CHAPTER 1
PURPOSE OF AND NEED FOR ACTION

Introduction

This Environmental Assessment (EA) describes an analysis of salvage harvest of downed trees along certain roads in the Hash Rock Fire Area. The Hash Rock Fire occurred in the Mill Creek and Marks Creek Watersheds, Prineville and Big Summit Ranger Districts, Ochoco National Forest.

This chapter describes the proposed action, discusses the purpose and need, and summarizes the scoping process.

Proposed Action

The Forest Service is proposing to salvage harvest merchantable trees that were felled during fire suppression operations. The salvage harvest would pick up downed trees. These trees are within 300 feet of existing roads. These trees could easily be removed with little or no ground-disturbing impacts. No new or temporary roads would be constructed. The trees proposed for harvest are not within any Riparian Habitat Conservation Area, with one exception. The trees proposed for harvest are between 15 and 35 inches d.b.h. The approximate volume of timber is 150-200 thousand board feet.

Purpose of and Need for Action

The need for the proposed action is to recover the economic value of downed trees near existing roads in the Hash Rock Salvage area and to provide timber products to the economy. Trees felled during fire suppression operations will rapidly lose their commercial value due to rot, blue stain, and firewood cutting.

Decision to be Made

Based on this analysis, the District Ranger, Big Summit and Prineville Ranger Districts, will decide whether to salvage harvest downed trees along certain roads in the Hash Rock Fire area.

Relationship to the Forest Plan

This document is tiered to the Ochoco National Forest Land and Resource Management Plan (Forest Plan) and its accompanying Final Environmental Impact Statement as amended by the Revised Continuation of Interim Management Direction Establishing Riparian, Ecosystem, and Wildlife Standards for Timber Sales (Eastside Screens) and the Inland Native Fish Strategy (INFISH).

Lands within the project area fall within four management allocations. They are:

MA-F22 General Forest - The area will produce timber and forage while meeting the Forest-wide standards and guidelines for all resources.

MA-F21 General Forest Winter Range - The area will be managed for timber production with management activities designed and implemented to recognize big game habitat needs.

MA-F16 Bandit Springs Recreation Area - Provide dispersed, nonmotorized recreational opportunities within a setting where most management activities (timber harvest) are generally not evident to the casual observer.

RHCA - The INFISH delineated Riparian Habitat Conservation Areas (RHCAs) where riparian-dependent resources receive primary emphasis. These RHCAs include traditional riparian corridors, wetlands, intermittent streams, and other areas that help maintain the integrity of aquatic ecosystems. These areas will be managed to maintain or restore water quality, stream channel integrity, channel processes, sediment regimes, instream flows, diversity and productivity of plant communities in riparian zones, and riparian and aquatic habitats to foster unique genetic fish stocks that evolved within the specific region.

Public Involvement

Scoping and public involvement are ongoing processes used to invite public participation and to obtain input on the scope of the analysis, alternatives to be evaluated, and issues to be addressed.

The scoping process for this analysis was initiated in November 2000. Letters were sent to individuals, organizations, and other governmental agencies. This letter included a description of the proposed action and the purpose and need for the project. Five letters were received in response to the scoping process.

Issues

Responses received during the scoping process revealed concerns related to highest and best use of downed logs, costs in preparing the EA, soil impacts, restoration goals, recovering commercial value, and protecting healthy forests adjacent to the burn area.

Based on a review of concerns raised during the scoping process, no issues were identified that would drive alternative development.

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CHAPTER 2
ALTERNATIVES

This chapter contains three parts: 1. Description of the process used to formulate alternatives, 2. Alternatives considered but eliminated from detailed study, and 3. A description of each alternative considered in detail.

Process Used to Formulate Alternatives

The process used in developing the alternatives began with a review of the purpose of and need for action by the Interdisciplinary (ID) Team. The ID Team also relied on comments received during the scoping process and applicable direction in the Forest Plan.

Alternatives Considered but Eliminated from Detailed Study

During the scoping process, one commenter suggested that an alternative be developed that would utilize some of these large logs for restoration purposes such as increasing slope stability, improving wildlife habitat, or for meeting riparian management objectives. This alternative was not considered further because it is outside the scope of the purpose and need. In addition, a Burned Area Emergency Rehabilitation (BAER) interim report was prepared for the Hash Rock Fire. The BAER report identified land, channel, and road and trail treatments. Installation of straw bales or log structures was identified to help disperse runoff water. The use of downed logs has already been considered for emergency rehabilitation. Additional use of downed logs will be considered as part of other fire rehabilitation projects.

No other alternatives were considered that were subsequently eliminated from detailed study.

Alternatives Considered in Detail

Alternative 1

Alternative 1 is the no action alternative. Salvage harvest of downed trees would not occur.

Alternative 2

Alternative 2 is the proposed action. Salvage harvest of downed trees would occur. Merchantable trees that were felled during fire suppression operations would be harvested. These downed trees occur along Forest Roads 3300-213, 3300-215, 3300-225, 2600-200, 2600-220, 2600-224, 2600-250, 2600-300, 2600-310, 2600-360, and 2600-650. No new or temporary roads would be constructed. No downed trees would be removed from RHCAs, with one exception. One tree in the RHCA for Hamilton Creek will be removed. All slash will be lopped and scattered.

Less than 100 MBF (thousand board feet) would be harvested.

Design Elements

No road construction or reconstruction, including temporary road construction, will occur.

Where slopes exceed 35 percent, winch lining would be required to minimize detrimental soil impacts. In these steep areas, the equipment with winch lines will be required to remain on system roads or designated skid trails.

Logs that are not winched to existing roads will be yarded with a rubber-tired skidder using an integral arch to maintain one-end suspension to limit soil displacement.

Skid trails would be designated and approved prior to logging and would be located on already disturbed areas where possible. Approximately 75 percent of sites have existing skid trails or other disturbed areas that can be reused. The remaining 12-14 sites would be reviewed when harvest activities are complete to determine if detrimental compaction has occurred. Ripping would occur, if appropriate, to reduce detrimental compaction to pre-salvage conditions.

Downed trees will not be removed from any RHCA, with the exception of one tree in the Hamilton Creek RHCA.

Log haul will be prohibited in the Bandit Springs Recreation Area between Thanksgiving Day and March 15. The sale administrator may waive this seasonal restriction only when there is not snow of sufficient depth for cross country skiing.

There will be no activities involving heavy or power equipment within big game winter range from December 1 through May 1, unless coordinated through the District Wildlife Biologist.

During wet periods, commercial road use will not contribute to siltation outside the roadway. For example, suspension of use may occur when road use is contributing to sediment detachment and transport, i.e. rutting 1 - 2 inches deep, muddy ditch water.

Avoid or minimize disturbances within or adjacent to existing noxious weed infestations.

Document all noxious weed infestations identified during any or all inventories.

Avoid weed infested areas for landings or parking areas.

Include a noxious weed locator map in the project file to facilitate avoidance and monitoring.

Complete post-project surveys to document infestations and to evaluate the effects of the project on noxious weeds.

Inform the District Noxious Weed Coordinator in project planning and implementation.

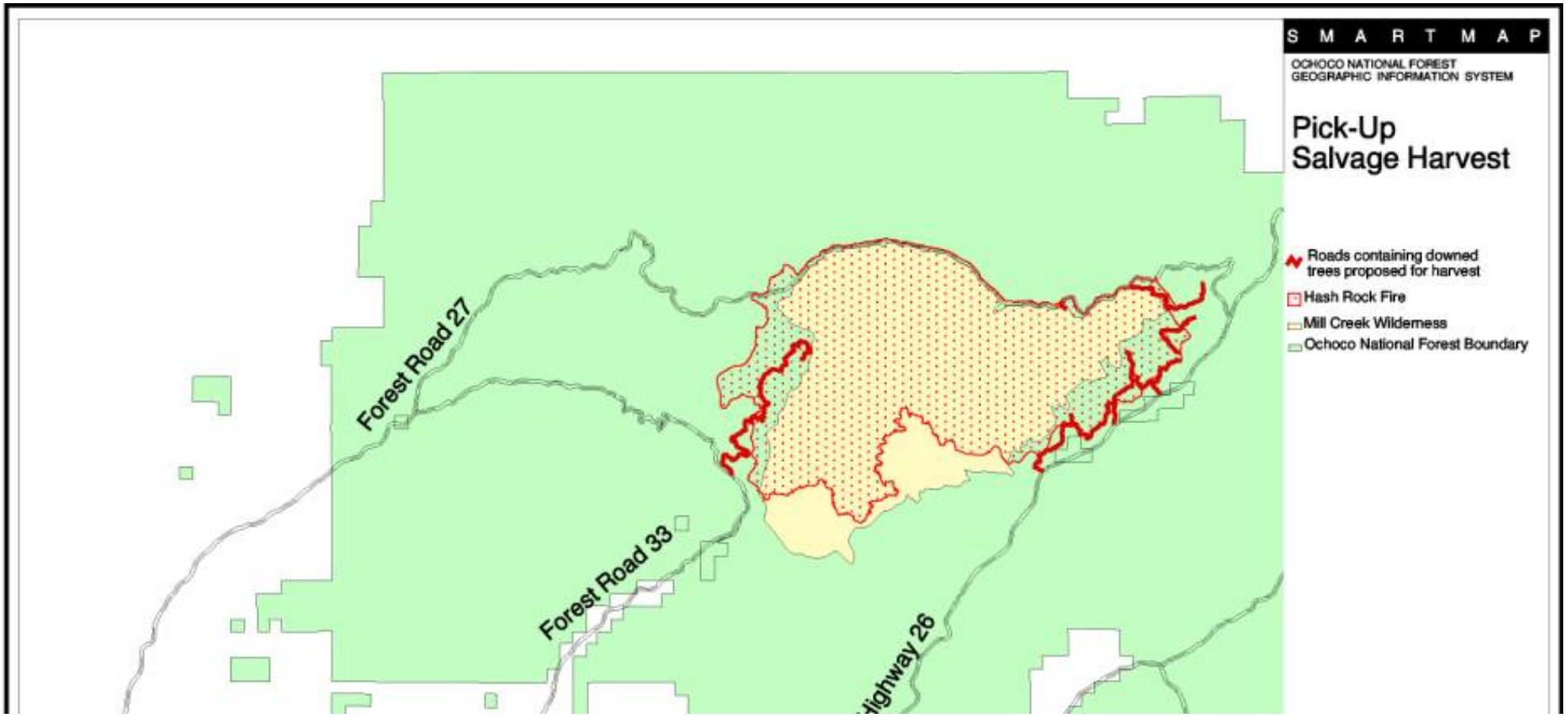
Retain desirable herbaceous growth on road shoulders, cuts, fills, ditches, and drainages.

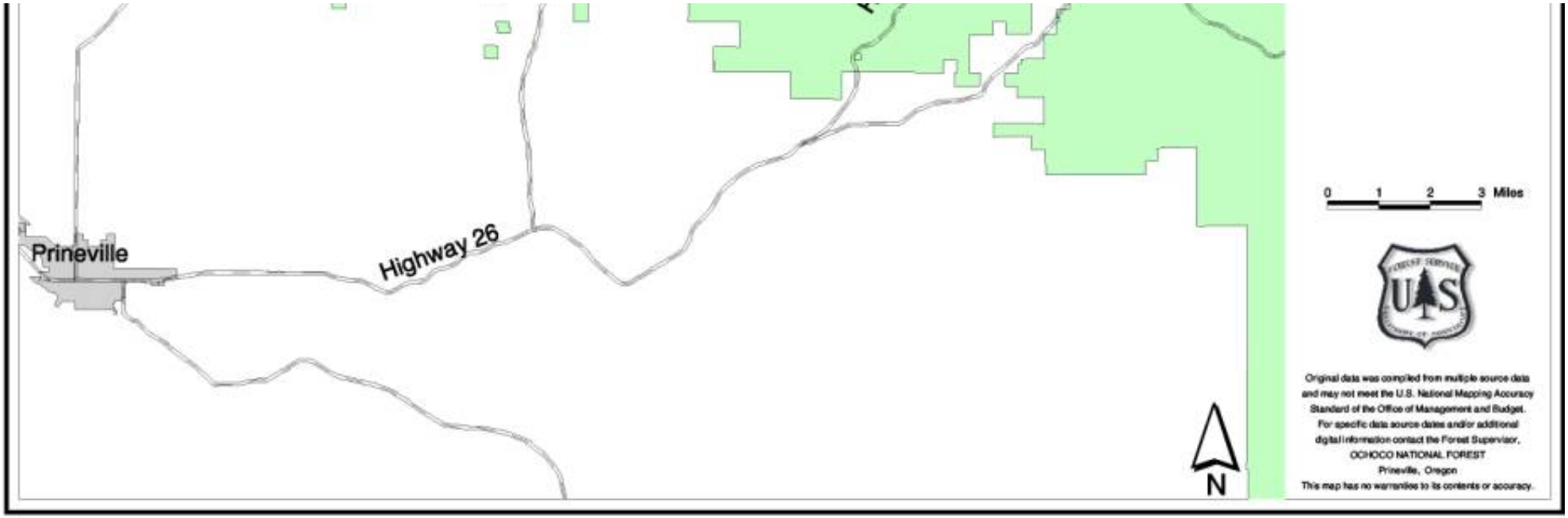
To reduce the transport or spread of noxious weeds, ground-disturbing equipment would be certified to be clean of all plant or soil material that may result in the establishment or spread of noxious weeds. This certification would occur prior to equipment entering the project area.

Rock material used for road maintenance must be obtained from weed free sources.

There are two goshawk nest sites and associated post fledging areas (PFAs) within the project area. No salvage operations would occur within the 30-acre designated nest stands. Within the Reilly Creek PFA, salvage operations within 1/2 mile of the known nest site would be restricted between March 1 and September 30. This seasonal restriction may be waived if the District Wildlife Biologist determines that salvage operations would not adversely affect use of the nest. Salvage activities are not proposed within the Cayuse PFA.

Map of Proposed Action





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CHAPTER 3
ENVIRONMENTAL CONSEQUENCES

This chapter presents the scientific and analytical basis for comparison of the alternatives described in Chapter 2. Probable consequences of implementing each alternative are discussed for the resources affected.

Each specific resource topic described below includes a discussion of direct, indirect, and cumulative effects. There are numerous activities that are occurring or are proposed to occur within and around the Hash Rock Fire Area. These activities include activities associated with the Mill Project Timber Sales Record of Decision, the proposed Hash Rock Fire Salvage, the proposed Bandit Timber Sale, Burned Area Emergency Rehabilitation activities, and other activities associated with fire rehabilitation work. Even though every proposed or ongoing activity is not specifically mentioned, these activities were considered during the environmental analysis. The analysis file contains a more specific list of both ongoing and reasonable foreseeable future actions. As appropriate, specific activities or types of activities are mentioned in the cumulative effects discussion for the individual resources.

Cultural Resources

Cultural/heritage resource surveys have been conducted within the project area. Three sites are located within or near the proposed salvage activities. All three sites would be avoided and protected during the proposed salvage operations. There would be no effect to cultural/heritage sites from either alternative.

Competing or Unwanted Vegetation

The introduction and spread of noxious weeds can reduce the diversity and abundance of native vegetation, forage, diversity and quality of wildlife habitat, increase erosion, and decrease water quality (USDA/USDI 1997). Introduction and spread appears largely due to vehicles, although livestock, wildlife, birds, hay, water, and windblown seed are other sources.

Logging and associated ground-disturbing activity may increase the potential for introduction and spread by removing vegetation and the soil A horizon, thereby creating a seedbed for noxious weeds. Seed can be introduced from weed-infested areas through soils attached to logging equipment.

There are five strategies for managing unwanted vegetation: no action, prevention, early treatment, correction and maintenance. The aggressiveness of the prevention and treatment strategy is based on the type of weed to be controlled. For knapweed species, the population threshold for control is a single plant. Early treatment, correction, and maintenance strategies are already implemented due to existing weed populations in the Pick-Up Salvage area.

The following noxious weed species are known to occur within or adjacent to the project area:

Russian knapweed	diffuse knapweed	St. John's wort
hound's tongue	scotch broom	Canada thistle
spotted knapweed	teasel	medusahead
whitetop	leafy spurge	

Alternative 1

Alternative 1 is the no action alternative and does not include any activities that would introduce or spread noxious weeds. However, noxious weeds are known to occur within and adjacent to the project area. Early treatment, correction, and maintenance strategies have already been implemented in this area. These strategies will continue to be implemented as described in the 1995 and 1998 Integrated Noxious Weed Management Plans for the Ochoco National Forest. The Integrated Noxious Weed Plan for the Ochoco National Forest is being updated in 2001. Based on that upcoming analysis, the existing strategies for control of noxious weeds may be adjusted. The effects of adjusting weed control strategies will be disclosed in that environmental analysis.

Alternative 2

This alternative has a moderate risk of introducing or spreading noxious weeds because noxious weeds are known to occur along road corridors within the project area. The downed trees proposed for harvest are all within 300 feet of existing roads. In order to reduce the potential for introduction and spread of noxious weeds, this alternative includes a prevention strategy. The prevention strategy is designed to eliminate the expansion of current populations and to reduce the risk of new infestations. (See Design Elements in Chapter 2.)

As described under Alternative 1, early treatment, correction, and maintenance strategies have already been implemented in this area due to existing weed populations. These strategies will continue to be implemented.

Management Indicator Species

The Forest Plan identified management indicator species to help determine the effects of management activities on fish and wildlife habitat. Brook and rainbow trout were picked as an indicator of riparian and aquatic habitat. Pileated woodpecker was picked as an indicator for species that require mature and old-growth forest habitat. Primary cavity excavators and the common flicker were selected to represent species that utilize snags and old growth juniper habitat, respectively. This section also includes a discussion on goshawk.

Brook and Rainbow Trout

Redband trout have similar habitat requirements and effects to brook and rainbow trout habitat would be the same as the effects described for redband trout. Effects to redband trout are discussed in the section on threatened, endangered, and sensitive species.

Pileated Woodpecker

Habitat features important to pileated woodpecker include high (greater than 60 percent) canopy closure, sufficient snags for feeding and nesting, and abundant down logs for foraging. These conditions are most likely to be met in mixed-conifer stands with late and old structure (LOS) characteristics. Habitat availability for this species is low within the project area because canopy closure was reduced below desired levels during the Hash Rock Fire.

No harvest or other treatments would occur within pileated woodpecker habitat or within allocated old growth areas. The existing amounts and distribution of habitat would not be altered. The proposed activities are not expected to affect pileated woodpeckers or their habitat.

Primary Cavity Excavators

Primary cavity excavators are a management indicator species for snag habitat. Snag habitat is abundant as a result of the Hash Rock Fire. The proposed actions would remove downed timber and may fell some snags (hazard trees) along roads. The number of snags expected to be felled is small. Because of the abundant number of snags within the project area, the proposed activities are not expected to affect primary cavity excavators or their use of the project area.

Common Flicker

Old-growth juniper habitat does not occur within or adjacent to the project area. The proposed activities will have no effect on old-growth juniper habitat or use of this habitat by the common flicker.

Northern Goshawk

The goshawk is usually associated with stands containing LOS characteristics. There are two known nest sites and (PFAs) within or adjacent to the project area.

Alternative 1

No salvage harvest of downed trees would occur within goshawk PFAs or within goshawk habitat. There would be no effect to goshawks PFAs or habitat.

Alternative 2

The proposed activities would remove downed logs in the Reilly Creek PFA. Snags would not be harvested. Downed logs would be retained at or above desired levels (15-20 pieces per acre at least 12 inches in diameter and 6 feet in length). Live trees would not be harvested. Downed logs would not be removed from the Cayuse PFA.

Removing downed logs in the Reilly Creek PFA is not expected to modify existing habitat for the goshawk. The proposed action would not reduce the availability of important habitat components. This alternative is not expected to alter goshawk use in the project area.

Cumulatively, goshawk habitat in the area was reduced by the Hash Rock Fire. The fire burned within portions of three PFAs: Cayuse, Reilly Creek, and Bingham Prairie. More than 90 percent of the Bingham Prairie PFA burned. The Bingham Prairie PFA no longer contains nesting habitat and the resident birds have likely been displaced. Approximately 90 acres of the Cayuse PFA outside the nesting habitat was impacted by moderate to high intensity fire. The Cayuse PFA will be reviewed as part of the Hash Rock Fire Salvage EA to determine if modifications to the PFA are needed. More than 80 percent of the Reilly Creek PFA, including the nest stand, was impacted by low to moderate intensity fire. In the Reilly Creek PFA, the fire reduced the density of understory trees and increased the amount of dead and down material. This improved foraging conditions within this PFA. In the nest stand, approximately 10 acres burned at moderate intensity and these 10 acres are no longer expected to function as nesting habitat.

Other proposed activities in the Mill and Marks Creek watersheds are also expected to affect goshawk habitat. Proposed treatments within PFAs include commercial harvest, precommercial thinning, and prescribed fire. These activities can alter, reduce, or remove habitat. These activities will follow the guidelines in the Eastside Screens (Regional Forester's Forest Plan Amendment 2) and are expected to retain habitat conditions suitable for goshawks. The effects related to ongoing activities from the Mill Creek FEIS were disclosed in that documents. The Bandit and Hash Rock Fire Salvage environmental assessments and any fire rehabilitation environmental analyses will describe the expected effects associated with those activities.

Soils

Detrimental soil conditions within the project area are currently more than 20 percent. The project area includes certain roads and areas within 300 feet of those roads. Old skid trail densities are generally high within 300 feet of existing roads due to past logging practices.

Alternative 1

Downed timber would not be harvested. There would be no change in the existing levels of detrimental soil conditions in the project area.

Alternative 2

Downed logs would be removed by either winching from existing roads or yarding with a rubber-tired skidder. Winching may result in detrimental displacement of soils, while yarding with a rubber-tired skidder may result in detrimental compaction. In order to reduce the potential for increasing existing levels of detrimental soil conditions, proposed activities would re-use existing areas of disturbance where possible. About 75 percent of the trees proposed for removal would be removed using existing roads and skid trails. On the remaining 12-14 sites, some trees can be removed using one turn (2 passes of the rubber-tired skidder, 1 in and 1 out) and soils would not be detrimentally compacted. Detrimental compaction is a concern when more than three passes (1.5 turns) are made with ground-based equipment on undisturbed soils. Where two turns are needed to remove trees, detrimental compaction can occur. After harvest activities are completed, these areas would be reviewed to evaluate the need for ripping. Ripping would occur, if appropriate, to reduce detrimental compaction to pre-salvage conditions. As a result, the detrimental effects from project implementation and restoration would not exceed the conditions prior to the planned activity.

Threatened, Endangered, and Sensitive Species

Aquatic Species

Bull trout (*Salvelinus confluentus*) and Mid-Columbia River steelhead trout (*Onchorhynchus mykiss spp.*) are the only federally listed threatened or endangered aquatic animals known or suspected to occur on the Ochoco National Forest. These species were not addressed because there is no habitat in the project area.

There are five sensitive aquatic species that are known or suspected to occur on the Ochoco National Forest: Spring chinook salmon (*Onchorhynchus tshwaytscha*), redband trout (*Onchorhynchus mykiss spp.*), Malheur mottled sculpin (*Cottus bairdi*), West Slope cutthroat trout (*Onchorhynchus clarki*), and Columbia spotted frog (*Rana luteiventris*). Four of these species were not addressed because there is no habitat in the project area. There is habitat for redband trout within the project area and this species is discussed below.

Alternative 1

This alternative would not remove any downed trees. Because there would be no ground-disturbing activities, this alternative would have no effect to redband trout or its habitat.

Alternative 2

This alternative would remove downed trees along certain roads. This alternative would not reduce the forest canopy along streams or remove any large wood that could affect physical and biological

processes within RHCAs. No changes in stream flow are anticipated as a result of removing large, downed trees from along existing roads. Ground-disturbing activities may result in a small amount of sediment delivery; most of the potential delivery will be associated with ripping to mitigate detrimental compaction. The amount of sediment delivery as a direct result of this activity is so small that the proposed activities should not result in any measurable increase in turbidity or sediment delivery.

Because this alternative may contribute to minimal amounts of sediment transport, it may impact individuals or habitat of redband trout, but will not move this species towards federal listing or loss of viability

Cumulatively, increased sediment levels are expected as a result of the Hash Rock Fire. Increased sediment levels are expected to adversely affect aquatic habitat, including habitat for redband trout. Habitat quality, especially pools, is predicted to decrease as a result of increased sediment. Increased sediment from reactivated mass failures and bank erosion will be a chronic problem in the fire area until vegetation becomes reestablished. Increased sediment loads and flows may lead to channel type changes. Cool water refugia will decrease over the short term due to loss of shade and greater water exposure to direct sunlight. All of these factors are expected to reduce redband trout within the East and West Fork Mill Creek subwatersheds and the Hamilton Creek area of the Upper Marks Creek subwatershed.

Fire rehabilitation activities, include emergency rehabilitation, are expected to lessen these effects to redband trout habitat and water quality. These activities include aerial seeding, riparian planting, headcut repair, in-channel stream restoration, installing drainage structures on roads and trails, installing waterbars, replacing undersize culverts, armoring culverts, road maintenance, and road decommissioning. In many cases, these activities will have short-term, localized increases in sediment levels. These short-term increases are expected to last from a few days to a few weeks. The timing of many of these activities will be controlled to further lessen impacts.

Other activities in the general vicinity of the proposed Pick-Up Salvage include timber harvest, precommercial thinning, prescribed fire, road management, hardwood enhancement, in-channel restoration, headcut repair, bank stabilization, large woody debris placement, riparian planting, and reforestation. All of these activities have the potential to affect fish habitat through sediment delivery, modifying shade conditions that affect temperature, and changes to the stream channel. Based on project design and mitigation measures, these activities are expected to have a long-term beneficial effect to fish habitat, even though some activities will produce short-term localized effects. Many of these activities were included in the Mill Project Timber Sales FEIS and the effects of those activities on fish habitat are analyzed in that document. Many are also included in proposed activities such as the Hash Rock Salvage Sale and the Bandit Timber Sale. The environmental analysis documents for these projects will include a specific discussion of the expected effects of those activities to fish and fish habitat.

Cumulative effects from ongoing and proposed activities are not expected to adversely affect redband trout or cause a need for federal listing.

Plant Species

No threatened or endangered plant species are known or suspected to occur on the Ochoco National Forest. Twelve sensitive plant species are known to occur or have potential habitat in the project area (see table on page 13).

Alternative 1

There would be no ground-disturbing activities. Existing habitat for these species would be maintained. There would be no effect to any sensitive plant species known to occur or with potential habitat in the project area

Sensitive Plant Species with known locations or potential habitat within the project area.

Species	Habitat
Henderson's ricegrass *Achnatherum hendersonii*	Nonforested/Scabland
Wallowa ricegrass *Achnatherum wallowensis*	Nonforested/Scabland
Ascending moonwort *Botrychium ascendens*	Riparian
Crenulate moonwort *Botrychium crenulatum*	Riparian
Mingan's moonwort *Botrychium minganense*	Riparian
Mountain moonwort *Botrychium montanum*	Riparian
Twin-spike moonwort *Botrychium paradoxum*	Riparian
Pinnate moonwort *Botrychium pinnatum*	Riparian
Peck's mariposa lily *Calochortus longebarbatus var peckii*	Riparian
Interior sedge *Carex interior*	Riparian
Porcupine sedge *Carex hystericina*	Riparian
Yellow lady's slipper orchid *Cypripedium parviflorum*	Riparian/Moist Forest

Alternative 2

Riparian Habitats

This alternative avoids high probability habitat (seeps, springs, wet meadows, and streamside locations) for Peck's mariposa lily, interior sedge, porcupine sedge, and the six moonwort species. No ground-based equipment will be used in RHCAs, with one exception. One downed log will be removed from a Class II RHCA on Hamilton Creek. Removal of this tree will avoid impacting habitat for sensitive species. No other commercial harvest is proposed in RHCAs. Therefore, no impacts are expected that would be likely to contribute to a trend towards federal listing or a loss of viability to populations or

species of sensitive plant with habitat within riparian areas or adjacent to seeps and springs.

Nonforested/Scabland Habitats

This alternative avoids the nonforest balds which provide the primary habitat for the two ricegrass species. No equipment use is proposed on these habitats. Therefore, this harvest activity will not impact habitat or populations of the two ricegrass species within the project area.

Sensitive species will or have received special management emphasis so that management actions do not result in a need for federal listing. Past activities have undergone analysis and have incorporated protective measures to ensure that those activities do not cause a trend toward federal listing for sensitive plants. All reasonably foreseeable future actions will also undergo an analysis to determine effects to sensitive plant species. Based on the proposed activity, protective measures may be included to reduce or eliminate effects to sensitive plant species. As a result, cumulative effects from ongoing and proposed activities are not expected to adversely affect sensitive plant species or cause a need for federal listing.

Wildlife Species

There are two federally listed threatened or endangered wildlife species known or suspected to occur on the Ochoco National Forest: the Northern bald eagle (*Haliaeetus leucocephalus*) and the Canada lynx (*Lynx canadensis*). There are eight wildlife species on the Regional Forester's sensitive species list that are known or suspected to occur on the Ochoco National Forest. They are: Peregrine falcon (*Falco peregrinus anatum*), bufflehead (*Bucephala albeola*), upland sandpiper (*Bartramia longicauda*), western sage grouse (*Centrocercus urophasianus*), gray flycatcher (*Empidonax wrightii*), tricolored blackbird (*Agelaius tricolor*), pygmy rabbit (*Brachylagus idahoensis*), and California wolverine (*Gulo gulo*). Seven of these species were not addressed because there is no or only low probability habitat in the project area. The project area contains potential habitat for bald eagle, lynx, and wolverine. These species are discussed below.

Alternative 1

There would be no ground-disturbing activities that would affect threatened, endangered, or sensitive species or their habitat within the project area. Therefore, there would be no effect to any threatened, endangered, or sensitive wildlife species known to occur or with potential habitat in the project area.

Alternative 2

This alternative would not affect the bald eagle because there are no nesting or winter roost sites within the project area.

This alternative would not affect the lynx because it will not remove any live vegetation or reduce the number of down logs in suitable denning habitat. There is no suitable denning habitat within 1/4-mile of the proposed activities.

This alternative would have no impact on the wolverine because habitat within the project area is only marginally suitable and no denning sites are known to exist.

Water Quality

Stream turbidity and temperature are primary indicators of water quality in forested ecosystems. There is normally a close correlation between turbidity and suspended sediment in a given stream. Effects to water quality are discussed in relation to sediment and temperature.

Alternative 1

Downed timber would not be harvested and there would be no effect on sediment or temperature.

Alternative 2

Proposed activities are expected to result in a small risk of delivering sediment to streams. The downed logs proposed for removal are not within RHCAs, with one exception. The potential sediment that may enter stream channels would be a result of road use and any ripping to mitigate detrimental compaction. Potential sediment delivery would be highest from roads within 100-200 feet of streams and at road crossings. There is a higher potential for sediment delivery during wet conditions. In order to reduce the potential for sediment delivery, road use may be restricted during wet conditions (see Design Elements). Because the risk for sediment delivery is small, the proposed activities are not expected to result in any measurable increase in turbidity or sediment delivery.

The proposed activities are not expected to affect stream temperatures because none of the downed trees proposed for removal are providing shade to any perennial stream.

Cumulatively, the Hash Rock Fire has adversely affected water quality and aquatic habitats by removing effective ground cover, removing live vegetation, removing shade, increasing the amount of sediment delivery, and increasing the potential to reactivate mass failures. These effects are expected to be chronic and are expected to last for several years. Several activities are planned that will reduce these effects to water quality and aquatic habitats. The effects of these activities are described in the discussion related to redband trout above.

Other activities in the general vicinity of the proposed Pick-Up Salvage include timber harvest, precommercial thinning, prescribed fire, road management, hardwood enhancement, in-channel restoration, headcut repair, bank stabilization, large woody debris placement, riparian planting, and

reforestation. All of these activities have the potential to affect water quality through sediment delivery and modifying shade conditions that affect temperature. Based on project design and mitigation measures, these activities are expected to contribute toward long-term beneficial effects to water quality, even though some activities will produce short-term, localized effects. Many of these activities were included in the Mill Project Timber Sales FEIS and the effects of those activities on water quality are analyzed in that document. Many are also included in proposed activities such as the Hash Rock Salvage Sale and the Bandit Timber Sale. The environmental analysis documents for these projects will include a specific discussion of the expected effects of those activities to water quality.

Prime Farmland, Rangeland, and Forestland

The proposed action will have no impact on prime farmland, rangeland, or forestland.

Floodplains and Wetlands

The proposed action will have no impact on floodplains or wetlands.

Consumers, Civil Rights, Minority Groups, and Women

The proposed action would not adversely affect consumers, civil rights, minority groups, or women. Timber sale contract provisions include non-discrimination requirements.

Irreversible or Irretrievable Commitment of Resources

Irreversible is a term that describes the loss of future options and applies primarily to the effects of use of nonrenewable resources, such as minerals. Irretrievable is a term that applies to the loss of production, harvest, or use of natural resources. The proposed management activities do not include any irreversible or irretrievable commitment of resources.

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