



Decision Notice Slack Weiss Project

USDA Forest Service
Medicine Bow-Routt National Forests &
Thunder Basin National Grassland
Parks Ranger District
Jackson and Grand Counties, Colorado

Summary

The Forest Service is implementing the Slack Weiss Project to improve forest health and reduce threats to public safety by addressing high levels of tree mortality associated with the mountain pine beetle epidemic, reduce fuels and related threats to public safety, and provide commercial forest products while minimizing environmental effects in the project area. This project will advance Forest Service goals, objectives, and desired conditions of the Forest Plan including managing for ecosystem function and providing for multiple-uses and sustainability of National Forests in an environmentally acceptable manner (Forest Plan, pp. 1-1 to 1-3). A secondary purpose of the project is to address other resource conflicts and needs identified in the project area, as described below. The project will implement a variety of silvicultural treatments and fuels treatments to:

- Encourage establishment and better growing conditions for aspen and lodgepole pine regeneration, through natural regeneration and/or artificial reforestation;
- Manage timber stands to create optimum conditions for forest resiliency, growth, and regeneration;
- Reduce the development of large, continuous hazardous fuels and associated threats to public safety by removing dead, dying, and susceptible trees;
- Enhance wildlife habitat; and
- Provide commercial forest products and/or biomass to industry.

In addition, other resource conflicts and needs have been identified in the project area including fence damage and risk of damage associated with dead and dying trees; and travel-related impacts on recreation, watershed, heritage, and other values. Implementing actions to address these issues will benefit range, hydrology, recreation, heritage, and wildlife resources while minimizing environmental effects in the project area.

The lodgepole pine cover-type in Jackson County has experienced high levels of mortality resulting from a mountain pine beetle (*Dendroctonus ponderosae*) outbreak. This outbreak was declared an epidemic on June 25, 2007 by the Deputy Regional Forester. Large portions of the Routt National Forest and project area have been affected, resulting in reduced regeneration, diversity, and resiliency of forest cover types; and high hazard fuel conditions due to tree mortality. Forest districts are identifying opportunities for vegetation management in high priority areas to address changing fuel conditions and potential fire hazards, salvage merchantable timber and regenerate forests, and remove dead and dying trees that are posing a public safety hazard. Vegetation treatments will reduce fuel accumulations and fuel continuity and create conditions more conducive to aspen and lodgepole pine regeneration. An Environmental Assessment (EA) has been prepared for this project. The EA describes the project and presents an analysis of environmental effects from the project.

Project Area

The project is located on the Parks Ranger District of the Medicine Bow-Routt National Forests and Thunder Basin National Grassland in Jackson and Grand Counties, approximately 25 miles south of Walden, Colorado, in Townships 4 & 5 North, Ranges 79, 80, & 81 West, 6th PM. The project area occurs primarily in the Arapahoe Creek (27,264 ac) and Chimney Rock (15,612 ac) Geographic Areas (GA). Small portions of the project area occur in the Willow Creek (49 ac) and Troublesome (27 ac) GAs (Figure 1). A more detailed description of the project area is provided in the EA.

Proposal Development/ Public Involvement

The Slack Weiss Analysis Project was initiated and listed on the Forest Service Schedule of Proposed Actions (<http://www.fs.fed.us/sopa>) on April 1, 2013, and updates have been provided quarterly. A Legal Notice was published in *The Jackson County Star*, the newspaper of record, on March 26, 2015, initiating the 30-day comment period and publication of the Notice of Proposed Action (NOPA) for the project. Also at that time, letters were mailed to 52 interested or affected individuals or organizations notifying them of the 30-day comment period and issuance of the NOPA. The NOPA and supporting documentation for the proposal were made available for public viewing on the Forest Service planning website. We also contacted and/or consulted with Federal, Tribal, State, and local agencies regarding the proposal (Chapter 4).

The Forest Service received a total of nine public comment letters, of which three were in opposition and six were in favor of, or neutral toward, the proposal. The Forest Service interdisciplinary team (IDT) and District Ranger considered all public comments received. Comments and responses to comments are incorporated in the project record. Public comments did not identify any significant issues or result in substantive changes to the proposed action or analyses. Based on both our review of public comments and internal scoping of issues, no unresolved conflicts related to the proposed action were identified. Therefore, a new alternative was not developed or analyzed, consistent with 40 CFR 1501.2(c). Further, as described in the following paragraph, incremental changes to the proposed action may be considered as alternatives considered under NEPA.

Based on internal scoping and field surveys, the Forest Service refined the initial proposal to address potential resource issues. Environmental constraints including steep and rocky slopes, roadless areas, wetlands, streams and riparian areas, access and road engineering issues, and wildlife concerns were considered, and timber treatment units (prescription type, size, and configuration/location) were modified to avoid or minimize potential impacts. We consider these incremental changes to the proposed action as alternatives considered under NEPA; however, a new alternative was not developed, consistent with 36 CFR 220.5(e).

In particular, silvicultural prescriptions were changed from predominantly *clearcut* to predominantly *salvage/sanitation* to retain aspen and spruce and fir components and protect natural regeneration and regrowth observed in many forested stands. Timber prescription unit #9 (71 ac of salvage/sanitation cutting) was dropped from the proposal due to inaccessibility of the unit and potential impacts to East Fork Arapaho Creek associated with new road construction and a required stream crossing. This modification addressed concerns related to aquatic/fisheries, hydrological, and other resources. Timber and fuel treatment units 38 and 40 (57 ac of commercial thinning) were also dropped from the proposal to minimize potential impacts to Canada lynx and its habitat.

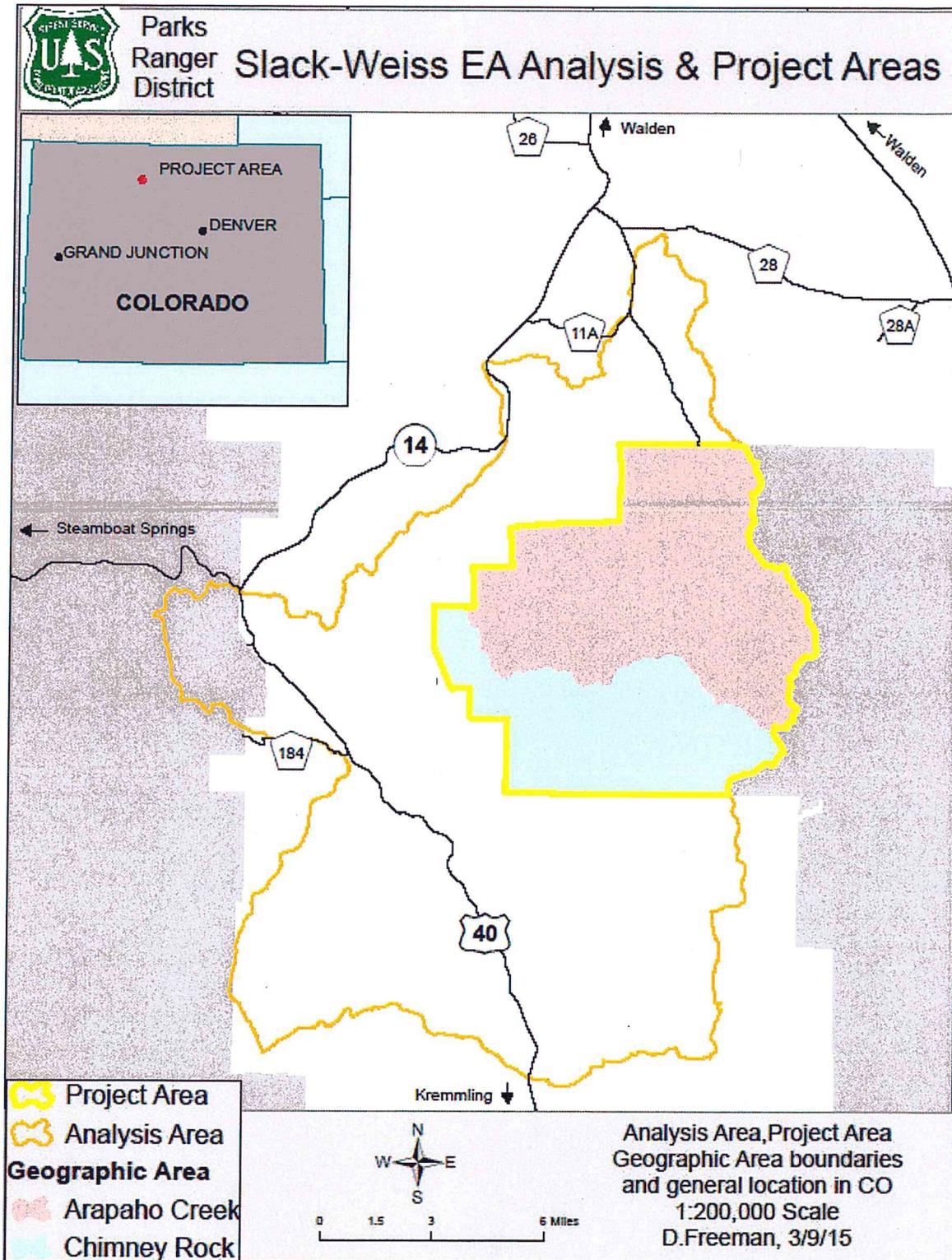


Figure 1. Slack Weiss Project location and analysis units.

Decision and Rationale

Based upon my review of the EA and Finding of No Significant Impact, supporting documents, and public comments, I have decided to implement Alternative 2, the Proposed Action, as described below. When compared to the No Action Alternative, this alternative will best meet the purpose and need for the project to continue efforts to improve forest health by addressing high levels of tree mortality associated with the mountain pine beetle epidemic, reduce fuels and threats to public safety, and provide commercial forest products while minimizing environmental effects in the project area. My decision weighed the environmental effects and benefits of the Proposed Action against those of the No Action alternative. I have also determined that the proposed action will advance Forest goals, objectives, and desired conditions as identified in the Forest Plan (pp. 1-1 to 1-3). Issues identified through internal and public scoping are addressed through project design criteria which will be implemented as part of the proposed action.

Alternative 2 is the Proposed Action Alternative designed to specifically meet the purpose and need for this project. Under the proposed action, the Forest Service will manage areas affected by mountain pine beetle to improve and restore conditions for the future forest and to provide timber products. Standing or down fuel loading will be reduced. Fuels treatments will occur to create defensible space around roads, trails, fences or near private lands. Also under the proposed action, management actions will be implemented to address known conflicts and needs for other resources including range, hydrology, heritage, and recreation (Figures 2 and 3). Design criteria will be implemented to avoid or minimize impacts on resources. Specifically, under the proposed action the Forest Service will:

- Treat approximately 1,705 ac of forested stands through timber management, requiring construction of approximately 2.5 mi of new temporary road and 1.4 mi of new specified road;
- Use prescribed fire and mechanical treatments to reduce hazardous fuels across approximately 1,025 ac;
- Focus timber and fuels treatments along fence lines where practical to remove hazardous trees;
- Designate approximately 0.37 mi of an existing, unauthorized trail to enhance motorized recreation opportunities in the Finger Lake area; and
- Decommission approximately 10.9 mi of non-system road to improve watershed conditions and other resources.

Project implementation will occur via timber sale contracts, stewardship contracting, service contracting authorities, or by Forest Service crews or partners. Implementation will begin as early as winter or spring of 2016 and may take several years to complete. Each of the above management actions is described in detail below.

Timber Management

Under the proposed action, a combination of silvicultural prescriptions will be implemented across approximately 1,705 ac of forest (Tables 1 and 2; Figure 2). The majority of treatment units will occur in MA 5.13 (Forest Products), with some units in 5.11 (General Forest/ Rangelands – Forest Vegetation Emphasis) and a few in 5.12 (General Forest/Rangelands – Range Vegetation Emphasis) (Table 2). Proposed treatments are consistent with GA and MA desired conditions as prescribed in the Forest Plan (see Project and Analysis Areas).

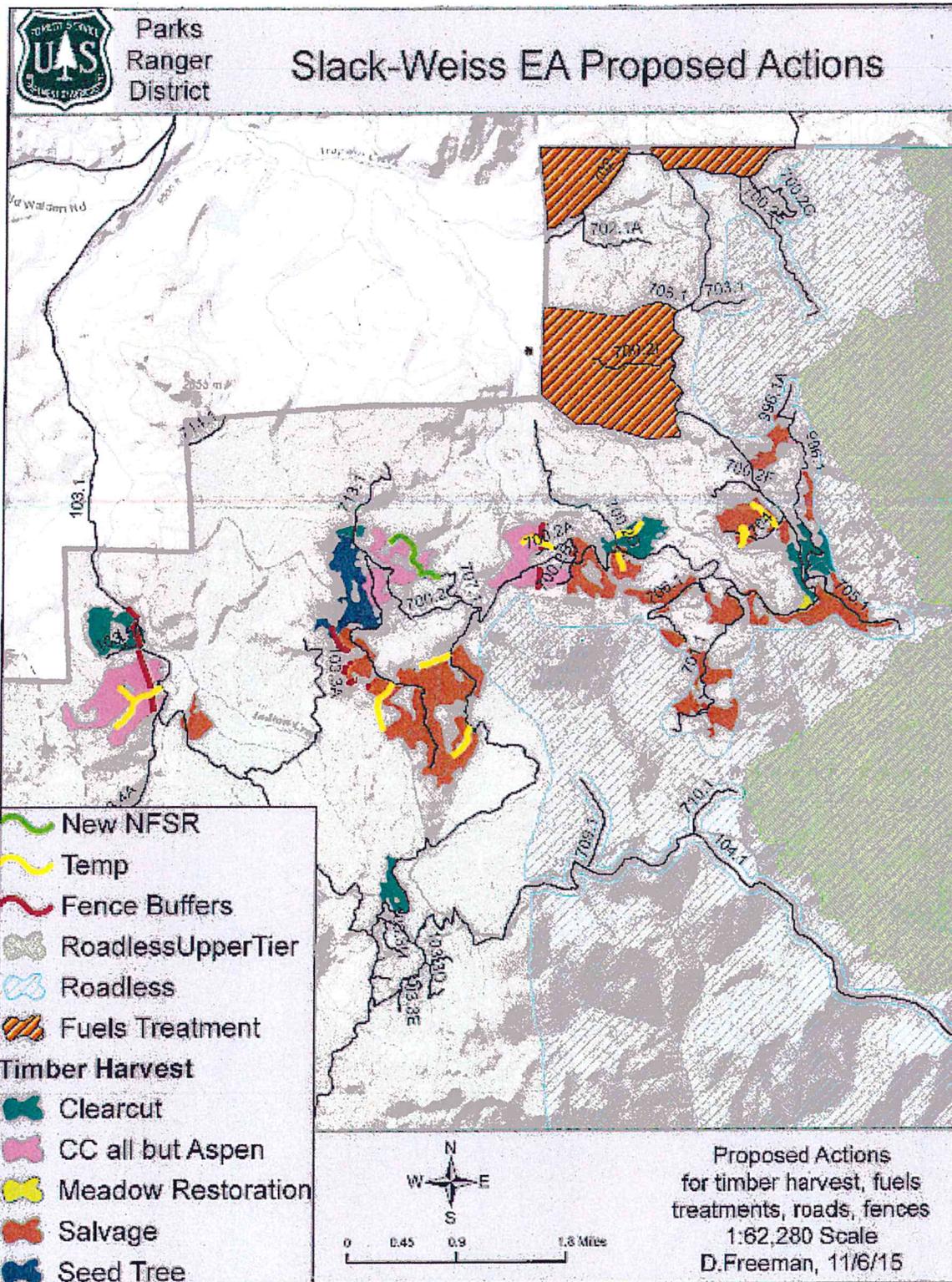


Figure 2. Proposed Action (Alternative 2)- timber, fire/ fuels, and range management. (Key: NFSR- National Forest System Road; Temp- temporary road; CC- clearcut)

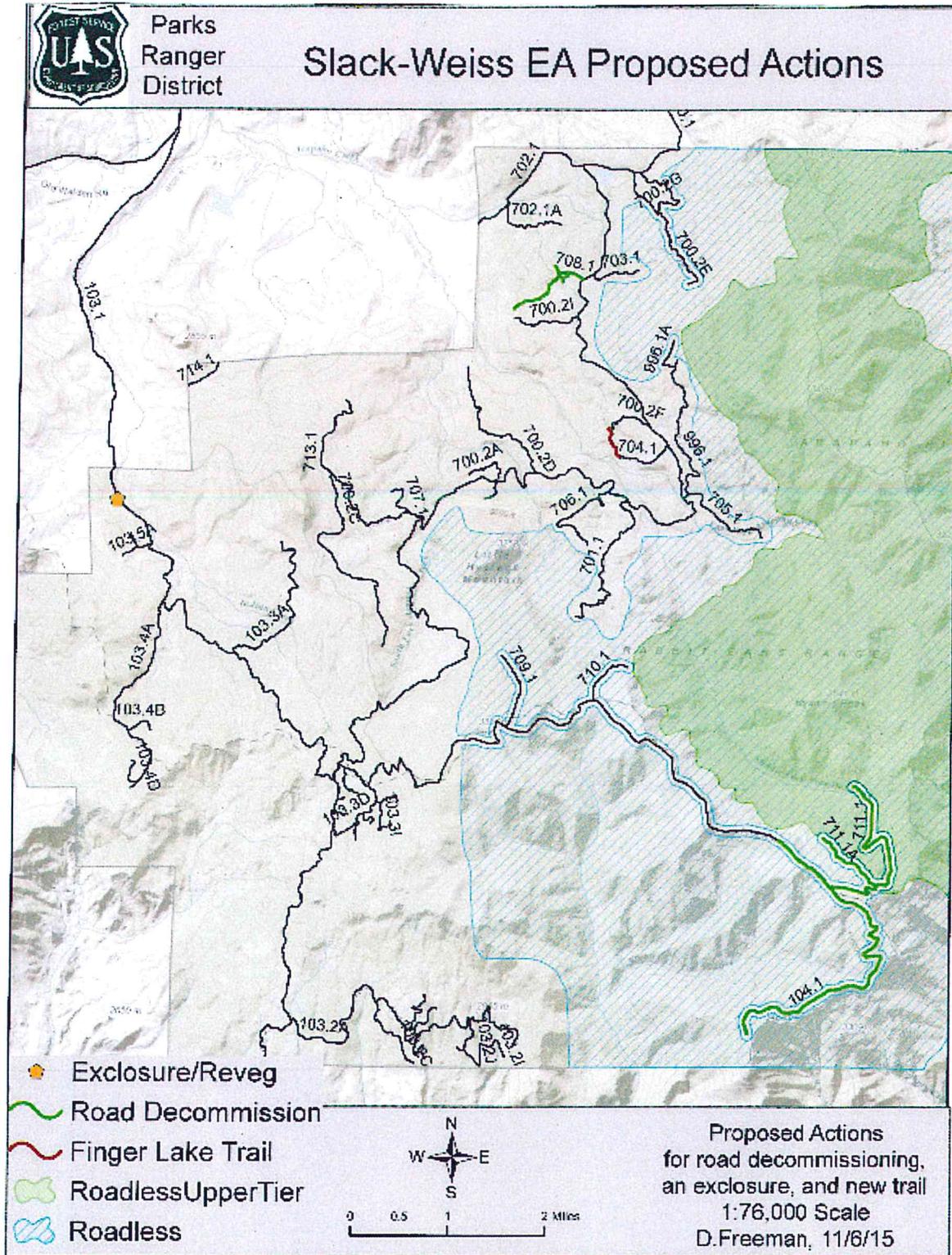


Figure 3. Proposed Action (Alt 2)- recreation, transportation, and watershed management.

Table 1. Proposed Action (Alternative 2)- Timber prescriptions.

Timber Prescription	Estimated Acres ^{a, b}
Salvage/ Sanitation Cut	928.69
Commercial Harvest – Clearcut all but aspen	395.58
Commercial Harvest – Clearcut/ Overstory Removal	266.03
Seed Tree	107.69
Meadow Restoration	7.14
TOTAL	1,705.14

^a Estimates are based on the best information currently available. Actual treated acres will likely be less due to topographic and other site constraints, and application of project design criteria.

^b See Table 2 for more precise figures by timber unit.

Approximately 929 ac of forest will be treated by salvage and sanitation cutting. This treatment is designed to improve forest health as well as reduce the buildup of forest fuels. In stands of mixed conifer with a manageable fully stocked understory, most dead and dying lodgepole pine (including dwarf mistletoe infected pine) and spruce will be removed. All dead or dying trees will be salvaged and any remaining live lodgepole trees may be sanitized if risk of wind-throw is evident. Advanced regeneration will be protected, and live fir and spruce will be retained in support of Canada lynx habitat objectives. Slash will typically be lopped and scattered to 24 inches. Some site preparation by scarification, piling and burning or pile removal may occur. Some salvage/ sanitation units will require temporary road construction for access.

Approximately 396 ac will be treated using the clearcut all but aspen prescription. Treatment methods will be the same as those described below for Clearcut/ Overstory Removal but will retain aspen.

Approximately 266 ac of forest will be commercially harvested by clearcutting and overstory removal. This treatment is designed to reduce the buildup of forest fuels and regenerate pine and understory growth. In stands of primarily lodgepole pine without a manageable, fully stocked understory, most trees 5-inch dbh (diameter at breast height) and greater will be removed. Slash will typically be machine piled for future disposal (either burning or biomass removal). Whole tree skidding will be avoided. If a stand prescribed for clearcut is found to be regenerating at the time of layout, and has a manageable fully stocked understory, overstory removal will include most trees 7-inch dbh and greater. Advanced regeneration will be protected. Slash will typically be lopped and scattered to 24 inches. Piling and burning or pile removal may occur. Post-harvest site preparation by scarification and/or slash treatment may be required when regeneration is not present. Some clear cut units will require temporary road construction for access.

Approximately 108 ac (Unit 29) will be treated using seed tree treatment methods. In stands of mixed conifer without a manageable fully stocked understory, most dead and dying trees will be removed (60-80% of the merchantable trees). This treatment is designed to reduce the buildup of forest fuels and regenerate the stand. Scattered trees and small groups of healthy pine and spruce will be retained as a seed source for future development of the stand. Some site preparation may be required to create a suitable seedbed. Advanced regeneration will be protected. Slash will typically be lopped and scattered to 24 inches. In this unit, winter logging will be avoided. Some units will require temporary road construction for access.

Table 2. Timber units and associated Management Areas (MA).

Unit	Prescription	MA	Acres
1	Salvage/ Sanitation Cut	5.12	34.10
2	Clearcut all but Aspen	5.13	2.10
3	Salvage/ Sanitation Cut	5.13	18.76
4	Clearcut/ Overstory Removal	5.13	17.87
5	Clearcut/ Overstory Removal	5.13	58.67
6	Salvage/ Sanitation Cut	5.13	88.27
7	Meadow Restoration	5.13	7.14
8	Salvage/ Sanitation Cut	5.13	12.64
10	Salvage/ Sanitation Cut	5.13	20.49
11a	Salvage/ Sanitation Cut	5.13	20.68
11b	Salvage/ Sanitation Cut	5.13	14.52
12	Salvage/ Sanitation Cut	5.12	47.83
13	Clearcut/ Overstory Removal	5.13	64.88
15	Salvage/ Sanitation Cut	5.13	28.95
16	Salvage/ Sanitation Cut	5.13	35.56
17	Salvage/ Sanitation Cut	5.13	8.49
18	Salvage/ Sanitation Cut	5.13	35.62
19	Salvage/ Sanitation Cut	5.13	15.53
20	Salvage/ Sanitation Cut	5.13	52.34
22	Salvage/ Sanitation Cut	5.13	34.96
23	Salvage/ Sanitation Cut	5.13	70.70
24	Clearcut all but Aspen	5.13	118.17
28	Clearcut all but Aspen	5.13	63.99
29	Seed Tree	5.13, 5.11 ^a	107.69
30	Clearcut all but Aspen	5.13	31.85
31	Clearcut/ Overstory Removal	5.13	11.47
32	Salvage/ Sanitation Cut	5.13	43.75
33	Salvage/ Sanitation Cut	5.13, 5.11 ^a	118.25
34	Salvage/ Sanitation Cut	5.13	41.69
35	Salvage/ Sanitation Cut	5.13	42.51
36	Salvage/ Sanitation Cut	5.13	62.24
37	Salvage/ Sanitation Cut	5.13	51.29
39	Clearcut/ Overstory Removal	5.11	34.07
44	Salvage/ Sanitation Cut	5.11	29.51
45	Clearcut all but Aspen	5.11	179.48
48	Clearcut/ Overstory Removal	5.11	79.06
TOTAL			1,705.14

^a Over 90% of the unit occurs in Management Area 5.13 of the Forest Plan.

Approximately 7 ac (Unit 7) will be treated using the meadow restoration prescription, removing all conifer trees from the unit to reduce conifer encroachment. Most trees in this unit are less than 7-inch dbh. Slash will typically be piled for future disposal, either by burning or biomass removal.

The condition of beetle killed trees continues changing forest stand structure over time. Thus, subject to project design criteria, slight variations of proposed timber prescriptions may be used to meet site-specific needs related to wildlife habitat, hydrologic concerns, silviculture, fuels or other resource objectives.

Activity fuels will be reduced by conducting follow-up treatments across the project area. Fuels treatments will be considered at the time of project implementation and will include one or more of the following: whole tree skidding, lop and scatter, broadcast burning, pile and burn, or removal as biomass material. Pile and burn areas will be subsequently evaluated for rehabilitation through scarifying or seeding. Following timber treatments, site monitoring will occur to determine if further work is needed to promote forest regeneration. If additional treatments are needed, mechanical site preparation will occur to encourage establishment of seedlings. Also, active planting or seeding with local tree species may occur within the harvest units. Invasive plant species will be treated and monitored in disturbed areas.

The minimal road system needed was identified to meet Forest objectives and the purpose and need of this project. Existing transportation systems will be utilized to provide general access to the treatment units. Approximately 2.5 mi of new temporary roads and 1.4 mi of new specified, system roads will be needed to implement the silvicultural treatments (Figure 2). These roads will be used by harvesting and hauling equipment to remove forest products from the project area. Maintenance (20.3 mi) and reconstruction (17.5 mi) of existing Forest system roads may also occur to provide safe access to work sites. Locations and miles of road work needed are approximate; final locations of maintenance, reconstruction, and new construction will be determined upon implementation. If road conditions deteriorate before project implementation, due to storm events or other factors, additional road work may be necessary and may require further NEPA analysis.

Fire/Fuels Management

Under the proposed action, prescribed fire and mechanical treatments will be implemented to reduce hazardous fuels and promote fire resistant plant communities with the intent of reducing the wildland fire risk near the Wildland Urban Interface (WUI) and the National Forest boundary. Private lands near the forest boundary include ranch lands and primary and secondary residences. Treatments will occur entirely within MA 5.41 (Deer and Elk Winter Range), in the northwestern corner of the Slack-Weiss Analysis Area where it borders private land and BLM-administered land (Figure 2). Treatments will be designed to benefit wildlife values including deer and elk winter range, consistent with GA and MA desired conditions (see Project and Analysis Areas).

Prescribed fire will be used to treat approximately 1,025 ac to reduce the quantity and continuity of hazardous fuels with the intent of reducing the intensity of future wildland fire in the area, while benefiting wildlife. Treatment units in the project area consist of high elevation mountain shrub communities, mid to late seral aspen communities, grassy meadows, and mixed conifer stands with varying degrees of mortality due to disease and insects. Generally, a mosaic of burn patterns will be the desired result, affecting 40-75% of the areas dominated by mountain shrub or aspen. Prescribed burn units will be slightly larger than the extent of target vegetation to create a 'maximum management area' and allow for flexibility in implementing prescribed fire. Burning could occur during any season allowing

for flexibility and wider prescribed burning windows. Existing roads, natural vegetation breaks, topographic breaks, black-lining, and constructed line (hand or heavy equipment) will be used for fire control. Snowline may also be utilized extensively during spring burning, which is the typical prescribed burn season. Constructed line will be rehabilitated once burning operations are complete.

Range Management

Under the proposed action, within proposed timber and fuels units, treatments will occur along fence lines where practical to remove dead or dying trees and reduce damage and risk of damage to fences. Approximately 1.6 mi of fence and 19.9 ac of forest will be treated for this purpose (Figure 2).

Recreation and Travel Management

Under the proposed action, multiple actions will occur to enhance recreation opportunities, the Forest Service travel system, and other resources. Approximately 0.37 mi of existing, unauthorized trail will be designated to connect National Forest System Roads (NFSR) 700.2F and 704.1 (Figure 3). The designation will authorize motorized trail use by off-highway vehicles (OHV) greater than 50" wide. The NFSR 700.2F and 704.1 will remain in the open road system as Maintenance Level 2 (high clearance vehicles) designated routes. These actions will enhance motorized recreation opportunities in the Finger Lake area.

Also under the proposed action, four routes, or portions thereof, will be decommissioned or closed (Figure 3). In total, 10.9 mi of road will be decommissioned, benefiting hydrology, riparian, heritage, recreation, and wildlife resources. Specific routes that will be decommissioned include:

- NFSR 104.1 and spur roads (10.1 mi total): A 7.1-mile segment of the 104.1 would be closed to motorized vehicles beginning at the Rabbit Ears Divide Telecommunications Site, and a non-motorized trail would be designated within the road footprint. Roads accessed by the 104.1 including the 711.1 (2.2 mi) and 711.1A (0.8 mi) would also be closed to motorized vehicles, and a non-motorized trail would be designated within the road footprint for access to the CDNST. These closures would benefit recreation, heritage, wildlife, and other resources.
- NFSR 708.1: Unauthorized routes (.8 mi total) beyond the system road will be closed and rehabilitated to reduce impacts on wetlands, streams, and riparian in the area. This closure will benefit watershed, wildlife, and other values.

Decommissioning of routes will require rehabilitation by either natural recovery of vegetation, if appropriate, or by using active techniques such as scarification, ripping, recontouring, waterbar installation, culvert removal, chipping and mulching, slash placement (see Appendix A).

Watershed Management

Under the proposed action, an exclosure will be installed and revegetation (reseeding, willow planting) will occur along an ephemeral drainage and floodplain above Indian Creek and near NFSR 103.1 (Figure 3), affecting approximately 5 ac. The objective is to restore hydrologic function and mitigate impacts associated with livestock grazing.

Design Criteria

The IDT identified design features that will be implemented as part of the proposed action to reduce or prevent undesirable effects resulting from management activities (Appendix A). Design criteria include Best Management Practices and watershed conservation practices that supplement Forest Plan standards and guidelines and other environmental protection required by laws and regulations.

Other Alternatives Considered

Alternative 1, the No Action alternative, was also considered in the EA. No silvicultural treatments would occur to improve or restore forest health. Standing or down fuel loading would not be reduced. No additional fuel treatments would occur to create defensible space around roads, trails, fences, or near private lands. No treatments or actions would occur to improve watershed conditions or restore wetlands. Additional forest products would not be utilized. Roads would remain unchanged and their maintenance would continue as scheduled. Other identified resource conflicts and needs related to wildlife, fuels, range, recreation, and heritage would not be addressed. Under the No Action alternative, valid previously approved management actions would continue to be implemented in the project area, and new independent actions could be analyzed and/or implemented.

Other alternatives recommended by commenters, including “using pheromones to address the pine beetle” and a “prescribed fire alternative”, were considered but not analyzed in detail because the Forest Service determined that they would not meet the purpose and need for the project (see EA, Purpose and Need).

Findings Required by Other Laws and Regulations

This decision is consistent with the intent of the Forest Plan’s long term goals and objectives (Forest Plan, 1-1 to 1-3). The project area occurs primarily in the Arapahoe Creek (27,264 ac) and Chimney Rock (15,612 ac) Geographic Areas (GA). Both GAs support motorized and non-motorized recreation, and portions of the Continental Divide National Scenic Trail (CDNST) occur in the northern extent of the Chimney Rock GA. Small portions of the project area occur in the Willow Creek (49 ac) and Troublesome (27 ac) GAs (Figure 1). The project is consistent with Forest Plan direction for the above Geographic Areas and Management Areas 1.32 (Backcountry Recreation Non-motorized with Winter Limited Motorized), 5.11 (General Forest and Rangelands – Forest Vegetation Emphasis), 5.12 (General Forest and Rangelands—Range Vegetation Emphasis), 5.13 (Forest Products), and 5.41 (Deer and Elk Winter Range). As described in Chapter 2, under the proposed action, timber harvest and treatments will occur in Management Areas 5.11, 5.12, and 5.13. Direction for these management areas emphasizes vegetation composition and structure to meet the needs of wildlife, range, and timber/forest products.

Refer to the Finding of No Significant Impact (FONSI) in the EA for compliance with laws and regulations such as Executive Orders 11988 and 11990 dealing with floodplains and wetlands, the National Historic Preservation Act, and the Endangered Species Act.

Administrative Review and Objection Opportunities

This decision is subject to objection pursuant to Federal regulations at 36 CFR 218, “Project Level Pre-decisional Administrative Review Process.” This project implements an existing land management plan and is not authorized by HFRA; it is subject to 36 CFR 218 subparts A and B.

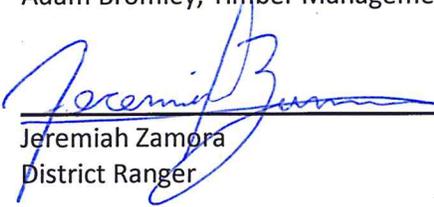
A 45-day opportunity to object was provided beginning November 19, 2015. One objection letter was received on December 13, 2015. An objection resolution meeting was held with the objector on January 21, 2016. In its review of the objection, the Forest Service concluded that there was no violation of law, regulation, or policy. Therefore, the remedies suggested by the objector were denied and resulted in no changes to the analyses or the project. On March 3rd 2016, the Forest Service provided a written response to the objector which included this information, thereby closing the objection resolution period. There will be no further opportunity for administrative review or objection.

Implementation Date

Implementation may occur immediately (§218.12(a)) and is expected to begin this spring/summer of 2016.

Contact

For additional information concerning this decision or the Forest Service objection process, contact Adam Bromley, Timber Management Assistant, (970) 723-2719 or abromley@fs.fed.us.


Jeremiah Zamora
District Ranger

3/22/2016

Date

Disclaimer:

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Appendix A

Design Criteria, Mitigation Measures, and Monitoring Criteria for the Proposed Action

Resource	Design Criteria
Heritage	Significant cultural and/or paleontological resources in the project area should be avoided or the effects of project implementation otherwise mitigated based on decisions identified during analysis of the undertaking under the National Historic Preservation Act and other relevant cultural resource protection laws and regulations, and consideration of the undertaking's effects to historic properties.
Heritage	All roads planned for decommissioning that have not been adequately surveyed for cultural resources will be identified for the archaeologist to review, and subject to National Historic Preservation Act (NHPA) compliance prior to any implementing activities.
Heritage	With regard to the development of roads under this project, all proposed road corridors either outside units or within units that have not been adequately surveyed for cultural resources will be identified during sale preparation and approximate locations provided to the archaeologist for review, which will be completed prior to sale implementation. If necessary, additional survey will be conducted and supplemental consultation completed with the CO SHPO.
Heritage	If affected properties are discovered after project activities are completed, the District would document any damage and consult with SHPO and the Advisory Council for Historic Preservation pursuant to 800.13(b).
Wildlife	Protection of Stands with Advanced Regeneration- Applicable in mixed conifer stands: Avoid advanced regeneration with greater than 35% lateral cover that is available to snowshoe hares in winter (≥ 5 ft. in height) as described in the Southern Rockies Lynx Amendment.
Wildlife	<p>Live 'Character' Tree Retention- Applicable to mixed conifer stands, since lodgepole pine have experienced high mortality.</p> <ul style="list-style-type: none"> • Retain on average 2-4 live character trees (>10 DBH and 25 feet tall) per acre. Character trees are defined in the Routt National Forest LMP (1997 Revision) as live trees that are broken at the top, have mechanical damage or genetic defect. They serve as replacement snags. Live trees should be retained singly or in groups of up to 32 trees (equivalent to 4 live trees/acre x 8 acres). • Paint all live retention trees.
Wildlife	<p>Protection of Known Goshawk Territories</p> <ul style="list-style-type: none"> • Where treatment management actions are proposed within a 3/8-mile radius of a known goshawk nest site, a wildlife biologist will delineate three 30-acre nesting habitat protection areas.
Wildlife	<p>Protection of Raptor Nesting Sites</p> <ul style="list-style-type: none"> • Where treatment management actions are proposed within a known raptor nest site, a wildlife biologist will delineate one nesting habitat protection area

	<p>that is up to 30 acres in size depending on biology of the species and territory size.</p>
Wildlife	<p>Goshawk and Raptor Nesting Period Seasonal Restriction</p> <ul style="list-style-type: none"> For Northern goshawk, prohibit all logging or activities, including log haul, within ¼-mile of an active goshawk nest between March 15 and September 15. The seasonal restriction also applies to use of existing roads by Timber Sale contractors and Forest Service personnel. Within a ¼-mile of an active raptor nest, use of an existing road (that has been and is currently closed to public travel) will be limited until raptor nest has successfully fledged nestlings.
Wildlife	<p>Protection of Newly Discovered Goshawk Nests or other TES Occurrences Identified Prior to or After Award of Timber Sale (TS) or Service Contract</p> <ul style="list-style-type: none"> Prior to TS or Service contract award, train timber sale layout, engineering and resource personnel to identify and report active goshawk nests (or goshawks defending a territory) found during routine fieldwork. After TS or Service contract award, between May 1 and July 31st of each year, a wildlife biologist or trained crew will conduct goshawk inventory (detection) surveys in areas scheduled for treatment during the upcoming operating season if adequate surveys have not been completed to the degree to evaluate goshawk occupancy.
Wildlife	<p>Conservation of Coarse Woody Debris (CWD)</p> <ul style="list-style-type: none"> To the extent practicable, and where available, retain in place within timber harvest units some existing deadfalls (whole trees) or logs (portions of tree boles) measuring ≥ 10 inches in diameter and that are ≥ 20 feet in length.
Recreation Transportation Hydrology Soils Heritage Wildlife	<p>The following guidelines would apply to route decommissioning.</p> <ul style="list-style-type: none"> Scarification would occur to a minimum depth of 4 to 6 inches. The ripper teeth should be lifted every 150 feet on slopes less than 15 percent, every 100 feet on slopes 15 to 30 percent, and every 50 feet on slopes greater than 30 percent to prevent concentration of water and development of rills and gullies. An approved seed mixture would be used for reseeding. Water bars would be installed using an appropriate spacing for slope and soil type. Slash would include both fine and coarse woody debris. Chips and mulch would not exceed more than 3 inches in depth and would not cover more than 40 percent of the treatment area. When mastication or chipping is used distribution will be a discontinuous, patch mosaic and avoid contact with residual trees. If desired coverage or depth are exceeded, the site will be evaluated to determine if redistribution or disposal is required. Ground cover would be 65 percent over the affected area. Road obliteration would be rehabilitated by restoring and re-contouring to a hydrologically self-maintaining and natural state, any roads and skid trails with

	<p>a 3-foot or greater cut slope, roads that cross slopes exceeding 25%, and other areas as determined necessary by Forest Service personnel. Where recontouring is not needed, outsloping of roads may occur to maintain the hillslope hydrology and prevent concentrated flows. Once re-contouring or outsloping is complete, work equipment would remain on the existing roadway or skid trail to minimize new disturbance. Scattering slash may also occur in re-contoured areas to prevent erosion, add organic material, and improve water retention.</p> <ul style="list-style-type: none"> • Where re-contouring or outsloping is not necessary, such as on flat areas of ground, then obliteration may occur by installing water bars, scarification, scattering of slash, and seeding where necessary. • Culverts would be removed, and streambanks would be reshaped to reflect the original or natural hydrology of the stream. Stabilization of newly constructed streambanks using slash, logs, or rocks would occur as specified by Forest Service personnel.
Visuals	The shape and pattern of harvest units should be designed to complement and maintain the landscape character of the analysis area.
Visuals	Follow natural contour lines and avoid straight lines when laying out units. Avoid laying out units that run across contour lines of steep slopes.
Visuals	Size of harvest units should be variable to avoid duplicating shape and to maintain natural mosaic pattern.
Visuals	Edges of harvest units should be feathered or intermixed. Permit boundaries of harvest units to locate adjacent to edges of aspen stands to create natural appearing edges.
Visuals	Retain natural features such as rock outcrops, young healthy trees, understory trees of lodgepole pine, aspen and spruce/fir, sagebrush, juniper and other shrubs, forbs and grasses in the immediate foreground (approximately 25 to 100 feet from edges of road) of NFSRs 103.1, 104.1 and 700.1 and Continental Divide National Scenic Trail (CDNST). It is acceptable to have light logging residues to remain on the ground if it does not attract the attention of Forest visitors. Beyond the immediate foreground, lop and scatter slash evenly.
Visuals	Design decommissioned roads and trails to blend with the surrounding landscape. When using rocks as barriers, rocks should be buried as least 1/3 in the ground. Use different size and shape of rocks. Do not use tank trap for road or trail closure within the immediate foreground of State Highway 125, FDRs 106 and 715 and 721.
Range	A pre-haul inspection of cattleguards shall be done by Contract Administration in order to create a base line inventory of cattleguard condition.
Soils	Follow Forestry Best Management Practices to Protect Water Quality in Colorado 2010, Watershed Conservation Practices Handbook, and Soil Management Handbook, R2 Supplement
Soils	Skids trails shall be approximately 75' apart
Soils	Skid trails shall be monitored to determine if rehabilitation shall occur. Rehabilitation may consist of any of the following; scarification, additional slash, seeding and water barring or other methods that reduce detrimental soil disturbance and control erosion.
Soils	No landings, or burn piles within WIZ (Water Influence Zone).
Soils	Over-Snow logging - These requirements are only for areas where the soil wetness or to minimize disturbance to wetlands, WIZs, etc. makes over-snow logging necessary to protect the soil from compaction, displacement or erosion. <ul style="list-style-type: none"> • Harvest when frozen soil is ≥ 4 inches deep OR snow is ≥ 12 inches deep OR a combination of compactable snow and frozen soil that is ≥ 12 inches in

	thickness. Snow quality should be such that it will compact and form a running surface for equipment by being moist and non-granular.
Soils	Units 2, 4, 6-14, 16, 18, 33-38 skidtrails' with $\geq 10\%$ slope gradient shall have waterbars spaced at 45 to 60 ft and a light cover of slash to impede erosion, specifically, having waterbars on the closer end of the range near bottom of slopes.
Range Lands Hydrology Recreation	Designate areas listed below as protected improvements on the Analysis Area Map to prevent damage through proposed activities. Require avoidance and/or restoration to full function of these protected improvements: irrigation ditch right-of-ways; fences, motorized and non-motorized trails, high use dispersed campsites, power-line right-of-ways, cattle guards, water improvements and all associated structures, and road signs.
Lands Hydrology	Slash and other logging debris will be kept out of irrigation ditches. If slash or other material does get in the ditch, it shall be removed promptly to avoid impeding flow of water and damage to the ditch.
Lands Hydrology	All crossings of ditches will be temporary in nature and will not affect ditch function or stability. Upon completion of work all construction materials shall be removed and ditch restored to fully functional condition.
Hydrology	Incorporate design criteria from the Watershed Conservation Practices Handbook (FSH 2509.25) which are listed in the specialist report into all timber management activities. The WCP-Timber crosswalk spreadsheet identifies how these design criteria should be incorporated into timber sale NEPA, preparation, contract development, and post-harvest activities.
Hydrology Botany	All USGS blue-line streams, wetlands, riparian areas, and specific crenulations identified during project layout will be designated as protected stream courses and considered streamside management zones unless determined otherwise by a hydrologist or soil scientist. Heavy equipment will not be allowed to operate in protected stream courses or streamside management zones. Keep equipment 100' from developed spring sources. (Hydro)
Hydrology	A hydrologist will identify and flag streamside management zones during timber sale preparation to ensure adequate protection of wetlands, riparian areas, streams, and crenulations/ephemeral draws deeper than two feet.
Hydrology	Require specified road construction when crossing intermittent or perennial stream courses, or ditches. All specified road locations will be reviewed by a watershed specialist.
Hydrology	Do not allow ground disturbing activities other than specified road construction in any ephemeral draw that is deeper than two feet from the top of the bank to the bottom of the draw unless approved by the Forest Service. <ul style="list-style-type: none"> Harvesting equipment is allowed to reach into the draws to remove material
Hydrology Botany	Do not accumulate slash in ephemeral stream courses.
Hydrology Botany	Hydro: Avoid soil disturbing actions during periods of heavy rain or wet soils. Do not operate equipment when conditions will result in rutting of soils. Winter operations can occur with a minimum of 1 foot of packed snow or 2 inches of frozen soil.
Hydrology	Avoid operating mechanical equipment on sustained slopes steeper than 35 percent.
Hydrology Botany	Landings should be located in upland areas, where practicable and outside of the water influence zone always, to minimize the potential for slash piles and burning of slash to affect protected stream courses.
Hydrology	Piling of slash is discouraged except in fuels reduction units. Burn Piles should not exceed 60 feet in diameter. Burn piles greater than 30 feet in diameter will be rehabilitated when economically feasible. Consider not burning piles that cannot be

	rehabilitated due to economics, access, or would serve as wildlife habitat. Smaller (less than 20 foot diameter) hand piles may be left unburned for habitat.
Hydrology	Clearly identify the need for mechanical site prep. If site prep is necessary, mechanical site prep passes should occur on the contour versus down the fall line on all slopes greater than 5 percent. Site prep by burning whenever possible, especially in units with steep slopes, and/or those adjacent to streams and wetlands where traditional site prep may increase surface erosion and stream sedimentation. Units with a stream in bottom of unit and trail above are good candidates as minimal control lines would be needed.
Hydrology Botany Wildlife Heritage	Areas outside of unit boundaries and road right of ways are excluded to protect riparian areas, wetlands, sensitive plants and animals, and heritage resources unless approved by the Forest Service.
Hydrology	Locate vehicle service and fuel areas, chemical storage and use areas, and waste dumps on gentle upland sites. Mix, load and clean on gentle upland sites. Dispose of chemicals and containers in State-certified disposal areas.
Hydrology	Where possible, use hardened fords rather than culverts for road-stream crossings, outslope roads with rolling dips and/or waterbars to maintain hillslope hydrology to the extent possible and ensure adequate road drainage for all conditions. Armor rolling dips as needed to prevent rutting damage. Space cross drains based on slope and soil type.
Hydrology	Temporary road construction will follow the following criteria. <ul style="list-style-type: none"> • Outslope roads with rolling dips and/or waterbars to maintain hillslope hydrology to the extent possible and ensure adequate road drainage for all conditions. • Road widths should not exceed 12 feet unless needed to meet curve radius or intersection needs. • Temporary roads should not exceed 8 percent. • Any cut/fill required for temporary road construction should not exceed 2 feet in height. • Temporary roads will not cross perennial or intermittent stream courses, wetlands, or riparian areas
Hydrology	Restore and re-contour all temporary roads to a hydrologically self-maintaining and natural state. Restore hydrology and landscape character of the area and re-contour temporary roads that cross slopes of 25 percent or more. Waterbarring and subsoiling may be required. Scarify and reseed old roadbed to reduce visual impact and to blend with the surrounding landscape, as necessary. Do not use berms/tank traps for road closure adjacent to high-use arterial and collector roads. Use different sizes of rocks and boulders buried at least 1/3 in ground for barrier instead of berm/tank trap in the immediate foreground of arterial and collector roads.
Hydrology	Skid trails and landings shall be ripped, seeded, and/or have slash scattered to prevent erosion and reduce compaction. Scattering of slash may be in lieu of constructing water bars. Scattering of slash shall cover approximately 30-50% of the skid trail or landing. Heavily used trails and landings indentified by the Forest Service will require ripping to reduce compaction instead of scattering slash. These trails will be ripped to a depth of 4-6 inches and seeded with an approved seed mix. When ripping skid trails, the ripper teeth shall be lifted every 150 feet on slopes less than 15%, every 100 feet on slopes 15-30%, and every 50 feet on slopes greater than 30% to prevent concentration of water and development of rills and gullies.
Hydrology Lands	Prior to implementation of proposed new National Forest System Road (NFSR) across East Fork Arapaho Creek, Cochrane Ditch, and associated wetlands, the hydrologist, fisheries biologist, and soil scientist need to review on the ground to determine

	consistency with the Forest Plan. If not found consistent with Forest Plan, Unit 9 and new road may need to be dropped. Coordination with permittee (ditch owner) and special use permit administrator are necessary prior to implementation.
Hydrology Lands	The alignment of the Finger Lake Motorized Trail and design of any crossings would need to be approved by a soil scientist and hydrologist before construction. Trail construction and alignment would need to involve coordination with the ditch owner and permit administrator prior to implementation.
Botany	Delineate a 100 ft. buffer around known occurrences of R2 sensitive and local concern plant species and flag for avoidance by heavy equipment. Limit heavy equipment and timber and fuels operations in buffered population areas to hand and/or non-ground disturbing mechanical equipment. Unless identified as a fuel hazard, trees felled in buffered areas would be left on site.
Botany	Fell trees away from identified buffered populations.
Botany	Do not place or burn slash piles or broadcast burn slash in buffered areas.
Botany	To the extent possible, any seed used in the project area will be tested for noxious and non-native seed according to the Guidelines for Revegetation for the Medicine Bow-Routt National Forests and Thunder Basin National Grasslands. If this is not possible, coordinate with the botanist to identify the best alternative.
Botany	Where revegetation is appropriate, work with the forest botanist to identify appropriate species for planting.
Botany	Time prescribed fire to reduce the spread of invasive (native and non-native) species.
Botany	Use transportation mats during transportation of equipment between road and excavation areas to avoid soil compaction.
Aquatics, Botany, Wildlife	If specific impacts from the alternatives to threatened, endangered, and Region 2 sensitive species (TES) and/or their habitats are identified, management may be adjusted as necessary to reduce those impacts through working with the biologists or botanists. Timing restrictions may also need to be applied. The TES species of interest include goshawks, raptors, pygmy shrews, amphibians, and rare plants.
Recreation	Designate as protected improvements motorized trail templates, trail markers and trail signs. Do not use designated trails as skid trails or landing locations. Remove slash from the trail template after harvest and/or fuels treatment. Do not conduct scarification or other site preparation methods on or within 30 feet of trail templates. Cross designated trails only at right angles and only when absolutely necessary. Coordinate with Trails Specialist during preparation of TS contract package minimize impacts to the motorized trail system.
Transportation	Road closure devices, including gates, barriers, slash or other devices needed to prohibit or eliminate use, would be located on the ground to provide the most effective means of accomplishing the desired travel management strategy.
Transportation	Physical closures, such as slash, stumps, rocks and revegetation are to be used to eliminate use. Earthen barriers may be used when there is not adequate material available for slash, stumps or rock closures. This may be done after activities, to allow use of a road by the purchaser, or as funds become available. Closure gates may be utilized where administrative access is needed.
Transportation	Whenever possible, roads shall be relocated or constructed out of draw bottoms to improve drainage and protect soil and water resources. Abandoned roadbeds shall be revegetated and returned to as natural a state as possible.

Transportation	Where sod has effectively stabilized existing roadbeds, efforts would be made to minimize disturbance to the sod layer during maintenance and reconstruction activities.
Transportation	Dust control, if necessary, may be done with water, magnesium chloride, calcium chloride, or equivalent.
Transportation	Route verification would be held prior to road contract preparation, to show Forest and District Specialists the location and design of planned relocation, realignment and new construction to ensure the road would not have additional adverse effects on resources.

Affected Resources	Mitigation Measures
Transportation	Maintenance on all roads used for timber harvest would be the responsibility of the Timber Purchaser for the life of the Timber Sale Contract. Maintenance includes cleaning out silt from sediment collecting ponds and depositing it in upland locations, keeping silt fence upright and functioning by cleaning out any sediment collected in front of the silt fence and depositing it in upland locations, keeping all drainage structures clear and functional, eliminating erosion of cut and fill slope and roadway soils, maintaining vegetative buffers, encouraging revegetation, and blading road surfaces. Post use maintenance is required by the Purchaser as part of the Timber Sale Contract.

Affected Resources	Monitoring Criteria
Range	After treatments have been completed, the area will need to be inventoried for new populations of noxious and invasive weeds, and treated appropriately.
Soils	Main skidtrails shall be evaluated for rehabilitation. Main skidtrails are those that have several skidtrails combining to make one skidtrail that can be heavily compacted.
Soils	Burned slash piles shall be monitored for vegetation recovery. If in two years vegetation is not sufficient to control erosion seed with appropriate seed mix and monitor for further rehabilitation.
Wildlife	<p>After project implementation, ensure that the following snag retention standards are met:</p> <p>Hard and Soft Snag Retention- Applicable to all treatment units within the project area. It is recognized some stands may not have trees that are greater than 10" DBH, so this design criteria may not be feasible in every unit.</p> <ul style="list-style-type: none"> Retain on average of 4 existing 'hard' snags greater than 10" DBH (decay class 1 or 2) per acre within treatment units in Management Area (MA) 5.11 and a minimum of 2 per acre in MA 5.13. Groups of up to 32 trees or greater (equivalent to 4 snags/acre x 8 acres or 16 trees equivalent to 2 snags/acre x 8 acres) should be retained within the unit. <p>Retain all 'soft' (<i>i.e.</i>, rotten, decay class 3 to 5) snags unless they are a safety hazard.</p>
Transportation	Implementation monitoring of road maintenance, reconstruction and new construction activities would be accomplished through site inspections conducted by District personnel and certified Engineering personnel to ensure contract specifications and road designs are implemented as described in the road contract. Measured and visual

	monitoring would determine physical effects, success of natural and enhanced revegetation, and to ensure traffic safety and compliance with state and federal laws.
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