United States Department of Agriculture
Forest Service

Lone Pine Vegetation Management Project

Final Decision Notice & Finding of No Significant Impact

USDA Forest Service
Dolores Ranger District, San Juan National Forest
Montezuma County, Colorado

January 2020

Introduction

This Decision Notice documents my decision to approve Alternative 2, with modifications, for the Lone Pine Vegetation Management Project. My decision is based on an Environmental Assessment (EA) prepared for this project, dated August 2019. In this notice, I have documented important elements of the management alternative I have selected for implementation and the rationale for my choice. This notice also references the design elements that will be implemented with my decision. The EA associated with this Decision Notice was prepared to document the environmental effects of sanitation/salvage, pre-commercial thinning, commercial thinning, single tree selection, oak thinning, reforestation, and pile burning, treatment outside of the fifteen project areas due to small mapping and GIS errors, and adaptive management actions which may be implemented to respond to changing environmental conditions.

In accordance with the National Forest Management Act (NFMA) and National Environmental Policy Act (NEPA), an interdisciplinary team of Forest Service specialists (ID team) conducted the analysis and documented the results in an EA. The EA on which I based my decision is available for review at the Dolores Ranger District office in Dolores, Colorado (Tel. 970-882-7296) and on the web at: www.fs.usda.gov/project/?project=54682 .

The Lone Pine analysis area includes approximately 66,719 acres in the northwest corner of the Dolores Ranger District. Elevations in the Lone Pine analysis area range from 7,700 – 8,300 feet. Figure 1 on page 3 of the Final EA displays the location of the analysis area.

Background

Since 2013, there has been a dramatic increase in ponderosa pine mortality in the Lone Pine analysis area. The roundheaded pine beetle is the primary mortality agent, with western pine beetle, pine engraver beetles, and/or mountain pine beetles also found. By 2018, the total area impacted by beetles was estimated at nearly 27,000 acres, with 24,000 acres of that in the Lone Pine analysis area. Aerial surveys conducted by the Colorado State Forest Service in 2018 found the intensity of infestations on a majority

of the 24,000 acres were of light severity (56%) or very light severity (41%). The remaining areas were moderately severe (2%) or severe (1%)[1]. Dwarf mistletoe is also present in almost every pine stand in the analysis area, and although it rarely causes mortality, it does weaken infected trees and increases their susceptibility to other mortality factors. (Colorado State Forest Service, 2018). Final numbers for 2019 will not be released by the Colorado State Forest Service until November 2019, but a look at the preliminary numbers collected in 2019 indicate that the rate of increase has slowed. Some of the main differences noted between 2018 and 2019 are a small increase in activity in the southeastern portion of the analysis area and a small increase in the number of acres showing moderate severity levels.

Working with stakeholders to discuss land-management issues is an ongoing and crucial part of land management on the Dolores Ranger District. The most recent example of the effort to engage local stakeholders is the USFS participation in the Dolores Watershed and Resilient Forests Collaborative (DWRF). Established in 2015, DWRF was formed in response to the current bark beetle outbreak with the intent of formulating a plan for dealing with natural disturbances such as the current beetle outbreak. Members of the DWRF collaborative, including the USFS, all expressed strong concerns about the bark beetle epidemic and how it was affecting ponderosa pine forests in the area. These preliminary discussions with DWRF and other members of the public helped frame the situation so that stakeholders could provide meaningful feedback during the various comment periods.

Purpose and Need

The purpose of this project is to increase forest resiliency, increase age class diversity, promote recovery of forest vegetation, reduce the risk of high severity wildfires, and provide wood products for both commercial and non-commercial uses. Given the high amounts of ponderosa pine mortality in the area over the past six years, combined with Forest Plan direction, the need for the proposed action is to manage forest vegetation to move current and foreseeable future conditions closer to desired conditions (DCs) on landscapes available for active management. Relevant desired conditions described in the 2013 San Juan National Forest Land and Resource Management Plan (LRMP) include: providing resilient terrestrial ecosystems (DC 2. 2. 9), having all development stages of ponderosa pine well represented at the landscape scale and occurring within specified ranges (DC 2. 2. 6), and meeting needs or demands for forest product offerings (DC 2. 9. 1).

Public Involvement

Scoping

On September 13, 2018, the proposal was listed in the Forest Service Schedule of Proposed Actions (https://www.fs.usda.gov/project/?project=54682), and a press release was provided to local media. Local, state, and federal agencies, interested tribes, as well as other interested parties, were notified of the opportunity to provide comments during the scoping period. The scoping period ended on October 18, 2018. As a result of the scoping effort, input was received from 22 interested parties, 14 of which were form letters expressing support. This input, along with input received from internal specialists, was considered in the analysis of potential issues discussed in Section 1. 7 and the formulation of the alternatives described in Chapter 2.

[1] Severity levels indicate the intensity of infestation. Very light severity has 1-3% of trees impacted, light severity 4-10%, moderate severity 11-29%, and severe 30-50%. Due to the nature of aerial surveys, this data represents only a rough estimate of intensity for agents detectable from the air.

Draft and Revised Draft Environmental Assessment

Opportunities for public comment continued for a 30-day period beginning on February 23, 2019 following the issuance of the EA in draft form. The comment period was announced with a press release, direct mailing to those who previously showed interest, and a legal notice in the *Cortez Journal*. Twelve comments were received during the 30-day comment period. The second comment period began on June 15, 2019 with the publication of an Opportunity to Comment legal notice in the Cortez Journal. The second comment period generated nine (9) written responses. Comments from both public comment periods are summarized in Appendix D – Public Comment Summary, which is posted on the San Juan National Forest website. A formal invitation to consult was also mailed to 25 tribes on September 17, 2018. The Hopi Tribe and the Pueblo of San Felipe requested to continue consultation for the proposal. In addition, the Colorado State Historic Preservation Officer agreed (October 31, 2018) on the use of the 2017 programmatic agreement for vegetation management undertakings.

Pre-Decisional Objection Process

A Draft DN selecting Alternative 2 and the Final Environmental Assessment were issued on August 30, 2019. A legal notice in the Cortez Journal began the pre-decisional objection process under 36 CFR 218. Only those persons who had commented previously during scoping or the other opportunities to comment had standing to object to the Draft DN. The project received four objection letters from five unique objectors. The objection issues submitted by all parties included concerns with law, regulation, and policy; wildlife analysis and design criteria; applicable science; vegetation management prescriptions; and adaptive management provisions.

Objection resolution meetings were held in an effort to resolve objectors' issues. Objection resolution meetings were held with 3 of the objectors on October 29 and December 5, 2019. Objection resolution meetings were held with the other 2 objectors on October 31 and December 5, 2019. Multiple proposals submitted by the objectors and the FS were considered and discussed. A resolution with two of the parties was reached based on adoption of agreed upon changes. These changes have been incorporated into this Decision Notice and include changes to and the addition of design elements related to temporary roads, changes to the number of acres outside of the fifteen project areas that may be treated, changes to prescriptions in certain defined areas, changes to the requirements for Supplemental Information Reports, the clarification of adaptive management actions for noxious weeds, and the inclusion of a description of monitoring areas and control units (including a map). A resolution between the Forest Service and the other three parties was not reached.

Decision

Based upon my review of the analysis documented in the EA (dated August 2019), and after consideration of the agreements reached during the objection resolution meetings, I have decided to implement Alternative 2, with modifications, for the Lone Pine Vegetation Management Project.

The tree-cutting and removal activities, oak thinning, reforestation, slash disposal, burning, and road related activities will to be applied in 15 specific project areas on up to 36,810 acres. Table 1 below shows what is proposed in each project area and when implementation is anticipated; the location of these project areas is shown on the map in Attachment 2. As a result of agreements reached during the objection resolution meetings, a large tree emphasis/commercial thin prescription will be implemented in

several areas (as shown on the map in Attachment 2 and discussed in more detail on pages 6-7). A combination of pre-implementation reviews and an adaptive management approach will be utilized to help inform actual implementation and allow for more flexibility to respond to changing environmental conditions (described in Section 2. 2. 4 and in Appendix A and B). Adoption of design elements and the ability to treat additional acreage outside the fifteen project areas are also included in this decision. Design elements and treatment of additional acreage are discussed in more detail on pages 10-11.

Table 1: Summary of Proposed Treatments by Project Area

Project Area	Proposed Treatments	Estimated Acres	Anticipated Implementation Dates[2]
Bradfield	Single Tree Selection	4,595	2019-2021
Glade Canyon	Commercial Thinning	586	2019-2021
Lake Canyon	Salvage	1,186	2019-2021
Wolf Den Plantations	Plantation Thinning	4,999	2019-2029
Glade Point	Single Tree Selection	1,701	2020-2022
Fader	Single Tree Selection	2,920	2020-2022
Lake Canyon	Commercial Thinning	5,722	2020-2025
Glade Point	Commercial Thinning	656	2021-2022
Brumley	Single Tree Selection	3,219	2021-2023
Canyon Creek	Single Tree Selection	3,057	2022-2025
Big Water Spring	Commercial Thinning	665	2023-2026
Ormiston	Commercial Thinning	1,073	2023-2026
Wolf Den	Commercial Thinning	2,359	2023-2028
Narraguinnep Plantations	Plantation Thinning	1,243	2023-2029
Ormiston	Single Tree Selection	2,829	2024-2027
		Estimated Acres = 36,810	**Time to Implement=11 years**

Alternative 2 (modified), hereafter referred to as the Selected Alternative, authorizes the following actions:

Tree Cutting and Removal

Sanitation/salvage treatments will be used to remove merchantable dead, dying, or deteriorating trees where there is beetle induced mortality. This will be done as either a salvage, or a sanitation/salvage treatment. *Salvage* treatments will be conducted in stands where bark beetle activity has caused over 70% mortality in the overstory and mid-story. Where this prescription is applied, all dead trees will be removed, except those required to meet SJNF wildlife snag requirements. Live trees that are infested with bark beetles will also be removed, but isolated green trees that are not infested will not be cut. Salvage will occur across 1,168 acres of the Lone Pine analysis area. *Sanitation/salvage* will be used in stands where there are individual trees or small patches of dead or dying trees. In these areas, individual trees or small groups of dead or infested trees ⅒ to 2 acres in size may be harvested, retaining quality seed trees around the openings as a seed source. Sanitation/salvage will also be used to remove mistletoe infected trees where more than 50% of the branches have been infected. Where the sanitation/salvage prescription is applied, enough dead trees will be retained to meet SJNF wildlife snag requirements. These sanitation/salvage treatments may be applied in any of the 15 project areas.

[2] This is an estimate of when a project may be implemented, and may change based on site-specific conditions at time of implementation.

Single tree selection will be used in even-aged, mature stands to improve the vigor of individual trees, encourage regeneration, foster the development of uneven-aged stand structure, and improve overall resilience of ponderosa pine stands. Individual trees representing all size classes above 10 inches dbh may be harvested to promote the growth of remaining trees and to provide space for regeneration, thereby maintaining or moving the stand toward a multi-age, heterogeneous structure. Emphasis will be placed on retaining clumps of even-aged, healthy green trees, while creating openings in other areas that may eventually support regeneration. Trees will be individually selected for removal based on spacing, tree form, and insect or disease evidence, but emphasis will be placed on retention of the largest, oldest trees in the stand as biological legacies, as well as the retention of mature seed trees that are healthy and have good potential for cone production. There are an estimated 18,321 acres where single tree selection and pre-commercial thinning (described below) is proposed.

Pre-commercial thinning will be used as a follow-up treatment after single tree selection where there is an overabundance of trees smaller than 10 inches dbh. The intent of this treatment is to improve growth rates and vigor of the remaining trees, thus improving overall stand resilience. The trees removed during pre-commercial thinning after single tree selection will be in the 4-10 inch dbh range. Suppressed trees and trees with poor form will be prioritized for removal. Poor form includes trees with forks, mistletoe or insect damage, or other structural defects. Spacing criteria may also be used to determine which trees to thin. The desired spacing for trees ranges from 10 to 15 feet apart. During implementation, this will be adjusted on a stand by stand basis, taking into account the location of overstory trees when determining the final spacing requirements.

Basal area of live, green trees in stands that receive both single tree selection and pre-commercial thinning will vary, but will generally range from 50 to 60 square feet per acre, with a stand average of 55 square feet per acre following treatment. In general, the clumps of trees will have a higher basal area than the forest between these clumps.

Pre-commercial thinning in plantations will occur with the intent of improving growth rates and vigor of remaining trees, thus improving overall resiliency. Trees in the 4-10 inch dbh size class will be thinned based on tree form or spacing, as described above. Desired spacing for trees in this size class is from 10 to 15 feet apart, but this will be adjusted on a stand by stand basis and will take into account the location of overstory trees in the final spacing requirements. A limited amount of commercial thinning of trees 10 inches or larger may also occur in plantation areas to improve site conditions. This is discussed in more detail under commercial thinning. Thinning in plantations will occur on approximately 6,242 acres.

Commercial thinning will be used in even-aged, mature stands that have lower volume and more difficult access than those stands where single tree selection is proposed. The intent of commercial thinning is to improve growth rates and vigor of individual trees and improve overall resilience of ponderosa pine stands. Regeneration may be encouraged when combined with oak thinning and/or prescribed burning, which will foster the development of uneven-aged heterogeneous stand structure. Trees in all size classes over 10 inches dbh may be harvested during commercial thinning, with emphasis placed on retaining the healthiest green trees in the groups. In the less dense pine between these groups, healthy isolated trees or less dense groups of healthy trees will not be treated. However, if there are trees with mistletoe infections or bark beetles, some sanitation/salvage (as described above) will likely occur. The target basal area in these areas will be 60 square feet per acre, but basal area will likely vary between 60 to 80 square feet per acre. There are an estimated 11,061 acres across six project areas where commercial thinning is proposed. In stands

where there are an overabundance of trees smaller than 10 inches dbh, pre-commercial thinning may be used as a follow-up treatment.

Removal preference for single tree selection and commercial thinning units: In single tree selection units the goal is to leave a stand average basal area of 55 square feet per acre. In commercial thinning units, the goal is to leave a stand average basal area of 60 square feet per acre. The current stands are unregulated, so a strict application of the ideal target structure will not be applied in this initial harvest. Trees will be evaluated and organized into characteristic categories of *defective*, *acceptable*, and *desirable*. The prime directive is to remove all trees in the *defective* class and the worst trees in the *acceptable* class while maintaining the specified basal area for the treatment type. *Defective* trees have many of the following characteristics: severely overtopped/suppressed, a mistletoe rating ≥3, major physical defects, dead/damaged terminal leader, are expected to die within 10 years or not respond to release, are beetle infested, and/or have extremely limited crown or very poor vigor. *Acceptable* trees have several of the following characteristics: moderate or minor defects mostly in upper logs that reduce but do not exclude sawlog yield, are expected to respond to release and increase in merchantable volume/value, and have a mistletoe rating ≤ 1. *Desirable* trees have the following characteristics: vigorous, very minor or no volume defects, and no evidence of disease or insect activity.

In terms of how trees will be selected for retention in various size classes, the first step will be to identify the *desirable* and most *acceptable* leave trees in the smallest size classes (5 – 11 inches dbh) and the *desirable* and most *acceptable* leave trees in the largest size classes (22 inches dbh and above). Next, enough *desirable* and *acceptable* mid-sized trees in the 12 – 20 inch dbh size class will be selected for retention to fill in stocking to the desirable stand density. Because there are typically more poor quality trees in the small size class, a simple focus on leaving most of the *desirable* trees will likely be sufficient for those size classes. In the largest size classes, all trees over 26 inches in diameter will be retained unless they show evidence of active bark beetle infestation, in which case they will be harvested. Trees in the 21 – 24 inch size class will be retained unless they show evidence of active beetle infestation or severe defects. After the smallest and largest leave trees are identified, the *desirable* and most *acceptable* mid-sized trees will be selected for retention to meet the desired residual stocking for the treatment type.

Some irregularity in the residual stocking is expected and desirable. Basal area outside of designated clumps and openings (both pre-existing openings and openings created by bark beetle mortality) may range between 30 and 70 square feet per acre. Even aged clumps with interspace, along with isolated individual trees with good form, are desired and will be incorporated into the tree retention choices. The percentage of each size class that will be retained to form the future desired structure of stands is as follows:

- 5” to 13” dbh Trees (4”, 6”, 8”, 10”, and 12” diameter classes) leave approximately 75%
- 13. 1” to 19. 0” dbh Trees (14”, 16”, and 18” diameter classes) – leave approximately 40-50%
- 19. 1” to 21. 0” dbh Trees (20” diameter class) – leave approximately 50%
- 21. 1” to 25. 9” dbh Trees (22” and 25. 9” diameter class) - leave approximately 75% (remove trees from this size class only if defective or they show evidence of active bark beetle infestations as nearly half of the stands don’t have enough trees to warrant any removal in this class)
- 26. 0” dbh trees and up will only be cut if they show evidence of active bark beetle infestation

Large Tree Emphasis/Commercial Thin Prescription: As part of the modified Alternative 2, a large tree emphasis/commercial thin prescription will be implemented on the proposed harvest areas shown on the map

in Attachment 2. The overall goal of this prescription is large tree retention and subsequent old growth which would represent historical pine stands from the 1850's. The future desired condition of these stands is to have an old growth component and representation on the landscape, knowing it will take many years to achieve this goal. These stands are lacking old relic trees larger than 30" in diameter with the exception of a few trees.

All trees larger than 20" DBH would be retained. All size classes will be managed up to 20" DBH with the goal of leaving a mix of residual trees smaller than 20" DBH. Basal area (BA) ranges would vary from 60 to 80 sq/ft per acre with a target BA of 70 sq/ft per acre. Part of the purpose and need for this project is to increase age class diversity, therefore every attempt will be made to retain an uneven aged component regardless of the final basal area. Clumps and groups of trees would be identified, smaller diameter trees would be thinned and all trees greater than 20" DBH would be retained in these clumps. These clumps will often have higher basal areas and may exceed 100 BA or more in some locations. This is acceptable as long as the trees retained have good form, are dominant or co-dominant, and are otherwise in good condition. Clumps of trees may vary from groups of 6 trees to as much as one-third acre to an acre in size. Variation in clump size is encouraged and should be promoted when possible. The small areas and openings between clumps should also vary in size and distance from other clumps, usually spanning a distance of 1 to 1.5 tree lengths across, and exceeding the lateral extent of crown and roots.

In areas where clumps and groups are not dominant on the landscape, thin trees from all size classes up to 20" DBH to maintain uneven aged stand characteristics even if the final basal area is higher than the target. Do not remove well-formed dominant or co-dominant trees just to achieve a basal area target if the residual trees have a good spacing and will persist into the next age class. Use natural openings and gaps in the stands to create open areas, these will exist naturally in areas that present a groupy/clumpy component. Additional openings will be created in time by fire or beetles and this is acceptable for the future landscape. Prescribed fire will be used to remove fuels, increase crown height and control density in future years.

The proposed harvest areas where this prescription will be applied represent a range of stand and site conditions. The implementation of this prescription will be monitored to provide comparisons between this prescription and the other prescriptions proposed as part of this project. Several areas in the landscape offer an opportunity to implement this prescription directly adjacent to control areas and single tree selection prescriptions. Every effort will be made, where practical, to provide a side by side comparison to other management prescriptions in an effort to truly discern the differences between the prescriptions.

Oak Thinning and Reforestation

Oak thinning may be used where pine regeneration is inhibited by dense Gambel oak to create openings where pine may be more likely to regenerate. Oak thinning will be accomplished thru hand thinning and piling, fuel-wood cutting and removal, or mechanical mastication. Oak thinning may also occur where existing regeneration or seed trees are at risk of being damaged by fire (prescribed burning or wildfires). In these areas, either hand thinning or mechanical mastication may be used, depending on the extent of the area in need of treatment.

Widespread *reforestation*/*tree planting* is not expected but may be desired in areas where natural regeneration is not successful. If monitoring indicates that natural regeneration has not become established after five years, these areas will be considered for reforestation. Reforestation will be done with native tree species germinated from locally collected seed stock. Areas where supplemental planting is desired will be planted with tree seedlings grown from locally collected ponderosa pine seed.

Other Related Activities

Slash disposal will be done where necessary in areas where tree cutting and removal occurs to reduce unwanted accumulations of activity fuels in the project areas. Limbs and fine branches may be lopped and scattered within harvest units or scattered across areas of exposed soil on skid trails, decommissioned temporary roads, and landings. Accumulations of unmerchantable sections of stems (i. e. cull material) or tops may be lopped and scattered back into units or scattered across landings. Sound tops or other cull material may also be decked within 300 feet of open roads in order to facilitate public fuelwood gathering. This material may also be piled and burned if necessary to reduce accumulations of activity fuels. *Pile burning* may be conducted where piles have been created for slash disposal. Broadcast burning may also occur in certain areas to help reduce fuels and will continue to be conducted as authorized in the 2018 Dolores Prescribed Fire Pine Ecosystem Restoration decision.

No new permanent roads will be developed for project implementation, but existing system roads within the analysis area may be used during project activities. Maintenance Level (ML) 2-5 roads may be used as the primary haul roads. ML 1 roads may also be used for this project, but may require temporary road improvements. All ML1 roads used for this project will be closed again upon project completion. Any other currently closed system roads that are opened for project implementation will also be closed upon project completion. This proposal does not change forest road designations, so at no time will currently closed system roads or temporary roads be open to public use. *Maintenance of existing roads* will be performed prior to, during, or following treatments. This could include graveling, reshaping and grading of the road surface, replacement of culverts as needed, and maintenance of road ditches or rolling dips. Existing system road spot reconstruction may occur and may involve installation or replacement of culverts or other drainage features, or excavation to repair the degraded road grade.

Temporary road construction may occur; the exact locations and lengths of temporary road segments will be determined through agreement between the Forest Service and timber purchaser. Temporary roads will be decommissioned, obliterated (by recontouring and reseeding), and permanently obstructed within five years of construction. All temporary road segments will be closed to wheeled motorized use by the public during operations.

Pre-Implementation Reviews, Adaptive Management, and Additional Acreage Treated

In order to ensure timely application of appropriate treatments based on actual site conditions at the time of implementation, the USFS will use a combination of pre-implementation reviews and an adaptive management approach. Adaptive management includes reviews of project areas during and after implementation. This adaptive management approach also includes periodic reviews of NEPA adequacy at various points in the project.

Prior to implementation, appropriate treatments will be identified by vegetation management specialists based on site-specific conditions and management priorities. After proposed projects have been identified, and prior to implementation, district resource specialists will:

- Review proposed projects to determine if effects will be consistent with those outlined in this EA
- Determine if additional field work is necessary and complete as needed
- Complete necessary cultural clearances
- Complete required raptor surveys
- Complete pre-implementation consultations with resource specialists regarding project layout

If conditions are the same as analyzed, implementation will move forward without further specialist review except for required cultural clearances, required raptor surveys, and required consultation regarding project layout including reviews of the proposed transportation plan and slash disposal plan (as outlined in Appendix A – Pre-Implementation Checklist). In order to document the review of proposed projects, the "Pre-Implementation Checklist" (included in Appendix A) will be completed and filed in the project record. Implementation will not be allowed until this checklist has been completed by the appropriate resource specialists and reviewed and approved by the Dolores District Ranger. In addition, the Forest Service will notify the public of proposed projects prior to implementation thru news releases and discussions with local stakeholders. The main venue for discussions with stakeholders will be through the DWRF collaborative. Once all necessary reviews and public notifications have been completed, implementation will be scheduled. If it is determined during pre-implementation review and public notification that conditions have changed enough that the originally proposed treatment is no longer applicable, an alternate treatment method may be implemented. This is most likely to occur where beetle-caused mortality has occurred in an area that was originally planned for single-tree selection or commercial thinning. Where this occurs, salvage operations may be more appropriate. Changes to proposed treatments would occur only if the pre-implementation review in Appendix A shows that project effects will be consistent with effects described in this EA. If the impacts of changing from a single tree selection or commercial thinning treatment to a salvage treatment are not consistent with the effects described in this EA, then the area will be removed from consideration for treatments.

During implementation, vegetation management specialists and other resource specialists will be responsible for monitoring project effects. Monitoring may also be done in conjunction with interested stakeholders. This will include but is not limited to:

- Determining whether or not the actions implemented are having the intended effect
- Assessing how well design elements achieved expected outcomes
- Validating if assumptions made in the EA regarding expected consequences of actions are accurate

In addition to the monitoring discussed above, other monitoring requirements were added as a result of agreements reached during the objection resolution meetings. A description of this additional monitoring, control areas, and maps of where this monitoring will occur are included in Attachment 4 (Lone Pine monitoring areas).

If monitoring during implementation indicates that the originally proposed actions are not having the intended effect, or they are causing unintended or undesirable effects, then adaptive management actions may be taken. A list of the conditions that may trigger adaptive management and a list of the adaptive management actions that may be taken is given in Tables 6 – 8 in Appendix B. Monitoring will be documented and the results of the monitoring, and documentation of steps taken to address unintended outcomes will be included in the project record and will be available for public review. In addition, public fieldtrips will be held to keep interested stakeholders informed about the progress of implementation and the results of monitoring. The Dolores Watershed and Resilient Forests Collaborative (DWRF) Coordinating Committee will be specifically utilized to provide feedback to the agency on the results after implementation.

After implementation, resource specialists will be responsible for reviewing the results of project monitoring and will provide feedback to agency managers regarding if and how future projects need to be

adapted going forward. This will ensure adequate and continuing progress toward project objectives, while remaining flexible and able to adapt to changing conditions. A list of the conditions that may trigger adaptive management and a list of the adaptive management actions that may be taken is given in Tables 6 – 8 in Appendix B.

In order to clarify the proposed adaptive management actions for noxious weeds, the following language will replace the second and fourth bulleted statements under the Noxious Weeds heading in Table 6 in Appendix B:

- Purchaser follows procedures described in the "Equipment Cleaning" provision of the governing contract (Attachment 3).

As part of the modifications of Alternative 2, if monitoring indicates that prescriptions should be changed from Single Tree Selection (STS) or Commercial Thinning (CT) to salvage, a new NEPA analysis will be completed before a prescription is changed from STS or CT to salvage.

NEPA Adequacy Reviews/Supplemental Information Reports (SIRs) are required to be completed at least every 3 years. SIRs will be completed consistent with Sections 18.1 and 18.4 of the Forest Service NEPA Handbook (Forest Service Handbook 1909.15, Chap. 10, Sec. 18). As described in the Final EA on page 19, the public will be notified of the results of SIRs thru news releases and discussions with local stakeholders. This would include the Dolores Watershed and Resilient Forest collaborative.

There is no specific method described in law, regulation or policy for conducting a SIR, except that the review be interdisciplinary (FSH 1909.15, Chap. 10, Sec. 18.1). The process for completing a SIR typically includes the following:

- Identify the decision, when it was made, who issued it, and the status of implementation.
- Identify the reason the review is being conducted.
- Identify any new information and why it is relevant to the standing decision
- Identify any changed circumstances and why these are relevant to the standing decision.
- Review the importance of the new information and changed circumstances.
- Formally document the analysis conducted.
- The responsible official writes and signs a deliberate determination, based on: whether the new events/information are within the scope of the original analysis; whether the original analysis might change if the new events/information had been considered at the time; whether the original decision might have been different had the new events/information been considered at the time.
- The choices for a determination are:
  - There is no need to change the original decision and implementation may continue; or
  - There is a need to re-enter the NEPA process including public involvement and there may be a need to change the original decision.

Additional Acreage

Additional acreage outside the fifteen project areas may also be treated to allow for the correction of small mapping and GIS errors. The additional acreage that may be treated will be reduced to 300 acres. This acreage may only be treated if adjacent to existing units, and must be consistent with the treatments described in this Decision Notice, and the pre-implementation review of the treatment must show that effects will be consistent with effects described in the EA and that the design elements are adequate to

keep impacts within those analyzed. All monitoring and adaptive management actions described in Appendix B would apply to any additional areas where treatment occurs.

Design Elements
My decision also includes adoption of the design elements shown in Section 2. 2. 5 of the EA, with changes and additions, as discussed below.

Design element 2 under the Transportation heading will be changed to read:

- Temporary roads shall be closed within 5 years of construction.

The following design elements will be added under the Transportation heading:

- Temporary road surface width shall be limited to truck bunk width plus four (4) feet, except for needed turnouts which shall not exceed two (2) times the bunk width plus four (4) feet. If shovels or cranes with revolving carriage are used to skid or load, temporary road surface width equal to track width plus tail swing shall be permitted.
- Cut/fill techniques in the construction of temporary roads are not needed and will not be used in the Lone Pine project area due to the gentle terrain. Cut/fill is defined as installing a cut that is more than 6" deep and over 50' long, with the cut located on the uphill side, and the intent of placing the cut materials on the downhill as fill, to create a flat, drivable road prism.

The following design elements will be added under the Hydrology and Soils heading:

- No skidding, temporary road construction, or harvesting on slopes over 40%.
- No skidding, temporary road construction, or harvesting in areas with soils prone to mass movement, as shown on the attached map (Attachment 1 of this DN).

Attachment 3 at the end of this decision includes a complete listing of all of the design elements included as part of this decision, including the changes and additions shown above.

Rationale

My decision is based on an examination of the information in the EA, the project file, and direct consultation with resource specialists. Particular attention was paid to how well the purpose and need will be met and whether the Selected Alternative provides opportunities to respond to rapidly changing conditions. In addition, much time and effort was devoted to reviewing public comments, some of which provided opposing viewpoints (and references to opposing science) about what management actions should be taken given the possibility that beetle activity will continue to escalate due to warming temperatures and the potential for more and longer duration drought cycles. The objections received and the discussions that occurred during the objection resolution meetings were also considered.

Purpose and Need: My review of the EA shows that the Selected Alternative meets the purpose and need as shown in Section 1. 3 of the Final EA. In the Lone Pine landscape, increasing forest resiliency and promoting the recovery of forest vegetation is of particular importance given the mortality that has been caused by the ongoing beetle outbreak. The analysis in the Vegetation/Forestry section in Chapter 3 of the EA states that commercial thinning and single tree selection will create stands that are less dense, reducing competition among remaining trees for water and nutrients, thus creating conditions in which the remaining trees can become healthier and more vigorous. This will increase resiliency, making these areas less susceptible to damage by insect and disease outbreaks or fire. The analysis also finds that oak

thinning and burning will reduce heavy duff layers, creating opportunities for successful natural regeneration in the treated areas. Retaining quality seed trees will also increase the chance that natural regeneration will occur. Even if bark beetle activity continues or increases and commercial thinning and single tree selection occurs on fewer acres, or not at all, planting/ reforestation activities could still occur under the Selected Alternative, providing at least some opportunities to promote the recovery of forest vegetation. Under the no action alternative, regeneration will continue to be inhibited by dense Gambel oak and heavy duff layers, although bark beetle activity on a small scale could contribute to increasing age class diversity and the recovery of forest vegetation in areas where prescribed burning occurs and there are sufficient healthy green trees to provide seed. However, this would be on a smaller scale than under the Selected Alternative. Overall, the no action alternative provides far fewer opportunities for the recovery of forest vegetation than the Selected Alternative. Resiliency will also remain low under the no action alternative and pine stands in the analysis area will remain susceptible to damage by insect and disease outbreaks and fire.

Increasing age class diversity is also of high importance since there is currently very little age class diversity in ponderosa pine stands in the analysis area. As shown in the Vegetation/Forestry affected environment discussion in Section 3. 1. 1, the amount of mature pine stands in the Lone Pine analysis area with closed canopies is well above the desired condition as defined by the 2013 SJNF Forest Plan while the amount of young stands are below the desired conditions (Table 3). The analysis in the EA concluded that the actions proposed under the Selected Alternative will help move the stands that are treated toward an uneven aged heterogeneous structure, and as stated above, will provide opportunities for regeneration, thus increasing the amount of young stands in the area. Under the no action alternative, even-aged stands will continue to dominate. Using a large tree emphasis/ commercial thin prescription in some areas will also add to age class diversity by increasing old growth in the long-term.

The Selected Alternative also meets the purpose of reducing risk of high severity wildfires. As stated in the Final EA on page 28, the treatments proposed under the Selected Alternative would make prescribed burning easier to implement, making it more likely to occur where treatments are conducted. Prescribed burning that occurs as a result of these treatments will reduce horizontal and vertical fuel continuity and reduce surface fuels, thus reducing the risk of high severity wildfires. The Fire/Fuels discussion in Section 5. 3. 5 in Appendix C states that under the no action alternative, the risk that stand replacing wildfires may occur remains high in mature, even-aged pine stands with dense Gambel oak understories. Prescribed burning may still occur under the no action alternative, but will be more challenging to implement in dense pine stands with dense Gambel oak understories where horizontal and vertical fuel continuity is high. In addition, the high number of snags potentially occupying the area if bark beetle activity continues to increase will increase exposure and risk to firefighters during suppression actions or prescribed burning. Overall, the analysis in the EA found that the no action alternative does not meet the purpose and need of reducing the risk of high severity wildfires.

The Selected Alternative meets the purpose of providing wood products for both commercial and non-commercial uses. The quantity of wood products available for commercial and non-commercial uses under the Selected Alternative is much higher than under the no action alternative because it allows for tree cutting and removal thru a variety of means, including but not limited to, traditional timber sale contracts, service contracts, integrated resource contracts, small product permits (such as post and poles or firewood). The proposed action also meets the identified need of managing forest vegetation to move

current and foreseeable future conditions closer to desired conditions on landscapes available for active management. The no action alternative does not contribute to providing wood products for commercial and non-commercial uses, and it does not meet the need of managing forest vegetation to move current and foreseeable future conditions closer to desired conditions on landscapes available for active management.

Ability to Respond to Changing Conditions: As discussed above, the EA shows that the treatments proposed under the Selected Alternative will promote recovery of forest vegetation, increase resilience, and meet the other purpose and needs of the project. However, if the beetle outbreak continues and conditions continue to change, the prescriptions proposed may no longer be applicable in some areas. An example of this was seen on the 2013 Lake Canyon Fuels Reduction and Forest Health Project that was developed in response to the initial bark beetle outbreak in 2013. As discussed in Section 1. 1 of the Lone Pine Vegetation Management EA, the Lake Canyon project was only partially implemented, in part due to the changing conditions caused by the expansion of bark beetle outpacing the conventional planning and decision-making process that was conducted for that project. The strictly designated cutting units approved for the Lake Canyon project did not allow managers to adapt or be flexible to move treatments where they would be more effective in the face of the rapid expansion of bark beetle activity. For this reason, I feel having the ability to respond to changing conditions through the use of pre-implementation reviews and adaptive management is an essential part of the Selected Alternative for the Lone Pine project.

As discussed in the EA in Sections 1. 4 and 2. 2. 4, the use of pre-implementation reviews and adaptive management will allow for timely application of appropriate treatments based on actual site conditions at the time of implementation. The EA describes a well-defined approach, with requirements to review project areas prior to implementation, during implementation, and after implementation as well as requirements to monitor project effects during and after implementation. The adaptive management process also includes a commitment to public notification thru news releases and discussions with local stakeholders, and public field trips to keep interested stakeholders informed about the progress of implementation and the results of monitoring. Concerns were raised during the public comment periods that the procedures put in place and documented in Appendix A and B do not provide enough specific details related to what would be monitored and what adjustments may be made under adaptive management. To address these concerns, more detail has been added to the monitoring plan (Table 5 in Appendix B) and adaptive management actions have been defined that clearly describe what actions may be taken in response to conditions observed during monitoring (Tables 6 – 8 in Appendix B).

The proposed action also allows treatment outside of the fifteen project areas if needed to correct small mapping or GIS errors. Comments received during the comment period expressed concern about the lack of details surrounding this part of the proposed action. In order to address these concerns, additional detail has been added under the proposed action to describe the constraints that will be applied when determining if treatments will be applied outside of the fifteen project areas. The areas where this may occur was further reduced after the objection resolution meetings were completed. This included limiting the amount of additional area that may be treated to 300 acres, and only allowing treatments to correct small mapping or GIS errors, rather than in response to changing conditions. In addition, any treatment conducted in additional areas must be consistent with the treatments described in the EA, and the pre-implementation review of the treatment must show that effects will be consistent with effects described in the EA and that the design elements listed in Section 2. 2. 5 are adequate to keep impacts within those

analyzed in the EA. All monitoring and adaptive management actions described in Appendix B would apply to any additional areas where treatment occurs. By allowing work on up to 300 additional acres, the Forest Service will be able to conduct more precise layout of unit boundaries, taking actual on-the-ground conditions into account rather than relying on imprecise boundaries shown on the small scale maps used during planning.

Public Participation: In making my decision, I carefully considered concerns raised by the public during each of the public comment periods and the objection period. My staff and I reviewed and considered the comments and reference materials received during the public comment periods and have provided a summary of the comments and Forest Service responses in Appendix D – Public Comment Summary, posted on the San Juan National Forest website, and filed in the project record. Many of the comments received during the public comment period were supportive of the proposed actions, but there were several commenters that voiced concern over the lack of site specific detail regarding where or how treatments would be applied. They were also concerned that the original draft EA did not address a No Action Alternative. To address these concerns, the draft EA was revised to include more site-specific detail, a No Action Alternative was included and analyzed in detail, and a second 30-day public comment period was offered. The revised EA also more clearly displayed how public comments were addressed. A field trip to the project area was also conducted (at the request of several of the commenters) in order to provide interested stakeholders the opportunity to gain a better understanding of the proposed action and to discuss their concerns with Forest Service staff prior to the issuance of the Revised Draft EA.

In my review of the Final EA and the project record, I found numerous clarifications and changes were made in direct response to the public comments. This includes but is not limited to clarifications of design elements and the effects of the design elements, a more detailed monitoring plan (Table 5, Appendix B), and clearly defining what adaptive management steps may be taken in response to changing conditions (Tables6 – 8, Appendix B). I also found that the Final EA and project record addressed the opposing science that was brought up during the comment periods with opposing science specifically addressed in Section 1. 7 – Issues. The environmental analyses shows a thorough review using the best available science. The ID Team used information from a broad range of sources as appropriate, including Regional- and National-level research, local research, and recent site-specific field inspections and reviews of the analysis area, and referenced the scientific sources which informed the analysis.

I have acknowledged the environmental trade-offs of my decision. The watershed and soils analysis in Section 3. 2. 2 found that the activities associated with the proposed action may have localized, short-term effects (less than 3 years) on watershed and soils, riparian areas, and water quality. It also found that the hydrology and soils design elements listed in Section 2. 2. 5 will help minimize or eliminate potential adverse effects during implementation, and no negative long-term impacts will occur. The wildlife analysis in Section 3. 3 found the selected alternative may adversely impact individual sensitive species (northern goshawk, Lewis' woodpecker, flammulated owl, spotted bat, Townsend's big-eared bat, hoary bat, and northern leopard frog) but is not likely to result in a loss of viability in the planning area nor cause a trend toward federal listing or loss of species viability rangewide. This analysis concluded that the short-term effects are both positive and negative, but the long-term effects are expected to be beneficial as proposed treatments will help promote the recovery of forest vegetation and create more resilient pine stands across the landscape. For management indicator species (elk, Abert's squirrel, and hairy woodpecker), implementation of the proposed action will result in short-term negative impacts at the

project area scale, but long-term positive impacts as forest resilience improves and forest vegetation recovers. Overall, the proposed action would not measurably alter forest-wide habitat or population trends over the long-term. For migratory bird species, the effects of the proposed action are expected be minimal or discountable to Golden eagle, Grace's warbler, and Virginia's warbler.

To summarize, the analysis of impacts of the Selected Alternative as described by my staff in the EA do not indicate any unacceptable consequences, and I believe the long-term benefits of the Selected Alternative (increasing forest resilience, increasing age-class diversity, promoting the recovery of forest vegetation, reducing the risk of wildfire, and providing wood products for both commercial and non-commercial uses) outweighs any short-term environmental impacts.

Other Alternatives Considered

In addition to the Selected Alternative, I considered one other alternative in detail. I did not choose Alternative 1-*No Action* because it does not meet the purpose and need for action. This alternative is the existing condition and was used as a basis for comparison of impacts between the alternatives. Because it does not propose any vegetation management activities, Alternative 1 does not adequately address the purpose and need of increasing forest resilience, increasing age-class diversity, promoting the recovery of forest vegetation, reducing the risk of wildfire, or providing wood products for both commercial and non-commercial uses. Alternative 1 also does not contribute to bringing current and foreseeable future conditions closer to desired conditions.

Finding of No Significant Impact

Based on the environmental analysis documented in the Lone Pine Vegetation Management Project EA and the associated project record, I have determined that the activities described will not significantly affect the quality of the human environment. Therefore, an environmental impact statement is not needed. The proposed action is consistent with the management direction, standards, and guidelines outlined in the LRMP. This finding is made based on the following significance factors (40 CFR 1508. 27):

Context

The *Lone Pine Vegetation Project* will occur within an approximately 62,000 acre project area; these site-specific actions are limited in duration. Spatial and temporal effects will vary, and would be mostly limited to the project area. Some short-term adverse effects could be meaningful, while long-term effects will be beneficial across a range of resources. The resources affected by the proposed action are described in the EA.

The setting of the project is a managed, roaded area within the following management areas (MAs) that are designated in the S*an Juan National Forest Land and Resource Management Plan* (LRMP 2013). All of the actions included under the selected alternative are confined to these management areas. Both of these management areas are appropriate for the actions in the proposal:

- MA 5 – Approximately 89% of the analysis area is in MA 5, which are areas where active management occurs to meet a variety of social, economic, and ecological objectives.
- MA 3 – Approximately 10% of the analysis area is in MA 3, which are natural landscapes with limited management that can include a variety of silvicultural approaches to meet desired conditions.

Intensity

Intensity has been assessed based on the factors identified in 40 CFR 1508. 27. Intensity is a measure of the severity, extent, or quantity of effects. The conclusions of the FONSI are based on information from the

effects analysis of this EA and material in the project record. The agency has taken a hard look at the environmental effects using relevant scientific information, as well as knowledge of site-specific conditions gained from field visits, site-specific stand exam data collected in 2018, use of Forest Vegetation Simulator (FVS) models, SJNF Geographic Information System (GIS) data, information gathered during aerial surveys conducted by the Colorado State Forest Service on the intensity of bark beetle infestations, professional knowledge of Forest Service vegetation management specialists, and interdisciplinary team input. My finding of no significant impact is based on the context of the project and intensity of effects using the ten factors identified in 40 CFR 1508. 27(b). My finding of no significant impact is based on the context of the project and intensity of effects using the ten factors identified in 40 CFR 1508. 27(b).

1. *Consideration of both beneficial and adverse impacts*: Both beneficial and adverse impacts were disclosed and considered. There will be localized, short-term impacts, but the analysis indicates that the Selected Alternative would not result in any significant adverse effects (EA Chapter 3).
2. *Consideration of the effects on public health and safety*: There will be no negative effects on public health and safety. Project design features have been included that require clear and prominent signage altering the public to the presence of log trucks, and prohibiting hauling on NFSR 521 and 504 over the Labor Day and Memorial Day holiday weekends, or during July 4th and 5th. In addition, all temporary road segments will be closed to wheeled motorized use by the public during operations.
3. *Consideration of unique characteristics of the geographic area*: The Selected Alternative does not involve impacts to unique characteristics or ecologically critical areas. No park lands, prime farmlands, floodplains, wilderness, or wild or scenic rivers occur in the project area. No adverse effects to wetlands are expected because design elements are in place that minimize activities in these areas. Intermittent streams and ephemeral streams with riparian vegetation will be protected during project activities by a 100 foot buffer zones where no mechanized equipment use is allowed, unless a field visit by a hydrologist determines a different site-specific buffer (EA, Section 3. 2. 2). Implementation of other hydrology and soils design elements (EA, Section 2. 2. 5) will further ensure protection of wetlands and streams in the project area (EA, Section 3. 2. 2).
4. *Consideration of the degree to which the effects are likely to be highly controversial*: The effects of this action on the quality of the human environment are not highly controversial. The Forest Service has extensive experience in analyzing and implementing this type of vegetation management project in similar conditions. Although other perspectives on vegetation management approaches were raised during the various public comment periods, the project implements established approaches that Forest Service resource specialists deem reliable and is supported by science.
5. *Consideration of the degree to which effects are uncertain or unknown*: The Forest Service has extensive experience in analyzing and implementing sanitation, salvage, single tree selection, commercial thinning, pre-commercial thinning, oak thinning, reforestation, slash disposal, burning, and road related activities. Because of this, potential issues associated with this proposed action are understood and there is a low degree of uncertainty regarding the risks to the human environment. Issues brought forth by resource specialist are not unique, have been identified before on the San Juan National Forest, and tend to have clearly defined design elements or measures that will limit or fully eliminate meaningful adverse effects. Best available science was used to inform the effects

analysis in Chapter 3 of the EA. The effects analysis shows the effects are not uncertain and do not involve unique or unknown risks.

6. *Consideration of the degree to which this action will set a precedent for future actions with significant effects:* The action will not establish a precedent for future actions that may have significant effect on the environment. It does not represent a decision in principle about a future consideration. Future actions will require their own analyses and decisions.
7. *Consideration of the action in relation to other actions with individually insignificant but cumulatively significant impacts*: Cumulative effects of past, present, and reasonably foreseeable projects have been considered and evaluated in addition to the impacts of this project. No significant cumulative impacts were identified (EA, Chapter 3).
8. *Consideration of the degree to which the action may adversely affect district, sites, highways, structures, or objects listed or eligible for listing in the National Register of Historic Places, or cause loss or destruction of significant scientific, cultural, or historic resources*: No direct or indirect effects on cultural resources are anticipated given that project activities would be controlled through application of cultural resource design elements. Cultural resources will be avoided. All project undertakings identified under Alternative 2 would avoid National Register eligible cultural resources per Section 106 of the NHPA. With adherence to all cultural resource design elements (EA, Section 2. 2. 5), the proposed action will have "no adverse effect" on cultural resources (EA, Section 5. 3. 2).
9. *Consideration of the degree to which the action may affect threatened or endangered species, or critical habitat*: There is no critical habitat in the analysis area, and no federally listed plant, wildlife, or fish species or their habitat are known or suspected to occur within the Lone Pine analysis area. Therefore, there will be no effect to these species from the proposed action. (EA, Sections 3. 3 and 5. 3. 7)
10. *Consideration of whether the action violates or threatens to violate federal, state, local laws or requirements imposed for protection of the environment*: This action complies with relevant Federal, State, and local laws or requirements for the protection of the environment.

After considering the environmental effects described in the EA, I have determined that this action will not have a significant effect on the quality of the human environment considering the context and intensity of impacts (40 CFR 1508. 27). Thus, an environmental impact statement will not be prepared.

Findings Required by Other Laws and Regulations

The Selected Alternative complies with relevant requirements of Federal laws including the National Environmental Policy Act, the Endangered Species Act, the National Historic Preservation Act, and the National Forest Management Act, as well as other applicable State and local legal requirements and Executive Orders. The project was designed to be in conformance with Forest Plan direction, standards, and guidelines. The ID Team reviewed direction in the Forest Plan and determined that the Selected Alternative complies with the Forest Plan.

Administrative Review and Objection Opportunities

This decision was subject to objection pursuant to 36 CFR Part 218. A legal notice of the opportunity to object was published on August 30, 2019 in the Cortez Journal. A cover letter announcing availability of

the Draft Decision and Final Environmental Assessment was sent to those who provided comments during the project's development. The project received four objection letters from five unique objectors.

Objections resolution meeting were held with all objectors. During these meetings, issues and potential resolution of those issues were discussed in accordance with 36 CFR 218.11(a). During the objection resolution meetings, the reviewing official proposed certain changes be made to the project for the purpose of resolving objections. One of these objections (from two unique objectors) was dropped after it was agreed that certain changes be made to the project for the purpose of resolving objections. Instructions were issued to the responsible official to adopt and implement the provisions agreed upon as part of the Final DN. These provisions have been included in this DN as required.

The remaining three objectors did not drop their objections. Based on the review of the remaining three objections, the Final EA, and project record, it was determined that the analysis in the project record supports the reasoning in the draft DN for Alternative B (Modified). No instructions for the remaining three objections were issued by the reviewing officer.

Implementation Date

Implementation on this project may occur immediately following the close of the objection resolution period (§218. 12[a]).

Contact and Project Information

For additional information concerning this decision, project details, or to obtain a copy of the Final EA or DN, contact David Casey at the Dolores Ranger District, 29211 Highway 184, Dolores, CO 81323, (970) 882-7296. You may download the Final EA and Final Decision Notice from www.fs.usda.gov/project/?project=54682 .

Derek Padilla
Dolores District Ranger

1/23/2020
Date

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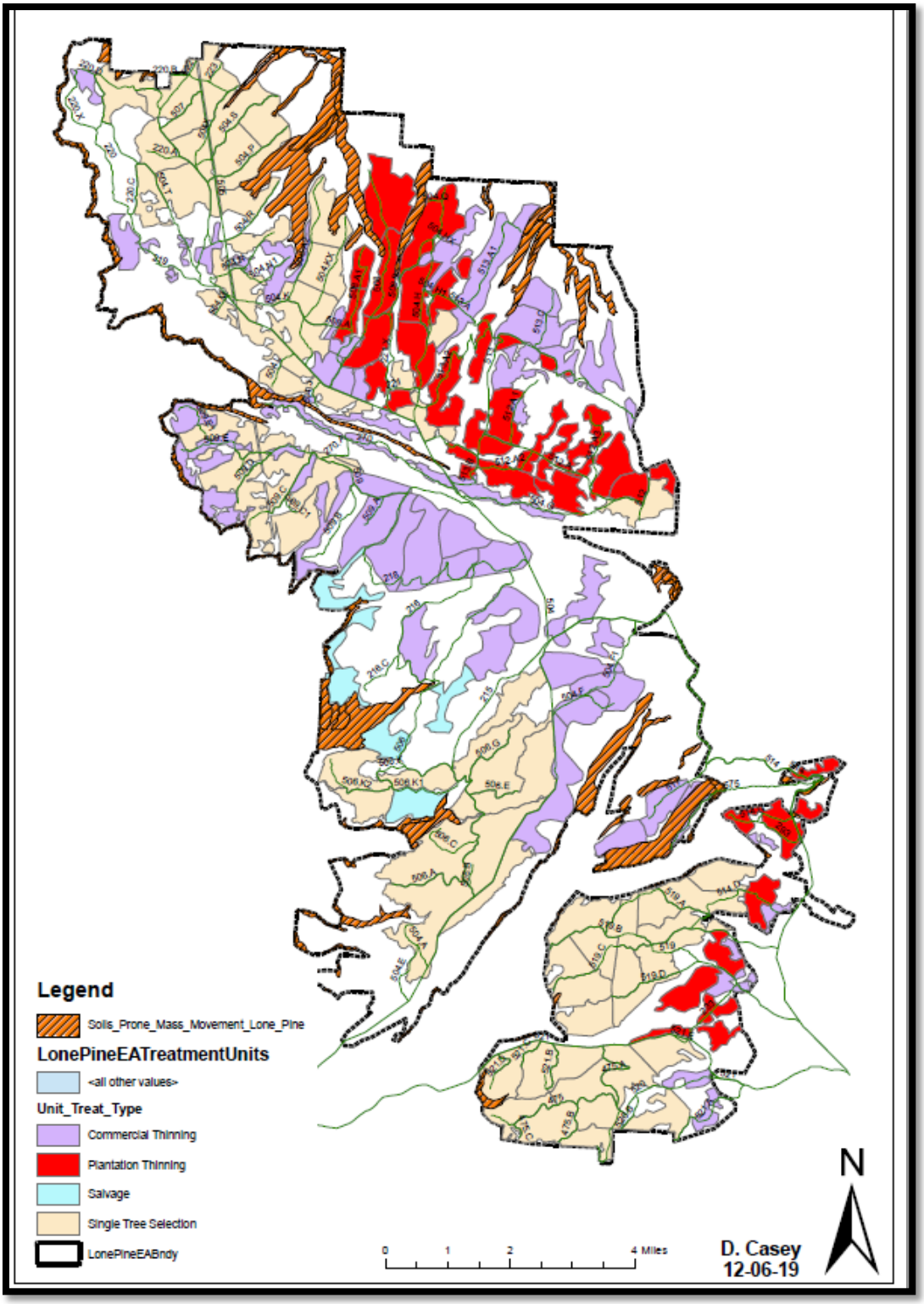
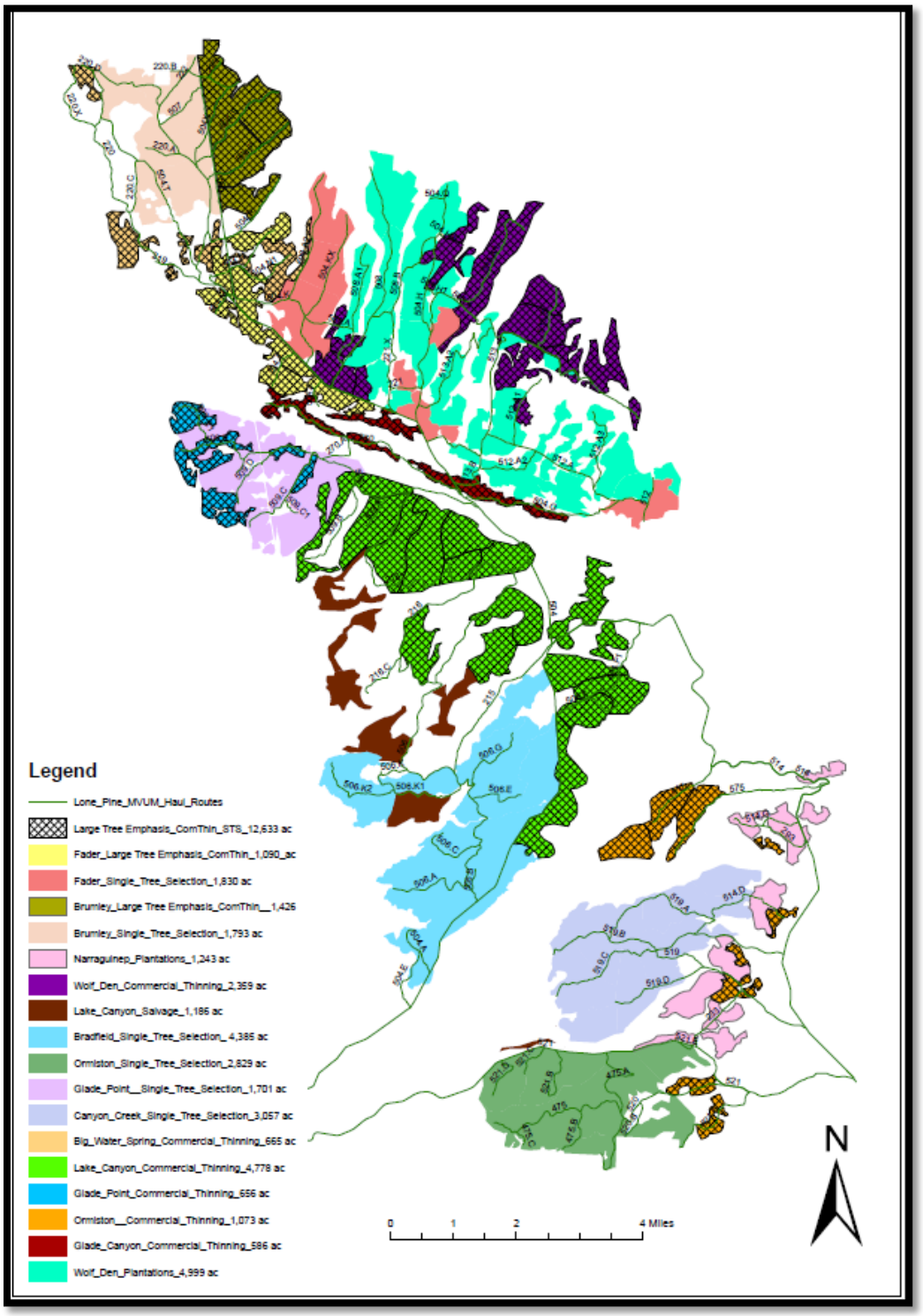
Attachment 1

Lone Pine Soils Prone to Mass Movement



Attachment 2

Project Area Locations including Large Tree Emphasis/Commercial Thin Prescription Areas



Attachment 3

Excerpt from USDA F B – Standard Provisions for Scaled Timber Sales:
B6.35 Equipment Cleaning.

(a) Areas, known by Forest Service prior to timber sale advertisement, that are infested with invasive species of concern are shown on Sale Area Map. A current list of invasive species of concern and a map showing the extent of known infestations is available at the Forest Supervisor's Office. For purposes of this provision, "Off-Road Equipment" includes all logging and construction machinery, except for log trucks, chip vans, service vehicles, water trucks, pickup trucks, cars, and similar vehicles.

(b) Purchaser shall adhere to the following requirements with regard to cleaning "Off-Road Equipment":
  (i) Prior to moving Off-Road Equipment onto the Sale Area, Purchaser shall identify the location of the equipment's most recent operation. Purchaser shall not move any Off-Road Equipment that last operated in an area infested with one or more invasive species of concern onto Sale Area without having cleaned such equipment of seeds, soil, vegetative matter, and other debris that could contain or hold seeds, and having notified Forest Service, as provided in (iii). If the location of prior operation cannot be identified, then Purchaser shall assume that the location is infested with invasive species of concern.
  (ii) Prior to moving Off-Road Equipment from a cutting unit that is shown on Sale Area Map to be infested with invasive species of concern to, or through any other area that is shown as being free of invasive species of concern, or infested with a different invasive species, Purchaser shall clean such equipment of seeds, soil, vegetative matter, and other debris that could contain or hold seeds, and shall notify the Forest Service, as provided in (iii).
  (iii) Prior to moving any Off-Road Equipment subject to the cleaning requirements set forth above, Purchaser shall advise Forest Service of its cleaning measures and make the equipment available for inspection. Forest Service shall have 2 days, excluding weekends and Federal holidays, to inspect equipment after it has been made available. After satisfactory inspection or after such 2 day period, Purchaser may move the equipment as planned. Equipment shall be considered clean when a visual inspection does not disclose seeds, soil, vegetative matter, and other debris that could contain or hold seeds. Purchaser shall not be required to disassemble equipment unless so directed by the Forest Service after inspection.
  (iv) If Purchaser desires to clean Off-Road Equipment on National Forest land, such as at the end of a project or prior to moving to, or through an area that is free of invasive species of concern, Purchaser shall obtain prior approval from Contracting Officer as to the location for such cleaning and measures, if any, for controlling impacts.
  (v) Contracting Officer may order delay, interruption, or modification of this Contract pursuant to B8.33.

(c) Nothing contained in this Section shall be interpreted as creating any warranty on the part of the Forest Service that all locations of invasive species of concern have been described herein, elsewhere in this Contract, or designated on the ground. Following sale advertisement, additional locations may be described or designated, and other species may be added to the list of invasive species of concern. In such event, Contracting Officer may order delay, interruption, or modification of this Contract pursuant to B8.33.

(d) The parties shall promptly communicate with one another with respect to description or designation of additional locations; discovery of locations of new species or new infestation; and, addition of species to the list of invasive species of concern.

Attachment 4

Lone Pine Monitoring Areas

The Lone Pine monitoring areas are a mixture of previously harvested areas, areas proposed for harvest under Lone Pine EA, and no harvest (control) areas. They were identified as a result of conversations within the DWRF collaborative and a desire to have areas to compare conditions on inventoried lands. One of the main goals is to monitor the impacts to determine if the actions proposed in the Lone Pine EA are achieving or moving toward general attainment of desired conditions.

Monitoring areas were selected that represent a spectrum of conditions and are representative of the stands across the project area. Monitoring areas were established to study how conditions change after treatment and to compare this to untreated control areas. If monitoring indicates that conditions have changed, the monitoring will further identify how the treatment affected the change. Additionally, treatment units are being monitored to establish a baseline. To do so, Mountain Studies Institute (MSI) will conduct monitoring both before and after treatment. Monitoring Area Descriptions found below list each monitoring area and briefly describe the unique conditions of each.

The majority of data collection will be completed by MSI with help from the Rocky Mountain Research Station and other agency personnel. MSI will house all the data and process it for release to the collaborative group and agency. The San Juan National Forest and MSI will continue monitoring efforts as implementation continues across the Lone Pine landscape.

Monitoring Area Descriptions

Control Areas (only treatment that will occur is burning)

1. **Haycamp 1** (Smoothing Iron): This area was an early demonstration site for the Ponderosa Pines Partnership (PPP). Recently a series of common stand exams across many of the old demonstration sites was implemented to evaluate current conditions. 2019 Forest Health Flights observed round headed bark beetle (RHBB) in this area. Monitoring will be conducted to track RHBB activity, determine which trees are impacted, as well as monitor for other information, as determined in consultation with MSI and/or DWRF. Additional studies could be done once monitoring is in place.
2. **Haycamp 2**: No recent or current scheduled treatments in this area. The area was chosen for monitoring because 2019 Forest Health Flight data found RHBB moving into the area.
3. **Haycamp 3**: No recent or current scheduled treatments in this area. The area was chosen for monitoring because 2019 Forest Health Flight data found RHBB moving into the area.
4. **Narraguinepp Plantation**: This area is representative of the plantations on the east side of the project area.
5. **Fader**: Representative unit of single tree selection (STS).
6. **Salvage**: Representative unit of salvage.
7. **Glade Canyon**: this area is representative of a commercial thinning unit. This unit has a heavy to moderate infestation of bark beetles.
8. **5 Pine 1**: This area was cut to a 60-80 BA (75BA +) in 2017-18 under the Lake Canyon EA decision and has light bark beetle activity. Area is to be burned when Snaggletooth units are

complete. No management is currently scheduled beyond the broadcast burn and future follow-up burns.

9. **5 Pine 2**: This area was cut to a 60-80 BA (75+) in 2018-19 (sale is still active and 90% complete) under the Lake Canyon EA decision and there is light bark beetle activity. Area is to be burned when Snaggletooth units are complete. No management is currently scheduled beyond the broadcast burn and future follow-up burns.

10. **Wolf Plantation**: Representative unit of the plantations on the west side of the project area.

11. **Ferris Sites**: These area were originally part of the Ferris East decision and treatments were implemented under the Pines Partnership umbrella with a 20" diameter retention cut for ponderosa pine. Post-harvest, one unit was cut and burned and one unit was only cut. (This is the same RX that has been suggested to be used on the commercial thin areas of Lone Pine EA.) This area will provide a good future look at potential of the area under such prescription to meet desired conditions.

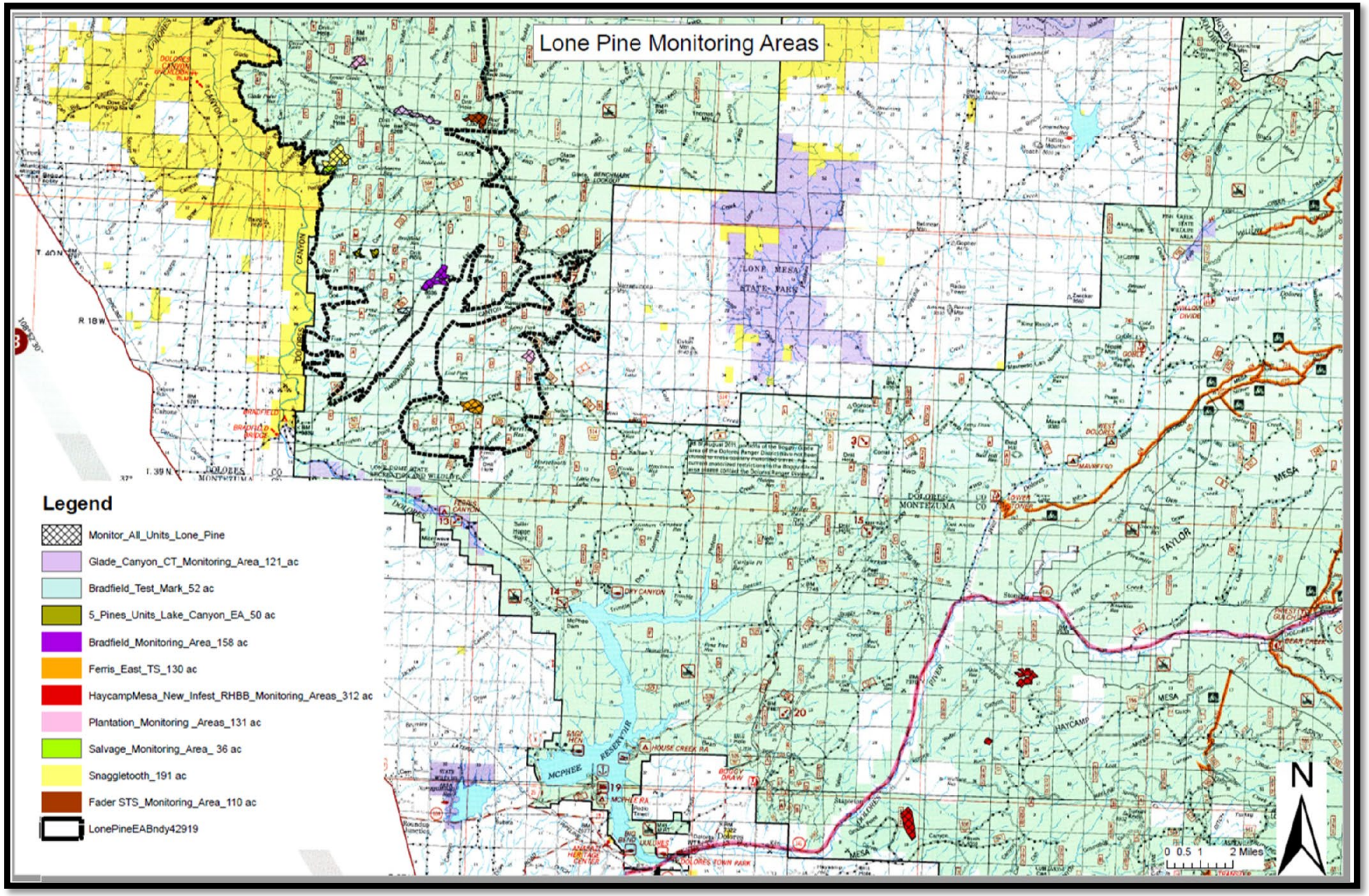
Other Areas

12. **Snaggletooth**: Part of the Lake Canyon EA decision and currently under contract to be harvested in 2020-2021. A burn plan is in place and upon harvest completion the unit will be burned. No management is currently scheduled beyond the broadcast burn and future follow-up burns.

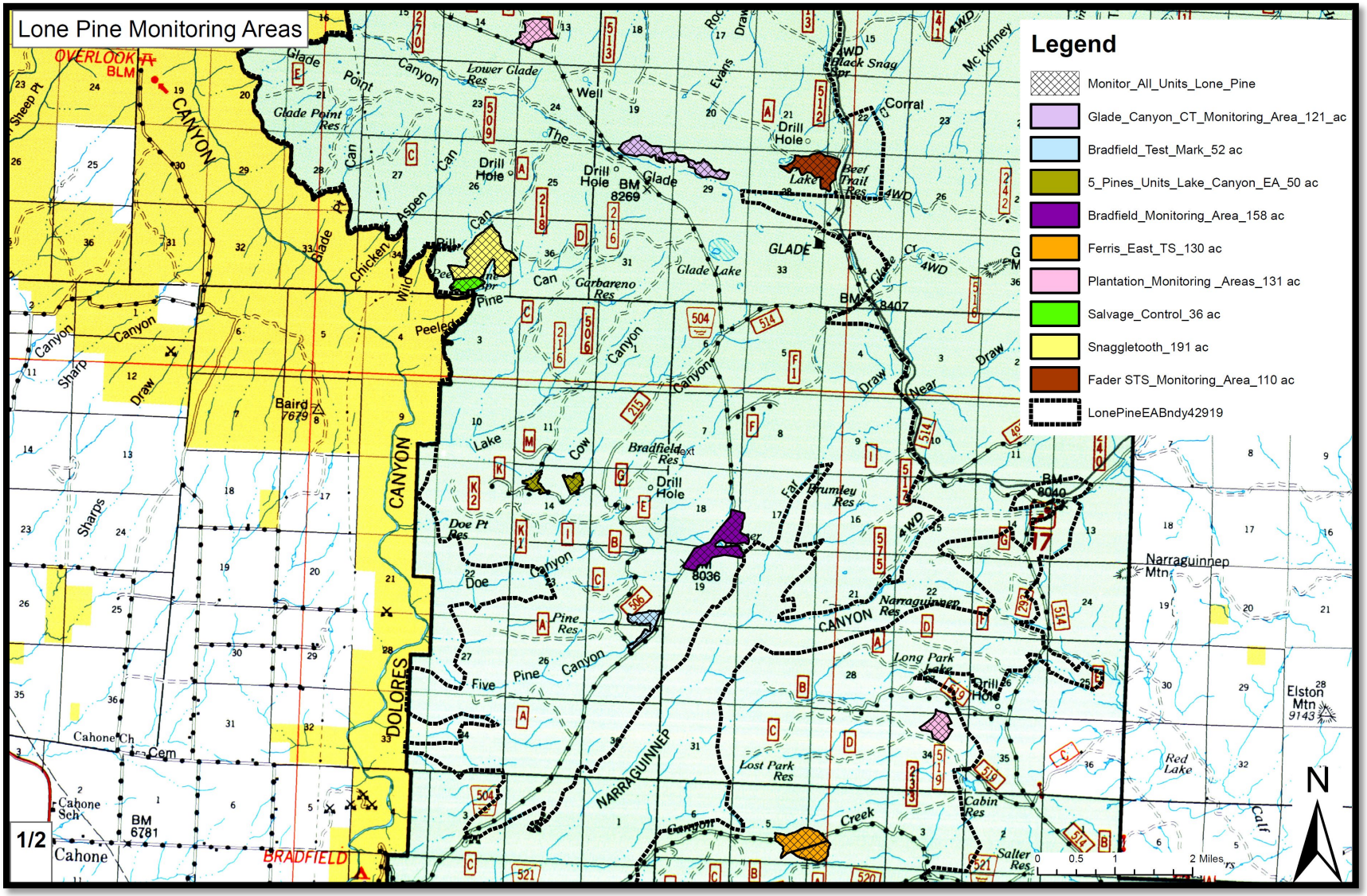
13. **Bradfield Test Mark**: Area is attached to and under the same contract as the Bradfield Single Tree Selection harvest. This area was marked to work out the STS prescription internally and was intensely inventoried as a result. It will be used as a training site for sale purchasers to study the mark associated with the STS prescription, ask questions and then cut the area as a demonstration. This area will receive the same mitigations and treatments as the Bradfield Single Tree Selection and will have an inventory to provide improved monitoring information for the study.

14. **Bradfield Monitoring Area**: This area is located directly across the road from the Bradfield Single Tree Selection unit and exhibits many of the same stand qualities and conditions. This area is designated as commercial thinning in the Lone Pine proposed action. Recently a proposal was submitted through the USFS Regional Office for a demonstration project to study various basil area treatments (50 BA and up) and the resulting response to RHBB. This area was designated as the site for the study if funding is received.

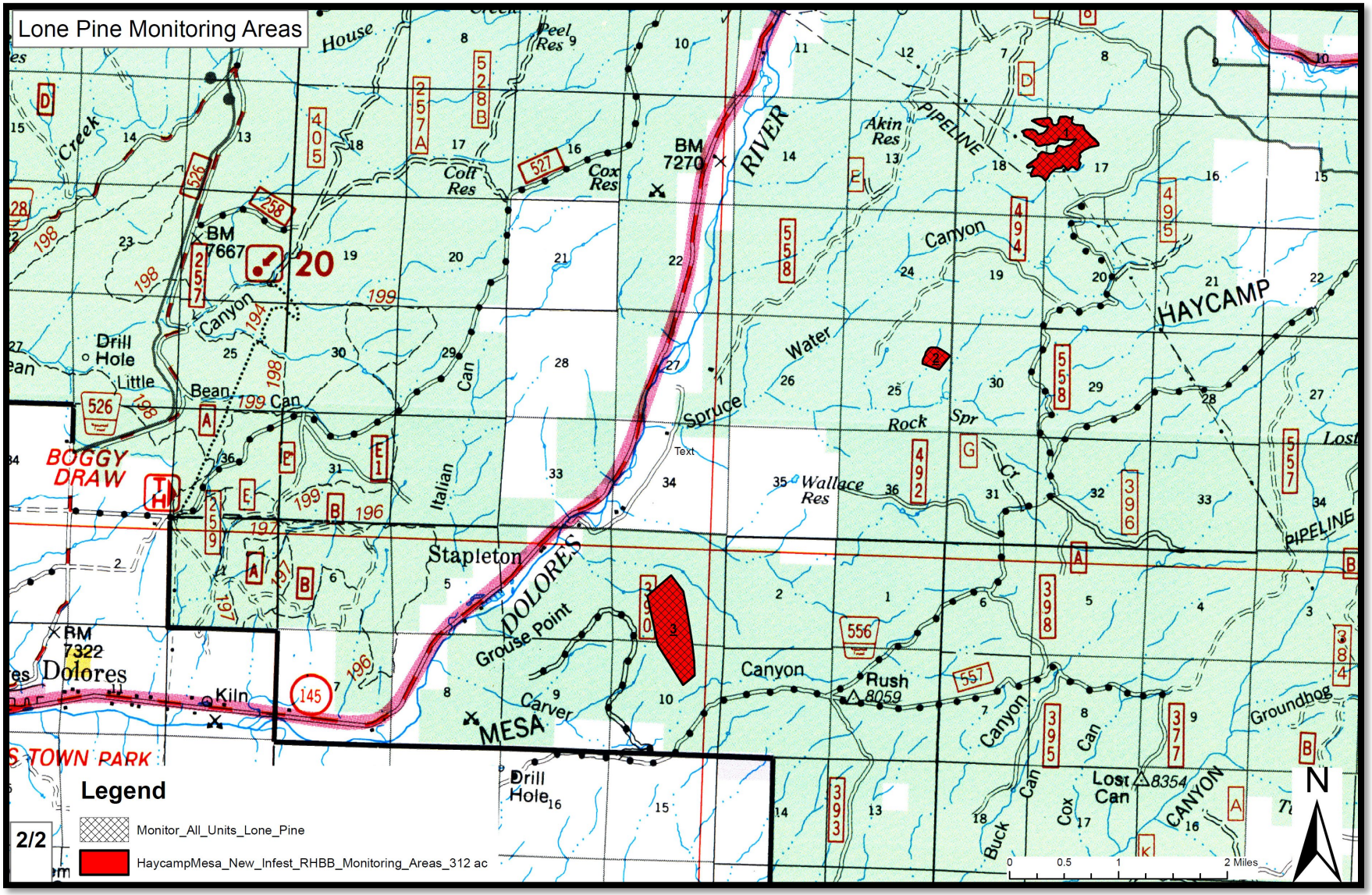
Lone Pine Monitoring Area Overview



Lone Pine Monitoring Area – Detail Map 1 (Lone Pine Area)



Lone Pine Monitoring Area – Detail Map 2 (Haycamp Mesa Area)



Attachment 5

Design Elements

The design elements listed below are mandatory elements of the proposed action, including all actions that occur as the result of adaptive management, and are expected to provide adequate resource protection under the treatments proposed for this project.

Botany

1. Limit each burn pile to ¼ acre or less.
2. All off-road heavy equipment must be cleaned and free of foreign soil or debris that might facilitate spread of invasive species before entering the forest boundary.
3. Sale and contract areas shall be monitored for weeds; infestations are to be reported to the Rangeland Management Specialist.
4. All seed used for revegetation shall be tested for, and free of, invasive non-native species that are problematic for this forest. Contact the agency for the most current list.

Cultural Resources

1. The boundaries of all historic properties, including a 100 foot buffer, shall be clearly delineated on the ground prior to treatment implementation. Boundary marking information shall be conveyed to appropriate Forest Service administrators or employees responsible for project implementation. Information shall be incorporated into implementation documents, contracts, and permits.
2. No ground-disturbing project activities, staging of equipment or materials, or stockpiling of equipment or materials shall occur within the boundary of any historic property.
3. In the event that vegetation treatments will occur within the boundary of a historic property, all vegetation shall be cut using hand tools and removed from the property by hand.
    a. Prior to the felling of any large-diameter tree, all features within the historic property shall be flagged or otherwise demarcated and a SJNF archaeologist shall visit the site with project implementers to discuss the locations of the features. The large-diameter tree shall be felled away from all features.
    b. No material shall be dragged across or within the boundary of a historic property.
4. If a previously undocumented historic property is discovered, or if inadvertent effects occur to a historic property, all work in the vicinity of the property shall cease and the SJNF archaeologist shall be notified immediately. The property shall be protected and project activities in the immediate vicinity of the property shall not resume until any actions necessary to resolve adverse effects to the property have been completed.
5. Upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony, a SJNF archaeologist shall be immediately notified by telephone, with written confirmation. All project activities shall cease in the vicinity of the discovery, and the discovery shall be protected for 30 days, or until the contractor is given notice to proceed by a SJNF archaeologist or the Dolores District Forest Service Representative.

Fuels

1. Timber sale or stewardship contracts shall require concentrations of activity fuels to be disposed of by piling and burning, lopping and scattering throughout the unit, and/or removal.
2. During slash disposal, limit the amount of slash scattered in areas where existing pine regeneration or seed trees are present in order to minimize damage to existing regeneration. When building piles, locate them where damage to existing pine regeneration or seed trees is minimized when burned.

3. Machines used to pile slash shall be equipped with a brush blade or acceptable equivalent.
4. Develop the slash disposal plan for each project area in consultation with the wildlife biologist, hydrologist and fire management officer.

Hydrology and Soils

1. Heavy equipment and vehicles will be prohibited in the water influence zone (WIZ) unless the ground is protected by either one foot of packed snow or two inches of frozen soil. Intermittent streams and ephemeral streams with riparian vegetation will have a buffer strip width of 100 feet on each side of the channel (based on standard 2. 6. 30). No-equipment buffer zones do not apply to designated stream crossings, but limit stream crossings to the minimum number necessary. Cross streams perpendicular to the direction of flow in straight and shallow locations and where channels are hardened by gravel, cobble or bedrock. Do not cross streams where banks exceed a 30% slope.
2. Limit equipment operations to sustained slopes less than 40%. Avoid locating landing and staging areas that have high potential for mass movement; have shale soils of the Mancos shale, Lewis, Fruitland, and Morrison geologic formations; or have other highly erosive Fivepine-Nortez or Fughes-Sheek complex soil types (figure 7). Restrict roads, landings, skid trails, concentrated-use sites, and similar soil disturbances to designated sites to no more than 15% of any activity area.
3. No skidding, temporary road construction, or harvesting on slopes over 40%.
4. No skidding, temporary road construction, or harvesting in areas with soils prone to mass movement, as shown on the attached map (Attachment 1 of this DN).
5. When soils are saturated, equipment operations will cease until the ground dries out or freezes. Soils are considered saturated when ruts created by equipment are 4 inches deep (beyond the lug tread of the tire) for 10 feet or longer. Repair any rutting deeper than 4 inches.
6. Avoid mechanical treatments in wetlands, wet meadows and riparian areas. No skidding, decking or loading will be allowed in these areas in order to protect water quality, groundwater hydrology, existing soils and vegetative cover. Removal or mechanical treatment of riparian or wetland vegetation will be prohibited (based on guideline 2. 4. 28). Establish a 100 foot no treatment buffer zone around riparian and wetland areas unless field visit by hydrologist determines a different site-specific buffer.
7. Avoid ground skidding on sustained slopes steeper than 40%. Conduct logging to disperse runoff as practicable. Landings and skid trails will be located and designed to disperse runoff and minimize soil disturbance. Landings should not be located in the water influence zone (WIZ). Roads and skid trails adjacent to the landings will be cross-drained or shaped so that runoff does not reach the landing. Skid trails will be located perpendicular to slope angles (along the contour) as much as possible. Avoid skidding up or down drainage bottoms. As needed, install waterbars or outslope, and spread slash on skid trails upon completion of use. Landings will be ripped or scarified and seeded immediately upon completion of use.
8. Logging slash, when processed by “lop and scatter,” will be well-distributed throughout the cutting units to protect soils from erosion and retain nutrients and organic matter on site. Wood chips produced by mechanical treatments should be dispersed on the ground at a maximum depth of three inches over at least 80% of the covered areas, and no chip piles should exceed 6 inches in depth (based on guideline 2. 2. 78). Logging debris may not enter intermittent stream courses to an extent that it adversely affects the natural flow of the stream or diminishes water quality.
9. Temporary roads shall be held to the minimum feasible number, width and total length and shall be located sufficiently far from streams and other water bodies to minimize discharge into those waters except at necessary water crossings. Stream crossings will be installed on straight and resilient

stream reaches as perpendicular to flow as feasible. Maintain stream channel width, depth, and slope. Culverts placed within the drainage network will be positioned at the natural grade of the drainage and will not be modified (i. e. raised or lowered) to maintain the grade of the road. The table below provides guidelines for maximum spacing of cross-drainage (e. g. culverts, rolling dips) on temporary roads. All temporary roads will be obliterated and seeded upon completion of use.

Table 2: Maximum Cross-Drain Spacing in Feet Based on Soil Types

Road Grade (percent)	Extra Erodible Silts-Sands with little or no binder	Highly Erodible Silts-Sands with moderate binder	Erodible Gravels + fines & sands with little or no fines	Low Erodible Gravels with little or no fines
1-3	600	1000	1000	1000
4-6	300	540	680	1000
7-9	200	360	450	670
10-12	150	270	340	510
13-15	120	220	270	410

(Source: Forest Service Handbook 2509. 25 Management Measure 13. 3)

10. Proper drainage will be constructed or reconstructed on existing system road and newly constructed temporary roads. Some existing road sections may need to be realigned out of low-lying areas for proper drainage. Road-stream crossings and dips through habitually wet areas on roads open to motorized public use will be hardened. All drainage structures on roads shall be inspected by the Timber Sale Administrator or a hydrologist at treatment completion to make sure they are in good condition and functioning properly.

Rangelands

1. Rangeland Management Specialists will be annually informed of the schedule of treatments.
2. Timber purchasers/contractors are required to repair any damages to range improvements that occur as a result of their operations.
3. Timber will contact Rangeland Management Specialist for approval if it is necessary to alter fence lines for operations.
4. Keep pasture gates closed when cattle are in or adjacent to pastures or when instructed by agency personnel.

Recreation and Public Safety

1. No hauling will be permitted on NFSR 521 and 504 over the Labor Day and Memorial Day holiday weekends (starting on Friday at 12:00 am and extending through Tuesday at 12:00am). No hauling on July 4th and 5th (starting at 12:00 am on July 4th and ending at 12:00 am on July 6th).
2. Plan for and accommodate winter recreational users. If NFSR 504 or 514 are plowed for winter operations, snowmobile passage would be accommodated to the extent possible. Plowing operations would be required to leave at least 2 inches of snow on plowed roadways to allow snowmobiles to pass through.
3. Clear and prominent signage alerting the public to the presence of log trucks will be required at all times.

Scenery

1. Openings in the canopy should have a natural appearance with uneven edges. The shape should be an irregular pattern that mimics existing natural openings and should avoid straight-line edges.

Blend with natural landscape features such as natural meadows or openings and rock outcrops when possible.

2. Unit boundary paint shall face away from open system roads and trails or be removed; standards for boundary marks should be minimized along these routes.
3. Stumps should be 12" high or less.
4. All equipment and construction debris (man-made debris and trash, including old culverts) caused by project operations shall be removed from the site at sale completion.
5. Disturbed areas where soils are exposed, such as temporary roads, skid trails or landings should be re-vegetated with a seed mixture consisting of species that are as close as possible to the existing desirable species in the area. Effectiveness of closures should be monitored yearly for success of revegetation as well as travel management compliance. If ineffective, roads will be reclosed or reseeded by the timber program.
6. Where feasible, construction of skid trails should be slightly curved to avoid creating straight line corridors when the skid trails connect with open system roads and trails. Skid trails will be held to the minimum number, width, and length. Forest system trails will not be utilized as a skid path unless the trail utilizes a level 1 road or use is approved by the line officer. In these cases, there shall be coordination between the timber and recreation programs.
7. When constructing temporary roads, excessive cut/fill slopes shall be avoided. Leave cuts/fills in a roughened condition to facilitate revegetation. Stabilize fills and reestablish natural drainage configuration to the highest degree possible.

Timber

1. Normal operating season will extend from April 1st to November 30th, depending on site-specific conditions. Winter harvesting and hauling operations will also be allowed from December 1st through February 28th, depending on conditions. Additional time in the shoulder seasons may be granted by Line Officer.
2. If it is determined that cattle or big game are damaging aspen regeneration, temporary exclusions may be put in place if necessary to deter browsing (e. g. fence, electric wire, or slash barrier).
3. In salvage units 40 or more acres in size, require leave groups of 10-15% of the total unit acres. Leave groups should be ½ - 5 acres in size.

Transportation

1. Roads to be used for hauling or equipment access will be used in the following order of preference:
   a. First preference is to use National Forest System Roads identified on the Motor Vehicle Use Map for general public use. These roads are maintained in an "open"' status with either gravel surface (ML3) or native surface (ML2).
   b. Second preference is to use ML1 roads (only open to limited administrative use), which might require reconstruction (e. g., removal of trees and shrubs, reshaping, blading, adding surface material or installing drainage features). After use the road would be put back in ML1 status or decommissioned. Consult with Forest engineering staff and project hydrologist for input on road reconstruction.
   c. Third preference is to use existing unauthorized roads (which would be considered temporary roads and obliterated when use is complete). Roads in this category might require removal of trees and shrubs, reshaping, blading, adding surface material, installing drainage features, etc.
   d. Fourth preference is to create temporary roads. The Forest Service and the purchaser/contractor shall agree upon locations of temporary routes, resource protection requirements employed during road construction, clearing widths, and closure or rehabilitation requirements, which

must be consistent with all design elements and implementation requirements of the Lone Pine EA.

2. Temporary road surface width shall be limited to truck bunk width plus four (4) feet, except for needed turnouts which shall not exceed two (2) times the bunk width plus four (4) feet. If shovels or cranes with revolving carriage are used to skid or load, temporary road surface width equal to track width plus tail swing shall be permitted.
3. Cut/fill techniques in the construction of temporary roads are not needed and will not be used in the Lone Pine project area due to the gentle terrain. Cut/fill is defined as installing a cut that is more than 6" deep and over 50' long, with the cut located on the uphill side, and the intent of placing the cut material on the downhill as fill, to create a flat, drivable road prism.
4. Temporary roads shall be closed within 5 years of construction.
5. Temporary roads shall be designed to the minimum standard for their use and be located to "roll" with the terrain as feasible.

Wildlife and Fisheries

1. Surveys for northern goshawks and other raptors (generally Cooper's hawk and sharp-shinned hawk) would be completed prior to project implementation. If active northern goshawk nests are discovered, all project operations would be restricted annually from March 1st to August 31st within one-half (½) mile of the active nest. If other raptor nests are discovered, all project operations would be restricted annually from March 1st to August 31st within one-quarter (¼) mile of the active nest.
2. Operations in Colorado Parks and Wildlife (CPW)-mapped elk production habitat (Figure 7: Elk Production Areas) shall not occur from May 15th to June 30th without line officer approval. The only operations that will be approved are travel through mapped production areas to units outside of the production areas. This will only be approved after consultation with Colorado Parks and Wildlife about the amount of proposed use and access routes.
3. Operations in CPW-mapped critical elk winter range shall not occur from December 1 to April 30 without line officer approval. The only operations that the line officer will approve are travel through mapped winter range areas to units outside of the critical winter range. This will only be approved after consultation with Colorado Parks and Wildlife about the amount of proposed use and access routes.
4. Leave a minimum of 1 snag per acre of at least 12 inches dbh and 25 feet tall. If trees in this size class are not available, then leave 2-3 snags per acre of at least 9 inches dbh and 15 feet tall.
5. Consult with wildlife biologist prior to layout of projects that include oak treatment in order to identify areas to be treated (assure benefit wildlife and maintain clumps of dense understory oak for turkey nesting habitat).
6. Mechanized equipment must not operate within exclosure areas that protect wildlife. Consult with the wildlife biologist when developing marking guidelines for trees within exclosures.