

Tripod Fire Salvage Project Final Environmental Impact Statement Summary, September 2007

Introduction

Lightning storms on July 3 and 24, 2006 ignited the Spur and Tripod Fires that ultimately burned together and became the Tripod Complex (hereafter called the Tripod Fire), burning a total of 175,184 acres. Of that total, 163,669 acres burned on the Okanogan National Forest, 11,408 acres burned on Washington State Department of Fish and Wildlife and Department of Natural Resources lands and 107 acres was in other ownership. The National Forest burned area is located on the Methow Valley Ranger District on the east side of the Chewuch River drainage and on the Tonasket Ranger District in the Salmon Creek watershed. Active fire suppression activities continued into the fall. The fire was declared contained on October 31, 2006 and was declared out on December 1, 2006. The project area for the Tripod Fire Salvage Project includes portions of the Tripod Fire that lie on National Forest lands on the Methow Valley and Tonasket Ranger Districts within Okanogan County (38,278 acres). The project area is located within the Lower Chewuch River, Middle Methow River and Salmon Creek watersheds. It also includes all land immediately adjacent to Roads 37 and 39 within the fire boundary.

The Forest Service has prepared this Final Environmental Impact Statement (FEIS) in compliance with the National Environmental Policy Act (NEPA) and other relevant Federal and State laws and regulations. This FEIS discloses the direct, indirect and cumulative environmental effects that would result from implementing the proposed action and alternatives to the proposed action. The Record of Decision, which is the decision document associated with this FEIS, is a separate document, written after completion of the FEIS.

Purpose and Need for Action

The purpose and needs are derived from the differences between existing and desired conditions in the project area.

The major purpose of this project is to recover the economic value of a proportion of dead trees and fire-injured trees expected to die within one year of project implementation in the Tripod Fire area. Removing fire-killed and damaged trees through salvage logging would provide sawtimber and other wood products to local and regional economies.

There are a large number of dead and dying trees located next to roads that are open for public use and are hazardous to road users. There is a need to improve safety along roads open to the public within the fire area.

Natural regeneration of conifers after a fire is dependent on seed dispersal from healthy trees. In many areas, particularly within high tree mortality areas of the fire, adjacent

seed sources are not available for conifer species such as Douglas-fir and ponderosa pine. There is a need to accelerate reforestation by re-establishing trees in salvage harvest units where there is insufficient seed source. Replanting with the appropriate species would ensure timely establishment of species desirable for long-term objectives. Salvage harvest on deforested, suitable (for timber production) lands that is driven by an objective to recover timber should be reforested within five years of harvest completion (USDA Forest Service 2002b).

Proposed Action – Alternative B

The proposed action is a proposal developed early in the NEPA process to authorize, recommend, or implement an action to meet stated purposes, needs, and goals based on the best information at the time. This proposed action salvages a proportion of the dead trees and fire-injured trees expected to die within one year of project implementation. It also employs mitigation measures that would reduce detrimental soil conditions in the short term (next ten years), move soil conditions towards a natural condition over the long term, and mitigate potential impacts to Threatened and Endangered Species.

Purpose and Design

Alternative B was designed to maximize recovery of dead and fire injured trees expected to die within one year of project implementation that have positive net value. The volume recovered is part of the sustainable supply of sawtimber to local and regional economies. It provides for regeneration of harvest units. Public safety is improved by removal of danger trees along open road corridors.

Description

Salvage Harvest

An estimated 2,748 acres would be commercially salvage harvested, with an estimated recovery of 17.9 million board feet (MMBF) of wood fiber. Only dead trees and fire-injured trees expected to die within one year of project implementation (when the salvage harvest unit is marked and cruised) would be considered for harvest. The following areas would not be harvested: areas with high soil damage, inventoried roadless areas (IRA), areas adjacent to the IRAs with undeveloped characteristics, old-growth habitat as defined in the Forest Plan, recently regeneration-harvested areas, suitable lynx habitat and PACFISH Riparian Habitat Conservation Areas (RHCA).

Salvage logging would focus on removing dead trees and fire-injured trees expected to die within one year of project implementation with a positive net value (log value exceeds logging and haul costs). In general, dead and dying conifer trees from 10 inches diameter at breast height (DBH) up to and including 28 inches DBH would be commercially harvested.

Ground-based harvesting would occur on approximately 2,156 acres with current road access and a sustained slope of 35% or less. Skyline logging would occur on approximately 591 acres in areas with road access and a sustained slope greater than 35 percent and in areas with slopes of 35 percent or less where terrain and road location require the use of cable logging systems.

Reforestation

Native tree seedlings would be planted on approximately 1,659 acres within salvage harvest units that have insufficient residual seed source to ensure adequate and timely regeneration of conifer species. Ponderosa pine, Douglas-fir, Engelmann spruce, western larch, and lodgepole pine seedlings would be hand planted to ensure that salvage units would meet minimum tree stocking guides within five years of completion of harvest. Approximately 1,089 acres within salvage units are expected to regenerate naturally. Natural regeneration would re-establish forest stands in areas where there is a residual seed source that is sufficient to ensure adequate regeneration of conifer species within five years of salvage harvest.

Activity Fuels Treatment

In the approximately 2,156 acres harvested with ground-based methods, fuels would remain on-site if trees were felled by hand, or would be removed to landings if a feller-buncher was used. Fuels brought to landings would be concentrated into piles for later burning. In the approximately 591 acres of skyline logging harvest, fuels would remain on-site.

Road Management

Approximately 155 miles of open forest transportation system roads would be used for access to salvage units and for timber haul. Approximately 23 miles of closed system road would be opened for use and closed following harvest operations. There are about 7 miles of currently open road that would be used and closed, implementing a past decision from the South Twentymile EA. All other system roads would remain open.

There are approximately 3 miles of previously decommissioned or unauthorized roads that would be used as access spurs to salvage units. These roads would be decommissioned following harvest operations. An additional 3 miles of unauthorized roads were identified as having utility for management in the future. These roads would be re-opened, classified as a system road and closed following harvest operations.

Temporary roads would be constructed to access landing sites and allow landings to be less visible from roadways. Most individual temporary road segments would not exceed 500 feet in length. Total new temporary road length would be less than 3 miles. Temporary roads constructed during the project would be decommissioned and returned to productive ground following salvage harvest operations. No new permanent system roads or access routes would be constructed. There would be no long-term increase in open road density resulting from the salvage harvest.

Forest Plan Amendments

Project specific, non-significant Forest Plan amendments are included to:

- 1) Allow salvage harvest of those fire-injured trees greater than or equal to 21 inches diameter at breast height (DBH), with a low probability of survival within one year of project implementation. These trees are currently alive, but are expected to die from fire related effects. Currently, Amendment #2 (Eastside Screens) directs maintenance of live trees greater than or equal to 21"DBH within stands subject to timber harvest.
- 2) Allow snowplowing and motorized use of designated, groomed snowmobile routes to facilitate winter salvage activities. Currently Forest Plan Forestwide Standard and Guideline 17-6 identifies roads that should not be snowplowed and should be closed to motorized wheel traffic from December 1 to April 1.
- 3) Allow timber salvage operations to take place in MA-26 deer winter range from December through March, in order to facilitate the recovery of deteriorating timber. Most of the deer winter range affected is currently not effective habitats as it was burned by the Tripod Fire.
- 4) Allow timber salvage operations to occur in Management Area 12 from December through March, in order to facilitate the recovery of deteriorating timber. MA-12 has a management emphasis of providing habitat to support a stable lynx population while accessing the area for growing and producing merchantable wood fiber. Most of the habitat affected is currently in an unsuitable condition for lynx.

Public Involvement

On December 28, 2006 a Notice of Intent to prepare an Environmental Impact Statement for the Tripod Fire Salvage Project appeared in the Federal Register and a press release was sent to regional media. On January 5, 2007, scoping packages for the Tripod project were sent to 530 addresses, which consisted of the Methow Valley and Tonasket Ranger Districts planning mailing lists, adjacent landowners, and others who indicated an interest in the Tripod Fire Salvage Project. Federal, state and local agencies and American Indian tribes were also invited to participate.

A public meeting was held in Winthrop, WA on January 16, 2007. The entire ID Team was on hand to explain their resource objectives and answer any questions. Sixteen people attended the meeting. Letters of public comment were received after the meeting. Articles about the project appeared in the *Methow Valley News* and *Omak Chronicle* newspapers. 208 written letters of input were received before the close of the public comment period on January 29, 2007.

The Notification of Availability of the Draft EIS appeared in the Federal Register on June 1, 2007. The DEIS or Summary was mailed or made available to those listed in the DEIS Chapter 5. 217 parties commented during the 45 day comment period which closed on July 16, 2007.

A public meeting was held in Winthrop, Washington on June 14, 2007. The entire Interdisciplinary Team was on hand to answer questions about the DEIS.

Environmental Issues

INTRODUCTION

Issues are points of concern about environmental effects that may occur as a result of implementing the proposed action. They are generated by the public and are in response to the proposed action. Issues provide focus for the analysis of environmental effects and influence alternative development, including development of mitigation measures.

Key issues (also known as significant issues) are used to formulate alternatives, prescribe mitigation measures, and analyze environmental effects. In addition to “key issues,” “other” issues were raised by the public. They were considered as this project was developed, analyzed and may have generated design criteria. They are addressed in the effects analysis (Chapter 3).

The following is a listing of the issues:

KEY ISSUES

Economic Recovery

The Proposed Action would economically recover material on less than 2% of the National Forest area that burned in the Tripod Fire. There was a concern that more acres should be harvested, especially in The Okanogan Forest Plan Management Area 25, where the goal is to intensively manage the timber resource to achieve a high present net value and a high level of timber outputs. There was a concern that helicopter logging was not included in the Proposed Action. The general concern was that these items could result in the Proposed Action not achieving economic recovery objectives.

Wildlife - Lynx

Salvage harvest has the potential to reduce the amount of tree establishment and growth, which could affect the recovery of lynx habitat. In twenty years many trees killed by the Tripod Fire will have fallen over, improving habitat for snowshoe hares and the lynx that prey upon them. Salvage harvest would remove a portion of these trees, which could remove components of lynx habitat in the future. In addition, creation of linear open areas in lynx habitat (such as construction of a temporary road) has the potential to attract snowmobile use during the winter season. This use could improve access for cougars and other predators to utilize lynx habitat and compete with or prey directly upon lynx.

Salvage Harvest of Trees greater than or equal to 21”DBH

There was a concern about salvage harvesting trees greater than or equal to 21” DBH. These trees have value for wildlife, fisheries, and soil productivity at the stand scale. Modeling for the Methow Valley Ranger District showed a current shortage of snags over 20” DBH. The concern was that there was an ecologic need to maintain legacy structures for current and future habitat and structural purposes.

OTHER ISSUES

Fisheries and Hydrology

Salvage harvest activities within the project area such as removal of trees, log yarding by ground-based and skyline systems, and temporary road construction or road reconstruction have the potential to interfere with aquatic and riparian habitat recovery by changing the way water is stored and routed through the project area to riparian areas, stream channels, and wetlands.

The Tripod Fire consumed ground cover thereby exposing soils directly to rain events and runoff. This will result in accelerated erosion on hill slopes. Proposed log yarding operations and road construction and re-opening have the potential to increase soil disturbance and subsequent soil erosion. This could increase the delivery of sediment to water-bodies (especially 303(d) listed waterbodies), affecting water quality and native and threatened, endangered and sensitive fish.

Soils

Detrimental soil disturbance from salvage harvest can increase soil compaction, decrease site productivity, and accelerate erosion. The loss of ground cover and surface organics as a result of the Tripod Fire may have elevated the sensitivity of soils to additional impacts from proposed salvage activities. Ground disturbance from log yarding or road work may affect soil productivity by increasing detrimental soil disturbance caused by soil compaction, displacement, and erosion. It may also affect micro-habitats for soil microbes. Removal of dead trees may affect the amount of coarse woody debris available for soil formation. On some areas, past activities may have already impacted soils.

Wildlife

Burned Forest Habitat

Salvage logging activities would remove dead trees and fire-injured trees expected to die within one year from 10 DBH up to and including 28 inches DBH. Removal of these trees could adversely affect wildlife species that depend on burned forest and snags by reducing habitat effectiveness. Removal of dead trees could cause a loss of foraging and nesting habitat for cavity-nesting species.

Forest Vegetation

There is a concern that large areas, particularly in the dry forest/ponderosa pine stands, would not be allowed to recover because of human intervention following the Tripod Fire.

Tree mortality levels are high in many of the proposed salvage harvest units in the Tripod Fire and will require reforestation to restore forest vegetation. In some areas, a seed source is located within or adjacent to units, and other areas this is not the case. Reforestation is required on deforested, suitable (for timber production) lands where salvage harvest activities are conducted (USDA Forest Service 2002b). Reforestation of these deforested areas should be completed within five years of completion of harvest activities. Salvage harvest activities such as log yarding can compact the ground, which could reduce the success of natural tree regeneration and reduce growth rates. Log yarding can also kill young trees that have regenerated if the logging is delayed too long.

Plant Communities

Salvage harvest activities such as ground-based and skyline yarding, have the potential to slow the natural rate of vegetative recovery by stressing residual live root crowns and below-ground plant parts through site alteration, soil compaction, and/or soil displacement.

The Tripod fire burned over 175,000 acres of which 30% is considered high severity. A high severity burn produces a condition where the litter layer, soil organic horizons, and much of the coarse woody debris are consumed by fire. Root crowns and other below ground tissues may be damaged or killed via heating of plant parts in the upper soil layers. On high severity burn areas vegetative recovery is dependent on off-site species colonization and from residual species that re-sprout from deeply buried plant parts that were not damaged in the fire. With increasing fuel consumption there could be a decrease in the rate of natural vegetative recovery. Salvage harvest could further alter the site potential for native plant recovery, particularly on high severity sites, by increasing the time it takes for full post-burn plant recovery.

Invasive Plants

Post-fire salvage activities such as ground-based, helicopter and skyline logging could contribute to the spread of invasive plants by further disturbing soil and shade and removing remaining cover provided by dead and dying trees. The soil disturbance caused by the Tripod fire could facilitate the introduction, spread, and establishment of invasive plant species. Since roads are the primary vector for weed dispersal, new and existing invasive plant species could be introduced to the area by equipment and vehicles from other locations.

Recreation

The project area is used for dispersed recreation activities such as camping, hiking, hunting, driving for pleasure, mountain biking, horseback riding, motorcycling and snowmobiling. Salvage harvest operations such as tree falling, log yarding, and timber haul may make it unsafe for the recreating public to be in the area. To provide for safety, salvage harvest activities could restrict public access in and to portions of the project area. In addition, if salvage occurs in the winter, portions of roads that are normally groomed for snowmobile travel may be plowed for timber haul. This snowplowing and log haul may restrict routes that are normally used for snowmobiling, affecting snowmobile access to large areas outside as

well as within the project area. Creation of temporary roads and skid trails may provide OHV access to areas not currently used by OHV recreationists.

Salvage harvest-related traffic is comprised of logging truck hauling logs, heavy equipment transport, and contractor and administrative pickups and crew carriers. This salvage harvest-generated traffic produces noise, dust and congestion that could affect rural residences along haul routes.

Inventoried Roadless Areas and adjacent Areas with Undeveloped Characteristics

In the middle portion of the fire area there are three Inventoried Roadless Areas (IRAs): Granite Mountain, Tiffany, and Long Swamp. Adjacent to these areas are additional areas that have an undeveloped character. The IRAs cover 115,860 acres and the undeveloped areas cover 27,701 acres, for a total area of 143,561 acres. Within the fire area, the IRAs comprise 73,342 acres and the adjacent undeveloped areas comprise 23,177 acres for a total area of 96,519 acres. Salvage activities such as road opening (increased access) and timber harvest (noise, dust and smoke) have the potential to affect the undeveloped character of these areas.

Fuels

In fuels analysis coarse woody debris (CWD) is defined as dead standing and downed pieces larger than or equal to 3 inches in diameter. Salvage harvest would reduce CWD loadings by varying amounts throughout the Tripod Fire Salvage project area. An acceptable quantity of CWD that provides desired biological benefits, without creating an unacceptable fire hazard or potential for high burn severity is defined by Brown et al. (2003) as amended for the Okanogan National Forest by Harrod (2007). Salvage harvest could also affect the amount of small woody fuels which might increase short-term fire risk.

Air Quality

Post-salvage fuels treatment activities such as landing-pile burning could temporarily decrease air quality in communities down wind of the project area.

Transportation

There was a public concern about developing any further roads within the project area. Additional roads could reduce wildlife habitat effectiveness and cause additional erosion and sedimentation. There was also a public concern about management of existing roads; that no roads that were closed before the fire should be opened, nor that any roads that were opened before the fire should be closed.

Range

Salvage logging activities could retard post fire forage vegetation recovery and increase the time needed to rest the pasture from livestock grazing by mechanical damage to regenerating plants and by creating additional soil disturbance with the potential for soil erosion and soil compaction.

Dense vegetation creates natural barriers that livestock do not ordinarily drift through. Grazing allotment and pasture division boundaries have been established along natural drift barriers. These drift barriers that have been opened by the fire could be further disturbed by salvage logging and result in increasing livestock drift.

Salvage logging activities could change livestock distribution patterns that increase the use of riparian areas. There is a potential that an increase in transitory range within watering distance (the distance livestock would typically travel to drink) of riparian areas would result in an increase in the occurrence of livestock using the stream, which could limit riparian vegetation recovery.

Scenic Viewsheds and Landscape Character

Local residents, recreation users and tourists all value the scenery within the Tripod Fire Salvage Project area. Salvage harvest operations such as tree removal, establishment of skid trails and skyline corridors and road establishment could affect the scenic resource by altering the naturally established form, line, color and texture in the foreground and middleground of a given viewshed. There are four main areas that are analyzed in the context of viewsheds; the Chewuch Viewshed, the Middle Salmon-Boulder Viewshed, Methow Valley Viewshed, and the Conconully Viewshed.

Heritage Resources

Heritage resources include any sites, buildings, structures, features, deposits and objects that contain evidence of past human activities and that are greater than 50 years old. Heritage resources also include sites that are associated with a continuing tradition of spirituality or are of cultural importance to a local community.

Seven heritage resource sites lie within the project area. Some of these sites have been determined to be eligible for listing in the National Register. These heritage resources are nonrenewable resources that can be vulnerable to ground disturbing activity and in some instances, to increased public access or alterations in the surrounding landscape. Proposed project activities could physically disturb known or undiscovered cultural sites.

Alternatives Considered In Detail

The Interdisciplinary Team developed alternatives to the proposed action which respond to the purpose and need and address key issues identified by the public. Each alternative is a mix of activities on specific parts of the landscape designed to accomplish a particular emphasis or theme. Five alternatives for managing land and resources in the Tripod Fire Salvage project area are described, analyzed and compared.

ALTERNATIVE A – NO ACTION

Purpose and Design

The purpose of Alternative A is to allow current processes to continue within the Tripod Fire Salvage project area. No salvage harvest, reforestation or roadside danger tree removal would take place. No temporary road construction, road re-construction road opening, road closures or decommissioning would occur. There would be no change in the level of on-going management activities. Previously approved or ongoing activities such as fire protection, road maintenance, dispersed recreation, invasive species management and Burned Area Emergency Response (BAER) projects would continue as authorized.

DESCRIPTION OF ELEMENTS COMMON TO ALL ACTION ALTERNATIVES (B, C, D, E)

Salvage Harvest

The following areas would not be salvage harvested: areas with high soil damage, inventoried roadless areas, areas with undeveloped character, old-growth habitat as defined in the Forest Plan, Late and Old Structure (LOS) stands as defined in Okanogan National Forest Screen 2 Mapping Guidelines, recently regeneration-harvested areas, lynx habitat currently in suitable condition and PACFISH Riparian Habitat Conservation Areas (RHCA).

Salvage logging would focus on removing dead trees and fire-injured trees expected to die within one year of project implementation. Dead conifer trees and fire-injured trees expected to die within one year of project implementation that are from 10 inches diameter at breast height (DBH) up to and including 28 inches DBH would be commercially harvested (except Alternative E which would not salvage harvest any tree greater than or equal to 21" DBH). Only dead conifer trees and fire-injured trees expected to die within one year of project implementation that are from 12 inches DBH up to and including 28 inches DBH would be commercially harvested within lynx habitat currently in unsuitable condition (as defined in the *Canada Lynx Conservation Assessment and Strategy* (Ruediger et al. 2000) (LCAS). Salvage harvest units (CE01, CE02, CE03, CE08, CE11, GA01, GA07) that were a part of the East Tripod Categorical Exclusion (USDA Forest Service 2007c) would harvest dead trees and fire-injured trees expected to die within one year of implementation, that are from 10 inches DBH up to and including 18 inches DBH. Approximately ten percent by area of dead trees and trees expected to die within these diameter classes would be retained. In

some places, larger leave islands of burned forest would be left to avoid creating large areas without snags. Dead trees and trees expected to die below the lower diameter limits and greater than 28 inches DBH (greater than or equal to 21 inches DBH in Alternative E) would be retained throughout harvest units. Large live and dead retained trees would provide legacy structures.

Criteria Common to Salvage Harvest Areas:

Retain all snags less than 10 inches DBH in all harvest units

Retain all snags less than 12 inches DBH in harvest units located in lynx habitat currently in an unsuitable condition. Refer to Appendix 2 for a list of harvest units located in lynx habitat currently in an unsuitable condition

Retain all snags greater than 28 inches DBH in all harvest units (except greater than or equal to 21" DBH in Alternative E)

Retain all snags greater than 18 inches DBH in harvest units CE01, CE02, CE03, CE08, GA01, and GA07

Retain ten percent of the area within each harvest unit in an unharvested condition by identifying small retention islands surrounding favorable burned wildlife trees 10-28" DBH
Retain 40 acres of unharvested forest habitat (including standing and down trees) that is representative of post-fire conditions in all 100 acre neighborhoods within and adjacent to harvest units. Neighborhoods are a roving or moving area of 100 acres within which, the 40% retention criteria would be applied

Retain 6 acres of unharvested forest habitat (including standing and down trees) that is representative of post-fire conditions in all 20 acre neighborhoods within and adjacent to harvest units located in montane forest habitat. Refer to Appendix B for a list of harvest units located in montane forest habitat

Retain all fire injured trees that do not meet the description of a dead tree and have a moderate or high probability of surviving

Retain all down wood as of project implementation

Dead trees that existed before the Tripod Fire typically burned with higher intensity, sustained higher damage, and are not targeted for salvage harvest

Roadside Danger Tree Removal

Roadside danger trees would be felled along 47 miles of open (Maintenance Level 2 and above) roads within the project area to improve safety for road users (Danger Tree Falling Roads Map, Appendix A). Danger trees located within Riparian Habitat Conservation Areas (RHCA) would be cut and left in place to provide additional coarse woody debris.

Road Management

No new permanent system roads or access routes would be constructed. Although road densities would increase during implementation, there would be no long-term increase in open road density resulting from the salvage harvest. Generally, roads that were open before the Tripod Fire would remain open and roads that were closed before the fire would be closed.

Other Actions

All of the action alternatives would be implemented through timber sale contracts and associated Sale Area Improvement, brush disposal and erosion control plans. Salvage harvest would begin in 2007 and could continue through 2009.

Forest Plan Amendments

Implementation of all action alternatives includes the following site-specific amendments of the Forest Plan.

- 1) Allow salvage harvest of those fire-injured trees greater than or equal to 21 inches diameter at breast height (DBH), with a low probability of survival within one year of project implementation. These trees are currently alive, but are expected to die from fire related effects. Currently, Amendment #2 (Eastside Screens) directs maintenance of live trees greater than or equal to 21"DBH within stands subject to timber harvest.
- 2) Allow snowplowing and motorized use of designated, groomed snowmobile routes to facilitate winter salvage activities. Currently Forest Plan Forest-wide Standard and Guideline 17-6 identifies roads that should not be snowplowed and should be closed to motorized wheel traffic from December 1 to April 1.
- 3) Allow timber salvage operations to take place in MA-26 deer winter range from December through March, in order to facilitate the recovery of deteriorating timber. Most of the deer winter range affected is currently not effective habitat as it was burned by the Tripod Fire.
- 4) Allow timber salvage operations to occur in Management Area 12 from December through March, in order to facilitate the recovery of deteriorating timber. MA-12 has a management emphasis of providing habitat to support a stable lynx population while accessing the area for growing and producing merchantable wood fiber. Most of the habitat affected is currently in an unsuitable condition for lynx.

ALTERNATIVE B – PROPOSED ACTION

Purpose and Design

Alternative B is the alternative that the Forest Service proposed at the beginning of the NEPA process to respond to the agency's purpose of and need for action. It was designed to maximize recovery of dead and fire injured trees expected to die within one year of project implementation that have positive net value. The volume recovered is part of the sustainable supply of sawtimber to local and regional economies. It provides for regeneration of harvest units. Public safety is improved by removal of danger trees along open road corridors.

Description

Salvage Harvest

An estimated 2,748 acres would be commercially salvage harvested, with an estimated recovery of 17.9 million board feet (MMBF) of wood fiber. Only dead trees and fire-injured trees expected to die within one year of project implementation would be considered for harvest.

Ground-based harvesting would occur on approximately 2,156 acres with current road access and a sustained slope of 35% or less. Skyline logging would occur on approximately 591 acres in areas with road access and a sustained slope greater than 35 percent and in areas with slopes of 35 percent or less where terrain and road location require the use of cable logging systems.

Reforestation

Native tree seedlings would be planted on approximately 1,659 acres within salvage harvest units that have insufficient residual seed source to ensure adequate and timely regeneration of conifer species. Approximately 1,089 acres within salvage units are expected to regenerate naturally. Natural regeneration would re-establish forest stands in areas where there is a residual seed source that is sufficient to ensure adequate regeneration of conifer species within five years of salvage harvest.

Activity Fuels Treatment

In the approximately 2,156 acres harvested with ground-based methods, fuels would remain on-site if trees were felled by hand, or would be removed to landings if a feller-buncher was used. Fuels brought to landings would be concentrated into piles for later burning. In the approximately 591 acres of skyline logging harvest, fuels would remain on-site.

Road Management

Approximately 155 miles of open forest transportation system roads would be used for access to salvage units and for timber haul. Approximately 23 miles of closed system road would be opened for use and closed following harvest operations. There are about 7 miles of currently open road that would be used and closed, implementing a past decision from the South Twentymile EA. All other system roads would remain open.

There are approximately 3 miles of previously decommissioned or unauthorized roads that would be used as access spurs to salvage units. These roads would be decommissioned following harvest operations. An additional 3 miles of unauthorized roads were identified as having utility for management in the future. These roads would be re-opened, classified as a system road and closed following harvest operations.

Temporary roads would be constructed to access landing sites and allow landings to be less visible from roadways. Most individual temporary road segments would not exceed 500 feet in length. Total new temporary road length would be less than 3 miles. Temporary roads

constructed during the project would be decommissioned and returned to productive ground following salvage harvest operations.

ALTERNATIVE C

Purpose and Design

This alternative responds to the key issue of reducing disturbances to lynx habitat. No salvage harvest would occur within lynx habitat, including habitat currently in unsuitable condition, as defined in the LCAS. Alternative C also meets the primary purpose and need of economic recovery and design described in Alternative B above.

Description

Salvage Harvest

An estimated 2,247 acres would be commercially salvage harvested, with an estimated recovery of 14.0 million board feet (MMBF) of wood fiber. Only dead trees and fire-injured trees expected to die within one year of project implementation would be considered for harvest.

Ground-based harvesting would occur on approximately 1,896 acres with current road access and a sustained slope of 35% or less. Skyline logging systems would occur on approximately 351 acres in areas where road systems are in place and a sustained slope greater than 35 percent and in areas with slopes of 35 percent or less where terrain and road location require the use of cable logging systems.

Reforestation

Native tree seedlings would be planted on approximately 1,533 acres within salvage harvest units that sustained high levels of tree mortality (generally 70 percent or greater of the overstory trees) and have insufficient residual seed source to ensure adequate and timely regeneration of conifer species. Approximately 714 acres within salvage units are expected to regenerate naturally. Natural regeneration would re-establish forest stands in areas where there is a residual seed source that is sufficient to ensure adequate regeneration of conifer species within five years of salvage harvest.

Activity Fuels Treatment

In the approximately 1,896 acres harvested with ground-based methods, fuels would remain on-site if trees were felled by hand, or would be removed to landings if a feller-buncher was used. Fuels brought to landings would be piled for later burning. In the approximately 351 acres of skyline harvest, fuels would remain on-site.

Road Management

Approximately 123 miles of open system roads would be used for access to salvage units and for timber haul. Approximately 13 miles of closed system road would be opened for use

and closed following harvest operations. There are about 5 miles of currently open road that would be used and closed, implementing a past decision from the South Twentymile EA. All other system roads would remain open.

There are approximately 3 miles of previously decommissioned or unauthorized roads that would be used as access spurs to salvage units. These roads would be decommissioned following harvest operations. An additional 3 miles of unauthorized roads were identified as having utility for management in the future. These roads would be re-opened, classified as a system road and closed following harvest operations.

Temporary roads would be constructed to access landing sites and allow landings to be less visible from roadways. Most individual temporary road segments would not exceed 500 feet in length. Total new temporary road length would be approximately two miles. Temporary roads constructed during the project would be decommissioned and returned to productive ground following salvage harvest operations.

ALTERNATIVE D

Purpose and Design

Alternative D addresses the key issue of economics by providing increased amount of salvage timber that would be available to local and regional economies. However this additional timber includes salvage units with a higher logging cost or lower sawtimber value with a negative net value.

Description

Salvage Harvest

An estimated 3,404 acres would be commercially salvage harvested, with an estimated recovery of 24.0 million board feet (MMBF) of wood fiber. Only dead and fire-injured trees expected to die within one year of implementation would be considered for harvest.

Ground-based harvesting would occur on approximately 2,156 acres with current road access and a sustained slope of 35% or less. Skyline logging systems would occur on approximately 716 acres in areas where road systems are generally in place and a sustained slope greater than 35 percent and in areas with slopes of 35 percent or less where terrain and road location require the use of cable logging systems. Helicopter logging would occur on approximately 532 acres in areas where other logging systems are not feasible.

Reforestation

Native tree seedlings would be planted on approximately 1,930 acres within salvage harvest units that have insufficient residual seed source to ensure adequate and timely regeneration of conifer species. Approximately 1,474 acres within salvage units are expected to regenerate naturally. Natural regeneration would re-establish forest stands in areas where

there is a residual seed source that is sufficient to ensure adequate regeneration of conifer species within five years of salvage harvest.

Activity Fuels Treatment

In the approximately 2,156 acres harvested with ground-based methods, fuels would remain on-site if trees were felled by hand, or would be removed to landings if a feller-buncher was used. Fuels brought to landings would be piled for later burning. In the approximately 716 acres of skyline harvest, fuels would remain on-site. In the approximately 532 acres of helicopter harvest, fuels would remain on-site.

Road Management

Approximately 156 miles of open system roads would be used for access to salvage units and for timber haul. Approximately 24 miles of closed system road would be opened for use and closed following harvest operations. There are about 7 miles of currently open road that would be used and closed, implementing a past decision from the South Twentymile EA. All other system roads would remain open.

There are approximately 3 miles of previously decommissioned or unauthorized roads that would be used as access spurs to salvage units. These roads would be decommissioned following harvest operations. An additional 3 miles of unauthorized roads were identified as having utility for management in the future. These roads would be re-opened, classified as a system road and closed following harvest operations.

Temporary roads would be constructed to access landing sites and allow landings to be less visible from roadways. Most individual temporary road segments would not exceed 500 feet in length. Total new temporary road length would be less than 3 miles. Temporary roads constructed during the project would be decommissioned and returned to productive ground following salvage harvest operations.

ALTERNATIVE E

Purpose and Design

Alternative E responds to the key issue of salvage harvesting dead and fire injured trees expected to die within one year of project implementation greater than or equal to 21" DBH. It is similar in many respects to Alternative B in that it proposes to salvage harvest the same units, reforest the same units, treat activity fuels in a similar manner and utilize the same road systems. However, it would not salvage harvest any live trees, dead trees or fire injured trees expected to die within one year of project implementation that are greater than or equal to 21" DBH.

Description

Salvage Harvest

An estimated 2,748 acres would be commercially salvage harvested, with an estimated recovery of 14.4 million board feet (MMBF) of wood fiber. Only dead trees and fire-injured trees expected to die within one year of project implementation less than 21" DBH would be considered for harvest.

Ground-based harvesting would occur on approximately 2,156 acres with current road access and a sustained slope of 35% or less. Skyline logging would occur on approximately 591 acres in areas with road access and a sustained slope greater than 35 percent and in areas with slopes of 35 percent or less where terrain and road location require the use of cable logging systems.

Reforestation

Native tree seedlings would be planted on approximately 1,659 acres within salvage harvest units that have insufficient residual seed source to ensure adequate and timely regeneration of conifer species. Approximately 1,089 acres within salvage units are expected to regenerate naturally. Natural regeneration would re-establish forest stands in areas where there is a residual seed source that is sufficient to ensure adequate regeneration of conifer species within five years of salvage harvest.

Activity Fuels Treatment

In the approximately 2,156 acres harvested with ground-based methods, fuels would remain on-site if trees were felled by hand, or would be removed to landings if a feller-buncher was used. Fuels brought to landings would be concentrated into piles for later burning. In the approximately 591 acres of skyline logging harvest, fuels would remain on-site.

Road Management

Approximately 155 miles of open system roads would be used for access to salvage units and for timber haul. Approximately 23 miles of closed system road would be opened for use and closed following harvest operations. There are about 7 miles of currently open road that would be used and closed, implementing a past decision from the South Twentymile EA. All other system roads would remain open.

There are approximately 3 miles of previously decommissioned or unauthorized roads that would be used as access spurs to salvage units. These roads would be decommissioned following harvest operations. An additional 3 miles of unauthorized roads were identified as having utility for management in the future. These roads would be re-opened, classified as a system road and closed following harvest operations.

Temporary roads would be constructed to access landing sites and allow landings to be less visible from roadways. Most individual temporary road segments would not exceed 500 feet in length. Total new temporary road length would be less than 3 miles. Temporary roads

constructed during the project would be decommissioned and returned to productive ground following salvage harvest operations.

Environmental Consequences

Comparison of Alternatives

This section provides a side-by-side description of each alternative (Figure 2-2) and a summary of how each alternative responds to the Purpose and Need and each Key Issue (Figure 2-3). See Chapter 1 for background on the issues and Chapter 3 for a complete description of the effects and for the scientific basis for results in the summary table.

Figure S-1: Comparison of Alternative Activities

Activities	Unit of Measure	Alternatives				
		A (No Action)	B	C	D	E
Harvest						
Timber Salvage	Acres	0	2,748	2,247	3,404	2,748
Timber Salvage Volume	MMBF	0	17.9	14.0	24.0	14.4
Harvest Method						
Skyline	Acres	0	591	351	716	591
Helicopter	Acres	0	0	0	532	0
Ground Based	Acres	0	2,156	1,896	2,156	2,156
Roads						
Open system roads to be used	Miles	0	155.4	123.0	155.5	155.4
Temporary road construction	Miles	0	3.0	2.0	3.0	3.0
Closed system roads to re-open	Miles	0	22.7	13.4	23.7	22.7
Unauthorized roads to re-open	Miles	0	6.7	6.6	6.7	6.7
Open roads where danger trees would be felled and/or removed	Miles	0	47.0	47.0	47.0	47.0
Post Harvest Treatment						
Soil Active Restoration	Acres	0	129.5	116.5	129.5	129.5
Reforestation	Acres	0	1,659	1,533	1,930	1,659
Burn Landing Piles	Acres	0	122	135	143	122

Figure S-2: Comparisons of Alternatives by Purpose and Need and by Issues`

Purpose & Need and Issues	Unit of Measure	Alternatives				
		A	B	C	D	E
Purpose and Need						
Recover a portion of the dead trees and fire injured trees expected to die within one year while they have economic value	MMBF	0	17.9	14.0	24.0	14.4
	Total Value (\$)	0	533,000	446,000	-310,000	346,000
Improve safety within the fire area by reducing hazards associated with dead trees along roads open to the public by cutting &/or removing these trees.	Miles of Road where Danger Trees would be Felled	0	47	47	47	47
Re-establish trees in salvage harvest units where there is insufficient residual tree source.	Acres of reforestation	0	1659	1,533	1,930	1,659
Key Issues						
Economic Recovery						
Resource Recovery	Timber Salvaged (MMBF)	0	17.9	14.0	24.0	14.4
	Acres Salvaged	0	2,748	2,247	3,404	2,748
Economic Value	Tractor Log (acres)	0	2,156	1,896	2,156	2,156
	Skyline Log (acres)	0	591	351	716	591
	Heli Log (acres)	0	0	0	532	0
	Total Value \$	0	533,000	446,000	-310,000	346,000
Lynx						
Effect on Lynx Habitat	Capable	0	413	0	929	413

Purpose & Need and Issues	Unit of Measure	Alternatives				
		A	B	C	D	E
	Habitat Salvaged (acres)					
	Length of temporary road remaining open in lynx habitat	0	0	0	0	0
Salvage of Trees ≥ 21" DBH						
	Salvage units where all trees ≥ 21" DBH would be retained (acres)	NA	0	0	0	2,748
	Dead and high probability of dying trees ≥ 21" DBH per acre retained in salvage units	2.2	0.2	0.2	0.2	2.2
	Green and low to moderate probability	0.3-1.0	0.3-1.0	0.3-1.0	0.3-1.0	0.3-1.0

Purpose & Need and Issues	Unit of Measure	Alternatives				
		A	B	C	D	E
	of dying trees ≥ 21" DBH per acre retained in salvage units					
Other Issues						
Fisheries and Hydrology						
RHCAs	Protected (Yes/No)	Yes	Yes	Yes	Yes	Yes
Temperature	Qualitative	Natural increase from fires	No change from A			
Large Wood	Qualitative	Natural increase from fires	No change from A			
Water Yield	Qualitative	Natural increase from fires	Minor increase from A, not measurable with confidence	Minor increase from A, not measurable with confidence	Minor increase from A, not measurable with confidence	Minor increase from A, not measurable with confidence
Sediment	Tons above increase from fires (1 st year)	Natural increase from fires – 346,848	4,250	3,610	4,248	4,250
Soils						
Net increase in detrimentally disturbed soils	Acres	0	93	60.5	125	93

Purpose & Need and Issues	Unit of Measure	Alternatives				
		A	B	C	D	E
Salvage Harvest in areas susceptible to soil movement (ground based and skyline yarding)	Acres	0	1,832	1,270	1,951	1,832
Wildlife/Burned Forest (BF) Habitat						
Within harvest units: BF retained	Minimum % area retained	100	10	30	10	10
Within 100-acre neighborhoods: BF retained	Minimum % stand replacing burn retained (Figures 3.2-28 to 30)	100	75	68	66	75
Within three 5 th order watersheds: BF Harvested	acres (%) harvested by habitat type (Figure 3.2-19)	0	Dry 578 (11) M.C.1352 (7) Mont. 807(1)	Dry 578 (11) M.C.1314 (7) Mont. 0 (0)	Dry 626 (11) M.C.1465 (8) Mont. 1301(2)	Dry 578 (11) MC 1352 (7) Mont 807 (1)
Forest Vegetation						
Vegetation type to be salvaged compared to total vegetation type in Fire Area	Dry forest (ac/%) Mix conifer (ac/%) Montane (ac/%)	0/0 0/0 0/0	580 / 14 1510 / 13 658 / 3	580 / 14 1,359 / 12 308 / 1	629 / 15 1,805 / 16 970 / 4	580/14 1510/13 658/3
Reforestation (planting)	Acres planted	0	1,659	1,533	1,930	1,659
	Acres natural	0	1,089	714	1,474	

Purpose & Need and Issues	Unit of Measure	Alternatives				
		A	B	C	D	E
	regeneration					1,089
	% soil disturbance in natural regeneration units	0	12	12	11	12
Plant Communities						
Ground based (GB) and skyline logging in areas of high burn severity	GB Acres Skyline acres	0 0	151 207	19 53	151 193	151 207
Invasive Plants						
Closed system roads to be re-opened, then closed	Miles	0	22.7	13.4	23.7	22.7
Temporary road construction	Miles	0	3.0	2.0	3.0	3.0
Detrimental soil disturbance caused by logging system:						
Ground-based	Acres	0	323	284	323	323
Skyline	Acres	0	18	11	21	18
Helicopter	Acres	0	0	0	0	0
Current weed infestation in salvage units	Acres	0	112	108	119	112
High burn severity in salvage units by logging system:						
Ground-based	Acres	0	144	93	144	144
Skyline	Acres	0	178	53	181	178
Helicopter	Acres	0	0	0	139	0
Moderate burn severity in salvage units by logging system:						
Ground-based	Acres	0	813	697	813	
Skyline	Acres	0	330	247	387	
Helicopter	Acres	0	0	0	216	813

Purpose & Need and Issues	Unit of Measure	Alternatives				
		A	B	C	D	E
Skyline Helicopter						330 0
Recreation						
Potential public access restrictions	Acres	0	2,748	2,247	3,404	2,748
Log haul past rec. residences:						
Brevicomis tract	Truck trips	0	55	52	110	55
N. Salmon tract	Truck trips	0	45	0	54	45
Danger tree falling on open roads	Miles	0	47.2	47.2	47.2	47.2
Possible groomed snowmobile route restrictions	Miles	0	32.5	22.0	32.5	32.5
Inventoried Roadless Areas and Areas with Undeveloped Character						
Salvage Harvest Units	Acres	0	0	0	0	0
Fuels						
Coarse woody fuel loadings in 2037:						
Dry Forest	Tons/acre	6-26	6-11	6-11	6-11	8-20
Mixed Conifer	Tons/acre	9-31	6-11	6-11	6-11	6-20
Montane Forest	Tons/acre	12-38	7-17	7-17	7-17	7-26
Changes in resistance to control (RTC) compared to No Action, by year:						
2012 Low RTC	Percent	0	3	3	3	3
2012 High RTC	Percent	0	4	3	6	4
2022 Low RTC	Percent	0	3	3	3	3
2022 Mod. RTC	Percent	0	4	3	6	0
2022 High RTC	Percent	0	0	0	0	4
2037 Low RTC	Percent	0	7	6	9	3
2037 Mod. RTC	Percent	0	0	0	0	4

Purpose & Need and Issues	Unit of Measure	Alternatives				
		A	B	C	D	E
Air Quality						
Landing piles to be burned	No. Piles	0	122	135	143	122
Total particulate emissions:						
PM 10	Tons	0	61	68	72	59
PM 2.5	Tons	0	53	58	62	51
Transportation						
Roads to be used for salvage operations	Miles	0	187.8	145.0	188.9	187.8
Open road miles that would be closed post-project (previous NEPA decision)	Miles	0	7.0	4.9	7.0	7.0
Currently closed roads that would be open post-project	Miles	0	0	0	0	0
Sensitive Plants						
Sensitive plants within salvage harvest units	No. Plants	0	0	0	0	0
Range						
Salvage harvest units within pasture	Acres	0	2,707	2,206	3,263	2,707
Detrimental soil disturbance in grazing allotments	Acres	0	341	295	344	341
Capable/suitable rangeland within salvage harvest units	Acres	0	1,432	1,628	1,904	1,432
Natural livestock drift barriers modified by salvage operations	Miles	0	1.0	0.7	1.0	1.0
Salvage harvest units within ¼ mile of perennial RHCAs	Acres	0	860	735	918	918
Scenic Viewsheds & Landscape Character						
Skyline and ground-based salvage harvest units within the	Acres	0	223	130	223	223

Purpose & Need and Issues	Unit of Measure	Alternatives				
		A	B	C	D	E
foreground visible from given viewsheds and viewpoints						
Skyline and ground-based salvage harvest units within the middleground visible from given viewsheds and viewpoints	Acres	0	384	384	384	384
Heritage Resources						
Heritage sites located w/in units	Known sites	0	0	0	0	0

Preferred Alternative

The Preferred Alternative is Alternative B.

