

Chapter 2

Alternatives Considered, Including the Proposed Action and Mitigation

This chapter describes the process used to develop the Alternatives, the “Alternatives Considered but not Studied in Detail,” and the “Alternatives Considered in Detail for the Million Fire Salvage Sale. This chapter also briefly summarizes the environmental consequences of the Alternatives.

2.1 The Process Used to Develop the Alternatives

The following criteria were used to develop alternatives for this analysis:

- The purpose of and the need for this project.
- The goals, objectives, and desired conditions for the project area as described in the Forest Plan for the Rio Grande National Forest.
- Comments made by the public, the State, and other agencies during the scoping process.

2.2 Alternatives Considered

Three alternatives, including the “No Action” Alternative, were developed in the environmental analysis process. Each Alternative, with the exception of the “No Action” Alternative, was designed to be a viable Alternative consistent with Forest Plan direction.

2.2.1 Alternatives Considered But Not Studied in Detail

The interdisciplinary team considered the following alternatives and options during the analysis process, but were eliminated from detailed study:

- Treatment of the Model T Park Area and the area described in the Proposed Action Alternative (The Shaw Mesa / Model T Park Alternative): This alternative would include harvest activities in the Proposed Action Alternative (see 2.3.2) and the Model T Park Area. Approximately 2.2 miles of new road construction and 0.7 miles of road reconstruction would be included in this alternative to access the Model T Park Area. Total treatment acres would equal approximately 1,200 acres. The estimated cost/benefit economics of building a new road and road reconstruction would be approximately break-even. Other concerns included hydrological, wildlife and soil issues with the proposed road crossing the upper Church Creek drainage. Post-fire rehabilitation activities, including seeding and mulching, have taken place in the Model T Park Area to reduce soil erosion. This alternative could impact these rehabilitation projects. The ID Team has decided not to proceed with this alternative due to anticipated effects of road construction and impacts on rehabilitation projects. If access to the Model T Park area can be obtained through private lands, possible treatment of this area may be reevaluated at a later date.

- Treatment of the Million Fire Area Using Passive Management (Restoration Alternative): This alternative would use passive management techniques to protect all affected resources. This alternative does not meet the purpose and need for this analysis. Many aspects of this alternative are already occurring.

2.3 Alternatives Considered in Detail

Three Alternatives are described and analyzed in detail as follows:
See Map 2 in the Map Section.

- Alternative 1 - No Action.
- Alternative 2 - Salvage Harvest (*Forest Service Proposed Action*).
- Alternative 3 – Slope Limitation.

2.3.1 Alternative 1: No Action

The goal of this Alternative is to maintain the current management practices. No action to salvage timber would occur. Current activities such as dispersed non-motorized recreation would continue. All trees impacted or killed by the fire would be left in place, except for limited firewood gathering. Some of the features of the No Action Alternative are shown in Table 2.3-3.

2.3.2 Alternative 2: Salvage Harvest (Proposed Action)

This Alternative emphasizes minimizing the economic loss of timber and providing merchantable timber to the public. Approximately 623 acres of fire-killed/damaged timber would be salvaged. The analysis done for this Alternative will address the effects of the proposed action. See Map 4 in the Map Section.

This Alternative proposes 0 miles of new road construction and 0 miles of road reconstruction. The road system currently in place is adequate to access the timber resource without additional construction. FDR 345, 345.2F, 340, 340.1A, and 340.1B would be utilized for this Alternative. Features of this Alternative include removal of trees that have been killed or successfully attacked by bark beetles within the Project Area. Harvest would be accomplished using conventional logging systems (tractor/skidder). No heavy equipment or roads would be used on protected soil areas.

Some features of this Alternative are shown in Table 2.3-3.

2.3.3 Alternative 3: Slope Limitation

This Alternative emphasizes reducing soil impacts by limiting project activities on a threshold slope percent. Approximately 560 acres of fire-killed/damaged timber would be salvaged. The analysis done for this Alternative will address the effects of the proposed action. See Map 5 in the Map Section.

This Alternative proposes 0 miles of new road construction and 0 miles of reconstruction. The road system currently in place is adequate to access the timber resource without additional construction. Limit harvest activities to slopes equal to or less than 30 percent. Harvesting would be accomplished using conventional logging systems (tractor/skidder). No heavy equipment would be used on protected soil areas.

Some features of this Alternative are shown in Table 2.3-3.

Table 2.3-3. Provides a comparison of Features from each Alternative.

Action	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
Acres Treated Conventional Harvest	0	623	560
**Timber Volume Saw timber (MMBF)	0	3.0	2.5
Timber Volume Fuelwood (cords)	0	600	300
Silvicultural Prescription	NA	Salvage	Salvage
Number of Possible Sales	0	1-3	1-3
Road Reconstruction (Miles)	0	0	0
*Number of Culverts Replaced (Each)	0	0	0
Miles of Temporary Road (Miles)	0	0	0

* Culvert replacement is to be implemented through Fire Rehabilitation Projects, which is outside the scope of this proposed project.

**Volume estimates are approximate. Sawtimber will most likely be sold as dead sawtimber.

Table 2.3-4. Comparison of the key issues by Alternative. See Chapter 3 for details.

Key Issue	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3
1. Timber merchantability will be lost.	Yes	No	Some volume will be lost (500,000 board feet).
2. The effects on water quality and yield in relation to increased runoff, peak flow, and stream channel stability.	No effect to baseline conditions.	Minor effect, may slightly improve overall watershed condition.	Minor effect, may slightly improve overall watershed condition.
3. The effects on soil productivity and soil health in relation to erosion, compaction, and nutrients.	No effect to baseline conditions.	Minor effect on compaction and nutrients and may reduce erosion.	Minor effect on compaction and nutrients and may reduce erosion

2.4 Standards and Guidelines

Listed below are the Forest Plan Standards and Guidelines most pertinent to this project (USDA Forest Service 1996). A comprehensive listing of all Standards and Guidelines are provided in the Record of Decision for the Revised Land and Resource Management Plan Rio Grande National Forest, Chapter III.

Hydrologic Function Standard

1. Manage land treatments to maintain enough organic ground cover in each land unit to prevent harmful runoff.

Guidelines

1. Maintain the organic ground cover of each land unit so that pedestals, rills, and surface runoff from the land unit are not increased.
2. Restore the organic ground cover of degraded land units within the next Plan period, using native vegetation as feasible.

Riparian Areas

Standard

1. In the Water Influence Zone (WIZ) next to perennial and intermittent streams, lakes and wetlands, allow only those land treatments that maintain or improve long-term stream health.

Guidelines

1. Allow no land treatments that will cause long-term change to a lower-stream-health class in any stream reach. In degraded systems, progress toward robust stream health within the next Plan period.

Sediment Control

Standard

1. Limit roads and other disturbed sites to the minimum feasible number, width, and total length consistent with the purpose of specific operations, local topography, and climate.

Guidelines

1. Avoid ground skidding with blades lowered or on highly erodible slopes steeper than 40%. Conduct logging to disperse runoff, as feasible.
2. Use existing roads unless other options will produce less long-term sediment.

Standard

1. Reclaim roads and other disturbed sites when harvesting ends, as needed, to prevent resource damage.

Guidelines

1. Site-prepare, drain, revegetate, and close temporary and intermittent-use roads and other disturbed sites within one year after use ends.

Standard

1. Construct roads and other disturbed sites to minimize sediment discharge into streams, lakes, and wetlands.

Guidelines

1. Use filter strips, and sediment traps as needed, to keep all sand-sized sediment on the land and disconnect disturbed soil from streams, lakes, and wetlands. Disperse runoff into filter strips.

Soil Productivity

Standard

1. Manage land treatments to limit the sum of severely burned and detrimentally compacted, eroded, and displaced land to no more than 15% of any land unit (FSH 2509.18).

Guidelines

1. Restrict roads, landings, skid trails, developed recreation, livestock gathering areas, and similar soil disturbances to designated sites.

2. On soils with topsoil thinner than 1 inch, retain 90% or more of the fine slash materials in the stand after clearcut.

Water Purity

Standard

1. Apply runoff controls to disconnect new pollutant sources from surface and ground water.

Guidelines

1. Install contour berms and trenches around vehicle service and refueling areas, chemical storage and use areas, and waste dumps, to fully contain spills. Use liners as needed to prevent seepage to ground water.

2.5 Mitigation Measures Common to All Alternatives

Mitigation and monitoring measures for all Alternatives are discussed in this section. Mitigation and monitoring measures for the No Action Alternative are also noted where appropriate.

2.5.1 Wildlife / Threatened, Endangered, and Sensitive (TES)

- a) Landings would be seeded according to the Forest-approved reclamation prescriptions. Seeding is required in areas impacted by harvest activities to reduce soil erosion, control noxious weeds, and is also beneficial to wildlife species.
- b) Snag retention will meet Forest Plan requirements.
- c) Identify and protect trees with cavities.
- d) Ponderosa pine is the preferred species to leave for snag habitat, if present.

Effectiveness: The estimated effectiveness of the above measures is moderate to high. Based on prior experience, the measures are expected to be effective at providing and protecting wildlife habitat for certain species.

2.5.2 Timber Resources

- a) To protect soil, “leave trees,” and regeneration, tractor skid roads will be located and approved in advance of falling.
- b) Stump height will be no greater than 12 inches.
- c) Crown and bole-scorching guidelines identify trees to be harvested that are expected to die in the short-term. See Section 3.4.
- d) If necessary, trees will be planted in the harvest units to meet National Forest Management Act requirements (NFMA).

Effectiveness: The estimated effectiveness of the above measures is high. Based on past timber sales, the measures are expected to be very effective at protecting the timber resource.

2.5.3 Watershed Resources

- a) Skid trails will be located to avoid concentration of runoff and away from natural drainage channels. Dendritic skid trail patterns will be avoided.
- b) Salvage units would be surveyed following harvest for the need to implement contour felling on the lower edge of the units to increase the amount of down woody debris and reduce overland flow potential (FS personnel).
- c) Landings will be located where they will drain in a direction and manner that minimizes erosion and prevents sediment delivery to stream channels.

Estimated Effectiveness: Moderate to High; depending on the practice. Research has evaluated the effectiveness of best management practices. These practices would be implemented since they are requirements tied to the timber sale contract, and the purchaser bonded to ensure accomplishment. The Forest Service will frequently review the project for compliance with these and other timber sale requirements and will also do periodic monitoring to assess the effectiveness of these practices.

2.5.4 Range Management

- a) In the event that monitoring of livestock browsing on tree seedlings threatens to risk meeting the 5-year regeneration requirements, the following actions will be taken:
 - The grazing rotation will be altered (there is no planned grazing for two years).
 - Salting stations will be relocated as far from the project areas as is practical.
- b) Replace or repair range improvements if damaged by salvage activities.

Effectiveness: The estimated effectiveness of the above measures is high; the measures are expected to be very effective at protecting seedling establishment and repairing or replacing range improvements based on previous experience.

2.5.5 Soils

- a) Fine slash will be lopped and scattered within the harvest units. This includes all materials smaller than 3 inches diameter. Whole tree harvesting is permitted, but slash must be returned to the site and scattered throughout the harvest area to meet nutrient and Forest Plan requirements.
- b) All skid trails will be designated by the sale administrator working with the soil scientist. Skid trails shall be located no closer than 100 feet apart. Skidders must remain on designated skid trails and trees must be winched into main skid trails. Skidding operations will be allowed so long as soil moisture remains below the plastic limit. Logging will be postponed during wet periods. Skid trails will be designed to work across the contours whenever terrain permits and safety is not an issue.
- c) Reclamation of skid trails will include subsoiling, seeding, fertilizing and mulching with weed-free straw. Earthen barriers will be installed to keep

motorized traffic out of harvested areas. Seeding will be done with the Forest-approved seed list, as tailored to meet specific site conditions. Re-mulch areas along Road 345 if impacted by salvage operations.

- d) Seeding will include nitrogen-fixing plants that will restore nitrogen into the soil system. These species may include the following native plants: Golden Thermopsis, Aspen Peavine, Silky Lupine, or Longipes Clover.
- e) To reduce excessive ground disturbance, logs shall be tractor skidded with the leading end free of the ground.
- f) Use the Rio Grande Forest Waterbar Spacing Guide for skid trails and landings.
- g) Provide for 5 to 10 tons of coarse woody debris (woody materials greater than 3 inch diameter and includes natural, blowdown material and logging slash) scattered throughout the stand.

Estimated Effectiveness: Moderate to High; depending on the practice. Research has evaluated the effectiveness of best management practices. These practices would be implemented since they are requirements tied to the timber sale contract, and the purchaser bonded to ensure accomplishment. The Forest Service will frequently review the project for compliance with these and other timber sale requirements and will also conduct periodic monitoring to assess the effectiveness of these practices.

2.5.6 Recreation and Travel Management

- a) Install traffic control signs (orange signs with black lettering) on FDR 345 (Del Norte Peak road), FDR 350 (Willow Creek road) and FDR 340 (Bowen Creek road) at the appropriate entrance and/or exit areas on these roads to provide road users with adequate warning of logging and hauling operations. Consider posting 25 mile an hour speed limit signs along the three to four mile stretch of FDR 345 where mixed traffic will occur.
- b) Log hauling will not occur on weekends or federal holidays to reduce the amount of mixed traffic on FDR 345 and FDR 340.
- c) Keep the gates on FDR 340.1a, 340.1b and 345.2f closed at all times during the timber sale operation (logging and hauling) to eliminate user conflicts during the summer (general public), fall (hunters) and winter (snowmobile users) seasons.
- d) The Powder Busters Snowmobile Club annually grooms FDR 345 and 350 as snowmobile routes during the winter season. If winter logging operation is a part of the salvage contract, contact and work with the Powder Buster Snowmobile club to locate their snowmobile parking area either on the FDR 350 road (0.1 to 0.2 miles up from the junction of FDR 345 and 350) or in the open area off of FDR 340. Show the snowmobile parking area on the sale area map as a protected improvement.
- e) If necessary, dust abatement may be required for public safety, to prevent the dispersion of fine soil materials, and to reduce impacts to other resources.

Effectiveness: The estimated effectiveness of the above measures is high. The measures are expected to be very effective at notifying the public of logging activity and reducing the potential for accidents.

2.5.7 Noxious Weeds

- a) Haul routes and highly disturbed areas such as landings will be treated for noxious weed infestations.
- b) Logging equipment used off major haul roads will be washed, before entering the Forest, to remove noxious weed seeds and plant parts.

Effectiveness: Based on weed inventories of recent timber sale areas for new weed invaders, the estimated effectiveness of the above measures is high; the measures are expected to be very effective at preventing establishment of new weed invaders.

2.6 Monitoring Measures Common to All Alternatives

This section describes some of the site-specific monitoring that would be done during and after this project.

Monitoring of the proposed action, its effect on the environment, its effectiveness in meeting the goals and objectives of the proposal and the Forest Plan, would take place in various forms. Law requires some monitoring projects, such as regeneration surveys.

Monitoring projects focus on the issues identified for this project. Other monitoring opportunities are identified in Chapter 5 of the Forest Plan. Forest and District monitoring priorities are outlined yearly. Also, local groups and individuals may assist the Forest Service with monitoring projects.

2.6.1 Wildlife

See Appendices 2 and 3 for mitigation and monitoring measures.

2.6.2 Timber Resources

Reforestation exams will be conducted one, three, and five years after harvest to monitor tree regeneration according to Forest Service Policy.

Bark beetle surveys will be conducted periodically to monitor for potential beetle outbreaks.

2.6.3 Soil and Watershed Resources

Soils:

The soils of the Million Burn are sensitive and exposed to potential erosion. During the sale, soil moisture conditions will be monitored so that soil compaction and erosion are minimized. This will be done through grab samples or other methods. If logging in winter is planned, then frozen soils will be evaluated so that operations occur on snowpack or frozen soil conditions. Skid trail layout would be coordinated with the timber sale administrator so that spacing and locations are properly applied. Erosion would be monitored during on-site inspections.

Core soil samples may be taken periodically to determine the degree of soil compaction as part of Forest Plan monitoring. If compaction is occurring after conservation/mitigation measures are implemented, effectiveness monitoring will be conducted to evaluate soil health and productivity.

Watershed:

Runoff-Erosion:

Evaluate implementation and effectiveness of Watershed Conservation Practices and supplemental mitigation measures in preventing increased erosion and runoff from logging units to stream channels.

Stream Channel:

Track changes in geometry and substrate within channels within and downstream from logging units.

Locations, Frequency:

The Forest hydrologist or other specialists will monitor erosion and down slope movement of soil from the logging units towards channel areas during active operations.

Hill slopes within the harvest units, stream channels in the project area, and stream channels down stream will be inspected following significant rainfall events. The ephemeral tributary to Willow Creek and West Fork Shaw Creek will be key inspection sites downstream from the salvage.

Following completion of the salvage operations and implementation of conservation/mitigation measures, effectiveness monitoring will be conducted to evaluate movement of sediment down slope, stream health, and channel stability.

2.6.4 Range Management

Forest Service will conduct inspections to ensure that livestock is not grazing in the project area. Livestock grazing will not be allowed in the project area for approximately 2-3 years post-fire.

2.6.5 Recreation and Travel Management

During winter logging and hauling operations, monitor the winter snowmobile parking area and groomed snowmobile routes to determine if safety problems between snowmobile users and logging trucks are occurring. If safety issues do exist, take the necessary corrective management action. Keep the gates on FDR 340.1a, 340.1b and 345.2f closed at all times during the timber sale operation (logging and hauling) to eliminate user conflicts during the summer (general public), fall (hunters) and winter (snowmobiles).

2.6.6 Noxious Weeds

Noxious Weed surveys will be conducted periodically to detect populations of undesirable species as part of the Forest's noxious weed program.