

DECISION MEMO

Pre-commercial Thinning and Fuels Treatment in Middle Hayfork Creek Watershed

USDA Forest Service
South Fork Management Unit, Shasta Trinity National Forest
Trinity County, California
January 11, 2008

Summary:

This memo serves as the decision document for the Pre-commercial Thinning and Fuels Treatment in Middle Hayfork Creek Watershed project located around the community of Hayfork, California.

The proposal is a pre-commercial thinning and release of planted trees. Trees and shrubs would be cut to reduce the density of forest vegetation to improve tree health and growth and to reduce the fire hazard. Density of the young conifer component of the stands will be reduced to 100-134 trees per acre.

The project area lies within Management Area 18 of the Shasta-Trinity Land and Resource Management Plan. The acreage proposed to be treated in each land allocation is as follows:

Adaptive Management Area - 3,700 acres

Late-Successional Reserve – 1,500 acres

Riparian Reserve – 1,000 acres.

Project Location:

The project is located in the Middle Hayfork Creek fifth field watershed, as shown on the Middle Hayfork Creek Watershed Pre-Commercial Thinning and Fuels Treatment project map. The project includes acreage in Townships 30, 31, 32, and 33 North, Ranges 11 and 12 West, M.D.M. and Townships 1 and 2 North, Range 8 East, Humboldt Meridian.

Purpose and Need: To reduce plantation tree and shrub densities to improve tree health and reduce fire hazard.

Desired Condition - "Timber stand improvement¹ projects will emphasize maintaining or improving growth of healthy trees through release² and thinning³."⁴

"Forest stand densities are managed at levels to maintain and enhance growth and yield to improve and protect forest health and vigor recognizing the natural role of

¹ **Timber stand improvement** is treatment conducted to modify or guide the development of an existing crop of trees. This involves the selective removal of some vegetation to allow the expansion of the crowns and root systems of the remaining plants. The term timber stand improvement unambiguously covers all cuttings or tending operations that require financial investment and do not involve harvest of useful material.

² **Release** operations are to improve the growth of young forest stands usually reducing the number and density of shrubs and other plants that compete with trees for water and nutrients.

³ **Thinning** is partial cutting of trees, designed to improve future growth by regulating stand density.

⁴ Shasta-Trinity National Forest Land and Resource Management Plan, 1995, p. 4-27.

fire, insects, and disease and other components that have a key role in the ecosystem. Stand understories appear more open with less ingrowth particularly in stands on sites where wild fire plays a key role in stand development. The actual target stand densities depend upon stand species, site quality, stand age, and stand objectives. (That is, stand densities are maintained at lower levels to grow larger trees faster within Late-Successional Reserve)."⁵ Cleaning plantations [removing understory trees and shrubs] by removing brush has successfully reduced damage from wildfires in California. These treatments can space trees, allowing stands with low crown bulk densities to develop. Fire intensity in thinned stands is greatly reduced.⁶

Existing Condition – There are over 6,200 acres of forest stands planted 10 to 30 years ago located in the Middle Hayfork Creek Watershed. These planted stands are overcrowded with too many trees and shrubs (brush). Too many trees and shrubs are competing for a limited amount of growing space; and there are not enough site resources available in the form of nutrients and water to support healthy forest conditions. So forest stand densities currently exceed the recommended levels for optimum growth and yield. Further decline in tree health and vigor will occur in these areas if stand densities are allowed to continue to increase. The slower the trees grow the longer they are smaller in size and more susceptible to damage from wildfire. Eventually trees may become so stunted that they lose the potential to develop into large trees. The dense layer of understory shrubs in these stands can carry a more intense fire causing increased tree damage and mortality.

⁵ Shasta-Trinity National Forest Land and Resource Management Plan, 1995, p. 4-154.

⁶ **Graham, Russell T.; Harvey, Alan E.; Jain, Theresa, B.; Tonn, Jonales R. 1999.** The Effects of Thinning and Similar Stand Treatments on Fire Behavior in Western Forests, USDA- Forest Service, PNW GTR-463, p. 20.

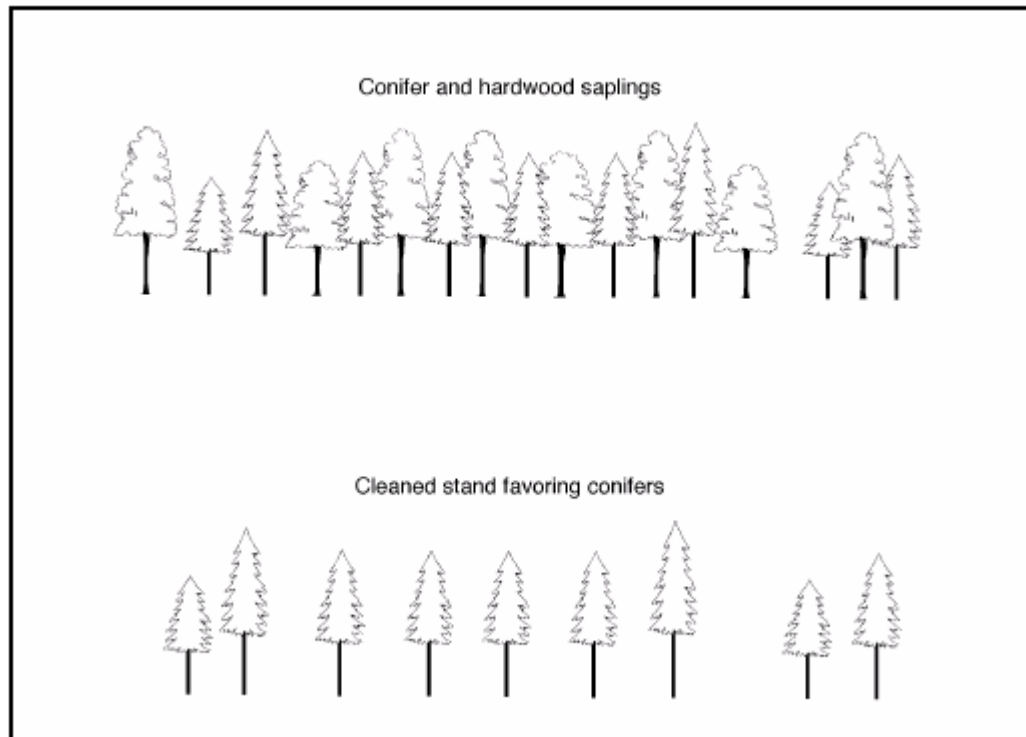


Figure 1: Above is an illustration depicting the existing condition of plantations on the top and their desired condition on the bottom.

Top: Existing condition is overcrowded with too many trees and hardwood shrubs. Trees in this condition will grow more slowly and many will die and fall to the ground increasing fuel hazards.

Bottom: Desired condition is a thinned forest with adequate growing space between trees. Trees in this condition will maintain greater health and vigor because they have sufficient site resources available, primarily sunlight and water.

Need for Action -

- Reduce existing forest stand densities to levels that will reduce competition for limited moisture and sunlight and improve the ability of trees to withstand drought conditions in the future.
- Reduce existing forest stand densities in overstocked plantations to levels that will promote the levels of tree growth and yield to meet the desired conditions for Management Area 18⁷.
- Reduce the risk of stand-destroying wildfire by reducing tree density.
- Reduce understory vegetation that increases fire intensity and slows stand growth.

Proposed Action:

We propose to pre-commercially thin (PCT) and release 6,200 acres of planted stands 10-30 years old in the Middle Hayfork Creek Watershed. (See the proposed action map.) Treatment methods are prescribed according to the steepness of the slope to be treated.

⁷ Shasta-Trinity Land and Resource Management Plan, pp. 4-153,154.

Slopes 0 to 35%: Approximately 400 acres of plantations will be treated using machinery to masticate trees and shrubs. These areas are designated as mastication units on the proposed action map. If biomass markets present an opportunity to remove thinned material economically with no more impact than mastication, that method will be substituted. Equipment restrictions will be equivalent.

Slopes >35%: Approximately 5,700 acres of plantations will be treated using hand saws and tools to cut and lop trees and shrubs. These areas are designated as PCT units on the proposed action map.

The proposal would be scheduled for implementation over a five year period.

Design features of the project:

- Trees left after thinning will be either conifers and/or hardwoods.⁸
- Where mastication or biomass removal methods are not used; slash will be chipped along roads where the risk of a fire start is high.
- Occasional clumps of hardwoods will be retained for wildlife use.
- Restrictions on the use of mastication or biomass removal equipment will conform to guidelines in Table 1, Attachment A.⁹
- Neither mastication nor lop and scatter treatments will be done within 15 feet of perennial streams.
- Appropriate Best Management Practices (BMP) will be implemented.¹⁰
- Portions of units with serpentine soils or serpentine endemic plants will not be treated with mechanical methods.¹¹
- Mechanized equipment shall be cleaned and inspected prior to entry into treatment areas to prevent the spread of noxious weeds and prevent degradation of water quality.
- A Limited Operating Period shall be in effect for activity areas proximate to suitable Northern Spotted Owl habitat.¹²

Silvicultural prescription

For Jeffery and Ponderosa Pine plantations leave tree mark an estimated 100 trees per acre, well distributed throughout unit, with average spacing of 21 feet by 21 feet. Conduct operations between July 1 and October 31 to enhance drying of created slash, and reduce the build-up of detrimental insect populations.

For Mixed Conifer plantations leave tree mark an estimated 125 trees per acre, well distributed throughout unit, with average spacing of 19 feet by 19 feet. Retain and do not count toward spacing all residual merchantable trees saved from original stand.

⁸ Middle Hayfork Precommercial Thinning Marking Guidelines, dated July 12, 2004, project record.

⁹ Hydrologist Report, Pre-commercial Thinning Fuels Treatment in the Middle Hayfork Creek Watershed, dated December 5, 2005, p. 2, project record.

¹⁰ Hydrologist Report, Pre-commercial Thinning Fuels Treatment in the Middle Hayfork Creek Watershed, dated December 5, 2005, p. 4, project record.

¹¹ Middle Hayfork Mastication Project Biological Evaluation, dated September 14, 2005, project record.

¹² Wildlife Biological Assessment for the Pre-Commercial Thinning/Fuels in Middle Hayfork Creek Watershed, dated November 14, 2005, p. 7, project record.

Project Best Management Practices (BMPs)

The Project shall adhere to the following BMPs for Roads and Building Sites from the USDA Forest Service handbook "*Water Quality Management for Forest System Lands in California*" (USDA-FS 2000a).

Regarding the fisheries/riparian resource:

Servicing and Refueling Equipment, BMP 2-12. Measures to Minimize Degradation of Water Quality from Servicing and Refueling Equipment:

Prior to arrival on site, clean all equipment to remove external oil, grease, dirt, or mud.

Mechanized equipment will be in good working condition showing no signs of fuel or oil leaks.

Operators will have spill clean-up supplies on site and be knowledgeable in their proper use and deployment.

Regarding the botanical resource/Sensitive Plants:

- Exclude heavy machinery use in unit 14520600104 due to Niles' madia (*Madia doris-nileseae*) population.
- Include language such as Contract Provision C6.36 (5/01) Equipment Cleaning in the contract to reduce introduction of noxious weed seed.
- Exclude from treatment 38 acres of serpentine soils present in 26 specific units. Map of excluded units is appended to the Middle Hayfork Mastication Biological Evaluation for Plants (Erwin, 8/14/2005).

Regarding the wildlife resource:

- Limited Operating Period (LOP) required from February 1 through July 10 for all noise and smoke-generating activities within 1/4 mile of suitable nesting/roosting habitat of the northern spotted owl (maps available in project file). This LOP may be lifted if surveys using currently accepted protocols indicate specific areas are not occupied by breeding owls or with the mutual consent of the U.S. Fish and Wildlife Service and the USDA Forest Service.
- LOP would be implemented to avoid direct adverse impacts to the peregrine falcon. From February 1 through August 15, all noise and smoke generating activities will be prohibited with mapped disturbance zones (available in project file). This LOP may be lifted if surveys using currently accepted protocols indicate specific areas are not occupied by breeding falcons.
- Retain existing large (>19 inches diameter at breast height) snags and down logs within thinning units. Snags felled for safety reasons would be left on site as logs.

Regarding the archaeological resource:

- In direction with Forest Service Handbook 1909.15 (Chapter 30) no extraordinary circumstances related to American Indian religious, cultural, or archaeological sites exist in the project area.
- Survey and ethnographic research determined that there are no extraordinary circumstances for archaeological or historic properties or areas within the project area.

Regarding Hydrologic Resource:

The following BMPs are applicable to this project. They should be included in the contract and will be monitored by the South Fork Management Unit (USDA Forest Service, 2000).

“Limiting Operating Period of Timber Sale Activities”	1-5
• Tractor Skidding Design	1-10
• Log Landing Location	1-12
• Erosion Prevention and Control Measures During Timber Sale Operations	1-13
• Log Landing Erosion	1-16
• Erosion Control on Skid Trails	1-17
• Acceptance of Timber Sale Erosion Control Measures Before Sale Closure	1-21
• Slash Treatment in Sensitive Areas	1-22
• Erosion Control Plan	2-2

For Streamside management and riparian zone equipment limitations see Attachment A.

Regarding Fuels Management:

Mastication/thinning in plantations with machine operable ground is the preferred treatment method. Excess trees and ingrown brush are cut and spread back onto the ground as wood chips, so no further slash treatments are needed.

If chipping is the method of treatment it should be accomplished within two to three weeks of thinning activities. Chips should be removed or scattered back onto the site. Road side fuel treatment buffers should be at least 100 feet if possible.

Public Involvement

The project was developed by the Forest Service and reviewed with the Trinity Fire Safe Council. A proposal to create the Pre-commercial Thinning and Fuels Treatment in Middle Hayfork Creek Watershed project was listed in the Shasta-Trinity Schedule of Proposed Actions September 2002 through March 2006. Scoping letters were mailed to public agencies, adjacent property owners, and concerned citizens on August 31, 2005. This scoping period lasted from August 31, 2005 to September 16, 2005. The following agencies were contacted as part of the public involvement to ensure proper legal compliance: Fish and Wildlife Service; National Marine Fisheries Service and North Coast Regional Water Quality Control Board. Other organizations contacted included:

Trinity County Resource Advisory Council, Californians for Alternatives to Toxics, Denise Boggs of Wildlaw, Watershed Research and Training Center, Citizens for Better Forestry, Nor-Rel-Muk Nation, Hayfork Fire Protection District, South Fork Trinity River CRMP, and Environmental Protection Information Center. One response was received as a result of the project being posted on the Shasta-Trinity Schedule of Proposed Actions from the North Coast Regional Water Quality Control Board requesting copies of scoping letters, environmental documents, decision documents, and other applicable documents. No significant issues were identified.

Decision

I have decided to implement the proposed action as described in this document. This action is categorically excluded from documentation in an environmental impact statement or an environmental assessment because this is a pre-commercial thinning and release of planted trees is of low impact to the environment. The category of exclusion is Forest Service Handbook 1909.15-31.2 Category 6. Timber stand and or/wildlife habitat improvement activities which do not include the use of herbicides or do not require more than one mile of low standard road construction (Service level D, FSH 7709.56). Examples include but are not limited to: b. Thinning or brush control to improve growth or to reduce fire hazard including the opening of an existing road to a dense timber stand.

Based on my review of the environmental reports developed by an interdisciplinary team addressing the expected environmental effects for this project, this is a low impact project which meets the Forest's responsibility to manage plantations created after fires or regeneration harvest in order to develop healthy stands in the future. The categorical exclusion is appropriate in this situation because there are no extraordinary circumstances potentially having effects that may significantly affect the environment. I considered the following:

- a. Limited Operating Period (LOP) would be implemented to avoid direct adverse impacts to the northern spotted owl. From February 1 through July 10, all noise- and smoke-generating activities will be prohibited within ¼ mile of suitable nesting/roosting habitat (maps available in project file). (LOP) would be implemented to avoid direct adverse impacts to the peregrine falcon. From February 1 through August 15, all noise- and smoke-generating activities will be prohibited within mapped disturbance zones (available in project file). These LOPs may be lifted if surveys using currently accepted protocols indicate specific areas are not occupied by breeding owls or breeding falcons. Retention of existing large (>19 inches diameter at breast height) snags and down logs within thinning units. Snags felled for safety reasons would be left on site as logs. These measures insure that this project will have no effect on endangered, threatened, proposed or sensitive wildlife species.
- b. The project does not have a significant affect on sensitive plants, Forest Plan endemic species, survey and manage vascular plants, bryophytes, lichens and fungi, watch list plants or noxious weeds. Areas with serpentine soils will not be treated.
- c. Flood plains, wetlands, or municipal watersheds are not present or not affected.

- d. Congressionally designated areas, such as wilderness, wilderness study areas, or National Recreation Areas are not present.
- e. Inventoried roadless areas are not present.
- f. Research Natural Areas are not present.
- g. The project will not affect any American Indian religious or cultural sites; archaeological sites, or historic properties or areas. Archaeological or historical resources present will be managed as eligible or potentially eligible for the National Register of Historic Places.

I find the actions to be implemented by this decision are consistent with the Record of Decision for the Final Environmental Impact Statement for the Shasta-Trinity National Forests, Land and Resource Management Plan (LRMP), April 28, 1995.

Findings Required by Other Laws

National Forest Management Act (NFMA): NFMA and accompanying regulations require that several specific findings be documented at the project level. Based on information contained in the environmental analysis reports and consultation with my staff, I find that the prescribed management practices shall:

- a. Provide protection for streams, streambanks, wetlands, and other bodies of water from detrimental changes that would adversely affect water conditions or fish habitat.
- b. Be carried out in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, and visual resources.
- c. Be consistent with the Shasta-Trinity National Forest Land and Resource Management Plan (LRMP). The project was designed in conformance with forest plan standards and incorporates appropriate Forest Plan guidelines for fire and fuels management direction to “restore fire to its natural role in the ecosystem when establishing the Desired Future Condition of the landscape” (LRMP, page 4-4) and the LRMP Standard and Guideline “Plan and implement fuel treatments emphasizing those treatments that will replicate fire’s natural role in the ecosystems” (LRMP, page 4-18).
- d. Be carried out on lands that are suitable for timber management.
- e. Consideration was given to impacts to management indicator species populations.

Endangered Species Act: Formal consultation with the U.S. Fish and Wildlife Service (FWS) regarding the effects of proposed project activities on the northern spotted owl (Threatened) is not necessary. Though suitable habitat is present in the project area, no northern spotted owls were detected during surveys. No suitable northern spotted owl nesting/roosting habitat will be rendered unsuitable through project activities. Wildlife Biological Assessment for the Pre-Commercial Thinning/Fuels in Middle Hayfork Creek Watershed Environmental Analysis (Quinn, 11/14/2005) .

Formal consultation with the National Marine Fisheries Service (NMFS) regarding the effects of proposed project activities on Southern Oregon/Northern California Coho Salmon (Threatened) and Klamath Mountains Province Steelhead Trout (proposed Threatened) is not necessary. All activities would take place in areas that do not meet critical habitat definition. Middle Hayfork Mastication and Pre-Commercial Thin Biological Assessment/Evaluation and Management Indicator Species Report (Lang, May 5, 2005).

No threatened or endangered plants are present. Middle Hayfork Mastication Biological Evaluation for Plants (Erwin, 8/14/2005).

National Historic Preservation Act of 1966, as amended: As required by Section 106 of NHPA, and its promulgating regulations in 36 CFR Part 800, a cultural resource inventory has been completed for this project. Cultural properties have been identified within the project area and mitigations outlined in this document are expected to be sufficient to protect these properties. (ARR #05-14-154, 318, and 850).

Clean Water Act: The Forest Service is the Water Quality Management Agency for National Forest System lands in California. Best Management Practices (BMP) used for water quality management planning have been accepted by the State of California Water Resources Control Board and the Environmental Protection Agency as input to a composite Area-wide Waste Treatment Plan for compliance with the Clean Water Act. This document cites specific BMPs to be implemented and monitored during project activities. Hydrologist Report, Pre-Commercial Thinning/Fuels Treatment in the Middle Hayfork Creek Watershed (Fitzgerald, 1/19/2006).

Monitoring

Monitoring of the effectiveness of the thinning treatments in relation to stocking, growth and health will take place during the stand certification process. Ground disturbance will be monitored during the BMPEP monitoring process and learnings evaluated for future treatments. Evaluation of fuel loadings left in the stands treated by hand will be done on approximately 10% of the treated areas after five years.

Direction and Assessment Recommendations:

The Shasta Trinity National Forests Land and Resource Management Plan (LRMP) in Chapter 4 - Management Direction on page 4-5 states "implement practices designed to maintain or improve the health and vigor of timber stands, consistent with the ecosystem needs of other resources." Page 4-27 of the LRMP under Timber (Timber Stand Improvement and Forest Health) states "Timber stand improvement projects will emphasize maintaining or improving growth, and healthy, vigorous trees, through release and thinning."

The LRMP under Riparian Reserves and Key Watersheds states on page 4-54 "Apply silvicultural practices for Riparian Reserves to control stocking, reestablish and manage

stands, and acquire desired vegetation characteristics needed to attain Aquatic Conservation Strategy objectives".

Under Matrix Lands (Commercial Wood Products Emphasis) on page 4-67, the LRMP states "Timber stands will be managed to obtain optimum growth and yields using cultural practices which control competing vegetation (release and weeding), obtain stocking control (thinning), and minimize mortality (pest management) within the context of the Matrix Standards and Guidelines described above (reference LRMP, page 4-61)."

The LRMP directs for Adaptive Management Area (AMA), page 4-69, the "Creation and maintenance of a variety of forest structural conditions including late-successional forest conditions and desired riparian habitat conditions" and "Restoration and maintenance of forest health using controlled fire and silvicultural approaches."

Middle Hayfork Creek and Salt Creek Watershed Analyses were completed April 10, 2000. It recommends using thinning and prescribed fire to protect and enhance late successional stand characteristics in the Late-Successional Reserve. It also recommends that ponderosa pine and Jeffery pine stands be thinned to reduce the probability of successful bark beetle group kill. Thinning pine stands will reduce the probability of a successful beetle group kill by both increasing the amount of soil moisture available to each leave tree, as well as by increasing the spacing interval between leave trees to the outer limits of effectiveness of the aggregating pheromone. The most suitable stand types for these operations occur in the Philpot Creek and Tule Creek subwatersheds. The above watershed analysis states in Chapter 6-Recommendations, page 6-3, that "it is very important to consider the use of thinning or biomass removal prior to doing prescribed fire. The growth of understory fuels may be too great to just use prescribed fire as the tool of choice."

Within Late-Successional Reserves, thinnings and fuel hazard reduction treatments are recommended for early-successional forests containing high stocking levels conducive to future stand-replacing events, such as those caused by intensive fires.¹³

¹³ Shasta-Trinity National Forest Wide Late-Successional Reserve Assessment, 1999, p. 4-5.

Pre-commercial Thinning and Fuels Treatment in Middle Hayfork Creek Watershed

Table 1. Streamside management and riparian zone

	Design Features				Date
	equipment limitations.				
Stream Class	Stream Type	Hillside Slope (%)	Equipment Exclusion Zone (EEZ) Width (feet)	EEZ Overstory Canopy Closure (%)	Minimum Riparian Zone Width (feet)
I	Perennial stream with fish	Slope > 30%	100	> 85	300
		Slope < 30%	100	85	300
II	Perennial stream with no fish	Slope > 30%	100	> 70	225
		Slope < 30%	75	> 70	225
III	Intermittent and ephemeral	Slope > 30%	50	50	150
		Slope < 30%	25	50	150

- 1 Width of protection zone is measured along the slope from the high water mark up the hillslope.
- 2 The riparian zone width will meet the minimum width, however, the site tree may increase the distance (see LMP).
- 3 No equipment within the Equipment Exclusion Zone (EEZ).
- 4 Prohibit heavy equipment from entering WLPZs except at designated crossings.
- 5 Thinning within Riparian Zone needs to meet Aquatic Conservation Strategy objectives.
- 6 Thinning within the EEZ of Class I and II streams is limited to understory removal and cannot disturb riparian plant species.
- 7 A minimum of a 50 foot buffer will be flagged along the edge of inner gorge (i.e., >65% and unstable), or as prescribed by a geoscientist.
- 8 A minimum of a 50 foot buffer will be flagged above the crown or head of active or potentially active landslides, or as prescribed by a geoscientist.
- 9 Equipment will be excluded from operating on active or potentially active landslides, and thinning will be prescribed by geoscientist.

Decision

Based on my review of the environmental analysis reports prepared for this project by an interdisciplinary team, I have decided to implement the proposed action. This action is categorically excluded from documentation in an environmental impact statement or an environmental assessment. The category is FSH 1909.15-31.2 Category 6. Timber stand and or/wildlife habitat improvement activities which do not include the use of herbicides or do not require more than one mile of low standard road construction (Service level D, FSH 7709.56). Examples include but are not limited to:

- b. Thinning or brush control to improve growth or to reduce fire hazard including the opening of an existing road to a dense timber stand.

Administrative Review or Appeal Opportunities

My decision is not subject to appeal pursuant to 36 CFR 215.12 “The following decisions and actions are not subject to appeal under this part: (e) Projects or activities for which

notice of the proposed action and opportunity to comment is published and (1) No substantive comments expressing concerns or only supportive comments are received during the comment period for a proposed action.”

Implementation Date

This project will be implemented after the date of publication of legal notice of decision in the Record Searchlight.

Contact

For further information contact Donna Harmon or Ron Armstrong at Hayfork Ranger District, Hayfork, CA. 96041, (530) 628-5227.

DONNA F. HARMON	Date
District Ranger	
South Fork Management Unit	

Donna F. Harmon	
District Ranger	
South Fork Management Unit	

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual’s income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA’s TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.