design elements where the design elements vary according to a range of on-the-ground conditions in order to meet intended outcomes. For the project, those intended outcomes are the desired conditions identified in the EA and 2022 Forest Plan.

Before carrying out treatments, project leaders will look at a specific area to be treated to assess, select and validate the appropriate treatment tool(s) using an interdisciplinary resource review process and include input received from external engagement. External engagement will be conducted on a unit and area basis, depending on the scope and location of treatment areas and type of treatment and is consistent with our conditions-based approach as described below. The tools that may be considered, as well as the circumstances under which they may be applied, are described in detail in the following sections. Table 1 provides a general overview of the restoration methods and associated tools that could be used to implement the Selected Alternative. EA Section 2.1.2 provides greater detail about the proposed restoration methods and tools.

Table 1. Summary of Restoration Methods and Associated Activities that Comprise the Selected Alternative

Restoration Method/ Associated Activities	Tools to be Used for Implementation	Total Acres or Miles Proposed for Treatment
Vegetation thinning using thin from below	Hand thinning Manual harvesting using chainsaws Mechanical methods such as mastication	18,000 acres
Use of prescribed fire	Broadcast burning Pile burning Jackpot burning	38,000 acres
Riparian restoration	Conifer and non-native species removal Indirect use of prescribed fire Native tree planting Fencing	680 acres 17 miles of stream
Road closure	Closure of 1.5 miles along Forest Service Road 79W	1.5 miles

Conditions-Based Management Approach for Vegetation Thinning and Prescribed Burn Treatments

Alternative 2 does not define specific treatment units but rather general vegetation characteristics throughout the project area where treatments are most likely to occur and the suite of tools that may be used.

During the project's implementation process, appropriate management activities will be selected from within the environmental analysis (EA) based on the following selection criteria;

- 1. Identify treatment area boundary and conduct field reconnaissance and inventory.**
The type of reconnaissance and inventory protocol required depends on the forest characteristics within the treatment area (e.g., homogeneity of stand conditions) and the availability of existing data (e.g., common stand exams). This step includes validating that forest conditions warrant the need for treatment.
- 2. Coordinate with resource specialists, applicable partnering agencies and external entities (as appropriate) to determine the appropriate design features and mitigation measures necessary to implement proposed treatment(s) (see Appendix A).**
- 3. Conduct a review for MSO nest/roost habitat and protected activity centers (PACs) and complete the U.S. Forest Service MSO Habitat Project Checklist to ensure compatibility of treatments with the MSO recovery plan.** A minimum of 2 years of inventory to U.S. Fish and Wildlife Service (USFWS) protocol standards is required within mixed-conifer vegetation suitable for MSO nesting and roosting before project implementation. Surveys for additional nesting or roosting sites in the project area are ongoing and would be completed before implementation of activities in an area. If owls are found and a protected activity center (PAC) is established, appropriate measures would be followed as described in the recovery plan and the design features, such as determining the PAC status (nesting, non-nesting, or absence) for the year using USFWS standards and breeding season restrictions.
- 4. Consider any previous forest restoration treatments or disturbed areas that could be used to build a prescribed fire burn boundary and identify safe anchor points that would facilitate the implementation of prescribed fire.** This is an iterative and adaptive process that builds from continuing treatments as the project progresses. For example, once a "first-entry" prescribed burn is completed in a given area, the outcome of the treatment is considered for the next burn block.

5. **Define prescribed fire unit boundary using topography, vegetation/fuel condition, and proximity to previously treated or disturbed areas that provide safe anchor points.** Prescribed fire units would typically be defined by ridgelines, spur ridges, valley/canyon bottoms, existing roads, and natural barriers. Hand or machine firelines would also be used on ridgelines, spur ridges, and valley/canyon bottoms to create a prescribed fire perimeter.
6. **As necessary, thin vegetation to prepare a prescribed fire unit boundary necessary for safe and effective implementation.** The amount of thinning required for prescribed fire unit preparation depends primarily upon vegetation conditions and topography. In general, the approach is to do the least amount of thinning necessary to ensure safety and meet resource objectives.
7. **As necessary, delineate thinning units within the burn block to facilitate the reintroduction of fire and move the landscape closer to desired conditions.** Treatment may include mechanical or hand thinning and hand piling, followed by a pile burning treatment prior to implementing a broadcast burn on the larger block. Table 2 below provides a guide for the vegetation characteristics that would be evaluated by the U.S. Forest Service to determine if vegetation thinning is needed prior to safely introducing prescribed fire on the landscape.

Table 2. Vegetation Characteristics Suitable for Consideration of Vegetation Thinning Treatments by ERU

ERU(s)	Basal Area (square feet/acre)	Trees per Acre	Quadratic Mean Diameter (inches)	Canopy Cover (%)	Canopy Base Height (feet)
Mixed conifer–frequent fire	≥70	≥500	<6.0	>30	<8
Ponderosa pine	≥60	≥500	<6.0	>30	<8
Pinyon-juniper woodland, pinyon-juniper grassland, and juniper grassland	≥60	≥400	<7.0	>30	<4

Note: Stand conditions need not meet all above thresholds in order to be considered for treatment.

To move the forest stands within the project area toward the desired conditions for ERUs, as described in the EA (Chapter 1), thin from below treatments will be applied where needed, followed by prescribed fire treatments. All treatment areas may be entered multiple times to meet the desired conditions. Prescribed fire would be the primary tool used to reduce tree densities and undesirable tree regeneration and promote grasses and forbs. An example of the conditions-based management approach described above may include the following scenario: within a prescribed burn block, stand reconnaissance and inventory show that several stands are overly dense and have a high probability of tree crowning and/or torching. Implementation of prescribed fire from the perimeter of the burn block may be acceptable to the U.S. Forest Service practitioner(s) to ensure safety and protection of adjacent resources; however, the extent of potential mid- and high-severity fire is considered unacceptable. In this instance, the U.S. Forest Service could opt to treat stands interior to the burn block as a means to manipulate fuel conditions to reduce risk of tree crowning and/or torching.

Acreage amounts will not exceed Alternative 2 acreages presented in Table 1 above. All actions will be conducted in accordance with Forest Plan direction and all applicable laws, regulations, and policies. Thinned material will be made available for fuelwood collection where feasible and in line with other resource objectives. No mechanical equipment will be used on slopes greater than 40 percent. No new roads or temporary roads will be constructed.

Vegetation Thinning Treatments

Manual and mechanical vegetation thinning treatment methods will include, but are not limited to, the following: the use of chainsaws to cut trees and distribute slash, masticators to thin trees and manipulate slash material, excavators for machine piling of slash and fire-line construction. Other specialized equipment may be used to treat the fuels to meet resource objectives. No mechanical equipment will be used on slopes greater than 40 percent. Lop and scatter or piling of thinned material will occur depending on site conditions. Forest products will not be generated as a part of this project, with the exception of fuelwood where conditions allow and do not conflict with resource objectives.

Table 3 displays the maximum acres proposed for vegetation thinning treatment for each ERU.

Table 2. ERUs Proposed for Vegetation Thinning Treatments

ERU(s)	Total Area within SFMLRP Footprint (acres)	Total Area Proposed for Thinning from Below to a Target Basal Area (16-inch dbh/12-inch drc limit) (acres)
Mixed conifer–frequent fire	17,875	7,500
Ponderosa pine	17,347	6,500
Pinyon-juniper woodland, pinyon-juniper grassland, and juniper grassland	8,660	4,000
Spruce-fir	5,022	-
Montane/subalpine grassland	491	-
Mixed conifer with aspen	456	-
Narrowleaf cottonwood/shrub	680	-
Colorado Plateau/Great Basin grassland	139	-
Alpine and tundra	63	-
Total	50,556	18,000

Note: dbh = diameter at breast height; drc = diameter at root collar

Thin from below will be used to improve tree growth and tree vigor and to create stand structure that will meet uneven-aged, desired conditions by removing unhealthy, intermediate, and suppressed trees and providing more growing space for the residual trees. The primary purpose is to reduce fuel continuity and modify fuel arrangement. Uneven-aged structure will be emphasized by implementing treatments to create openings, break stand continuity, and allow for regeneration of site-appropriate vegetation. Understory and mid-story trees will be left in place, where needed, to achieve uneven-aged forest structure. Conifers within grasslands and meadows will be cut to allow for open conditions that promote grasses and forbs.

No trees larger than 16 inches diameter at breast height (dbh) or 12 inches diameter at root collar (drc) for juniper species (*Juniperus* spp.) and two needle pinyon (*Pinus edulis*) will be cut under this alternative. Not all treatment units will require a 16-inch dbh or 12-inch drc limit to meet treatment objectives. In all likelihood, site-specific treatments and prescriptions may utilize a smaller tree diameter limit. This approach is focused solely on fuels reduction and acknowledges that some stands may be better suited for other silvicultural approaches to more quickly move conditions to the desired future condition. In the case of this project, however, the ability of the U.S. Forest Service to cut and/or utilize material greater than the specified diameter limit is not practical. Therefore, the U.S. Forest Service opts to impose a diameter limit of 16 inches dbh outside of MSO PACs in order to clarify to the public the maximum upper limit of a thin from below treatment. It is important to note that the conditions-based

approach described above will be followed to determine the tree diameter limit to be applied to a specific treatment unit. Vegetation Thinning Treatments within Mexican Spotted Owl Recovery Habitat and Protected Activity Centers

Vegetation thinning within or adjacent to MSO PACs will be avoided to the greatest extent practicable. However, through the conditions-based management approach described above, the U.S. Forest Service may evaluate forest stand conditions within or adjacent to MSO PACs that require vegetation thinning treatment in order to safely and effectively reintroduce prescribed fire in a treatment unit (Table 4). In those cases, the same general thin from below to a target basal area silvicultural strategy will be followed within or adjacent to MSO PACs. Within MSO PACs (outside of nest cores), vegetation thinning treatments will be limited to the removal of trees less than or equal to 9 inches dbh to address ladder fuel concerns within a PAC.

Table 3. Summary of Vegetation Thinning and Prescribed Fire Treatments in MSO Habitat

Treatment	Quantity (acres)	MSO PACs (acres)	MSO Critical Habitat (acres)	MSO Nest Roost (acres)
Vegetation thinning using thin from below	18,000	929	807	2,234
Use of prescribed fire	38,000	2,024	1,953	4,226

Notes:

1. There is overlap between MSO habitat types and treatment prescriptions. All areas proposed for vegetation thinning also fall within areas proposed for prescribed fire.
2. A database of designated habitat (as amended per ground surveys and treatment prescriptions) would be maintained for the life of the project.
3. MSO habitat within the project area would be continuously updated, including the identification of new PACs and updates to habitat models to inform future treatments in alignment with the conditions-based approach. Acreage estimates are based on best available data at the time of the EA and serve as a tool to estimate effects to resources.

Appendix A provides design features to be implemented for the project relative to MSO.

Use of Prescribed Fire

Broadcast, maintenance, jackpot, and pile burning are all types of prescribed fire activity that would occur with this project. Natural and existing features such as rocky slopes and travel routes may be used as prescribed fire containment lines. There is the potential need to construct firelines via hand tools or mechanized equipment in order to confine fires to predetermined areas. Table 5 summarizes the proposed prescribed fire treatment acreages within the project area by ERU.

Table 4 Proposed Prescribed Fire Treatments by ERU

ERU(s)	Total Area within SFMLRP Footprint (acres)	Area Proposed for Use of Prescribed Fire (acres)
Mixed conifer–frequent fire	17,875	17,000
Ponderosa pine	17,347	17,000
Pinyon-juniper woodland, pinyon-juniper grassland, and juniper grassland	8,660	4,000
Spruce-fir	5,022	-
Montane/subalpine grassland	491	-
Mixed conifer with aspen	456	-
Narrowleaf cottonwood/shrub	680	-
Colorado Plateau/Great Basin grassland	139	-

ERU(s)	Total Area within SFMLRP Footprint (acres)	Area Proposed for Use of Prescribed Fire (acres)
Alpine and tundra	63	-
Total	50,556	38,000

Prescribed fire could be used as a standalone restoration treatment or after other vegetation thinning treatments, e.g., to remove slash after initial manual and/or mechanical treatments are completed. It could also be used to emulate the role of “natural” fire. Resource protection measures will be applied as appropriate to limit the impacts of prescribed fire on human health and safety, natural resources, and other factors.

Prescribed fires are ignited either by hand or by aerial ignition using aircraft (helicopter) carrying specialized equipment to ignite surface fuels. The method of ignition for each prescribed burn unit depends on personnel safety, current and predicted weather, topography, vegetation, and the intensity of the fire needed to meet pre-established goals for the burn. In order to reduce the potential for soil movement and erosion, no mechanical equipment associated with prescribed fire use will occur on slopes greater than 40 percent.

A prescribed fire plan (burn plan) must be completed prior to the ignition of all planned prescribed fires. Burn plans are official site-specific implementation documents prepared by qualified personnel and approved by the agency administrator and include criteria for the conditions under which the fire would be conducted to meet management objectives. Forest level prescribed fire planning is being updated as directed in the Chief’s National Prescribed Fire Program Review (September 2022) As discussed above, all prescribed fire units would adhere to NWCG Standards for Prescribed Fire and Implementation (May, 2022)

Initial prescribed fire treatment will be followed by maintenance burns approximately every 5 to 10 years in order to maintain the desired resiliency conditions.

USE OF PRESCRIBED FIRE IN MEXICAN SPOTTED OWL RECOVERY HABITAT AND PROTECTED ACTIVITY CENTERS

Prescribed fire will be used as needed in MSO PACs, both within and outside of core areas, outside of the MSO breeding season (see Table 4 above). Prescribed burns may be allowed within MSO PACs during the breeding season if the PAC is unoccupied or the owls are not nesting that year, as inferred from results of surveys conducted according to the MSO protocol. Prescribed fire within MSO PACs and recovery nest/roost habitat will be conducted at low intensity with low-severity effects. Dead and downed woody material and snags would be retained per the current MSO recovery plan (USFWS 2012).

Riparian Restoration Treatments

Riparian restoration treatments within an estimated 100-foot buffer of established waterways are proposed along approximately 4.5 miles and 370 acres of Arroyo Hondo and approximately 12.5 miles and 310 acres of Tesuque Creek to improve watershed conditions. In areas where riparian vegetation is in poor condition or is being encroached by conifers, vegetation thinning, prescribed burning, and native species plantings will occur. The following restoration activities will be implemented within the active floodplain:

- Conifers 12 inches dbh or less will be cut and removed to allow riparian vegetation to thrive and expand.
- Tree boles greater than 3 inches dbh will be left in the floodplain.

- Alder (*Alnus* spp.) and willow (*Salix* spp.) will be cut to stimulate growth, as conditions allow.
- Remaining slash will be lopped and scattered (or piled and burned if fuel loads are high and the terrain allows).
- Native species such as willow, cottonwood (*Populus* spp.), alder, grasses, and forbs will be planted if natural regeneration is determined to be insufficient following conifer and non-native species removal.

The following restoration activities will be implemented outside of the active floodplain but within the 100-foot buffer around riparian areas:

- Where deciduous trees exist, all conifers 12 inches dbh or less will be cut and removed to allow riparian vegetation to thrive and expand.
- Where deciduous trees do not exist, all conifers 5 inches dbh or less will be cut and removed.
- Alder and willow will be cut to stimulate growth, as conditions allow.
- Remaining slash will be lopped and scattered or piled and burned.
- Native species such as willow, cottonwood, alder, grasses, and forbs will be planted if natural regeneration is determined to be insufficient following conifer and non-native species removal.

Both within and outside of active floodplains, prescribed fire will be indirectly introduced by allowing low-intensity prescribed fire to back down into the riparian areas from upland areas. This indirect use of prescribed fire will reduce understory fuels and promote riparian vegetation growth.

Fencing may be installed if needed to protect restored areas if it is determined that riparian vegetation regeneration is being hampered by browsing and grazing.

Riparian restoration treatments will follow the conditions-based management approach described above.

Road Usage and Closure

Within the analysis area there are 121.09 miles of FS system roads. There are 25.45 miles of Maintenance Level 1 roads, 94.69 miles of Maintenance Level 2 roads, and 0.29 miles of Maintenance Level 3&4 Level Roads within the SFMLRP footprint. There are 8.23 miles within the project area exclusively within IRAs. Approximately 1.5 miles of Forest Road 79W will be gated and closed to public motorized access, although private landowners would maintain access. This proposed road closure will help to reduce resource impacts. No new, temporary or reconstructed roads will occur.

Roads that are currently closed to the public (Maintenance Level 1) could be utilized to implement treatments. Some roads may require minimum work to gain access and others would require no work. The use of all Maintenance Level Roads or Forest Service system roads after implementation would remain at the same maintenance level as prior to implementation following the standard and guidelines found in the Forest Plan (U.S. Forest Service, 2022b). During project implementation there will be no new roads, no road reconstruction or temporary roads constructed. There are user created roads, trails and routes that may be used to reduce additional resource damage. Overland travel by vehicles that do not require roads (e.g., masticators, UTVs) may occur. During implementation, practitioners would use design features to reduce or eliminate impacts found in Appendix A.

Compliance with the Forest Plan

Projects and activities must be consistent with the Forest Plan (CFR § 219.15). For Alternative 2, the chosen alternative, no amendments are necessary under the 2022 Forest Plan and the project is compliant with plan direction.

Rationale for My Decision

In reaching my decision to select Alternative 2, I relied on an Interdisciplinary Team of U.S. Forest Service resource specialists to analyze the effects of the two alternatives. The analysis of alternatives is thoroughly documented in Chapter 3 in the EA. I considered feedback that was received during all public engagement. I have also carefully considered the project alternatives in light of the tremendous consequences of the Hermits Peak Calf Canyon Fire, the result of Forest Service escaped prescribed burns which occurred east of the project area, and the Forest Service National Prescribed Fire Program Review (U.S. Forest Service 2022d).

Environmental Assessment

The purpose of preparing an EA is to provide sufficient evidence and analysis, including the environmental impacts of the proposed action and alternative(s), to determine whether to prepare an EIS or a FONSI (36 CFR 220.7)

CEQs regulations standards for evaluating whether effects are significant and reaching a FONSI (40 CFR 1501.3 B). These standard were evaluated for this project and the responsible official selected the Environmental Assessment/ FONSI.

Risk Assessment

In 2019 in recognition of similar vegetation conditions across the state, the State of New Mexico and USFS signed a shared stewardship agreement to commit to collaborative forest management and to set landscape scale priorities for targeted treatments that manage risks and increase benefits in areas where they will have the greatest impact across broad landscapes. The SFMLRP project area was identified, in part, as a result of the identified need for management and was included as a priority in the New Mexico Forest Action Plan due to threats to communities, threats to water supply, and threats to species diversity (New Mexico EMNRD 2020). It is not “if” there will be a wildfire in the SFMLRP footprint. It is “when.” In the SFMLRP area, there are human and lightning fire starts documented annually (CWPP, 2020).

In Chapter 3 of the EA, resource specialists identified current risk factors, specifically for the project area. The 2020 Santa Fe County CWPP also describes the project area as being at high risk for catastrophic wildfire. According to fire behavior modeling used to develop the CWPP’s Composite Risk Assessment, the project area is modeled to exhibit flame lengths over 11 feet, rapid rates of spread, and fireline intensity of over 1,000 British Thermal Units/minute. This type of fire behavior poses a greater resistance to control and therefore has a higher potential for large wildfire spread. This situation is paired with legitimate concerns about the vulnerability of an essential landscape with multiple high-dollar values at risk, including the municipal watershed which provides 40% of the City of Santa Fe’s water.

To address risk at the treatment unit level project implementation and treatment planning would follow the conditions-based approach identified in Chapter 2 of the EA and the Chiefs’ Review. Additionally, every prescribed burn must follow the guidance of the National Wildfire Coordinating Groups’ Standards

for Prescribed Fire Planning and Implementation, PMS 484, which are national interagency standards for the planning and implementation of prescribed fire. In PMS 484, risk management is integrated during project planning and implementation with twenty-one required elements. In addition, The National Wildfire Coordinating Group (NWCG) Smoke Management Guide for Prescribed Fire and Prescribed Fire Complexity Rating System Guide (reference) identifies elements practitioners must apply in order to reduce risk and exposure while providing for the success of implementation.

Best available science (Allen, 2002; Margolis, 2013) and Forest Service data supports that fuel reduction treatments, including prescribed fire and thinning, can effectively mitigate fire behavior by reducing fire intensity and rate of spread. Therefore reducing the risk to high values at risk in and around the project area. The 2020 Medio Fire in the SFMLRP footprint and the 2022 Cerro Pelado Fire are just two examples of wildfires that dropped in intensity when they spread into a treated area, giving firefighters an opportunity to contain them without significant loss of infrastructure, property and other values at risk (Agee, 2005; Busse, 2014; Dwire, 2016; Griffis, 2001). Treatment activities that reduce/modify vegetation can also reduce risks to fire fighters by reducing the conditions under which wildfires are responded to. Without the restoration work in these areas these fires had the potential to have catastrophic negative effects.

Climate Change

Since the development of the SFMLRP Environmental Assessment, new climate-related research, assessments, and guiding documents have emerged, building additional support for the project's purpose and need. For instance, a comprehensive global climate assessment (IPCC 2021) was updated and released, stressing the importance of taking action to mitigate mutable aspects of global climate change and diminish impact trajectories. Addressing climate change and its impacts to our land, people, and resources is at the forefront of the Nation's concerns as demonstrated through recently issued Executive Orders (14008, 14057, and 14072) and subsequent climate adaptation strategies for the USDA (USDA 2021) and for the Forest Service (U.S Forest Service,2022a), as well as through the development of the Forest Service Wildfire Crisis Strategy (U.S Forest Service ,2022b). Furthermore, the 2022 Santa Fe National Forest Land Management Plan shaped desired conditions and other plan components in support of the forest vision, "to restore fire and resiliency to forest landscapes, provide clean and abundant water, and to honor and strengthen ties to the land." Climate change was considered throughout the development of desired conditions, plan components, and as served as both a part of the affected environment and as a "driver and stressor" (agent of change) within the plan's EIS. These guiding documents shape and inform management practices and objectives across our public lands, including the SFMLRP footprint.

The SFMLRP affects a relatively small amount of the forest (i.e., 0.03% of total forest acreage) and carbon (EA sect. 3.8) on the Santa Fe National Forest and would temporarily contribute a very small quantity of greenhouse gas (GHG) emissions relative to national and global emissions. The project will not convert forest land to other non-forest uses, nor remove large (> 16in diameter) trees, offsetting short-term emissions through longer-term carbon sequestration and forest regrowth. The proposed action is consistent with recognized climate change adaptation and mitigation practices, and is consistent with direction outlined in the USDA Climate Action Plan calling on the Forest Service to, "scale up its activities to accelerate the strategic implementation of hazardous fuel treatments and prescribed fire to reduce wildfire risks and to increase forest restoration and reforestation (USDA 2021);" and with the Forest Service Climate Adaptation Plan's listed adaptation actions, of which, "prepare ecosystems and watersheds for extreme events and intensifying disturbances, sustain and improve ecosystem and watershed function in the face of chronic stressors, and adapt to changing fire regimes" is included (U.S Forest Service ,2022a).

Based on the updated climate information provided above which is incorporated into the project record by reference, and the analysis of climate factors found in the EA in Chapter 3, I am confident that the project activities identified in Alternative 2 are consistent with current agency approved and recognized climate and that they are necessary for resilience and persistence of existing habitats. In addition the proposed action will address threats to high value resources and communities due to the current critical vegetation conditions.

Prescribed Fire Implementation

On May 20, 2022, Chief Randy Moore temporarily paused prescribed burning on NFS lands nationwide for 90 days to conduct a national review of the agency's prescribed fire program. Although prescribed fire is one of the most effective ways to reduce wildfire risk in frequent-fire vegetation types, this was a necessary decision in light of recent prescribed fire escapes that had devastating impacts on communities and natural resources. The decision also reflected the growing recognition that extreme conditions resulting from drought, weather, dry fuels, and other climate change effects were influencing fire behavior in ways we had never seen before.

The U.S. Forest Service is a global leader in the use of prescribed fire as a key management tool to reduce the risk of catastrophic wildfire and improve forest resiliency. On average, the U.S. Forest Service ignites about 4,500 prescribed fires each year, treating about 1.3 million acres across all national forests. Almost all prescribed fires – 99.84 percent – go according to plan. However, we cannot eliminate all the risk, and the SFNF knows from experience how destructive an escaped prescribed fire can be. As an agency, we cannot rely on past successes. We must continuously learn and adapt to rapidly changing conditions to reduce the risk and better be able to quickly contain escapes so that we may best protect our communities and care for the lands and natural resources we manage on behalf of the public. We cannot guarantee that prescribed fires will never escape, but the alternative to using this proven tool is larger, more destructive wildfires, due to a combination of overgrown forests, climate change, a growing number of homes in the wildland-urban interface, and more than a century of fire suppression (USFS 2022).

The Chief's comprehensive review includes recommendations and directives that ensure that prescribed fire plans are (1) up to date with the most recent science, (2) key factors and conditions are closely evaluated on the day of a prescribed burn, (3) fire managers and agency administrators are in close contact with the National Weather Service before, during and after a prescribed burn, and (4) decision-makers are engaged in real-time to determine whether to proceed. These recommendations were not absent in previous practices but there is room to modernize and reevaluate them.

During the time since the withdrawal of the Draft DN FONSI and Final EA in July 2022 the SFNF has heard from the public and partners about the processes on implementing prescribed fire. This program level review is outside the scope of planning for this project, but this project will be consistent with the 2022 National Prescribed Fire Program requirements before any prescribed burns may be implemented forest wide. The SFNF is also committed to going above and beyond the Chief's directives when it resumes its prescribed fire program.

Context

For a variety of factors, including but not limited to smoke impacts, costs of treatment, impacts to the affected environment, capital resources, and human resources, the U.S. Forest Service estimates that no more than 750 acres per year would be treated with manual or mechanical vegetation thinning and no more than 4,000 acres per year would be treated by the use of prescribed fire during a 15- to 20-year project time frame under the Selected Alternative. However, if factors such as funding, technology, and weather allow for moving ahead at a greater pace without exceeding the impacts described in this document, the intention is to implement this project as soon as it can be safely completed. Additionally, the proposed activities of riparian restoration would occur over multiple years on up to 680 acres or 17 miles of stream until successful conifer and non-native species removal and establishment of native trees is achieved. The final proposed restoration method of road closure of Forest Service Road 79W would be implemented over the short term, with restoration and regrowth occurring within the closed area throughout the life of the project.

I have also considered the context of this project area within the Greater Santa Fe Fireshed area, an area of intense and critical importance to the residents of Santa Fe County and the City of Santa Fe. The project area is within the County's designated wildland urban interface, an area with extreme risk to high value infrastructure, high risk for wildfire with detrimental effects, and a known incidence of numerous fire starts annually. Over the past 20 years the city and partners, including SFNF, engaged in cooperative treatment activities within the municipal watershed such as Pacheco Canyon, Hyde Park and La Cueva areas, including thinning and pile burning and broadcast burning. These entities and SFNF are taking an All Hands, All Lands (Forest Stewards Guild) approach to responsibly move vegetation conditions to a more resilient configuration. The level of annual implementation of project activities is not expected to result in significant cumulative adverse effects (Chapter 3, EA).

Intensity

Intensity is the measure of the severity, extent, or quantity of effects, and is based on information from the effects analysis of the EA and the references in the project record. The effects of this project have been appropriately and thoroughly considered with an analysis that is responsive to concerns and issues raised by the public. My Finding of No Significant Impact (FONSI) is based on the context of the project and intensity of effects using the 10 factors identified below.

1. Impacts that may be both beneficial and adverse.

Based on the findings of the EA, the implementation of the Alternative 2 will result in short-term adverse impacts that are less than significant as well as many long-term beneficial impacts. The EA analyzed potential impacts of the actions on all resources identified during internal and public scoping. There were no significant adverse impacts identified as a result of the Proposed Action.

Under Alternative 2, impacts to wildlife, including At Risk species, include minor disturbance to MSO during the non-breeding season and some displacement and habitat alteration for species of conservation concern (SCC) species. The project has the potential to result in short-term adverse impacts to potentially suitable MSO habitat. However, treatments are expected to result in beneficial long-term effects and improvement of habitat conditions for SCC and for MSO, based on guidance provided in the 2012 MSO recovery plan.

Under Alternative 2, disturbance associated with fire management activities, vegetation loss from fire, and vegetation thinning treatments will result in short-term adverse impacts to vegetation communities.

The beneficial long-term effects include increased heterogeneity of stand structure, which would reduce the potential for high-intensity wildfire to impact extensive areas of the project area, improving forest resiliency over the life of the Forest Plan.

Under the Alternative 2, disturbance associated with fire management activities, vegetation loss from fire, and vegetation thinning treatments will result in short- and long-term adverse impacts to watershed resources (soil, water quality, and flow regimes). Adverse impacts to watershed resources are expected to be minimal, short term, and insignificant when compared with those resulting from high- intensity wildfire (section 3.6 of EA). The impact of managing the project area for forest resilience would result in short-term adverse impacts and substantial long-term beneficial impacts to water quality and watershed health.

The management of the project area for ecosystem resilience under Alternative 2 will result in adverse impacts to visitor use and experience in the short term. Over the long term, improved forest resilience would reduce adverse impacts to visitor use and experience and improve recreational opportunities. Long term, the desired recreation experiences would not be impacted by the Selected Alternative other than lessening the chance of catastrophic fire in the future, which would have catastrophic adverse impacts to recreation experiences. There will be short-term adverse effects from thinning of vegetation, most notably stumps and slash, and firelines that impose linear features on a natural appearing landscape. Prescribed fire that mimics the natural process of mixed-severity fire would create openings within the existing condition of even-age, even-texture, closed coniferous canopy. Openings would enhance the views from within the project area out and from outside the project in. In the long term, scenery would be enhanced through increased visual variety and access.

Under Alternative 2, range condition is expected to improve over the long term as forage production and quality increases, utilization rates decrease, and distribution of livestock improves. The long-term benefits will outweigh the short-term effects and ultimately improve the ecological sustainability of livestock grazing, and substantially increase ecosystem resilience to uncharacteristically severe wildfire and other disturbances. Adverse effects will be short term and will not result in permanent changes to permitted livestock numbers or season of use.

Impacts to the nine characteristics of Inventoried roadless areas (IRAs) vary depending upon the affected resource. While some short-term adverse impacts may occur, they are generally outweighed by the long-term benefits of Alternative 2, including the reduced risk for high-severity wildfire. The thinning would occur on 3% (750 acres) and prescribed burning would occur on 16% (4000 acres) of the total IRA acreage within the project area annually and would generally be mitigated by the design features developed for the project (U.S Forest Service 2022e). This project is also expected to reduce risks of high-severity, stand-replacing wildfires, thereby resulting in long-term beneficial impacts across all 24,613 acres of the IRA within the SFMLRP area.

2. The degree to which the action affects public health and safety.

The project focuses on moving the project area toward desired conditions, that includes restoring ecological processes and seral state proportions in ERUs. Pinon/ Juniper ERU (primarily PJ woodlands) have the greatest proximity to homes and private lands. The treatments in this ERU would focus on objectives related to fire, fuels, and WUI. The purpose and need states, reduce the risk for large high-intensity wildfires, create safe, defensible zones for firefighters and minimize the risk of fire to nearby valued resources (section 3.3 of EA).

Project activities would be coordinated with potentially affected adjacent landowners, range allotment permittees, special use permittees, and any other permit holders as needed to minimize access impacts (BMP General-3). Prescribed fires would be carefully evaluated to consider smoke dispersal into nearby

communities surrounding the Santa Fe Mountains. Therefore, the effects on air quality from prescribed fire would be short term and localized near the prescribed fire area, and state air quality standards on would be met.

Due to the emphasis placed on safety in all federal fire management policies and the current NFS practice of using available resources to notify the public of fire management activities, Alternative 2 is not anticipated to impact public health and safety.

3. Unique characteristics of the geographic area such as the proximity to historical or cultural resources, parklands, prime farmland, wetlands, wild and scenic rivers, or ecologically critical areas.

Wildfires have the potential to adversely affect both recorded and unrecorded cultural resources within the project area. As wildfire management actions have the potential to affect resources eligible for, or listed in, the National Register of Historic Places (NRHP), the environmental review process would include compliance with all procedural requirements under Section 106 (36 CFR 800). Through this process, impacts to cultural resources will be avoided or, where impacts are unavoidable, effects will be mitigated through appropriate treatment, which would be developed in consultation with the State Historic Preservation Office (SHPO) and American Indian tribes with traditional associations to the NFS land.

Under Alternative 2, riparian restoration treatments are proposed to improve watershed conditions within an estimated 100-foot buffer of established waterways along approximately 4.5 miles and 370 acres of Arroyo Hondo and approximately 12.5 miles and 310 acres of Tesuque Creek. In areas where riparian vegetation is in poor condition, or is being encroached by conifers, vegetation thinning, prescribed burning, and native species plantings would occur.

The Selected Alternative will cause no significant impacts to historic or cultural resources, parklands, wetlands, or ecologically critical areas. There are no prime farmlands or wild and scenic rivers within the project area.

4. The degree to which the effects on the human environment are likely to be highly controversial.

During the public scoping process for the project, 7,426 scoping comments were received. All substantive scoping comments were addressed in the EA. In addition, 123 comment letters were received during the SFMLRP EA public review period. The U.S. Forest Service has determined that none of the comments provided during the public involvement process document a substantial dispute as to the environmental consequences of Alternative 2, the Selected Alternative (Appendix G of the EA). The conclusions in the EA analysis were drawn from scientific data and professional judgment of U.S. Forest Service subject matter experts, as documented in Chapter 3 of the EA.

The SFNF agrees that concern is warranted for the inherent risks that come with planned prescribed fire treatments, as well as for wildfires in the current forest conditions. The September 2022 Chief's National Prescribed Fire Program Review (the Review) was prepared to address recent prescribed fire escapes by the Forest Service. It provides national direction for individual forests' prescribed burning programs, to ensure improved planning, analysis and implementation at the burn unit level (U.S. Forest Service, 2022d.) The Santa Fe National Forest is incorporating this direction into every prescribed burning project, with an emphasis on improved project unit planning and analysis per the direction in the Review, incorporating enhanced public and partner engagement.

5. The degree to which the possible effects on the human environment are highly uncertain or involve unique or unknown risks.

The risk to the quality of the human environment associated with the Alternative 2 will be both adverse and beneficial. Planned projects pose some inherent risk to the human environment. The SFNF and cooperators have completed 16,000 acres of treatments, to date, in the Greater Santa Fe Fireshed. The treatments identified in this project are similar in nature and scope to the projects already implemented. Mitigations and design features identified in Appendix A have shown to be effective in reducing potential risks.

6. The degree to which the action may establish precedent for future actions with significant impacts or represent a decision in principle about a future consideration.

I have determined that this decision to implement the restoration project does not establish precedence for future actions with significant risks to the environment. Alternative 2 is consistent with desired conditions, standards and guidelines in the Forest Plan. The U.S. Forest Service determined that this project is similar to what has been approved and/or currently exists on NFS land. The decision to implement Alternative 2 does not establish any future precedent for other actions within or outside of the project area. Future actions that are not covered by the analysis in the EA will be evaluated through the NEPA process and will stand on their own as to the environmental effects and project feasibility.

7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. Significance cannot be avoided by terming an action temporary or by breaking it down into small component parts.

Cumulative effects were analyzed in the EA, and no significant cumulative impacts were identified. It should be noted that the Hermits Peak Calf Canyon Fire did not occur within the SFMLRP project area.

Based on the findings of the EA, the implementation of Alternative 2 will result in short-term adverse impacts that are less than significant, as well as many long-term beneficial impacts. Potential incremental impacts from the Selected Alternative to vegetation communities, fire and fuels, threatened and endangered species, flora and fauna, watersheds and hydrology, riparian resources, air quality and climate, recreation, scenery, heritage resources, tribal and traditional uses, range resources, and IRAs, with the implementation of design features (Appendix A), will be adverse during the short- term and beneficial over the long term.

Past, present, and reasonably foreseeable future actions (see EA Table 3.1) are generally expected to result in short-term adverse impacts to resources as a result of surface disturbance and increased human presence and long-term beneficial impacts to resources as a result of improved access and ecological health. These impacts would occur to the same resources impacted by Alternative 2. The cumulative beneficial impacts will include but are not limited to the maintenance of and creation of suitable wildlife habitat, including habitat for threatened and endangered species, reduction of risk of catastrophic wildfire, increased functionality of streams and riparian corridors, and restoration of native plant communities. Therefore, Alternative 2 will not result in significant adverse cumulative impacts.

8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places or may cause loss of destruction of significant scientific, cultural, or historical resources.

The analysis area contains 93 previously documented archaeological sites: 51 sites considered eligible, 26 undetermined until further testing, and 15 determined not eligible. One site, Glorieta Baldy Lookout, is listed in the NRHP. All listed, eligible, and unevaluated sites will be flagged and avoided by mechanical treatments. Hand-thinning and prescribed burning may occur within site boundaries provided the mitigation measures specified in the specialist report (U.S. Forest Service 2021b) are followed. Sites with combustible material will be protected during prescribed fire. Eligible, listed, and unevaluated sites will be monitored after the proposed treatments to assess whether the sites were adequately avoided and

the extent to which the treatments indirectly affected (e.g., damage from increased erosion) the sites. This project meets the standards and guidelines set forth in U.S. Forest Service Manual 2360, Region 3 Supplement 2300-91-1 and is in compliance with Section 106 of the National Historic Preservation Act, as amended. Given the nature of potential effects and the utilization of standard mitigation measures, the Selected Alternative will not have an adverse effect on cultural resources (U.S. Forest Service 2021b).

Consultation with the SHPO for this project and compliance with Section 106 of the National Historic Preservation Act is underway. Prior to any implementing activities, Section 106 compliance will be complete. The U.S. Forest Service will comply with the Region 3 programmatic agreement, design features for heritage resources, and any project-specific design features developed during Section 106 consultation.

9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has determined to be critical under the Endangered Species Act of 1973.

In coordination with the USFWS, the U.S. Forest Service determined that two Endangered Species Act (ESA)-listed species have the potential to occur within the project area and were therefore included in a Biological Assessment under Section 7 of the ESA. Project consultation was completed in April 2022 (Cons# 02ENNM00-2020-I-1177, ECOSphere Project Code: 2022-0000880).

The MSO is listed as threatened under the ESA and is the only federally listed species known to occur in the project area. Additionally, there is designated critical habitat for MSO in the project area. Potential short-term, adverse effects to the species include behavioral avoidance of otherwise suitable habitat due to increased activities within the project area (e.g., noise, vibration) and short-term reduction in available suitable nest/roost habitat during treatment. Due to the application of species-specific design features, no direct mortality of owls or impacts to reproductive activities will occur as a result of the Selected Alternative.

Holy Ghost ipomopsis (HGI) (*Ipomopsis sancti-spiritu*) is listed as endangered under the ESA and was determined to have the potential to occur in the project area due to the presence of marginally suitable habitat but is not known to occur within and immediately adjacent to the project area. With the application of project design features and the conditions-based approach, potential adverse impacts to this species will be limited to a reduction in unoccupied suitable habitat (U.S. Forest Service 2022c). Implementation of the Selected Alternative includes conservation measures that will minimize adverse effects to the MSO and HGI. USFWS issued a Biological Opinion on February 14, 2022 concluding that the project may affect but is not likely to adversely affect MSO and MSO critical habitat, and that the project will have no effect on HGI (U.S. Forest Service 2022c). In September 2022, the agency again discussed this project with USFWS and they have determined that there is not a need to reinitiate consultation. I have determined that Alternative 2 will not result in significant adverse effects on any threatened or endangered species or their critical habitats.

10. Whether the action threatens a violation of federal, state, or local law and requirements imposed for the protection of the environment.

I have reviewed the EA, Biological Assessment (BA), and the project file to determine that no federal, state, or local laws, regulations, or requirements for protection of the environment will be violated with implementation of Alternative 2. These laws and requirements are summarized below.

Issues Addressed in the EA

I considered the issues, concerns, and anticipated effects to the resources listed below in Table 6. I also reviewed project design features included in the EA and Appendix A of this document, reviewed public

comments that were received during the public scoping period and the EA public comment period, and considered how the Alternative 2 will address the stated purpose and need.

Table 6. Issues Addressed in the EA

Issue Category	Issue Description	EA Section where the Issue is Addressed
Planning & Public Involvement	The U.S. Forest Service needs to provide the public with more opportunities for involvement.	Section 1.7 Public Involvement and Tribal Consultation
Planning & Public Involvement	The U.S. Forest Service needs to prepare an environmental impact statement.	Summary
Modified Proposed Action or Alternative	The Proposed Action should be more site-specific.	Section 2.1.2—see the description of the conditions-based management approach
Modified Proposed Action or Alternative	The U.S. Forest Service should develop a detailed monitoring plan to accompany the Proposed Action.	Appendix D: Draft Monitoring Plan
Modified Proposed Action or Alternative	The U.S. Forest Service should limit treatments in the inventoried roadless areas (IRAs).	Section 3.14 Inventoried Roadless Areas
Modified Proposed Action or Alternative	The U.S. Forest Service should limit thinning of large and old trees.	Table 2.3
Modified Proposed Action or Alternative	The U.S. Forest Service should use a strategic approach to implementing treatments where they would be the most effective.	Section 2.1.2—see the description of the conditions-based management approach
Impacts Analysis	How would the proposed treatments address silvicultural concerns?	Section 3.2 Vegetation Communities
Impacts Analysis	How would the proposed treatments address forest health?	Section 3.2 Vegetation Communities
Impacts Analysis	How would the proposed treatments affect upland vegetation?	Section 3.2 Vegetation Communities
Impacts Analysis	How would the proposed treatments affect old growth?	Section 3.2 Vegetation Communities
Impacts Analysis	How would the site-specific amendments to the Forest Plan affect MSO and northern goshawk habitat?	Section 3.2 Vegetation Communities
Impacts Analysis	How effective would treatments be/how likely would treatments be to improve ecosystem resilience over time?	Section 3.3 Fire and Fuels
Impacts Analysis	What model of risk assessment was used and would be used to determine treatment locations?	Section 3.3 Fire and Fuels
Impacts Analysis	How would the proposed project impact various MSO habitat types?	Section 3.4 Threatened and Endangered Species
Impacts Analysis	Is the proposed project compliant with the USFWS 2012 MSO recovery plan?	Section 3.4 Threatened and Endangered Species
Impacts Analysis	How would the proposed project impact northern goshawk habitat?	Section 3.5 Flora and Fauna
Impacts Analysis	How would the proposed project impact U.S. Forest Service management indicator species?	Section 3.5 Flora and Fauna
Impact Analysis	Is the proposed project in compliance with the Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act?	Section 3.5 Flora and Fauna
Impacts Analysis	Would project activities degrade soil productivity by disturbing, compacting, and sterilizing the soil?	Section 3.6 Watersheds and Hydrology
Impacts Analysis	Would project activities cause increased peak stream flows, which may flood private property and infrastructure downstream?	Section 3.6 Watersheds and Hydrology

Issue Category	Issue Description	EA Section where the Issue is Addressed
Impacts Analysis	Would project activities degrade water quality through physical and chemical processes that add pollutants to water?	Section 3.6 Watersheds and Hydrology
Impacts Analysis	How would the proposed treatments affect conifer overabundance in riparian areas?	Section 3.7 Riparian Resources
Impacts Analysis	How would the proposed treatments affect the current overabundance of late seral conditions in riparian areas?	Section 3.7 Riparian Resources
Impacts Analysis	How would the proposed prescribed fire treatments affect riparian vegetation?	Section 3.7 Riparian Resources
Impacts Analysis	How would the proposed treatments contribute to global climate change?	Section 3.8 Air Quality and Climate
Impacts Analysis	How would the proposed prescribed burning associated with the proposed treatments impact local air quality?	Section 3.8 Air Quality and Climate
Impacts Analysis	How would the proposed treatments impact public access for recreation in the project area?	Section 3.9 Recreation
Impacts Analysis	How would the proposed treatments impact the scenic quality of the project area?	Section 3.10 Scenery
Impacts Analysis	How would the proposed treatments impact heritage resources in the project area?	Section 3.11 Heritage Resources
Impacts Analysis	How would the project treatments impact traditional cultural uses within the project area?	Section 3.12 Tribal and Traditional Uses
Impacts Analysis	How would livestock grazing impact the effectiveness of the proposed treatments?	Section 3.13 Range Resources
Impacts Analysis	How would the proposed project treatments impact livestock grazing within the project area?	Section 3.13 Range Resources
Impacts Analysis	How would the proposed treatments impact the character of the IRAs within the project area?	Section 3.14 Inventoried Roadless Areas

Discussion

I chose Alternative 2 and design features over the No Action Alternative for several reasons. Overall, Alternative 2 would provide a coordinated effort to improve the resiliency of the Santa Fe Mountains Fireshed to natural disturbances (e.g., lightning caused fire, insect and disease) and increased risk from climate change. Alternative 2 would allow for forest resiliency restoration treatments to be applied at a landscape scale, using the appropriate tools analyzed in the EA.

There may be some short-term impacts associated with the Alternative 2, such as minor disturbance to MSO behavior and changes to MSO habitat conditions, wildlife habitat and nesting site removal, temporary reductions in air quality due to smoke, temporary interruptions/ or restrictions to recreational sites, and visual impacts during treatment implementation. Project design features are included to reduce the potential for, and lessen the intensity of, adverse impacts. Over the long term, the Alternative 2 would result in movement of forest conditions toward desired conditions through implementation of conditions-based thinning, prescribed fire, and riparian restoration treatments. By improving forest composition and structure, the Alternative 2 is expected to have beneficial impacts on wildlife and vegetation communities by increasing habitat diversity and improving habitat conditions. Implementation of the Alternative 2 will reduce the potential of damaging wildfires occurring in the treated areas for approximately one decade and will increase ecosystem resistance and resilience to adverse climate change effects. These effects are detailed in Chapter 3 of the final EA.

In order to implement the Alternative 2, the Santa Fe National Forest will need to adhere to the process identified in Selected Alternative Description section above. Additionally, for prescribed fire treatments, there are additional procedures recently developed as a result of the Forest Service Prescribed Fire Program Review. These procedures involve enhanced measures associated with preparation of the Burn Plan, enhanced role of the unit line officer and Agency Administrator and enhanced external engagement activities.

In order to implement the Alternative 2, the U.S. Forest Service would follow the steps outlined above under the Selected Alternative Description to evaluate on-the-ground conditions that would inform the appropriate forest treatments and prescriptions to be applied in specific locations within the project area to move toward the desired conditions described in the EA.

Conclusion

Research and publications about the history of wildfire in the Sangre de Cristo Mountains has generated unequivocal evidence of frequent fires going back thousands of years. Historically, low- to moderate-intensity wildfires burned through the ponderosa pine and dry mixed conifer forests every 7 to 15 years. The exclusion of fire from this landscape since the 1890s has created a “fire deficit” with dense, overgrown forests and an unnaturally high build-up of fuels, which significantly increases the risk of catastrophic wildfire. Current best available science and our own on-the-ground experience confirm that fuel reduction treatments, including prescribed fire and thinning, can effectively mitigate fire behavior by reducing fire intensity and rate of spread.

Finding of No Significant Impact

The Finding of No Significant Impact (FONSI) documents the reasons why an action, not otherwise categorically excluded in 36 Code of Federal Regulations (CFR) 220, will not have a significant impact or effect (the terms impact and effect are used interchangeably in this document) on the human environment and for which an Environmental Impact Statement will not be prepared. When determining the potential significance of a proposed action, both context and intensity must be considered. The FONSI takes into account all information included in the EA, as well as documentation in the project record. Pertinent resource specialists have reviewed the proposal, and based on their input, I made the following determinations with regard to the degree of potential impacts for the context and intensity factors considered for a FONSI.

There may be some short-term impacts associated with Alternative 2, such as minor disturbance to MSO behavior and changes to MSO habitat conditions, general wildlife habitat removal or alteration, temporary reductions in air quality due to smoke, temporary interruptions/ or restrictions to recreational sites, and visual impacts during treatment implementation. Project design features are included to reduce the potential for, and lessen the intensity of, adverse impacts. Over the long term, the Alternative 2 would result in movement of forest conditions toward desired conditions through implementation of conditions-based thinning, prescribed fire, and riparian restoration treatments. By improving forest composition and structure, the Selected Alternative is expected to have beneficial impacts on wildlife and vegetation communities by increasing habitat diversity and improving habitat conditions. Implementation of the Selected Alternative will reduce the potential of damaging wildfires occurring in the treated areas for approximately one decade. Implementation of the Selected Alternative will increase ecosystem resistance and resilience to adverse climate change effects. These effects are detailed in Chapter 3 of the final EA.

Findings Required by Other Laws and Regulations

I have determined that Alternative 2 is consistent with the Forest Plan direction; therefore, this project complies with the National Forest Management Act of 1976. The project was designed to conform with all other laws, regulations, and polices, as documented in the project record.

Any required permits will be obtained prior to implementation. In addition, the Selected Alternative meets the requirements of the Clean Air Act (1990), the Clean Water Act (1972), the Migratory Bird Treaty Act (2001), the Multiple Use-Sustained Yield Act of 1960, Forest Service Manual 2600 - Wildlife, Fish, and Sensitive Plant Habitat Management, NEPA (1969), and the National Historic Preservation Act of 1966, as amended. The Selected Alternative will not cause disproportionately high or adverse human health or environmental impacts on minority or low-income populations in accordance with Executive Order 12898, Environmental Justice.

Chief's National Prescribed Fire Program Review 2022

In response to this review, the SFNF Fire and Fuels program is incorporating the Chief's directives into its policies and processes for prescribed burning to further reduce the risk of an escape. This includes engagement with external partners and community leaders. The SFNF will not resume prescribed fire operations until that work has been completed. The SFNF is also committed to going above and beyond the Chief's directives when it resumes its prescribed fire program. This project will be consistent with the 2022 National Prescribed Fire Program requirements set by the Chief. Before any prescribed burns may be implemented, forest wide, the SFNF will follow the immediate requirements and any future requirements that are identified in the National Program Review.

The SFNF remains committed to the national 10-year [Wildfire Crisis Strategy](#) and will integrate lessons learned into our procedures. Unfortunately, there is no risk-free path to forest restoration or to living amongst a forest that evolved with fire as a crucial natural process. Fire and fire management carry inherent risks, but the Forest Service and SFNF are actively working to minimize those risks.

Administrative Review and Objection Opportunities

A Final EA, Draft Decision Notice (DN) and Finding Of No Significant Impact (FONSI) and 45-day objection period was released on March 28th, 2022. On July 27th, 2022, during the Regional Office objection review the SFNF was directed to withdraw the Final EA and Draft DN FONSI for the Santa Fe Mountain Resiliency Project. Organizations or individuals who previously submitted comments specific to the SFMLRP during scoping or the comment period can submit an objection in the new objection period. Objections submitted in the earlier objection period that ended May 12 will have to be resubmitted to be considered.

The Santa Fe Mountains Landscape Resiliency Project Final EA, FONSI, and Draft Decision Notice were made available to the public on December 9, 2022, by posting the documents to the project website and through an email notification to those who had standing to object to the project. On December 9, 2022, the legal notice for the 45-day objection period was posted in Albuquerque Journal. In this legal notice, the public was notified that a draft decision based on the EA was made available and was subject to a pre-decisional objection process, pursuant to U.S. Forest Service regulations at 36 CFR 218 subparts A and B.

Implementation Date

Implementation of the SFMLRP can begin immediately upon the signing of the final decision pursuant to regulations at 36 CFR 218, provided all project design features and mitigations are in place.

Implementation of prescribed burns within the project area may begin only after the Santa Fe National Forest has met the requirements set by the Chief's National Prescribed Fire Program Review.

Contact

For additional information concerning this decision, contact: Sandra Imler-Jacquez, Espanola District Ranger, 505.753.7331 or Sandra.imler-jacquez@usda.gov.

Approval

James D Duran, Santa Fe National Forest, Acting Forest Supervisor

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Appendix A. Design Features, Best Management Practices, and Mitigation Measures

Design Features, Best Management Practices, and Mitigation Measures

This section contains additional information regarding how project activities under the proposed action alternative would be implemented. It includes a list of design features, best management practices (BMPs), and mitigation measures, as defined below:

- BMPs: guidelines or minimum standards for the proper application of management activities and operations.
- Design Features: a list of management actions that are designed to guide implementation of on-the-ground activities to achieve desired conditions while minimizing adverse effects. Design features are integral to and considered part of the Proposed Action.
- Mitigation Measure: an activity or limitation that is implemented in conjunction with a project activity in order to avoid, minimize, or eliminate adverse impacts that could result from implementation of the Proposed Action (40 CFR 1508.20).

The analysis of effects presented in Chapter 3 assumes the implementation of relevant design features, BMPs, and mitigation measures *as they apply* to the proposed conditions-based management actions. Not every measure may be needed in every unit. Monitoring measures are included in a separate monitoring plan, see Appendix D. The measures listed below are based on Forest Plan direction and policy, best available science, site-specific evaluations and other relevant policies, guidelines, standards.

All Activities

Best Management Practices

Purpose: Communicate project and policy requirements to all parties involved in implementing management activities

General-1 Implementation, layout and prep personnel, including the U.S. Forest Service, partners, contractors and others, would be briefed on all applicable design features, resource protection measures, BMPs, and standards and guidelines from the Forest Plan, recovery plans, etc. prior to implementation, between phases and as needed, such as, as personnel changes.

Purpose: Minimize litter, waste, and other human-caused disturbances during project implementation.

General-2 Santa Fe NF employees and contractors would follow Leave No Trace practices, including packing out all trash, burying human waste properly, and respecting wildlife that may be encountered.

Purpose: Public safety and coordination.

General-3 Recreation sites, roads, trails, or other areas scheduled for treatment may be temporarily closed during treatment activities to ensure public safety. Project activities would be coordinated with potentially affected adjacent landowners, range allotment permittees, special use permittees, and any other permit holders as needed to minimize access impacts.

Botany and Invasive Species/Weeds

Best Management Practices

Purpose: Prevent the spread and establishment of noxious and invasive weeds.

Plant-1 Weed prevention educational materials would be provided to fuelwood cutters and gatherers as part of the permitting process.

Mitigation Measures

Purpose: Prevent the spread and establishment of noxious and invasive weeds. Manage sensitive plant habitat.

Plant-2 All off-road equipment (e.g. masticators, OHVs) would be weed-free prior to entering the project area. Staging of equipment would be done in weed free areas. Equipment would be pressure-washed, inspected and weed-free (includes free of soil, seeds vegetative matter and other debris) before entering the project area and before moving between treatment areas.

Plant-3 Areas of noxious and invasive weeds would be avoided except for treatments that may be designed to reduce weed populations.

Plant-4 Disturbance areas such as staging areas and parking areas would be located outside of known weed areas by at least 300 feet. GIS mapping layers. Forest/District Weed specialist and a U.S. Forest Service Biologist would be consulted prior to treatments.

Plant-5 Fire lines would not be constructed through or within 150 feet of invasive weed sites.

Plant-6 If project implementation calls for seed mixes, mulches or fill, they would be State-certified as weed-free. Seed mixes used for re-vegetation of disturbed sites would consist of locally adapted native plants to the extent practicable.

Plant-7 If deemed necessary for successful riparian restoration, herbicides would be applied to non-native species within riparian areas in a manner that is consistent with the SFNF Invasive Plant Control Project ROD (U.S. Forest Service 2018).

Plant-8 Coordination with resources specialists and applicable partnering agencies would occur to determine appropriate mitigation measures necessary to protect HGI during implementation of proposed treatments. Example mitigation could include flagging and avoiding the area.

Ips Beetle

Design Features

Purpose: Prevent the establishment and spread of Ips beetle infestations.

Ips-1. Slash would be treated promptly through lop/scatter, chipping, mastication, hand pile burning, or prescribed burning. Concentrations of chipped/masticated material would not be allowed to accumulate over 4 inches in depth on more than 20% of treatment unit. Chipped/masticated materials would be distributed on slopes where they would dry quickly.

Ips-2 Activity fuels would be disposed of as soon as possible and typically would not remain for more than two years depending on burn windows.

Mitigation Measures

Purpose: Prevent the establishment and spread of Ips beetle infestations.

- Ips-3 When practical, activity slash would be created only between July through December unless the potential for Ips infestation is determined to be low.
- Ips-4 Creating activity slash in adjacent treatment areas would be avoided for multiple years if risk of beetle infestation is determined to be high by the Silviculturist.
- Ips-5 Mechanical damage would be avoided to residual trees and their root systems to reduce risk of attracting bark beetles.

Hydrology and Riparian Resources

Best Management Practices

Purpose: Communicate project and policy requirements to all parties involved in implementing management activities.

- Water-1. Activities in drainage bottoms (e.g., near stream channels and within swales) would be coordinated with wildlife, fisheries, and watershed personnel.

Purpose: To maintain water quality

- Water-2. To prevent introducing chemical pollutants to waterbodies and soils, all equipment would be washed, clean and free of leaks prior to entering the project area. Regularly inspect equipment for leaks during use.
- Water-3. Spill containment materials (e.g., impermeable containment berms, absorbent pads, etc.) would be required on site to ensure that spilled fuel would not leave the staging and fueling areas.
- Water-4. Fueling and equipment staging/maintenance areas would be located outside of Riparian Management Zones (RMZ¹) and would only be the minimum size needed for their function. Existing landings and non-system routes within RMZs may be used (given aquatic, biologic, or watershed specialist coordination) if water quality concerns can be abated through prevention measures.

Design Features

Purpose: To minimize noxious weed spread and re-establish native vegetation.

- Water-5. Where livestock have access to seeps and springs, trees would be felled directionally around the RMZ of these features to protect them from livestock access.
- Water-6. For riparian planting activities:
- Where possible, source plants from local, native stock.

¹ Riparian Management Zones (RMZs) are defined by either a site-appropriate delineation of the riparian area (including one site potential tree height) or a buffer of 100 feet from the edges (e.g., each bank) of all perennial and intermittent streams, lakes, seeps, springs, and other wetlands or 15 feet from the edges of the ephemeral channels. The exact width of RMZs may vary based on ecological or geomorphic factors or by waterbody type, but includes those areas that provide riparian and aquatic ecosystem functions and connectivity. The waterbody itself is considered part of the RMZ.

- Plant appropriate riparian species for the ERU.
- Monitor plantings shortly after implementation; where necessary, fence plantings from herbivory (especially within active range allotments).
- Do not plant in periods of drought, during or prior to dry seasons.

Mitigation Measures

Purpose: To minimize erosion, promote soil productivity, and to maintain water quality.

- Water-7. The RMZ is largely an equipment exclusion area. Vehicles, including heavy equipment (such as dozers, masticators), plows and ATV/UTVs, would be only minimally operated within RMZs when absolutely necessary. If vehicles must enter the RMZ, they would not be driven within a stream channel but would stick to designated routes and crossings as described in Water-6. Operation plans would be coordinated with watershed personnel.
- Water-8. Motor vehicles (including ATV/UTVs and heavy equipment) would only cross stream channels at designated crossing areas; perennial stream crossings would be designated in consultation with a watershed or aquatic habitat specialist. Where routes cross ephemeral or intermittent channels, crossing would be done when channels are dry. Stream channels would not be crossed where equipment would cause bank breakdown. Woody debris or rock may be placed into crossings to reduce soil disturbance and compaction. Upon completion of use, the crossing would be rehabilitated to maintain a stable channel.
- Water-9. New and existing landings, campsites, helipads, and drop points, would be located outside of RMZs and would only be the minimum size needed for their function.
- Water-10. New and existing landings, campsites, helipads, drop points, fueling and equipment staging/maintenance areas would be evaluated post-treatment (and decommissioned when no longer needed) to facilitate soil recovery and prevent erosion.
- Water-11. Prior to periods of wet weather, and immediately after an area has been treated, erosion control measures (e.g. waterbars, rolling dips) would be installed on all fireline, access routes, and staging areas. Waterbars would be installed with the maximum spacing dependent on slope gradient (Table C.1), have an open outlet, constructed lead-off, berm tied into the cut-bank, a 2% to 4% outslope, and a skew of 30 to 45 degrees (from perpendicular to the travel route), with a height (crown to trough) of 12 to 18 inches.

Table A.1. Waterbar Construction Guidelines

Gradient (%)	Spacing (feet)
<5	200
5–10	150
10–20	100
21–40	50
>40	25

Prescribed Fire and Slash Pile Burning in Riparian Areas

Best Management Practices

Purpose: To minimize soil erosion, maintain soil productivity and maintain water quality.

- Rx-1. If water drafting sites are needed for the project, they would meet BMPs² prior to use, during use and after final use for this project's completion.
- Rx-2. Water drafting sites would only be used after coordination with a U.S. Forest Service Biologist. Drafting sites would not be used where they contain whirling disease or Chytrid fungus. To avoid the inadvertent spread of these organisms, water drafting equipment would be decontaminated before use in the project area, between different water sources, and after implementation is complete. Refer to guidance found in *Preventing Spread of Aquatic Invasive Organisms Common to the Southwest Region Technical Guidelines for Fire Operations, Interagency Guidance Rev. August 2009* or more recent, and the *Guide to Preventing Aquatic Invasive Species Transport by Wildland Fire Operations* (<https://www.nwcg.gov/publications/444>).
- Rx-3. Screens would be used to prevent organism entrapment during water drafting.
- Rx-4. Drafting would not completely dewater any water feature; enough water would remain for aquatic and wildlife species.

Design Features

Purpose: To minimize soil erosion, maintain soil productivity and maintain water quality.

- Rx-5. To reduce fuel loads around stream channels and water bodies but maintain vegetation and duff, low-intensity prescribed fire may occur within the RMZ. Fire ignition however would not take place within the RMZ. Fire would be allowed to back down in the RMZ.
- Rx-6. Pre-treat (hand thin vegetation) within the RMZ as needed to avoid moderate and high intensity fire within the RMZ.
- Rx-7. Wherever possible, slash piles would be built outside of the RMZ, drainage bottoms, and swales (valley bottoms). If slash piles must be constructed in these areas, consult a watershed specialist for best placement. If slash must remain in these areas, scattering slash is preferred to piling. If piling must occur within these areas, the following would apply:
 - a) Piles would be stacked as far from the channel and riparian vegetation as possible; where no riparian vegetation exists, piles would be stacked as far away from the channel as possible (at least 25 feet from the channel and outside the high-water zone).
 - b) Piles would be built small (<100 square feet each) in order to minimize fire residence time and subsequent soil impacts.
 - c) Not all piles would be burned; maintain some unburned piles.
 - d) Piles would be burned when soil moistures are high, or when snow is on the ground.
 - e) If slash must be piled in windrows, rows would be along the contour and would not be in drainage bottoms.

² U.S. Forest Service: FS-990a. National Best Management Practices for Water Quality Management on National Forest System Lands, Volume 1. April 2012. https://www.fs.fed.us/naturalresources/watershed/pubs/FS_National_Core_BMPs_April2012.pdf

- f) Burn pile composition should contain a mixture of fuel sizes. Large woody fuels, over 8.9 inches in diameter, should be limited to less than 40% of the composition of the pile to prevent adverse impacts to the soil.

Mitigation Measures

Purpose: To minimize soil erosion, maintain soil productivity and maintain water quality.

- Rx-8. Follow the implementation strategy for avoiding adverse cumulative watershed effects (CWEs) by the proposed action, as described in Appendix F.
- Rx-9. Water sources would not be contaminated with foaming agents.
- Rx-10. Fireline would not be installed parallel to stream channels and would intersect stream channels as perpendicular as possible; fireline width would be minimal, only as large as needed.

Riparian Thinning Activities

Best Management Practices

Purpose: To maintain water quality and minimize soil erosion.

- Thin-1 Operators of masticators and other heavy equipment should strive to disturb the soil as little as possible; wherever possible, machines should not execute abrupt pivot turns, but instead make as broad of an arc as the terrain will allow. Machines should not cause ruts more than 4" deep. Masticators would use low psi tracks/tires.

Design Features

Purpose: To maintain and re-establish native vegetation.

- Thin-2 Other riparian species (willows, cottonwood, aspen, etc.) would not be cut or removed unless for transplanting, with the exception of some, but not all, aspen could be cut to promote regeneration in areas where health and vigor are insufficient.

Purpose: To maintain streambank stability and water quality

- Thin-3 To maintain natural bank protection and shade, large downed wood in stream channels would remain in place and bank stability trees (large trees >12 inches dbh with roots in the bank and/or branches directly over the bank) would be left.
- Thin-4 Maintain stream shade within the RMZ; consult a watershed specialist if thinning activities may substantially reduce stream shade. Where necessary or desired, plant site appropriate riparian species.
- Thin-5 Galisteo Creek is not meeting state water quality standards for temperature and has an associated total maximum daily load (TMDL), which recommends increasing the percentage total shade from 8 to 81. Consult a watershed specialist when developing thinning prescriptions which may affect shade over this stream. Promote stream shade.

Mitigation Measures

Purpose: To maintain water quality and minimize soil erosion.

- Thin-6 So as to prevent disturbance by motor vehicles, do not promote fuelwood gathering by the public within the RMZ.

- Thin-7 Machine piling of activity-generated slash would be conducted in a manner that minimizes the amount of soil displaced into burn piles. Duff and litter layers would be left as intact as possible.
- Thin-8 Where it would not cause fuel loading or Ips beetle concerns, use slash to help infiltrate runoff, prevent erosion, and treat eroded areas.
- Thin-9 Wherever possible, fell hillslope trees on contour; leave large sections of the boles (1000-hour fuels) in contact with the soil for the purpose of slowing overland flow as well as catching eroded soil, seeds, and nutrients. These logs should serve to quickly re-generate vegetation and filter water. This is especially important on south and west facing slopes.
- Thin-10 Depth of masticated materials should not exceed an average of 4 inches and materials should be discontinuous at the quarter-acre scale to protect the soil and allow for natural revegetation.

Soils

Best Management Practices

Purpose: To minimize soil erosion and maintain soil productivity.

- Soil-1 UTVs and ATVs may be used for transportation around the project area during implementation. To the extent possible, travel on existing routes and trails; if off-route travel must occur, avoid travelling across side-slopes; attempt to travel on ridges.
- Soil-2 To protect road infrastructure from rutting, travel to and from the project area on Forest roads and trails would be limited during periods when resource damage could occur.
- Soil- 3 To the extent possible, existing disturbance areas (e.g., user created routes, staging areas, access trails) would be utilized rather than creating new ones.
- Soil-4 Where desired for ground cover and erosion control, access routes, firelines, staging areas and other disturbed areas may be scarified and seeded, mulched, and/or covered with slash.

Design Features

Purpose: To minimize soil erosion and maintain soil productivity.

- Soil-4 Machine piling operations would remove only enough activity-generated slash to accomplish surface fuel reduction needs.
- Soil-5 The depth of scattered slash would be the minimum needed to limit soil erosion, so as not to impede understory growth of grasses, forbs and brush.

Mitigation Measures

Purpose: To minimize soil erosion and maintain soil productivity.

- Soil-6 Prior to and during mechanical treatments, soil moisture conditions would be evaluated and monitored for operability. To prevent soil compaction and displacement, equipment (e.g., masticators, ATVs, UTVs, trucks) would only operate off of constructed roads when soil moisture is low, the ground is adequately frozen, or covered with sufficient snow.

Soil-7 For the retention of long-term soil productivity and to reduce erosion, burning would be implemented when the lower duff layer (decomposed organic matter) in contact with the soil surface is moist enough so a cool burn can be assured to avoid hydrophobic soil conditions.

Recreation

Design Features

Purpose: To reduce visibility of treatments.

Rec-1. Create a 150-foot visual buffer around campgrounds and picnic areas where no thinning or piling would occur. Prescribed fire would be allowed to back into these areas.

Mitigation Measures

Purpose: To protect and maintain trails within the project area and to minimize impacts on recreation users.

Rec-2. If equipment must cross trails and roads, crossing would be minimal, perpendicular to the trail, and rehabilitated after treatment of the area.

Rec-3. Use of trails as access routes for heavy equipment should be considered carefully and other routes evaluated to best protect all resources, including recreation.

Rec-4. If trails must be used as access routes, they need to be fully reclaimed with sustainable trail practices implemented such as proper cut slope, width for managed use, and drainage features including rolling grade dips, water turnouts, armoring above and below the trail at drainage crossings, water bars, and check darns. Trail reconstruction will be coordinated with the U.S. Forest Service recreation team.

Rec-5. Avoid crossing or using motorized and nonmotorized system trails where feasible. If a trail or section of trail is affected, the trail shall be restored to the original condition. All treatment slash and debris would be removed from trails. It is acceptable to make perpendicular trail crossings. Trail crossing locations would be designated and flagged with input from a qualified U.S. Forest Service recreation staff or designated representative. Crossings of existing forest system trails would be restored to pre-project condition after use.

Rec-6. Applicable signing would be placed at camping areas, trailheads and along trails to warn Forest visitors of project implementation activities such as tree thinning or prescribed burning along trails. Information may also be provided through the U.S. Forest Service website, news releases, traffic control and signage, or other measures as appropriate.

Rec-7. Where possible, schedule work that would limit recreation access such that it does not occur around holidays and weekends. Coordination would occur with any sponsors of recreational special use events to minimize impacts to planned events occurring in the project area during implementation.

Rec-8. Where riparian areas are fenced, ensure that these do not block system trails. If they do, provide an easy portal through the fence.

Purpose: To reduce visibility of treatments.

Rec-9. Stumps will be cut to a maximum of 8 inches within 50 feet of National Forest System trails, and as low as possible in all other distances zones.

Rec-10. Paint and markings, such as butt marks, leave-tree and boundary markings within 150 feet of National Forest System trails, roads, and campgrounds would be applied facing away from these areas to reduce visibility. Flagging would be used in these areas, where practical, to mark unit boundaries and should be removed upon project completion.

Rec-11. Cut trees flush with trail when they need to be cut on the edge of the trail and road.

Rec-12. Disguise route entrances to firelines with rocks, boulders, downed trees, and forest litter to prevent them from being seen, easily accessed and becoming user trails. It should be difficult to access these areas for recreational use.

Purpose: Achieve scenic integrity consistent with Forest Plan direction.

Rec-13. Activity-generated fuels created within 150 feet of National Forest System trails and roads would be piled and burned or removed within 2 years of operations and within 1 year for areas managed for a Visual Quality Objective of Retention. Where possible, leave a vegetative buffer of at least 33 feet alongside the trail.

Scenery Resources

Best Management Practices

Purpose: Communicate project and policy requirements to all parties involved in implementing management activities.

Scen-1 A landscape architect or forest scenery specialist would be involved with the treatment unit layout strategy in Sensitivity (Concern) Level 1 areas. The extent of viewsheds from Sensitivity Level 1 areas would be confirmed in the field.

Scen-2 When fencing is visible from Sensitivity Level 1 travelways and use-areas, consult Forest recreation staff about its design, e.g., form, color and material.

Purpose: To reduce visibility of treatments.

Scen-3 When possible, firelines would utilize existing features such as roads and trails (considering stock trails if near the area desired) and natural features (rocks and cliff-faces)

Scen-4 Fire control lines would be constructed, wherever possible, to reduce the contrast so that they are not noticeable in the middle and background views.

Scen-5 Thinning of trees should have a form and shape that simulates natural patterns and openings and edges blended to minimize visibility of unit edges (such as avoiding straight lines, sharp corners, or geometric shapes). Where feasible, the edges of such treatments should be: tied into existing meadows and openings, follow natural topographic breaks and changes in vegetation, or provide feathering that allows gradual transition into the untreated adjacent forest area (as opposed to an abrupt line).

Scen-6 When feasible, treat both sides of open system roads and trails to avoid contrast.

Scen-7 Stumps will be cut to a maximum of 8 inches within 150 feet of National Forest System roads, and as low as possible in all other distances zones.

Mitigation Measures

Purpose: To reduce visibility of treatments.

Scen-8 Mechanical and manual thinning treatments along linear features, such as roads, trails or property lines would be implemented in a manner that does not emphasize straight lines and draw attention to the linear feature.

Scen-9 No machine piles within the immediate foreground (300 feet) of sensitive viewpoints.

Scen-10 Fire control line construction would only occur where necessary. Any fire control line constructed would be to minimal standard needed to complete prescribed burning.

Cultural Resources

Standard cultural resource protection measures will be implemented to protect Historic Properties (also referred to as archaeological sites or cultural sites) and to ensure No Adverse Effect to Historic Properties. These standard protection measures are identified in Appendix J and Appendix E of the Region 3 Programmatic Agreement (USDA-FS 2010). These standard protection measures have been modified for the purposes of this project. Historic Properties *Listed* on the National Register of Historic Places (NRHP), *Eligible* for the NRHP, or *Unevaluated/Undetermined* for the NRHP will be protected during all project activities. Sites determined *Not Eligible* for listing on the NRHP will be documented but not protected. If previously unidentified cultural materials are discovered during implementation, work will cease in the area until a qualified professional archaeologist is notified and has approved restarting work.

Best Management Practices

Purpose: Communicate project and policy requirements to all parties involved in implementing management activities.

Heritage-1 Allow project activities within site boundaries, provided a qualified professional archaeologist is present to monitor sites (those Listed, Eligible, or Unevaluated/Undetermined for the NRHP) during and following project activities.

Mitigation Measures

Purpose: Protect cultural resources and ensure No Adverse Effect to Historic Properties

Compliance with the National Historic Preservation Act (NHPA)

Heritage-2 No ground disturbance will take place within site boundaries of Listed, Eligible, or Unevaluated/Undetermined sites without SHPO consultation.

Purpose: Consistency with Appendix E of the Region 3 Programmatic Agreement (USDA-FS 2010)

Heritage-3 Rubber-tired vehicles may cross through sites only on existing roads and must remain within the existing road prism.

Heritage-4 Utility Terrain Vehicles (UTVs) and All-terrain Vehicles (ATVs) may cross through sites only on existing roads and motorized trails as long as the vehicles remain within the existing road or motorized trail prism.

Purpose: Consistency with Appendix J of the Region 3 Programmatic Agreement (USDA-FS 2010)

- Heritage-5 Do not use tracked vehicles or other heavy or mechanical equipment within site boundaries.
- Heritage-6 Do not stage personnel or equipment within site boundaries.
- Heritage-7 Do not pile logs, trees, and other thinned materials (slash) within site boundaries.
- Heritage-8 Remove vegetation by hand from within site boundaries.
- Heritage-9 Do not drag logs, trees, or thinned material (slash) across or within site boundaries.

Purpose: Consistency with Forest Plan standards.

- Heritage-10 Reduce dense vegetation within site boundaries.
- Heritage-11 Remove dead and down vegetation within site boundaries, especially logs in direct contact with cultural features.
- Heritage-12 Qualified professional archaeologists will mark sites with white flagging tape or paint for identification during project activities.

Vegetation Thinning Treatments

When manual or mechanical vegetation thinning activities will occur, the following mitigations or combination of mitigations will be followed in addition to those listed above in the *Standard Design Features for all Project Activities within Archaeological Sites* section:

Design Features

Purpose: Protect cultural resources and ensure No Adverse Effect to Historic Properties**Consistency with Appendix J of the Region 3 Programmatic Agreement (USDA-FS 2010)**

- Heritage-13 Allow treatments within site boundaries, provided:
- a. Cutting is accomplished using hand tools only (chainsaws or cross-cut saws)
 - b. Trees are felled away from all features

Mitigation Measures

Purpose: Protect cultural resources and ensure No Adverse Effect to Historic Properties**Consistency with Appendix J of the Region 3 Programmatic Agreement (USDA-FS 2010)**

- Heritage-14 Allow construction of landing zones and staging areas in 100% surveyed areas, with archaeological monitoring as appropriate to ensure sites are avoided by ground-disturbing activities.
- Heritage-15 In areas of less than 100% survey, cultural resources survey and clearance is required prior to construction of landing zones and staging areas.

Prescribed Fire Treatments

Where prescribed burning activities will occur, the following mitigations or combination of mitigations will be followed, in addition to those listed above in the *Standard Design Features for all Project Activities within Archaeological Sites* section:

Purpose: Protect cultural resources and ensure No Adverse Effect to Historic Properties

Consistency with Appendix J of the Region 3 Programmatic Agreement (USDA-FS 2010)

Heritage-16 Purpose: Protect cultural resources and ensure No Adverse Effect to Historic Properties

Heritage-17 No ignition points within site boundaries

Heritage-18 Allow construction of safety zones, helicopter landing and sling sites, staging areas, and additional fire line in 100% surveyed areas, with archaeological monitoring as appropriate to assure sites are avoided.

Heritage-19 In areas of less than 100% survey, cultural resources survey and clearance is required prior to construction of safety zones, helicopter landing and sling sites, staging areas, and additional fire line.

Heritage-20 Site protection measures and fuel reduction treatments will occur prior to implementing prescribed burns.

Heritage-21 Site protection measures and fuel reduction treatments will be monitored by a qualified professional archaeologist.

Heritage-22 Allow prescribed fire to burn through sites with low or moderate fire sensitivity, provided that heavy fuels are removed prior to burning.

Heritage-23 Protect fire-sensitive sites (e.g. sites with combustible features, rock art, rock or cave shelters, or structures comprised of friable stone). Protection measures may include the following:

- a. Exclude from project area, OR
- b. Use hand line, black line or wet line to prevent the spread of fire into sites
- c. Use foam retardant or structural fire shelter directly on fire-sensitive resources to prevent their consumption
- d. Ensure that heavy fuels that cannot be removed from within site boundaries are not ignited
- e. Implement same protective measures for all future maintenance burns
- f. When using aerial ignition, provide pilot with GPS site locations to avoid the sites
- g. A qualified professional archaeologist will monitor fire-sensitive sites during prescribed burning.

Road Closure

Where forest road closure will occur, the following mitigations, or combination of mitigations, will be followed, in addition to those listed above in the *Standard Design Features for all Project Activities within Archaeological Sites* section:

Mitigation Measures

Purpose: Protect cultural resources and ensure No Adverse Effect to Historic Properties

Consistency with Appendix E of the Region 3 Programmatic Agreement (USDA-FS 2010)

- Heritage-24 Sites adjacent to a proposed road closure will be flagged for avoidance.
- Heritage-25 Earth-disturbing closure activities (e.g., earthen berm construction, ripping road tread) may take place within site boundaries only if the Forest and the SHPO agree that there will be No Effect or No Adverse Effect to sites.
- Heritage-26 Vehicles and equipment using U.S. Forest Service roads must stay on the road prism in areas that bisect heritage sites.
- Heritage-27 No new road construction, reconstruction, or modification of the existing road prism within site boundaries.

Range Resources

Grazing Management Activities & Protection of Allotment Improvements:

Best Management Practices

Purpose: Maintain existing rangeland monitoring sites.

- Range-1. Existing rangeland monitoring sites would be located prior to treatments. Monitoring sites would not be excluded from treatments; however, sites would not be used for landing areas and slash piles.

Purpose: Coordinate management activities with range staff to minimize impacts to rangeland resources.

- Range-2. Before treatments occur, consult with district range staff to coordinate pasture use.
- Range-3. All water infrastructure (earthen dams, trick tanks, storage tanks, pipelines, drinkers, etc.) should not be removed or excluded from treatments. Any damage to infrastructure due to project implementation activities would be reported to the District and repairs coordinated with relevant District staff.
- Range-4. Damage to range infrastructure would be avoided to the extent possible. If there is damage to infrastructure from treatments, it would be restored before the project is completed.
- Range-5. Managers of vegetation treatment projects would consult with District range managers to ensure alteration of natural barriers does not allow livestock to circumvent fences and lose the integrity of the pasture or allotment.
- Range-6. All pasture gates would be kept closed during the grazing season (May through November).
- Range-7. Fence openings created to facilitate any management actions should be closed each day in active grazing areas during the grazing season. (May through November)

Prescribed Burning

Best Management Practices

Purpose: Minimize impacts to range infrastructure.

- Range-8. Fire and timber personnel would coordinate with district range staff on prescribed burn operations and thinning prior to implementation.
- Range-9. Avoid damaging fire-sensitive range infrastructure (corrals, pipelines, water storage tanks, water troughs, fences, and cattleguards) to the extent possible. Methods may include pre-burn fuel removal, fire containment lines around structures, strategic ignition patterns, or other methods. Any damage to infrastructure due to project implementation activities would be reported to the District and repairs coordinated with relevant District staff.
- Range-10. Fence lines would be used as burn area boundaries when possible.
- Range-11. When and where possible, take advantage of natural barriers and existing roads to limit soil disturbance and construction of new fires lines.

Design Features

Purpose: Minimize impacts to rangeland resources.

- Range-12. Livestock would be managed to allow for habitat response after project implementation. Allotment pastures would be rested from grazing for a minimum of one year following broadcast burning of that pasture. Prior to livestock being authorized to graze an area that was treated with prescribed burning, interdisciplinary vegetation monitoring would be conducted to determine if plant health and groundcover has recovered sufficiently to support grazing and protect soil.
- Range-13. No single pasture within a grazing allotment would be treated with prescribed fire within two consecutive years.

Air Quality and Public Health

Mitigation Measures

Purpose: Reduce impacts of prescribed burning to air quality and public health.

- Air 1. Burn when fuel conditions are conducive for slow to moderate fire spread in short needle fuel beds. This typically occurs in the early spring, late summer, or fall. Short needle fuel beds occur under mixed conifer that dominates sites on north aspects.
- Air 2. Consider burning with relatively good nighttime humidity recoveries (weather conditions decrease fire activity)
- Air 3. Prescribed burning will use emission reductions techniques and will be coordinated with the State of New Mexico, in compliance with its smoke management plan, to minimize the effects on air quality. Monitoring would comply with NMED direction.
- Air 4. Activities will be planned to meet applicable Federal, State, and local air quality regulations, including protection of Pecos Wilderness Class I Airshed
- Air 5. Broadcast burning will only be conducted during accepted weather conditions for wind + ventilation. Pile burning, which is usually conducted in the late fall and winter, may be done during fair or poor ventilation days using a waiver.
- Air 6. Burn when weather conditions are predicted to reduce smoke impacts to population centers during ignitions and at least one day following ignitions.

Wildlife Resources

Note: The Biological Assessment and Biological Evaluation use the term Integrated Design Features (IDFs) to refer collectively to the Best Management Practices, Design Features and Mitigation Measures identified here.

Best Management Practices

Purpose: Communicate project and policy requirements to all parties involved in implementing management activities.

- Wild-1 A U.S. Forest Service Biologist would be consulted prior to treatment unit preparation as well as during implementation as necessary to assure these wildlife measures are taken into account.
- Wild-2 If treatments that might disturb nests are planned to occur during nesting season, nests and dens would be located during project preparations before implementation occurs. Procedures for locating the nests and dens would be coordinated with an FS Biologist.

Purpose: Compliance with the Endangered Species Act.

- Wild-3 If any U.S. Forest Service Sensitive Species or Threatened or Endangered species is observed within or near the project area before or during implementation, sufficient protection would be provided in accordance with recovery plans and specific forest, regional and national guidance. Implementation would cease until an FS biologist has been notified, has investigated and has made recommendations. Occurrences would also be documented and recorded in the appropriate databases, such as GIS.

Purpose: Meet the project's desired conditions

Create and maintain diversity in structure, composition, and age classes across the landscape.

- Wild-4 Large down logs would not be targeted for crushing or displacement with machinery, but some may be damaged during implementation (e.g. mastication along strategic fuel breaks).
- Wild-5 Prescribed burning treatments would be implemented to attain low-to-moderate fire severity across the burn area. Implementors would strive to limit high burn severity areas to <10% of each burn unit. Such efforts are expected to create a mosaic burn pattern, with a diversity of fuel consumption and fire intensity.
- Wild-6 If present, Gambel oaks would be retained by not targeting them for removal during thinning activities, but some may be removed when preparing firelines. To the extent feasible, native shrubs such as wild rose (*Rosa* spp.), mountain mahogany (*Cercocarpus montanus*), Rocky mountain maple (*Acer glabrum*), currants (*Ribes* spp.), and raspberry (*Rubus* spp.) would be retained during thinning activities. Prescribed fire implementation would not target these species for ignition but would be allowed to consume some in a mosaic manner; burning some while leaving others unburned.
- Wild-7 Where available, at least 3 trees per acre with unique branching, broke-off top, spike-top or multiple tops would be retained, with additional emphasis within 200 feet along cliffs, major ridges and openings. Preferred species for retention would be large pines and firs.

Design Features

Purpose: Consistency with Forest Plan direction for vegetation management.

Meet the project's desired conditions

Create and maintain diversity in structure, composition, and age classes across the landscape.

Create and maintain diverse habitat types across the landscape.

- Wild-8 Leave-islands (thickets or clumps) and openings would be distributed throughout each treatment unit to provide for cover and foraging areas for wildlife species as well as to retain younger age classes. Leave islands would be approximately $\frac{1}{4}$ to $\frac{1}{2}$ acre in size and approximately 10% of the treatment unit.
- Wild-9 An average of 3 slash piles (approximately 3 feet high and 10 feet in diameter) per acre would be retained (not burned) except within a 0.25 mile of privately owned structures, where at least 1 slash pile (at least 3'h x 10'd) per acre would be retained. To provide cover and nesting habitat, location preference would be near (within $\frac{1}{4}$ mile) water sources and away from infrastructure such as roads, campgrounds, buildings, private land, etc.
- Wild-10 The retention and release of aspen, oaks, Scouler's willow and the release of the largest ponderosa pines and largest Douglas fir would be facilitated by focused thinning immediately surrounding these species. Focused thinning would remove the conifers under and over the canopy of these species and ideally/approximately an additional 30 feet beyond. This would be done in coordination with an FS Biologist.
- Wild-11 Trees selected for retention in project-created openings would be suited for open stand conditions, such as pines. Firs would not be selected for retention in openings, as they are more susceptible to sun-scorch and wind-throw in open conditions.
- Wild-12 To the extent practical, cover would be maintained to provide connectivity corridors for big game as well as furbearers. This would include leave-islands and stringers that would generally connect across the landscape. Screening (areas that have not been thinned with sufficient vegetation cover to block viewing long-distances) would be used, especially along roads. Screening would be designated beyond the primary road corridor to allow for fire management.
- Wild-13 In pinyon-juniper (PJ) woodlands, depending on the habitat type (PJ persistent, PJ savanna, PJ grassland, etc.), treatments would be implemented to promote pinyon jay habitat (mast-producing trees, nesting cover and recruitment) and connectivity. At least 15% of mature and over-mature mast-producing stands of pinon-juniper and oak zones within each treatment area would be maintained.

Mitigation Measures

Purpose: Consistency with Forest Plan direction for vegetation management.

Meet the project's desired conditions.

Create and maintain diversity in vegetative structure, composition and age classes across the landscape.

Create and maintain diverse habitat types across the landscape.

- Wild-14 Tree felling would be directed away from trees designated to be retained. Machinery would avoid contact with trees designated to be retained. Smaller diameter trees (<12 inches dbh) that are designated to be retained would be the most vigorous/healthy of the site.
- Wild-15 The largest coarse woody debris (downed logs) would be retained. Emphasis would be on the retention of wood in the largest size classes and in decay classes 1, 2, and 3, but also representing a range of decomposition classes if available.
- At least 5 logs per acre would be retained where available, according to Forest Plan guidelines.
 - The largest diameter logs available would be retained; at least 12 inches diameter, with preference for logs over 15 feet in length, but at least 8 feet long.
 - If these standards cannot be met with current downed logs, additional down logs would be supplemented by felling trees that meet the above standards and leaving them on site.
 - Where fuelwood gathering would be planned, downed logs retained to meet this standard would be painted (side away from roads and trails) along length.
 - Fuelwood permits would specify that trees and logs with paint would not be cut or removed.
- Wild-16 During thinning and prescribed fire prep, snags would not be cut unless they pose a safety hazard; for example, within falling/striking distance of high human residency time areas such as staging areas.
- Wild-17 If the desired number of snags per acre is not available for retention, snag creation would be considered. If determined as necessary to meet the desired conditions, snags would be created through methods such as girdling.
- Wild-18 Snags that are cut for this project (e.g. safety) would be left after felling to contribute to downed log habitat.
- Wild-19 Prescribed fire ignition would not target large down logs and ignition would not occur at the base of snags; however, these features may ignite if fire creeps to them while burning occurs.
- Wild-20 Burn piles would be located a sufficient distance from large snags and large down logs (where deficient) to minimize the risk of ignition to these habitat features during pile burning operations.
- Wild-21 Piles would be placed away from healthy, mature aspen (which have thin bark) to minimize negative impacts to them. An exception would be in cases where mature aspen are unhealthy to an extent that the stand is unlikely to remain sustainable without management, therefore, fire could be used to encourage the stand to re-sprout.
- Wild-22 Leaners (trees/snags that have fallen at an angle of approximately 15 to 45 degrees from the ground, often held up by surrounding trees or rocks) would be retained and avoided, where available, and/or could be created, which provide plucking posts (goshawks) and subnivean (under snow) access.

Purpose: Consistency with the Migratory Bird Treaty Act.**Create and maintain diverse habitat types across the landscape.**

- Wild-23 When possible, treatments (such as thinning, burning, mastication, road work, etc.) would be implemented outside of nesting season to minimize impacts to migratory birds, especially in brush/shrub areas, riparian areas, along cliff faces, and rock features. Typically, breeding season is from April 15 through August 15. If treatments have to occur during the breeding season, treatments would be designed to minimize cumulative effects to migratory species during that specific breeding season, and a 150-foot buffer would be established around observed active songbird nests, which would not have thinning treatments.
- Wild-24 Trees would be inspected for nests and cavities prior to cutting/removal. Trees with an observed nest (bird, squirrel, etc.) or cavity would be retained during thinning and not targeted during burning, along with the trees immediately surrounding (interlocking crowns, provides shade or cover to nest) the nest tree to maintain the existing cover and shade. If a den is known or discovered, vegetation that provides cover surrounding the den and cover corridors from the den leading out of the project area would be retained during thinning and not targeted during burning. Prescribed fire implementation would not target these trees for ignition, but some may be burned.
- Wild-25 An FS biologist would be notified upon discovery of a large stick-type nest. From February through September, noise-producing project activities within ¼ mile of the nest would be temporarily paused, at least until the nest is investigated by an FS biologist who can provide recommendation for proceeding.
- Wild-26 There would be no intentional killing, harassment, removal or handling of animals, nests, eggs, dens, etc.

Mexican Spotted Owl**Mitigation Measures****Heritage-28 Purpose: Consistency with the 2012 Mexican Spotted Owl Recovery Plan**

- Heritage-29 MSO-1 The 2012 Mexican Spotted Owl Recovery Plan would be implemented where applicable.
- Heritage-30 MSO-2 Before implementing management activities, the U.S. Forest Service ID Team would be consistent with the Regional Mexican Spotted Owl Habitat Treatment and Implementation Guidance.

Within MSO Protected Activity Centers (PACs)

- Heritage-31 MSO-3 Coordination with USFWS would occur when planning and implementing site-specific thinning within MSO PACs.
- Heritage-32 MSO-4 No treatments would occur in the PACs during the breeding season, unless a U.S. Forest Service biologist confirms that the PAC is not occupied or that breeding is not occurring.
- Heritage-33 MSO-5 Where needed to meet objectives, trees less than 9 inches in diameter maybe cut in PACs, but work would be focused in areas outside of the PACs.
- Heritage-34 MSO-6 A 100-acre Core Areas would be designated in each PAC, burning would be allowed to enter into Core Areas only if they are expected to burn at low intensity with low

severity effects. Coordination with USFWS would occur for any active ignitions needed within the core areas to protect habitat from high intensity burning.

Heritage-35 MSO-7 A fire management burn plan would be prepared for broadcast burning applications within PACs, employing low intensity fire.

Heritage-36 MSO-8 Timing and type of burning would be coordinated with wind direction, topography, time of year, and distance to PACs to reduce smoke impacts.

Heritage-37 MSO-9 Hardwoods, downed woody debris, snags and other key habitat variables would be retained, unless when their removal would be compatible with MSO habitat management objectives, documented through reasoned analysis.

Heritage-38 MSO-10 Fuelwood gathering units for the public would not be designated in PAC boundaries. Fuelwood gathering by the public would not be promoted in PAC boundaries.

Within MSO Recovery Habitats

Heritage-39 MSO-11 All trees greater than 16 inches dbh, as well as hardwoods, large down logs, large trees and snags would be retained unless posing a hazard. If snags must be removed due to hazards, cutting should be avoided from March through September. Cut snags would remain on site to contribute to large downed wood debris habitat.

Heritage-40 MSO-12 Hardwoods, downed woody debris, snags and other key habitat variables would be retained, with an emphasis in managing for large hardwoods.

Within Nest/Roost Habitats

Heritage-41 MSO-13 Before implementing management activities in areas that have been identified as draft recovery nest/roost habitat (per the most recent GIS shapefiles) U.S. Forest Service staff will review site conditions and project activities for compliance with MSO management direction, including amended forest plan standard S06 and guidelines G01, G02 and G03. This process will include the following considerations:

1. Field verification of existing stand conditions (e.g., tree species and forest structure, but potentially also landscape context and operability)
 - a) If the vegetation conditions do not warrant all or part of the proposed action, or it would be operationally infeasible, then the action could be modified or dropped. For example, if a stand does not have high density of small-diameter trees, it may not be appropriate to implement a thinning treatment but may still be appropriate to conduct prescribed burning.
 - b) If the vegetation conditions generally warrant the proposed action and there are not operational limitations, then implementation may proceed contingent on consistency with MSO management direction and guidance below.
2. Based on observed site conditions, confirm whether the area has potential to meet recovery nest/roost conditions.
 - a) If an area identified as draft recovery nest/roost habitat is unlikely to develop nest/roost habitat conditions, the area may be removed from the recovery nest/roost candidate map and project implementation may proceed without additional design criteria for MSO. A minimum of 25% of the mixed-conifer forests in the SFMLRP area must be managed to maintain or promote desired conditions for nest/roost habitat.

- b) If the area meets or has potential to meet the desired recovery nest/roost habitat conditions (see 2012 Recovery Plan, Appendix C, Tables 2 and 3), then evaluate whether implementation is consistent with amended forest plan standards and guidelines for managing MSO habitat and the analysis in the project EA and BA.
3. If conditions vary within a stand proposed for activities, including situations where part of the stand is designated as draft recovery nest/roost habitat, then the proposed activities may be modified to follow a. and b. above. For example, if a stand contains an INREV polygon identified as draft recovery nest/roost habitat, the proposed action may be modified within the INREV polygon to promote attaining nest/roost habitat characteristics but implemented as proposed in the rest of the stand for fuel reduction.

Heritage-42 MSO-14 During site review or implementation, INREV polygons not previously identified as nest/roost habitat may be added to the recovery nest/roost candidate map if they are found to meet or show potential to meet nest/roost habitat conditions. Project implementation on such sites will then require the review described above.

Northern Goshawk

Mitigation Measures

Heritage-43 Purpose: Consistency with Northern Goshawk management guidance in the current Forest Plan

Heritage-44 NOGO-1 Guidance from the SFNF Forest Plan would be reviewed and followed which includes the Northern Goshawk Management Guidelines.

Heritage-45 NOGO-2 Suitable habitat within the project area, including ½ mile beyond the project boundary, would be surveyed to R3 Survey Protocol prior to project implementation of thinning and burning treatments that could impact the species.

Heritage-46 NOGO-3 A Goshawk Post-Fledging Area (GPFA) of approximately 600 acres and a Goshawk Home Range (GHR) of at least 6,000 acres would be designated around active northern goshawk nests and territorial goshawks. A Goshawk Nest Area (GNA) of at least 30 acres would be designated around active northern goshawk nests and each GPFA would have at least three nest areas and three nest replacement areas within it, for a minimum total of 180 acres of nest areas in each GPFA. These designated areas would be delineated by a FS Biologist to include the best available habitat within the immediate area.

Heritage-47 NOGO-4 A Limited Operating Period (LOP) would be in effect from March 1 through September 30 within ¼ mile of active GNA and GPFA boundaries. If the nest site cannot be determined, but territorial adult northern goshawks are present, the LOP would be within ¼ mile of an averaged activity center or the PFA. This LOP would not exclude work from occurring, but would restrict what types of work could occur and would consider noise level, human presence, duration, proximity to known species occurrence, topography, etc. to remain within the current effect determinations. Project activities proposed to be implemented during the LOP would be reviewed and agreed to by a U.S. Forest Service Biologist.

Heritage-48 NOGO-5 Vegetation Management guidelines for goshawk habitats described in the Forest Plan would be followed. Emphasis would be to maintain or create uneven-age stand conditions and retain live reserve trees, snags, downed logs, and woody debris levels throughout woodland, ponderosa pine, mixed conifer and spruce-fir forest cover types. Old age trees would be managed so as much old forest structure as possible is sustained over time across the landscape. A mosaic of vegetation densities (overstory and understory), age classes

and species composition would be maintained or created across the landscape. Non-uniform spacing of trees and clumping would be promoted.

- Heritage-49 NOGO-6 At least two groups of trees per acre with a minimum diameter of 12 inches would be retained, with a minimum of 3 trees per group (USDA 1992).
- Heritage-50 NOGO-7 Prescribed burning would be implemented to ensure that the entire 6,000-acre home range would not be burned in one year. Human presence while implementing prescribed burning will be minimized within 100 yards of known active nest areas. A burn plan would be prepared for broadcast burning applications within GPFA boundaries to employing low intensity fire. Timing and type of burning would be coordinated with wind direction, topography, time of year, and distance to GNA boundaries to reduce smoke impacts, risk of crown fire, consumption of nest trees and displacement of adult goshawks.
- Heritage-51 NOGO-8 The ground surface layer would be maintained in satisfactory condition to minimize soil compaction and maintain hydrologic and nutrient cycles. (See design features for Hydrology/Riparian Resources and Soils.)
- Heritage-52 NOGO-9 Riparian vegetation would be managed to maintain or achieve good condition. Riparian vegetation, stream banks and channels would be protected. (See design features for Hydrology/Riparian Resources.)
- Heritage-53 NOGO-10 Emphasis would be to maintain snags that are 18 inches or larger dbh and 30 feet or larger in height, downed logs that are 12 inches in diameter and at least 8 feet long, and woody debris is 3 inches or larger on the forest floor.
- Heritage-54 NOGO-11 Canopy cover would be maintained according to goshawk area designation and stand type, and would consist of 40% to 60% or more canopy cover in landscapes outside GPFA, and 50% to 70% or more canopy cover within GPFA and GNAs.
- Heritage-55 NOGO-12 Piling of debris (slash) would be avoided in goshawk designated areas, where possible. If needed, within GNAs piling would be by hand and would not utilize grapple or dozer piling, while outside of GNAs, piling would be done by hand or grapple to minimize soil compaction, and forest floor and herbaceous layer disturbance.
- Heritage-56 NOGO-13 Fuelwood gathering units for the public would not be designated in PFA boundaries. Fuel-wood gathering by the public would not be promoted in PFA boundaries.

References:

U.S. Forest Service

2010 *First Amended Programmatic Agreement Regarding Historic Property Protection And Responsibilities Among New Mexico Historic Preservation Officer and Arizona State Historic Preservation Officer and Texas State Historic Preservation Officer and Oklahoma State Historic Preservation Officer and the Advisory Council On Historic Preservation and United States Department Of Agriculture Forest Service Region 3.*

Appendix E – Standard Consultation Protocol for Routine Road Maintenance, Road Closure, and Road Decommissioning Projects on National Forests in New Mexico

Appendix J – Standard Consultation Protocol for Large-Scale Fuels Reduction, Vegetation Treatment