CHAPTER 2

Alternatives

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Alternatives

INTRODUCTION

Information in Chapter 2 describes tribal and public involvement, issues identified, and alternatives selected to be developed in detail. Four alternatives were selected to be developed in detail along with a listing of design features and monitoring elements associated with the alternatives. Maps showing activity areas described in action alternatives are located in Appendix A. Also explained in this chapter are reasons why some alternatives were considered, but not analyzed in detail. This chapter ends with a comparative synopsis of environmental consequences which are described in more detail in Chapter 3 of this document.

TRIBAL AND PUBLIC INVOLVEMENT

The scoping process required by NEPA (40 CFR 1501.7) is to have an early and open process for determining the scope of issues to be addressed and for identifying significant issues related to a proposed action was followed. Umatilla Forest invited participation from Federal and State agencies, local tribes, environmental groups, and individuals interested in or affected by the proposed action.

Public involvement for this project began when a description of the project was listed in the 2008 Fall quarterly edition of the Umatilla National Forest's Schedule of Proposed Actions (SOPA). On March 2, 2009, letters describing the project were sent to representatives of the Confederated Tribes of the Umatilla Indian Reservation (CTUIR) and Nez Perce Tribe, and to approximately 180 interested individuals, organizations, and other agencies that have indicated an interest in this type of project. The public was invited to comment on this proposed action and any potential conflicts posed by this proposed action. A Notice of Intent (NOI) to prepare an environmental impact statement was published in the Federal Register on March 9, 2009. The NOI also includes a statement requesting that persons with an interest in this project submit comments.

ISSUE IDENTIFICATION

Nine responses were received from public scoping. Of the nine responses, three were from individuals, two from organizations, two from timber industry, one from Washington Department of Fish and Wildlife (WDFW), and one from the Environmental Protection Agency (EPA).

All responses were reviewed. Comments received were used to identify potential issues, alternatives to the proposed action, and to determine the extent of environmental analysis necessary for making an informed decision. A table of scoping input and issues identified is located in the project file at the

Pomeroy District office. Any issues raised during the public scoping process were considered and analyzed in this document.

The project's interdisciplinary (ID) team identified potential cause and effect relationships associated with each type of proposed activity that could result in conflicts. A summary comparison of effects by alternative to issues is presented at the end of this chapter with more detailed discussion of environmental effects in Chapter 3 of this document. The ID team recommended, and the responsible official approved, the issue topics listed below for detailed study.

Issues Recommended for Alternative Development

Relevant issues are defined as "unresolved conflicts between alternative uses of available resources [NEPA § 102 (2) (E)]. Issues that could best be addressed by developing an alternative or introducing mitigation or monitoring were identified and categorized as Key Issues. Two issues were considered to be Key Issues.

Key Issue 1 was developed to address comments and or concerns about the amount of old forest habitat in the project planning area. The majority of acres in South George project planning area are in management areas C3-Big Game Winter Range (1,200 acres), C3A-Sensitive Big Game Winter Range (2,300 acres), and C4-Wildlife Habitat (15,200 acres).

Key Issue 2 was developed to address comments requesting a reduction of the number of miles of system roads and in response to concerns about unauthorized trails currently in the project planning area, as well as implementing a longer seasonal closure to motorized use in the Hogback area.

- **Key Issue 1 - Old Forest Habitat –**Past timber harvest, other management actions, and insect/disease epidemics have reduced the amount and connectivity of old forest stands in the proposed project planning area. Proposed harvest and fuels reduction treatments would have the potential to change forest stand structure and composition over a large area. This may have positive effects for some wildlife species and negative effects for others.

  Differences in alternatives would be displayed by:
  - Acres of old forest affected by proposed activities
  - Acres of old forest connective corridors affected by proposed activities
  - Acres where trees $\geq$ 21 inches DBH may be removed
  - Acres converted to old forest stand structure

- **Key Issue 2 - Access Management (reduction in transportation system) –**A number of respondents were concerned with the proposal of temporary road construction for project activities. Respondents requested that no temporary road construction occur and that additional system roads and unauthorized trails be considered for decommissioning. There was also a request for an extension to the seasonal closure in the Hogback area to offer additional protection for wildlife.

  Differences in alternatives would be displayed by:
  - Miles of temporary road construction
  - Miles of system road decommissioning
  - Miles of non-system road and unauthorized trail decommissioning
  - Extension of seasonal closure – Forest Road 4302 - Hogback

Other Issues

These are issues that were not considered Key Issues, but would have a cause and effect relationship with proposed activities. These other issues will be tracked in this chapter and Chapter 3 of this document. These issues are generally of high interest or concern to the public and are necessary to understand and compare environmental effects by alternative.

- **Soil Resources** – Soil disturbance would occur with implementation of proposed activities that require ground based equipment, especially where mechanical fuels treatment follows mechanical thinning. Ground based activities could affect soil productivity by compacting soils and possibly cause erosion.

  Differences in alternatives would be displayed by:
  - Detrimental soil disturbance in harvest units (acres)
  - Detrimental soil disturbance in non-commercial thinning units (acres)
  - Temporary road construction (acres)
  - Roads and Trails Rehabilitated (acres)
  - Effective ground cover (Forest Plan standards)

- **Hydrology/Water Quality –** Implementation of proposed activities has the potential to affect hydrologic function, water quality, and water yield. These effects could occur due to changes in road systems and ground disturbance associated with timber harvest, temporary road construction, road use, prescribed burning, and reductions in live tree cover associated with harvest and prescribed fire use.

  Differences in alternatives would be displayed by:
  - Road density (open and closed) by subwatershed (miles/square mile)
  - Number of stream crossings
  - Water temperature
  - Sediment
  - Equivalent Treatment Acre Model (percentage by subwatershed)

- **Aquatic - Threatened, Endangered and Sensitive (TES) and Management Indicator Species (MIS) -** Proposed and related activities of timber harvest and fuel treatments have the potential to affect aquatic TES species and habitat and MIS species and habitat.

  Differences in alternatives would be displayed by:
  - Biological Determinations

- **Vegetation –** Findings in Appendix A of the Silviculture Specialist Report (project file) shows that existing vegetation conditions are outside of their historical ranges of variability (HRV) for species composition, forest structure, and tree density for South George project planning area. Silvicultural activities proposed for implementation in any action alternative are designed to address HRV issues, particularly for species composition, forest structure, and tree density. Insect susceptibility and climate change are also addressed in this section.

  Differences in alternatives would be displayed by:
  - Forest Species Composition – changes relative to HRV
  - Forest Structural Stages – changes relative to HRV
  - Forest Tree Density – changes relative to HRV

- **Fuels - Fire Return Intervals and Crown Fire Potential –** Concerns have been expressed by the public during scoping on how fuel management should occur and at what levels. South George project planning area is outside historical fire return intervals and could experience higher levels of risk to loss from uncharacteristic wildfire intensity. It is currently experiencing Condition Class[1] changes that are resulting in moving the area further away from historical ranges. Some opponents believe that fuel reduction should proceed cautiously while moving toward ecosystem sustainability. They also believe that fuel objectives can be met by allowing natural fire regimes to operate, or by leaving significant areas untreated when fuel reduction projects are planned.

  Differences in alternatives would be displayed by:
  - Condition Classes – acres and percentages
  - Crown fire potential – acres

- **Air Quality** – Fuel treatment activities and prescribed fire could temporarily decrease air quality in sites down wind of the project area and could temporarily place smoke in mandatory Class I areas.

  Differences in alternatives would be displayed by:
  - Particulate emissions $PM_{2.5}$

- **Invasive Plant Species and Threatened, Endangered and Sensitive (TES) Plant Species –** Timber harvest and related activities disturb soil and have the potential to affect any existing TES plants and habitat. Disturbed soil provides an ideal opportunity for weed seed to germinate. Vehicles, people, and animals transport noxious weed seed that could become established.

  Differences in alternatives would be displayed by:
  - Invasive Plants - Potential for new infestations (acres of harvest and miles of haul routes)
  - TES Plan Species -Biological Determinations

- **Wildlife Habitat - Threatened, Endangered and Sensitive (TES) Terrestrial Species, Management Indicator Species (MIS), Landbirds, and Dead Wood –** Proposed project activities (timber harvest, fuels treatments, landscape prescribed fire, etc.) could affect several habitat types, including management indicator species to represent animals associated with major habitat types, in the project planning area. Environmental effects can be positive for some species and negative for others.

  Differences in alternatives would be displayed by:
  - Biological Determinations
  - Acres of habitat by species
  - Snag habitat

- **Range –** Three pastures of the Asotin Cattle &Horse (C&H) Allotment are within the project planning area. Project activities such as timber harvest, activity fuels treatments, and landscape prescribed fire have the potential to affect pasture rotations, transitory forage, or compromise the integrity of range improvements necessary for management of rangeland resources.

  Differences in alternatives would be displayed by:
  - Livestock distribution (increases or decreases)

[1] **Fire Regime Condition Class** describes the deviation from natural fire regimes in terms of fire return interval and vegetative changes from historical composition and density (Hann and Bunnell, 2001).

- **Visuals/Scenery–** Scenery provides the setting for all activities experienced by forest visitors. Activities that include timber harvest and prescribed fire may affect current and future conditions of scenic resources. Effects may be short-term or long-term.

  Differences in alternatives would be displayed by:
  - Visual Quality Objectives (Forest Plan)

- **Recreation** –A wide variety of recreational activities occur in the project planning area including, developed camping, dispersed camping, and recreational rental cabins. Campsites are most used during hunting seasons. Cloverland Sno-Park is used during the winter season for snowmobiles. Proposed project activities such as timber felling, yarding, hauling road use restrictions, fuel treatments could affect public safety and recreation use, especially hunter camps, and access to forest roads during project activities.

  Differences in alternatives would be displayed by:
  - Developed and dispersed recreation (increases or decreases)
  - Travel access (increases or decreases)

- **Roadless Areas and Other Undeveloped Lands –** Concern has been expressed as to the effects to other undeveloped lands from implementation of proposed activities. In response to scoping, Oregon Wild requested (letter dated April 1, 2009) the Forest Service avoid timber harvest, roads, mining, development and motorized recreation in all unroaded areas larger than 1000 acres, roadless areas adjacent to existing wilderness, and all inventoried roadless areas for this project. They mention project activities in an area they entitled "South Fork Asotin Creek roadless area" and sent a map of this area. They wrote in their response that uninventoried roadless areas, while somewhat fragmented due to spur roads and surrounding management, are large in size and provide valuable natural resource attributes that must be protected. These include: water quality; healthy soils; fish and wildlife refugia; centers for dispersal, recolonization, and restoration of adjacent disturbed sites; reference sites for research; non-motorized, low-impact recreation; carbon sequestration; refugia that are relatively less at-risk from noxious weeds and other invasive non-native species, and many other significant values, and that the proposed commercial harvest and road building would compromise many of these values.

  Differences in alternatives would be displayed by:
  - Identification of Potential Wilderness Areas (PWAs) – number and acres
  - Physical and biological resources and social values – relative to Forest Plan and applicable laws
  - Changes in acres of other undeveloped lands

- **Economics –** The economic returns from commercially harvested wood and woody biomass products would affect local and regional economies. Economic benefits and the financial efficiency to be derived from the proposed harvest will be evaluated.

  Differences in alternatives would be displayed by:
  - Sale viability – value of wood fiber per one hundred cubic feet (ccf) above base rates
  - Benefit to local and regional economy – number of jobs

RANGE OF ALTERNATIVES

The phrase "range of alternatives" refers to the alternatives discussed in environmental documents. It includes all reasonable alternatives, which must be rigorously explored and objectively evaluated as well as those other alternatives, which are eliminated from detailed study with a brief discussion of the reasons for eliminating them [CFR 40.1502.14].

The alternatives for this project were designed to express a range of possible actions. The ID team developed the range of alternatives and mitigation measures (project design features) presented in this chapter, based on the Purpose and Need statement (Chapter 1, pp. 1-4 to 1-5) and Key Issues identified above, for this project.

Forest Plan goals and objectives, standards and guidelines, requirements under the Endangered Species Act and other Federal and State laws and regulations also influenced the development of alternatives.

The ID team recommended, and the responsible official approved, three action alternatives and a no action alternative based on the information above and public input.

ALTERNATIVES CONSIDERED IN DETAIL

Alternative A – No Action

PURPOSE AND DESIGN:

- No new management activities as proposed would occur.
- Current biological and physical processes would be allowed to continue along their present path along with associated risks and benefits and serve as a baseline for comparison with other alternatives.
- Responds to the requirement to consider a no action alternative (40 CFR §1502.14 (d)).

DESCRIPTION:

All activities identified in the proposed action would not occur in South George project planning area with implementation of this alternative. Commercial timber harvest, fuels treatments for activity and natural fuels, and landscape prescribed fire treatments, would not be authorized. There would be no temporary road construction, or treatment of fuels in RHCAs to reduce the chance of a crown fire.

Previously approved ongoing activities such as domestic cattle grazing, fire protection, firewood cutting, recreation, and road maintenance (including danger tree removal) would continue to occur.

This alternative would allow timber stands, identified at this time as needing treatment, to progress through natural successional processes at their own rate. Natural fuels would not be treated to reduce the risk of uncharacteristic wildfire intensity or allow for a safer environment for fire-fighting personnel during fire suppression.

Alternative B – Proposed Action (Preferred Alternative)

PURPOSE AND DESIGN:

Alternative B is the proposed action and preferred alternative. This is the same alternative used for scoping, except that acreages have been adjusted to reflect additional field reviews and updated GIS information. Treatments in Alternative B respond to elements identified in the Purpose and Need (Chapter 1, p. 1-4) and are designed to accomplish the following objectives:

- Modify dry and moist upland forests to a species composition and structure compatible with the historical range of variability. Thinning treatments are used to reduce forest density, modify species composition, and reduce insect and disease susceptibility by improving tree and stand vigor. Regeneration treatments are used to improve upland forest sites where early-seral species are no longer present in ecologically viable amounts.
- Reduce fuel loading (surface, ladder, and canopy fuels) to a level that facilitates future reintroduction of low-intensity surface fire, reduce ladder and ground fuels in natural fuel areas to lower the risk of fire spread into the upper canopy, and reduce fuels that would contribute to uncharacteristic wildfire intensity and resource damage.
- Provide sawlogs and wood fiber products for utilization by local and regional industry.
- Continue to provide and manage wildlife habitat and its components (cover, forage, and roads).
- Reduce risk of personal injury by removing danger trees along haul routes used for timber sale activities.

DESCRIPTION:

Timber Harvest and Fuels Treatments

Commercially harvest approximately 3,900 acres. Some treatment units may include the removal of sawlogs, small diameter trees (generally less than 7.0 inches diameter at breast height (DBH)) and excess down wood for use as woody biomass products. Harvest objectives would vary by stand condition and fire management objectives (see Appendix A for maps and Appendix B for a listing of units and treatments). Vegetation treatments would favor retention of early-seral species such as ponderosa pine and western larch.

A full range of silvicultural methods was considered to respond to the identified purpose and need for the project. Prescriptions selected were intermediate cutting and regeneration cutting. For the dry upland forest biophysical environment, both late-old structure (LOS) stages, old forest single story (OFSS) and old forest multi story(OFMS), are within HRV, so scenario B[2] from the Eastside Screens amendment to the Forest Plan would be followed for this biophysical environment. For the moist upland forest biophysical environment one of the late-old structure (LOS) stages is above HRV (old forest single story) and the other is below HRV (old forest multi story), so scenario A[3] from the Eastside Screens amendment to the Forest Plan would be followed for this biophysical environment. (See Appendix C of this

[2] **Scenario B** - If existing late or old structural (LOS) stage is within or above HRV, or if both types of LOS stages occur and both are within or above HRV, then timber harvest can occur within these stages as long as LOS conditions do not fall below HRV.

[3] **Scenario A** – If either one or both late and old structural stages fall below HRV in a particular biophysical environment within a watershed, then there should be no new loss of LOS from that biophysical environment. Timber sale harvest activities are not allowed to occur within LOS stages that are below HRV.

document for consistency of proposed silvicultural activities with the Eastside Screens Forest Plan amendment).

Since both LOS stages are within HRV in the dry biophysical environment, trees ≥ 21 inches DBH may be harvested. Trees ≥ 21 inches DBH in the moist forest biophysical environment would not be harvested. If necessary, danger trees ≥ 21 inches DBH in either dry or moist forest stands would be felled for safety concerns.

Following are descriptions of intermediate and regeneration silvicultural prescriptions:

Intermediate Cutting

Intermediate cutting includes non-regeneration silviculture treatments, which means that post-harvest stocking levels in treated areas would meet or exceed the minimum stocking objectives from the Forest Plan; tree planting would not be needed as a connected action after proposed harvest. Intermediate cutting is used to modify the growth, quality, vigor, composition, or structure of a forest stand after its establishment and prior to its final harvest (USDA Forest Service 2004).

For dry-forest sites, intermediate cutting would transform some of the over-represented Douglas-fir and grand fir cover types to the under-represented ponderosa pine cover type. For moist-forest sites, intermediate cutting would transform some of the over-represented grand fir and spruce-fir cover types to the under-represented Douglas-fir, western larch, broadleaved species, and lodgepole pine cover types. Intermediate cutting would reduce tree density (stocking) levels for high-density stands on dry-forest sites, thereby creating additional amounts of the under-represented low-density stand condition. For dry-forest sites, intermediate cutting would reduce forest canopy biomass levels for high-biomass stands, thereby creating additional amounts of the under-represented low-biomass condition. For moist-forest sites, intermediate cutting would reduce forest canopy biomass levels for high-biomass stands, thereby creating additional amounts of the under-represented low- and moderate-biomass conditions.

Intermediate cutting addresses high levels of existing insect susceptibility for defoliating insects and fir engraver by improving tree and stand vigor, and it contributes to a future composition and structure that is more resilient to insects, pathogens, and parasites.

Two types of intermediate cutting are proposed for this project in response to the purpose and need:

1. Improvement cutting would occur across a range of tree diameters to address primarily species composition or canopy fuel load issues, and
2. Low thinning would focus on removing smaller diameter trees in a stand to modify a multi-layer canopy condition (by removing ladder fuel), or to address over-stocking issues.

Improvement cutting and low thinning are grouped together because they are similar in treatments with the objective to modify existing stands rather than create new stands of regeneration, and either of these cutting methods would leave the same amount of residual tree density (stocking) for a particular biophysical environment.

Improvement cutting – 3,020 acres

This method is sometimes called free thinning. It is defined as removal of undesirable[4] trees in order to meet objectives related to species composition or vertical stand structure (Helms 1998). Trees of undesirable species or condition are removed from the upper canopy, often in conjunction with an understory thinning.

Improvement cutting is proposed for mixed-species stands where early-seral trees (ponderosa pine, western larch, lodgepole pine) still exist in ecologically viable amounts. These stands are successionally advanced and the existing stocking of late-seral species, primarily grand fir and interior Douglas-fir, typically exceeds that of the early-seral species. Improvement cutting is also proposed for areas with high amounts of canopy fuel load (canopy bulk density) because research showed it to be a more effective treatment than low thinning for disrupting canopy fuel continuity.

Low thinning – 80 acres

Low thinning is used to reduce tree density and emulate the ecological role of low-severity surface fire (Perera et al. 2004). Low thinning has been used to describe practices ranging from light removal of small understory trees to moderate removal of large overstory trees; in this proposed action, any reference to low thinning is assumed to be "understory thinning" or "thinning from below" because it involves cutting the smaller-diameter trees and retaining the larger-diameter trees (see Figure 2-1).

Low thinning creates an open, single-layered canopy structure that is amenable to reintroduction of low-severity surface fire, a natural thinning process. A high priority is to use low thinning with the frequent surface fire regime (FR 1) to make these areas more resistant to uncharacteristically severe wildfire by reducing surface and ladder fuels, and by raising canopy base height (Arno et al. 1995, Brown et al. 2004, Mutch et al. 1993, Pollet and Omi 2002, Scott 1998, Stephens 1998). Low thinning is also proposed for stands that are uncharacteristically dense (overstocked).

[4] **Undesirable trees** are those whose characteristics (species, composition, seral status, insect or disease susceptibility, crown conditions, etc.) prevent them from meeting the desired conditions, standards and guidelines, or other Forest Plan components pertaining to a particular geographic area.

See figure 2-1 below for an example of low thinning.

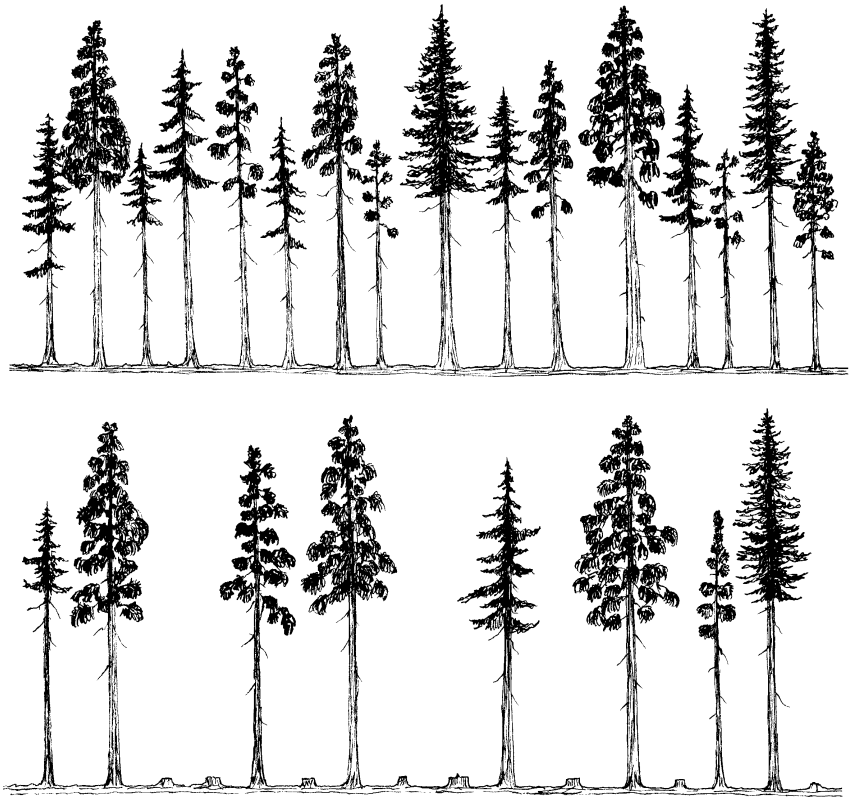

Figure 2-1 – Example of low thinning in a mixed-conifer forest. Low thinning is defined as the removal of trees from lower crown classes or canopy layers. Note how subordinate trees were always removed with one exception: several of the larger western larches were removed because of dwarf mistletoe infection.

Regeneration Cutting

Regeneration cutting is defined as tree removal to assist regeneration already present (e.g. existing seedling and saplings), or to make new regeneration possible (Helms 1998). Regeneration cutting is proposed for upland-forest sites where early-seral species (ponderosa pine, western larch, lodgepole pine) are no longer present in ecologically viable amounts. These stands are successionally advanced and tend to exhibit high levels of insect or disease incidence, and the existing stocking of mid-or later-seral species, primarily Englemann spruce, subablpine fir, grand fir or Douglas-fir – typically exceeds that of the early seral species.

For dry-forest sites, regeneration cutting would transform some of the over-represented Douglas-fir and grand fir forest cover types to the under-represented ponderosa pine cover type. For moist-forest sites, regeneration cutting would transform some of the over-represented grand fir forest cover type to the under-represented western larch or lodgepole pine cover types. For dry-forest sites, regeneration cutting would transform some of the over-represented understory reinitiation structural stage to the under-represented stand initiation structural stage. Regeneration cutting would address high levels of existing insect susceptibility for defoliating insects and fir engraver by removing existing host type for these insects and replacing it with forest cover types that do not function as host type for defoliators or fir engraver.

Two types of regeneration cutting are proposed for this project in response to the purpose and need:

1. Clearcutting with reserves which is defined as "the harvesting in one operation of all trees with the expectation that a new, even-aged stand will be established" (Burns 1989).

2. Seed-tree cutting with reserves resembles a "clearcut except for a few seed-producing trees selected to naturally regenerate the harvested area" (Burns 1989). This regeneration cutting method differs from shelterwood cutting in that the seed trees are usually too far apart to provide much site amelioration (shade or shelter).

Clearcutting with reserves and seed-tree cutting with reserves (see Figure 2-2) pertain to areas for which regeneration cutting was the primary recommendation, but only for those portions occurring outside riparian habitat conservation areas (RHCAs) and within Forest Plan management areas for which timber management activities are permissible.

Clearcutting with reserves – 250 acres

Clearcutting, with reserves, would be used for certain sites where the existing density of desirable trees is inadequate to meet the Forest Plan's minimum acceptable stocking standards (Table 2-1), and six or more desirable trees per acre are not available as seed trees. Reserve trees are retained for biodiversity purposes and as future snags, not as future seed producers for natural regeneration.

For South George project planning area, clearcutting with reserves would primarily be implemented as large-patch clearcutting because the majority of the treatment units would be larger than two acres.

Seed-tree cutting with reserves – 550 acres

Seed-tree cutting, with reserves, would be used for certain sites where the existing density of desirable trees is inadequate to meet the Forest Plan's minimum acceptable stocking standards (Table 2-1), but at least six desirable trees per acre are available as seed trees for future natural regeneration.

See figure 2-2 below for a representation of clearcutting with reserves and seed tree cutting with reserves.

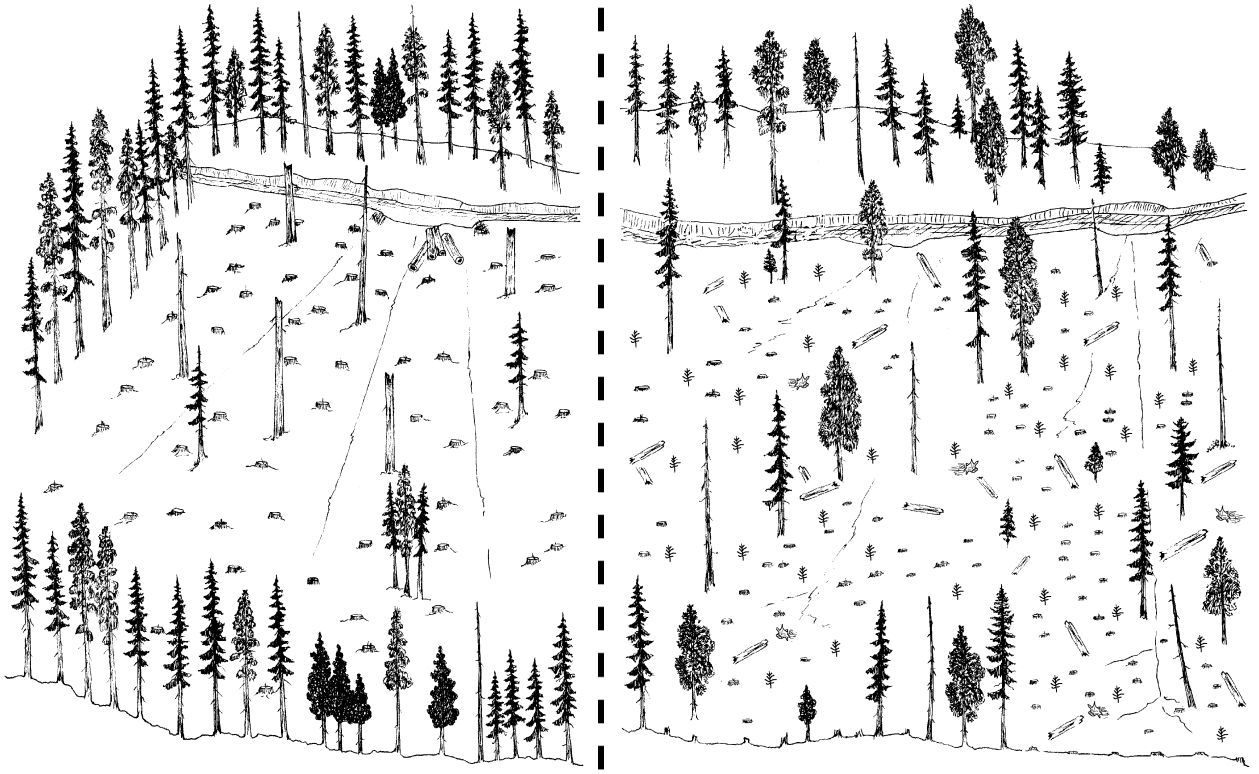

Figure 2-2 – Regeneration cutting methods for the South George planning area. Clearcutting with reserves (left) retains a few live trees and some dead wood. Note that reserve trees can be left in clumps or dispersed across the unit individually. Seed-tree cutting with reserves (right) leaves at least 6 residual seed trees per acre at the seed-cut stage, along with additional reserve trees being retained for non-regeneration objectives. Note that the seed-tree cutting method also includes a final-removal stage, when some of the seed trees could be removed, although a decision could be made to bypass the final removal and retain the seed trees as supplemental reserve trees.

Tree Planting in Regeneration Units

Tree planting is defined as "the establishment of trees by planting seedlings, transplants, or cuttings" (Dunster and Dunster 1996). Planting is proposed to augment tree stocking levels for currently understocked stands, and to help provide desired (future) forest conditions in openings created by the regeneration cutting proposed action described above.

The planting proposed action responds to two of the upland-forest issues identified in the purpose and need (species composition, and insect and disease susceptibility):

1. Planting helps restore early-seral tree species (ponderosa pine, western larch, lodgepole pine) and shrubs for both dry- and moist-forest sites by planting them. Note that an emphasis on early-seral species was included in the forest-wide standards and guidelines section of the Forest Plan (item C on page 4-73 in the Plan: "strong consideration should be given to maintenance of stands dominated by early successional species").
2. Planting helps create a future species composition that is less susceptible to insect outbreaks and disease epidemics by including species in the planting mix with high resistance to insect and disease impact.

The tree planting activity involves clearing (scalping) a small area with a hand tool, using a hand tool or powered soil auger to dig a small hole, placing a tree seedling in the hole, filling in the hole with soil while avoiding injury to the seedling roots, and then firming the soil around the seedling.

Created openings resulting from South George regeneration cutting, particularly those where natural regeneration might not be sufficient to meet requirements established by the National Forest Management Act of 1976 and its regulations (NFMA; 16 U.S. C. 1604), would be planted with tree seedlings to reestablish an ecologically appropriate mix of early-seral tree species, and to ensure that minimum stocking objectives from the Forest Plan are met within 5 years of final harvest, as required by 16 U.S.C. 1604 (E) (ii) .

Although not required by NFMA, shrub seedlings would also be planted when doing so would help meet the desired future conditions of an area. Planting helps restore shrub populations that have been reduced or lost altogether due to intense ungulate herbivory (Riggs et al. 2000), or because of overstory shading caused by uncharacteristically high tree density (Hedrick et al 1968).

Tree planting in regeneration units would meet the following minimum tree stocking guides listed in the table below.

Table 2-1 Minimum Tree Stocking Standards

Average Stand Diameter After Harvest (Inches)	Minimum Acceptable Stocking: Live Trees Per Acre
<5"	100-200[1]
6"	100
8"	80
10"	65
12"	45
14"	30
16"	25
18"	20
20"	15
21+"	12

[1] Stocking standards for small diameters (<5") are taken from the Forest Plan (item 3 on FP page 4-70) (USDA Forest Service 1990a): ponderosa pine and lodgepole pine working groups – 100 trees per acre; south associated working group – 150 trees per acre; and north associated working group – 200 trees per acre. Stocking standards for larger size classes (average stand diameters greater than 5") are adapted from Kline (1995).

Harvest Methods

Harvest methods would include conventional ground based logging (approximately 2,750 acres), skyline logging (approximately 850 acres), and helicopter logging (approximately 300 acres). Whole tree yarding[5] would occur in all harvest units.

Conventional ground based harvesting utilizes a tractor or skidder that would operate on designated trails with selected spacing criteria, and equipment would be required to remain on these designated trails. Skyline logging would occur in areas where topography is suited for this type of logging. In a skyline

[5] Whole tree yarding – Tops (with limbs) will be left attached to the last log and yarded to the landing

system, logs would be felled and are yarded up the hill by a system of cables, and logs would be either partially or fully suspended to reduce soil disturbance. Helicopter logging would occur in areas where other systems of logging are not suitable. Helicopter landings are larger than conventional ground based systems, but fewer landings are required than conventional ground-based systems. Both skyline and helicopter systems utilize hand felling.

Activity and Existing Natural Fuels Treatments

Fuel treatments are proposed to reduce activity generated and existing natural fuels in harvest units. They are also designed to reduce ladder and ground fuels in areas with natural fuels to lower the risk of fire spreading into the upper tree canopy, and in areas where fuels would contribute to uncharacteristic wildfire intensity and resource damage.

In units proposed for commercial harvest, slash treatments would include mechanical grapple piling and pile burning. Prescribed burning of activity fuels would include jackpot and broadcast burning. Non-commercial mechanical and manual thinning would be used to treat ladder fuels in both activity units and natural fuels areas where high density small diameter understory remains. If it is economically feasible, material from 3 to 10 inches DBH in size would be removed as a woody biomass[6] product. If it is not economically feasible, fuel treatments would be treated by mastication.

The following table is a summary of proposed fuel treatments in the project planning area:

Table 2-2 Alternative B-Summary of Activity and Natural Fuel Treatments

Summary of Activity and Natural Fuel Treatments	Approximate Acres
Mechanical grapple piling and pile burning	870
Prescribed burning of activity fuels (jackpot and broadcast)	2,030
Non-commercial mechanical thinning and ladder fuel reduction (mastication)	800
Non-commercial manual thinning and ladder fuel reduction (slashing)	350
RHCA mechanical thinning (non-commercial)	25
Landscape prescribed fire	3,000

Non-Commercial Thinning: One of the below referenced treatments would occur depending upon the market conditions for the sale of woody biomass products at the time of implementation. The preferred option would be commercial material removal. In dry forest stands where underburning would follow harvest, it may be necessary to treat the less than 10 inch material prior to burning so that it does not function as ladder fuels. The objective of understory thinning is to raise the canopy base height so that a fire burning through surface fuel does not transition into overstory.

- Removal of 3–10 inch DBH Material: This treatment would thin understory to reduce ladder fuels, decrease stand density, and provide woody biomass products for local industry. Treatment could occur simultaneously with harvest in units where only non-commercial thinning would occur. In units where conventional ground based logging systems would occur a separate entry may be necessary to remove this smaller material. Removal of ladder fuels would increase canopy base height and deter the initiation of a crown fire within the treated stand. Increased spacing of trees (reduced canopy bulk density) would result in bringing a crown fire that was initiated outside the stand back to the ground. Fire tolerant species (ponderosa pine, western

[6] **Woody biomass -** Trees and woody plants, including limbs, tops, needles, leaves, and other woody parts, grown in a forest, woodland, or rangeland environment, that are the by-products of forest management.

larch, and Douglas fir) would be favored as leave trees where they occur.

- Mechanical thinning: Consists of the cutting and mulching of trees 10 inches or less DBH. This treatment would be comparable to the understory thinning described above except that the material would be cut and mulched on-site as opposed to being removed for a commercial product.
- Manual thinning: This activity would cut trees measuring less than 10 inches DBH that are excess to full stocking. Undesired trees and fuels would be slashed by hand and scattered. Slash would be treated so that the resulting height of surface fuels is no greater than two feet in depth. Fire tolerant species (ponderosa pine, western larch, and Douglas fir) would be favored as leave trees where they occur.

Grapple Piling: Slash generated by timber harvest would be mechanically piled in units where prescribed fire would not be effective to reduce activity slash, or to create planting spots for regeneration. Both, naturally occurring woody debris and activity generated fuels may be piled. Chain saws may be used to compact material in a pile and throughout the unit to cut logs in lengths that are more easily piled. Pile size would vary and would be burned.

Pile Burning: Manual ignition of landing and grapple piles would occur when the threat of fire spreading from pile locations would be minimal. Pile specifications would ensure that pile burning would have minimal damage to residual trees in the stand. Large landings piles that could create a considerable area of bare soil would be replanted to native grasses.

Jackpot Burning: Jackpot burning, burning of slash concentrations would be utilized to reduce excess slash generated in harvest units. Jackpot burning would be accomplished using hand ignition methods. Harvest units located in landscape prescribed fire areas, may require jackpot burning prior to landscape prescribed fire to reduce heavy slash concentrations,

Broadcast Burning: Low intensity prescribed fire would be applied to a broad area using hand ignition devices. This method would be used to favor early seral, fire resistant species composition and structure while reducing surface and ladder fuels. Under burning would be used to reduce activity and natural fuels in harvest units to reduce activity slash and create regeneration/planting spots.

Pullback and Ladder Fuel Reduction: Pullback and ladder fuel reduction is the removal of activity fuels from the base of residual and or reserve trees, and removal of ladder fuels from residual and or reserve trees. This may occur in prescribed fire activity units, if needed, to reduce mortality to residual and or reserve trees.

Road Management

To accomplish implementation of proposed harvest activities approximately 46.5 miles of seasonal open system roads (operational maintenance level 2[7] and 3[8]) and about 32.5 miles of closed system roads (operational maintenance level 1[9], would be used as haul routes. Closed system roads used for project activities would not be opened to the public during project activities. All system roads would remain the same after project implementation; closed roads would continue to be closed, and open roads would continue with that designation. Approximately 3.0 miles of temporary roads would be constructed. All temporary roads would be decommissioned after project activity use. No new system road construction is proposed. (See Appendix G for road information).

[7] Operational maintenance level 2 – The operational objective is for high clearance vehicles.
[8] Operational maintenance level 3 – The operational objective is for passenger vehicles – road surface is not smooth.
[9] Operational maintenance level 1 – The operational objective is closed more than 1 year.

Road maintenance consists of a variety of activity components including surface rock replacement, spot surfacing, roadside brushing, erosion control, logging out, road surface blading, ditch cleanout, slide removal, dust abatement, culvert cleaning or replacement, danger tree removal, and other items that contribute to the preservation of the existing road and its safe use.

Maintenance would also include:

- Approximately 21 miles of roadbed reconditioning and surface rock replacement would occur on Forest Service Roads (FRs) 4400, 4300, and 4304.
- The culvert on FR 4304060 for the stream crossing has plugged in the past. For timber sale activity and if necessary for post sale activities, normal drainage maintenance would be performed. After completion of activities, the gate would be moved from its current locations ahead of the culvert on the road, back toward the beginning of the road. The culvert would be removed and the crossing pulled back and shaped to match the plan and profile of the stream.
- The culvert on FR 4300130 has lost its seal and water is passing along the outside of the culvert, compromising the integrity of the fill around and over the culvert. This culvert drains an intermittent draw. Before timber sale activities occur on this road, the culvert would be removed and replaced with an armored rock drain dip. This structure would pass the seasonal flows and provide for access to this road for timber sale and future management activities.
- The road surface approaching and leaving the culverts carrying water under FR 4302 Hogback would be resurfaced to provide a rock travel course to reduce the amount of fine material picked up by truck tires. This resurfacing would reduce the amount of fine material that could enter the drainages along this route. The length of resurfacing would be approximately 200 feet either side of the culvert. Inlets of the perennial drainages would also be armored.

Two existing rock sources would be used during project activities. One rock sources is located in T8N., R43E., S26, SW of SE, and the other in T8N, R44E, just north of the junction of FR 4304 and FR 4305. Three water sources would be utilized; first source on FR 4305060 in T8N, R44E, S33, second source on FR 4302 in T8N, R43E, S28, and third source on FR 4400010 in T8N, R43E, S31. All water sources would require a moderate amount of development to permit water use for road maintenance.

The following table shows a summary of transportation activities that would occur.

Table 2-3 Alternative B-Summary of Transportation Activities

Activity	Amount
Maintenance:	
Standard Maintenance	79 miles
Surface rock replacement	21 miles
Heavy brushing	40 miles
Temporary Road Construction (decommissioned subsequent to use)	3 miles
Gated closed system roads to be opened for project access and then reclosed	32.5 miles
Rock Sources used	2
Water Sources used	3

Danger Tree Removal

A danger tree is defined as any standing tree that presents hazard to people due to conditions such as, but not limited to, deterioration or physical damage to the root system, trunk, stem, or limbs and the direction or lean of the tree (FSH 6709.11). Along roadways, danger trees would be evaluated in accordance with the *Field Guide for Danger Tree Identification and Response*, Pacific Northwest Region, 2008. Hazard trees around trailheads would be evaluated in the context of *Long Range Planning for Developed Sites in*

the Pacific Northwest: The Context of Hazard Tree Management, Pacific Northwest Region, 1992. A tree's potential failure zone is the area that could be reached by any part of a failed tree. This is generally one and one-half tree lengths, but can vary depending on slope, tree height, lean, individual tree characteristics, and other factors.

Danger trees would be felled and removed along all haul routes used for timber sale activity and around trailheads. Only danger trees with an imminent failure potential would be felled on closed system roads. Trees with an imminent failure potential and those deemed likely to fail within a 5-10 year period would be felled along open system roads except for sections of Forest Roads (FRs) 4400, 4300, and 4304 that separate Asotin Creek and Wenatchee Creek inventoried roadless areas (IRAs) from the project planning area. Only danger trees with an imminent failure potential will be removed from these sections of road that are adjacent to the IRAs. (See Danger trees in Glossary for definitions of imminent failure and likely to fail). Danger tree removal, for public safety, is part of Forest Service general road maintenance for these roads. Danger tree removal is currently occurring where needed on these roads and will continue to be removed from 300 feet on each side of FRs 4400, 4300, and 4304 as long as they remain open for public use. If considered economically feasible, danger trees would be sold as part of a timber sale. Danger trees within Riparian Habitat Conservation Areas (RHCAs) would be felled and left to provide additional coarse woody debris.

Landscape Prescribed Fire

Landscape prescribed fire would occur across approximately 3,000 acres within the project planning area. This treatment would reintroduce fire to a fire-dependent ecosystem blackening about 60 percent of the area to lessen the impact of a future uncharacteristic wildfire and improve forage quality for big game. Fire intensities would be kept low, by establishing backing fires to minimize fire in the canopy, and burning mainly surface fuels throughout the majority of the project area. Individual tree and group torching would likely occur in areas where there are sufficient ladder fuels, and in timber stands with high occurrences of mistletoe infected trees. All landscape prescribed fire areas are accessible by forest roads, but because of the steep terrain, natural fuel breaks, such as ridges and rock outcroppings, and handline would be used along landscape prescribed fire area perimeters. The approximately 3,000 acres proposed for prescribed burning is divided into six landscape prescribed fire areas (see map in Appendix A). These six areas would be divided further into burn blocks and may take multiple prescribe fire entries over several years to complete. Hand fireline or blackline would be used along burn area and burnblock perimeters to control or stop the progression of fire. Blacklining methods would be completed by hand (manual methods) and in some areas by aerial ignition methods. Aerial and manual ignition would be used to ignite and establish backing fires in prescribed fire areas and burn block interiors.

RHCA Fuels Treatments – Non-Commercial Mechanical Thinning – 25 acres

The purpose of this treatment is to reduce the probability of crown fire initiation by treating ladder fuels, and reduce crown fire spread by using thinning treatments to disrupt canopy continuity in dry forest RHCAs. Prescribed fire would be used to reduce existing and created ground fuels. Trees from 4 inches to 18 inches DBH would be mechanically thinned on approximately 25 acres (these units are identified as RHCA Units 1 and 2 - see maps Appendix A and tables in Appendix B). Yarding would be accomplished using full suspension methods. No trees would be skidded through the RHCA. Material would be decked, but not included in South George commercial timber sales. PACFISH and Forest Plan standards and guidelines would be followed for Class III and IV streams. There would be no reduction of stream surface shade below ecological potential (Forest Plan p. 4-60). Skyline corridors would be spaced about 100 feet apart and 10 feet wide, and would be factored into stream shade. Bank and channel stabilizing trees located on the inner gorge and the valley and or channel bottom would remain uncut. Prescribed fire would be used to reduce residual activity slash (if slash exceeds 9.0 tons per acre, as required by the

Forest Plan). Treatments may include hand piling and burning activity slash and/or jackpot burning. Activities would be designed and executed to minimize soil exposure to less than 10 percent, maintain or enhance anadromous fish and wildlife habitat, and protect water quality (Forest Plan 4-166).

The following table is a summary of activities proposed in Alternative B.

Table 2-4 Alternative B-Summary of Proposed Activities

Proposed Activity	Alternative B
Fuels Treatments – Activity	
Mechanical Grapple Piling/Pile Burning	870 acres
Prescribed burning of activity fuels (Jackpot and Broadcast)	2,030 acres
Fuels Treatments – Natural	
Non-commercial mechanical thinning and ladder fuel removal	800 acres
Non-commercial manual thinning and ladder fuel removal	350 acres
Landscape prescribed fire	3,000 acres
RHCA non-commercial mechanical fuels treatment	25 acres
Vegetation Removal	
Intermediate Harvest: Improvement Cut	3,020 acres
Intermediate Harvest: Low Thinning	80 acres
Regeneration Harvest: Seedtree w/reserves	550 acres
Regeneration Harvest: Clearcut w/reserves	250 acres
Volume of timber removed	47,250 ccf
Logging Methods	
Helicopter	300 acres
Skyline	850 acres
Conventional Ground Based (tractor or skidder)	2,750 acres
Roads Used – Haul Routes	
Seasonal Open System – Maintenance level 3	33 miles
Seasonal Open System – Maintenance level 2	13.5 miles
Closed System – Maintenance level 1	32.5 miles
Other Road Activity	
New temporary road construction – decommissioned post project activities	3 miles
Danger tree removal	As needed
Economics	
Total Timber Value at Predicted High Bid Rate (Revenue)	$2,315,250

PROJECT DESIGN FEATURES AND MANAGEMENT REQUIREMENTS

Umatilla National Forest uses two general types of mitigation, management requirements, and project design elements. Management requirements are standards that are established to protect forest resources, and are implemented during or after projects to meet Forest Plan and other direction. Project design features are actions designed for a specific project to reduce or prevent undesirable effects from proposed activities. Project design features can include avoiding the effect, minimizing the effect by limiting the action, rectifying the effect, reducing the effect through maintenance, or compensating for the effect. Action alternatives B, C, and D, include the following (where applicable), management requirements, and project design features. Unless noted otherwise in the decision document, these management requirements and project design features will be incorporated with any action alternative selected for implementation.

The following table lists projects design features and management requirements to minimize the effects of proposed management activities. Effectiveness of implementing these measures is considered to be high for this project. These measures have been used successfully for implementation of past projects on Umatilla National Forest. Past Forest Plan monitoring, and annual evaluation reports have documented effectiveness of these measures.

Table 2-5 Project Design Features and Management Requirements

Objective	Task
	HYDROLOGY/WATER QUALITY
PACFISH Protection of Riparian Habitat Conservation Areas (RHCAs)	Stream and riparian protection is based on the Forest Plan as amended by PACFISH. PACFISH standards and guidelines related to timber harvest, roads, and fire apply to this project and are incorporated by reference into this document. No harvest will take place in RHCAs which are described below as they apply to this project, except for two fuels treatments areas in RHCAs identified as RHCA units 1 and 2. Mechanical thinning will be used on approximately 25 acres to remove co-dominant conifers to reduce probability of crown fire initiation. **Category 1** - Fish-bearing streams: RHCAs consist of the stream and the area on either side of the stream extending 300 feet slope distance from the edges of the active stream channel. **Category 2** - Perennial non-fish-bearing streams: RHCAs consist of the stream and the area on either side of the stream extending 150 feet slope distance from the edges of the active stream channel. **Category 3** - Ponds, lakes, reservoirs, and wetlands greater than 1 acre: RHCAs consist of the body of water or wetland and the area to the outer edges of the riparian vegetation, or the extent of the seasonally saturated soil, or 150 feet slope distance from the edge of the maximum pool elevation of constructed ponds and reservoirs or from the edge of the wetland, pond or lake, whichever is greatest. **Category 4** - Seasonally flowing or intermittent streams, wetlands less than 1 acre, landslides, and landslide-prone areas: This category includes features with high variability in size and site-specific characteristics. At a minimum the RHCAs must include: the area from the edges of the stream channel, wetland, landslide, or land-slide prone area to a distance equal to 120 feet. Prescribed Fire will not be ignited in RHCAs but will be allowed to back into RHCAs, except for identified RHCA units 1 and 2 as described above.
RHCA Thinning Project RHCA units 1 and 2 (about 25 acres)	Full suspension yarding, no yarding soil disturbance inside the RHCA. Skyline corridors will be spaced about 100 feet apart and about 10 feet wide. Overstory trees will be protected and only incidentally removed by corridor location. Canopy cover will decline no more than 10% on the northwest facing (stream shade producing) slope. Bank and channel stabilizing trees located on the inner gorge and the valley/channel bottom will remain uncut. Aquatic specialists will be present when trees are marked for removal.

Objective	Task
	RHCA mineral soil exposure will be limited to 10% or less (Forest Plan). No removal of large woody debris (LWD) from the stream channel, and any embedded LWD within the RHCA will remain.
Protection of water quality (Clean Water Act)	Implement and monitor Best Management Practices (BMPs) and incorporate findings into project implementation (See Appendix D for a listing of BMPs selected for project implementation along with effectiveness rating). Ground based equipment will cross ephemeral draws and channels at sites pre-approved by the responsible Forest official, and crossings will be minimized. • Harvest systems will be designed to minimize crossing ephemeral draws. Ephemeral draws will not be crossed where equipment will cause bank breakdown. • All embedded wood will be retained. Other wood will be retained as specified in project BMPs (Appendix D) Ephemeral stream channels will not be used as forwarder trails, landing sites, or as road locations. As referenced under timber sale contract standard provisions B(T)6.5 "Streamcourse Protection and B(T)6.6 "Erosion Prevention and Control", commercial use of National Forest roads shall be suspended when commercial contract or permit operations create movement of sediment laden water from the road surface in areas where it could flow into stream channels. This may be from pumping of saturated fines by passage of commercial or contract vehicles, creating sediment laden water on the road surface during rain or snowmelt periods. Timber sale purchaser will prepare a spill containment plan that will ensure that spilled fuel will not leave the site. Fuel will not be stored within any RHCA. Where the proposed haul routes encounter wet areas, new drainage structures and surface rock will be installed. Two channel locations intersecting the Hogback Road below Cold Spring and Wenatchee Spring will be rocked to prevent additional sedimentation during log haul. Proposed temporary roads will have drainage installed if retained over-winter. Upon completion of project activity, roads will be subsoiled if required. Berms will be pulled into the roadbed and recontoured, and the road will be revegetated with native seed and mulched with existing slash. Road entrances may be camouflaged to discourage use. <u>The following design criteria will be use for road decommissioning – Alternative C:</u> Where decommissioning crosses draws or channels, work will be done when channels are dry. Draws will be contoured to match upstream and downstream channel features including: gradient, bankful width and channel cross-section, and floodplain. Recontoured draws will be seeded with local, weed free native seed and mulched with on-site material or weed free straw or hay. Roadbeds will be de-compacted and drained as necessary to prevent erosion. Where full recontour does not occur, remaining fill will be stabilized. Where recontouring occurs reconnect the surface of the cut bank slope with the recontoured fill

Objective	Task
	slope
FISH/AQUATIC HABITAT	
Protection of fish habitat	State of Washington in-stream work window, from July 15 to August 30, will be used to replace culverts in stream channels with perennial flows. The Coombs Canyon culvert on FR 4304060 is located in fish habitat. Water will be diverted around the work site for the instream portion of culvert removal as required by the memorandum of understanding (MOU) 2005 with Washington Department of Fish and Wildlife for instream work. Other specific criteria in Attachment A of the MOU will be followed. When drafting water, sources will be monitored for reduced flows. During low flow (less than 5 cfs) conditions, spring-fed ponds will be used as sources prior to the use of stream sources whenever feasible. If spring-fed ponds are not feasible, stream sources can be used but pumping rates must not reduce flows to less than 5 cfs. If the stream has less than 10 cfs, stream flow cannot be reduced more than 1/10th of the existing stream flow and will discontinue drafting if this amount is exceeded. During road maintenance and snow plowing side casting of materials will not occur where these materials could be directly or indirectly introduced into a stream, or where the placement of these materials could contribute to the destabilization of the slope. Slough and waste materials removed during road maintenance activities, including ditch and culvert cleaning, will be deposited in approved disposal areas outside of RHCAs. For erosion control and stabilization the disposal site will be seeded with native seed. Ditches will only be maintained where the water captured by the ditch is not able to be transported to the adjacent drainage structure that carries the water across the road. Refueling, repair, and maintenance of equipment will be done at landings or on forest roads outside of RHCAs.
AIR QUALITY	
Protection of air quality	Washington State Smoke Management Plan regulations will be followed to protect air quality, avoid smoke intrusion into sensitive areas, and be consistent with the Clean Air Act.
SOILS	
Protection of soil during burning	Retain as much duff as possible, while meeting fuel reduction objectives to control erosion and provide organic matter. For jackpot or underburning, soil exposure will be limited to 20 percent or less of the area on slopes greater than 35%. Within RHCA mechanical fuels treatment areas soil exposure will be limited to 10 percent or less.
Erosion control on fire lines	Fireline construction will only occur where necessary. Any fireline constructed will be to minimal standard needed to complete prescribed burning. Locations will be evaluated post-harvest. All firelines will be waterbarred and seeded after project completion, as needed.
Soil protection/ erosion control	All logging systems will provide at least one-end suspension. Yarding will be spaced for optimum efficiency and minimum soil disturbance. Forwarder trails will average 50 feet apart, except where converging. Conventional system trail spacing will average 100

Objective	Task
	feet. Skyline system corridors will average 100 feet apart. All trails will be approved prior to use. Use existing trail system as much as possible. Ground based equipment will operate when soil conditions are dry enough to support machinery adequately. No ground-based equipment will operate on sustained slopes greater than 35% in order to reduce the potential for soil movement. Minimize exposure of soils and keep erosion control current. Landings will be designed and constructed to minimize size and provide for safe operations. Erosion control measures will occur on all skid trails and landings, as specified under timber sale contract provisions B (T) 6.67 and C (T) 6.6#. Seed soil exposed by contract operations using native seed. Subsoil, waterbar, and mulch using existing slash as necessary to prevent erosion. Temporary roads (Alternatives B and D) - install drainage if roads remain over-winter, subsoil if needed, pull berms into roadbed, revegetate with native seed, mulch with existing slash, and camouflage entrance to discourage use. In existing plantations non-commercial manual thinning treatments, where necessary, will be designed to retain material on site for nutrients cycling. If using mechanical treatment methods utilize low ground pressure equipment and existing skid trails wherever possible.
INVASIVE PLANT SPECIES (NOXIOUS WEEDS)	
Control and prevention of invasive plants	Noxious weed sites will be treated consistent with the 2005 Region 6 Invasive Plant FEIS and ROD that amended the Umatilla Forest Plan in March, 2006, and the July 2010 Umatilla National Forest Invasive Plant Treatment Project FEIS and ROD. All gravel, fill, sand stockpiles, quarry sites, and borrow material will be inspected for the presence of invasive plants before use and transport. Use only gravel, fill, sand, and rock that are judged to be weed seed free by District or Forest weed specialist. Road blading, brushing, and ditch cleaning in areas with high concentrations of invasive plants will be conducted in consultation with District or Forest-level invasive plant specialists. Invasive plant treatment and prevention practices will be incorporated as appropriate. Project or contract maps will show currently inventoried high priority noxious weed infestations as a means of aiding in avoidance and/or monitoring. Prior to moving onto the Forest, reasonable measures will be taken to insure that all off-road equipment is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds. In addition, prior to moving off-road equipment from a cutting unit known to be infested with invasive species to any other unit that is believed to be free of noxious weeds, reasonable measures will again be taken to make sure equipment is free of soil, seeds, vegetative matter, or other debris that could contain or hold seeds (timber sale contract provision B/BT 6.35 or equivalent provision). Use state certified weed-free straw and mulch for all projects conducted or authorized by the Forest Service on National Forest System Lands. If state certified straw and/or mulch is not available, individual forests should require sources certified to be weed-free using the North American Weed Free Forage Program standards, or a similar certification process.

Objective	Task
	Soils disturbed by project activities will be revegetated with certified weed-free native seed. Logging system design will consider the objectives of maintaining ground cover and minimizing ground disturbance. Forest Plan standards and guidelines for ground and soil disturbance will be followed. Landings and parking areas will be located outside known areas of invasive plants. If no other location is feasible the site will be surveyed and treated for noxious weeds prior to use.
CULTURAL RESOURCE	
Preservation and protection of archaeological sites	Cultural resource surveys have been conducted within the project area. Historic properties will either be avoided by all project activities (this includes access to treatment areas and landing sites) or by site-specific mitigation measures approved by the assistant Forest Archeologist and SHPO. Because some project activities will be implemented over multiple years, project leaders will contact the assistant Forest Archaeologist prior to project implementation for monitoring and avoidance purposes. Within units designated in primary huckleberry gathering areas, harvest activities will be required to operate over snow or use designated skid trails to minimize impacts to shrubs. Only manual operations will be allowed for fuel treatment activities in these areas.
RANGE RESOURCE	
Protection of range resources	All livestock improvements will be protected during logging and fuels activities. Any improvements damaged during logging will be repaired by the purchaser. Any improvements damaged during fuels activities being done by a contractor, will be repaired by the contractor doing the work. The Forest Service will repair any damage to improvements if the work is being done by Forest Service employees. If livestock are present along pasture fences, adequate measures will be taken to prevent movement of livestock across pastures. All gates must be operable prior to moving to proceeding unit. If livestock are present in the area, gates will remain closed during and after daily operations. Fence right of ways, stock driveways, and trails will be maintained clear of slash during activities. All Condition and Trend transects located within the project planning area will be protected during logging activities.
WILDLIFE	
Maintain dead wood habitat (post-harvest burning)	Slash will not be piled against large trees or snags to prevent loss from prescribed fire.
Protection of Bat Habitat	Hollow or partially hollow, broken top snags greater than 15 inches DBH will be left to provide roost habitat for bats. Dead grand fir most commonly provides hollow tree habitat.
Protection of Big Game Winter Range	In units 4, 6, 10, MT2, and MT3 activities will be restricted for elk winter range from December 1 through March 30.

<table>
<tr><th>Objective</th><th>Task</th></tr>
<tr><td></td><td></td></tr>
<tr><td>Maintain dead wood habitat (timber harvest)</td><td>Snag Retention – Maintain dead wood habitat and green replacement trees at or beyond levels identified in the table below. All snags retained will be greater than 20-inch diameter at breast height, but if there are not enough snags of this size, all large snags will be left and some smaller snags will be retained to make up the difference. Tree species and soundness at the base will also be considered. The tree species most preferred are ponderosa pine, western larch, and Douglas-fir. See the following table.

Snag and down wood retention per acre by plant association group.
<table>
<tr><th></th><th>Ponderosa pine</th><th>Mixed conifer</th><th>Grand fir</th><th>Lodgepole pine</th><th>Subalpine zone</th></tr>
<tr><td>Snags > 20 in dbh (per acre)</td><td>3</td><td>3</td><td>2</td><td>2</td><td>2</td></tr>
<tr><td>Green Tree Replacements (per acre)</td><td>16</td><td>16</td><td>9</td><td>14</td><td>19</td></tr>
<tr><td>Down Wood Pieces (per acre)</td><td>3 - 6</td><td colspan="2">15 - 20</td><td colspan="2">15 - 20</td></tr>
<tr><td>Diameter at the small end</td><td>≥ 12 inches</td><td colspan="2">≥ 12 inches</td><td colspan="2">≥ 8 inches</td></tr>
<tr><td>Length per piece</td><td>> 6 feet</td><td colspan="2">> 20 feet</td><td colspan="2">≥ 8 feet</td></tr>
<tr><td>Total length per acre</td><td>> 20 feet</td><td colspan="2">> 100 feet</td><td colspan="2">≥ 120 feet</td></tr>
</table></td></tr>
<tr><td>Meet ESA requirements</td><td>If any federally listed species are found in the project area, the appropriate resource specialist will be contacted immediately. The Contracting Officer will take appropriate action to insure species are protected. Timber sale contract provision B (T) 6.24 will apply. Protection measure for known federally listed species will be listed in provision B (T) 6.24.</td></tr>
<tr><td>Protection of Goshawk Habitat</td><td>Protect goshawk nests from disturbance if any are located during project activities. Defer harvest on 30 acres of the most suitable nesting habitat around nest sites. Retain late and old structure forest in a 400-acre post-fledging area (PFA) as determined by the district biologist. Defer activities in active PFAs from April through August.</td></tr>
<tr><td>Protection of Raptor Nests</td><td>Protect known or discovered raptor nest sites from management and human disturbances until fledging has been completed. Level of protection will vary by species and will be recommended by the District wildlife biologist (FP 4-57).</td></tr>
<tr><td>General Protection of Wildlife Habitat</td><td>Seeps, springs, bogs, wallows, and other wet areas will be evaluated and protection measures determined by the District wildlife biologist (FP 4-57, 4-160).

If cliffs, talus or cave habitat is found, protection measures will be determined by the District wildlife biologist. (FP 4-57)</td></tr>
<tr><td colspan="2">RECREATION</td></tr>
<tr><td>Protection of recreational access</td><td>During project activity alternative snowmobile routes will be designated in order to avoid conflict between winter logging operations and snowmobile activity.</td></tr>
<tr><td>Protection of public safety during project</td><td>Roads will be signed as closed during logging and prescribed fire activities, and will be re-opened as soon as possible after work is completed, especially during hunting season</td></tr>
</table>

Objective	Task
activities	Public access may be restricted in some areas during active haul of merchantable material for public and operational safety. Identified danger trees will be felled along all project haul routes and landing areas prior to operation.
TES PLANTS	
Protection of sensitive plant species	No known habitat for any special nonvascular plant species is located within the project planning area. During operations if any sensitive plants are located, the Forest botanist will be contacted immediately and appropriate action will be taken to insure the species is protected.

MONITORING FRAMEWORK

Monitoring for both implementation (whether the project was implemented as planned) and effectiveness (whether overall management objectives were met) will occur. District staff will conduct monitoring in areas that have the highest probability of showing effects.

- Identification of BMPs (see Appendix D) for the proposed actions has occurred, and any action which might occur in this planning area will be considered for monitoring in the Umatilla National Forest annual BMP monitoring. RHCA widths in harvest units, road maintenance work on FR 4302, and road use and maintenance during wet weather are items that will be monitored.

- Number, size, and distribution of snags and down logs within a sample of units will be field checked by Forest Service personnel.

- The Forest Service contract representative or other staff will monitor during and after activities to insure sediment and soil disturbance objectives are met. If objectives are not met, Forest Service personnel will identify and implement corrective action and document modifications to be used in future projects.

- Monitoring will be done by the District Noxious Weed Coordinator and other Forest Service personnel. Dependent on available funding and resources, the District noxious weed coordinator or crew will conduct noxious weed surveys prior to initiation of harvest or other ground disturbing activities within the project area. Forest Service personnel will spot-check activities during implementation to determine whether noxious weed mitigation measures are implemented. Deviations will be corrected promptly.

- After prescribed fire treatments, Forest Service fire and fuel personnel will field check a sample of burned units to determine whether the prescription objectives (i.e. mortality, mineral soil exposure, fuel load reductions, etc.) have been met.

- Forest Service personnel will monitor effects of RHCA thinning on water temperature.

Alternative C

PURPOSE AND DESIGN:

Treatments in Alternative C respond to the purpose and need for the project, and comments made by some of the responders regarding concerns about any new road construction, temporary or otherwise and to look at roads that can be decommissioned (roads and trails proposed for decommissioning are not connected actions to the commercial timber harvest activity and would require separate funding). Treatments are designed to accomplish the following objectives:

- Modify dry and moist upland forests to a species composition and structure compatible with the historical range of variability. Thinning treatments are used to reduce forest density, modify species composition, and reduce insect and disease susceptibility by improving tree and stand vigor. Regeneration treatments are used to improve upland forest sites where early-seral species are no longer present in ecologically viable amounts.
- Reduce fuel loading (surface, ladder and canopy fuels) to a level that facilitates future reintroduction of low-intensity surface fire, reduce ladder and ground fuels in natural fuel areas to lower the risk of fire spread into the upper canopy, and reduce fuels that would contribute to uncharacteristic wildfire intensity and resource damage.
- Reduce risk of personal injury by removing danger trees along haul routes used for timber sale activities.
- Provide sawlogs and wood fiber products for utilization by local and regional industry.
- Continue to provide and manage wildlife habitat and its components (cover, forage, and roads).
- Decommission system roads and unauthorized roads and trails.
- Extend seasonal closure on Forest Road 4302 (Hogback road) to begin annually on August 1 and remain closed until November 30.

DESCRIPTION:

Timber Harvest and Fuel Treatments

Commercially harvest approximately 3,900 acres. Some treatment units may include the removal of sawlogs, small diameter trees (generally less than 7.0 inches diameter at breast height (DBH)) and excess down wood for use as woody biomass products. Harvest objectives would vary by stand condition and fire management objectives. Treatments would favor retention of early-seral species such as ponderosa pine and western larch.

Silviculture prescriptions would be the same as identified in Alternative B. Following are a list of silviculture prescriptions and approximate acres:

- Improvement cutting – 3,020 acres
- Low Thinning – 80 acres
- Clearcutting with reserves – 250 acres
- Seed-tree cutting with reserves – 550 acres

Tree Planting

Tree planting would be the same as identified in Alternative B.

Harvest Methods

Harvest methods would include conventional ground based logging (approximately 2,725 acres), skyline logging (approximately 625 acres), and helicopter logging (approximately 550 acres). Whole tree yarding would occur in all harvest units.

Activity and Existing Natural Fuels Treatment

Activity and natural fuels treatments would be the same as identified in Alternative B.

Road Management

To accomplish implementation of proposed activities approximately 46.5 miles of seasonal open system roads (maintenance level 2 and 3) and about 32.5 miles of closed system roads (maintenance level 1), would be used as haul routes. Closed system roads used for project activities would not be opened to the public during project activities. All system roads would remain the same after project implementation; closed roads would continue to be closed, and seasonal open roads would continue with that designation. There would be no temporary road construction. A complete listing of roads used for this project and roads proposed for decommissioning are located in Appendix G of this document.

Road Maintenance: Road maintenance consists of a variety of activity components including surface rock replacement, spot surfacing, roadside brushing, erosion control, logging out, road surface blading, ditch cleanout, slide removal, dust abatement, culvert cleaning or replacement, danger tree removal, and other items that contribute to the preservation of the existing road and its safe use would be the same as Alternative B.

After implementation of activities, Alternative C is designed to change FR 4302 (Hogback Road) from an operational maintenance level 3 (passenger vehicle) to a maintenance level 2 (high clearance vehicle) and extend a seasonal closure on this road to begin annually on August 1 and remaining closed until November 30. Currently this road is closed annually from 3 days prior to state modern firearm deer-hunting season (usually mid October) through the end of the state-modern firearm elk hunting season; and it is closed to all motorized travel, except snowmobiles, during the winter recreation season (maximum duration December 1 until April 30 depending on snow conditions).

Road Decommissioning – Road decommissioning would occur on approximately 31 miles of road (approximately 4.3 miles of seasonal open system maintenance level 2 roads and approximately 26.6 miles of closed system roads maintenance level 1). A variety of decommissioning methods would be used as needed.

Approximately 15 miles of unauthorized roads and trails would be decommissioned. Sections of these areas are located throughout the planning area but the majority of unauthorized areas are concentrated off of FRs 4302, 43, 4304, and 4305060. Treatments would include, as necessary, blocking, draining, subsoiling, and revegetation with native grasses and shrubs. Current travel management rules, 36 CFR Part 212, provide direction that only designated roads, trails, and areas identified on a motor vehicle use map are open and available for use. Motor vehicle use maps specify the classes of vehicles and, if appropriate, the times of year for which use is designated. These unauthorized roads and trails are not part of the travel system and under current travel management rules use of them is illegal.
The following table shows a summary of transportation activities that would occur.

Table 2-6 Alternative C-Summary of Transportation Activities and Road Decommissioning

Activity	Amount
Maintenance:	
Standard Maintenance	79 miles
Surface rock replacement	21 miles
Heavy brushing	40 miles
Temporary Road Construction	0 miles
Gated closed system roads to be opened for project access and then reclosed	32.5 miles
Rock Sources	2
Water Sources	3
Road Decommissioning – system roads	31 miles
*Unauthorized roads and trails	15 miles
*these roads and trails are a combination of user developed and remnants of old logging systems and have never been mapped. Field surveys to identify these areas were conducted by Forest Service personnel and Nez Perce Tribe surveyors.	

Danger Tree Removal – Same as identified in Alternative B.

Landscape Prescribed Fire – Same as identified in Alternative B.

RHCA Fuels Treatments – Mechanical Thinning (25 Acres*)* – Same as identified in Alternative B.

Design Features and Management Requirements: - Same as identified in Alternative B.

Monitoring Framework: - Same as identified in Alternative B.

See the table below for a summary of activities proposed in Alternative C.

Table 2-7 Alternative C-Summary of Proposed Activities

Proposed Activity	Alternative C
Fuels Treatments – Activity	
Mechanical Grapple Piling/Pile Burning	870 acres
RX burning of activity fuels (Jackpot and Broadcast)	2,030acres
Fuels Treatments – Natural	
Non-commercial mechanical thinning and ladder fuel removal	800 acres
Non-commercial manual thinning and ladder fuel removal	350 acres
Landscape prescribed fire	3,000 acres
RHCA non-commercial mechanical fuels treatment	25 acres
Vegetation Removal	
Intermediate Harvest: Improvement Cut	3,020 acres
Intermediate Harvest: Low Thinning	80 acres
Regeneration Harvest: Seedtree w/reserves	550 acres
Regeneration Harvest: Clearcut w/reserves	250 acres
Volume of timber removed	47,250 ccf
Logging Methods	
Helicopter	550acres
Skyline	625acres
Conventional Ground Based (tractor or skidder)	2,725 acres
Roads Used – Haul Routes	
Seasonal Open System – Maintenance level 3	33 miles
Seasonal Open System – Maintenance level 2	13.5 miles
Closed System – Maintenance level 1	32.5 miles
Other Road Activity	
New temporary road construction (All temporary roads will be decommissioned post project)	0 miles
System roads decommissioned (4.3 miles of seasonal open roads Maintenance level 2, and 26.6 miles of closed system roads Maintenance level 3)	31 miles
Unauthorized roads and ATV trails decommissioned	15 miles
Change FSR 4302 (Hogback Road) from an operational maintenance level 3 (passenger vehicle) to a maintenance level 2 (high clearance vehicle) and extend a seasonal closure on this road to begin annually on August 1 until November 30.	Maintenance level change and seasonal extension
Danger tree removal	As needed
Economics	
Total Timber Value at Predicted High Bid Rate (Revenue)	$1,701,000

Alternative D

PURPOSE AND DESIGN:

Treatments in Alternative D respond to the purpose and need for the project and respond to the issue of maintaining existing old forest stands in the project planning area. Treatments are designed to accomplish the following objectives:

- Modify dry and moist upland forests to a species composition and structure compatible with the historical range of variability. Conserve or improve current conditions in late-old structure on moist-forest sites. No clearcutting would be implemented, and only 100 acres of seed-tree cutting would occur. Silvicultural activities described for Alternatives B and C are also proposed for Alternative D, but at lesser amounts.

- Thinning treatments are used to reduce forest density, modify species composition, and reduce insect and disease susceptibility by improving tree and stand vigor.
- Maintain existing cover and structure in old forest stands and maintain existing structure in other declining stands that are still providing essential habitat for many wildlife species.
- Reduce fuel loading (surface, ladder and canopy fuels) to a level that facilitates future reintroduction of low-intensity surface fire, reduce ladder and ground fuels in natural fuel areas to lower the risk of fire spread into the upper canopy, and reduce fuels that would contribute to uncharacteristic wildfire intensity and resource damage.
- Reduce risk of personal injury by removing danger trees along haul routes used for timber sale activities.
- Continue to provide and manage wildlife habitat and its components (cover, forage, and roads).
- Provide sawlogs and wood fiber products for utilization by local and regional industry.

DESCRIPTION:

Timber Harvest and Fuel Treatments

Commercially harvest approximately 2,600 acres. Some treatment units may include the removal of sawlogs, small diameter trees, generally less than 7.0 inches diameter at breast height (DBH), and excess down wood for use as woody biomass products. Harvest objectives would vary by stand condition and fire management objectives. Treatments would favor retention of early-seral species such as ponderosa pine and western larch.

Silviculture prescriptions would be the same as identified in Alternative B. Following are a list of silviculture prescriptions and acres:

- Improvement cutting – 2,420 acres
- Low Thinning – 80 acres
- Clearcutting with reserves – 0 acres
- Seed-tree cutting with reserves – 100 acres

Tree Planting

Methods of tree planting would be the same as identified in Alternative B. Only 100 acres would be planted.

Harvest Methods

Harvest methods would include conventional ground based logging (approximately 1,800 acres), skyline logging (approximately 500 acres), and helicopter logging (approximately 300 acres).

The same operational methods as identified in Alternative B would be used.

Activity and Existing Natural Fuels Treatments

Activity and natural fuels treatments would be the same as identified in Alternative B. Acres of activity fuels treated are less than Alternative B.

The following table is a detailed summary of proposed fuel treatments for Alternative D:

Table 2-8 Alternative D-Summary of Activity and Natural Fuel Treatments

Summary of Activity and Natural Fuel Treatments	Approximate Acres
Mechanical Grapple Piling	540
Prescribed burning of activity fuels	1,370
Non-commercial mechanical thinning and ladder fuel reduction	800
Non-commercial manual thinning and ladder fuel reduction	350
RHCA mechanical thinning	25
Landscape prescribed fire	3,000

Road Management

To accomplish implementation of proposed activities approximately 46 miles of seasonal open system roads (maintenance level 2 and 3) and about 24.5 miles of closed system roads would be used as haul routes. Closed system roads used for project activities would not be opened to the public during project activities. All system roads would remain the same after project implementation; closed roads would continue to be closed, and seasonal open roads would continue with that designation. Approximately 2.25 miles of temporary roads would be constructed. All temporary roads would be decommissioned after project activity use. No new system road construction is proposed. (See Appendix G for road information).

Road Maintenance: Road maintenance consists of a variety of activity components including surface rock replacement, spot surfacing, roadside brushing, erosion control, logging out, road surface blading, ditch cleanout, slide removal, dust abatement, culvert cleaning or replacement, danger tree removal, and other items that contribute to the preservation of the existing road and its safe use would be the same as Alternative B.

Rock sources and water sources would be the same as Alternative B.

The following table shows a summary of transportation activities that would occur.

Table 2-9 Alternative D-Summary of Transportation Activities

Activity	Amount
Maintenance:	
Standard Maintenance	71 miles
Surface rock replacement	21 miles
Heavy brushing	40 miles
Temporary Road Construction	2.25 miles
Gated closed system roads to be opened for project access and then reclosed	24 miles
Rock Sources	2
Water Sources	3

Danger Tree Removal – Same as identified in Alternative B.

Landscape Prescribed Fire – Same as identified in Alternative B.

RHCA Fuels Treatments – Mechanical Thinning (25 Acres) – Same as identified in Alternative B.

Design Features and Management Requirements: - Same as identified in Alternative B.

Monitoring Framework: - Same as identified in Alternative B.

See the table below for a summary of activities proposed in Alternative D.

Table 2-10 Alternative D-Summary of Proposed Activities

Proposed Activity	Alternative D
Fuels Treatments – Activity	
Mechanical Grapple Piling/Pile Burning	540 acres
RX burning of activity fuels (Jackpot and Broadcast)	1,370 acres
Fuels Treatments – Natural	
Non-commercial mechanical thinning and ladder fuel removal	800 acres
Non-commercial manual thinning and ladder fuel removal	350 acres
Landscape prescribed fire	3,000 acres
RHCA non-commercial mechanical fuels treatment	25 acres
Vegetation Removal	
Intermediate Harvest: Improvement Cut	2,420 acres
Intermediate Harvest: Low Thinning	80 acres
Regeneration Harvest: Seedtree w/reserves	100 acres
Regeneration Harvest: Clearcut w/reserves	0 acres
Volume of timber removed	25,350 ccf
Logging Methods	
Helicopter	300acres
Skyline	500 acres
Conventional Ground Based (tractor or skidder)	1,800 acres
Roads Used – Haul Routes	
Seasonal Open System – Maintenance level 3	33 miles
Seasonal Open System – Maintenance level 2	13 miles
Closed System – Maintenance level 1	24.5 miles
Other Road Activity	
New temporary road construction (All temporary roads will be decommissioned post project)	2.25 miles
Danger tree removal	As needed
Economics	
Total Timber Value at Predicted High Bid Rate (Revenue)	$1,039,350

SALE AREA IMPROVEMENTS

Sale area improvements (SAI) include activities which follow timber harvest and are intended to improve resources within the project area. They are generally funded with Knutson-Vandenberg (KV) funds, which are generated from the sale of timber.

KV/SAI projects associated with implementation of Alternatives B, C, or D are analyzed for environmental effects in Chapter 3 of this document. They are listed below.

- Reforestation – Plant areas (associated with harvest) where there is insufficient seed source to insure reforestation by natural means.
- Site preparation – Slash and burn to provide long-term fire resistance of reforestation sites.
- Noxious weeds – Monitor and treat noxious weeds associated with haul routes and harvest units.
- Native seeding – Seed native grasses and forbs in areas disturbed by activities.

KV/SAI projects not associated with the proposed action are listed below. They are eligible for KV funding, if funds are available (if Alternative A – No Action is selected for implementation, there would be no KV funding, and implementation of these projects would be dependent on future appropriated funding). Environmental analysis for these projects would be completed in separate NEPA documentation and decisions. They are listed below:

- Reforestation – Plant disturbed areas (not associated with harvest) where adequate natural regeneration is not expected.
- Fuels treatments – Mechanically treat and or burn areas of high fuel concentrations to provide for long-term fire resistance in additional areas.
- Noxious weeds – Monitor and treat noxious weeds outside of activity areas but within the project planning area.
- Native seeding – Seed native grasses and forbs in other disturbed areas.
- Roads – Install guardrails and or gates on closed roads in the area to improve closure effectiveness.
- Road decommissioning - Roads not identified in alternatives.

ALTERNATIVES CONSIDERED, BUT ELIMINATED FROM DETAILED STUDY

Alternative E - Prescribed burning only

Restore forest health through prescribed burning treatments only. This alternative would not meet the purpose and need due to high existing fuel loading conditions and risk potential for escape. With large landscape areas covered with high risk vegetation composition, such as South George project planning area, the potential for escape or resource damaging landscape fire would be high. This fire risk can be reduced by removing some vegetation first before adding prescribed fire. After timber harvest, landscape burns are easier to accomplish because the landscape has been divided into manageable burn blocks (polygons). This alternative would not meet the purpose and need of decreasing the probability of uncharacteristic high intensity wildfires by reducing fuel loads to levels expected under natural fire disturbance regimes. The majority of acres (15,200 acres of the 21,000 acres) in the South George project planning area are in Forest Plan management area C4- Wildlife Habitat and this allocation requires certain management to protect wildlife habitat (see Chapter 1, page 1-7). Just using prescribed fire would not meet the desired future condition for this land allocation and the purpose and need to continue to provide and manage, over time, for wildlife habitat and its components of cover and forage. In addition it would not meet the immediate need to reduce ongoing impacts of insect and disease or provide resources to the local economy. Based on the information above this alternative was considered but not analyzed in detail.

Alternative F - Bring project area streams into fully functioning condition

We received a suggestion to consider bringing project area streams into fully functioning condition, including riparian and stream habitat conditions that support viable populations of native fish species and

meet Riparian Management Objectives (RMOs). Currently aquatic conditions within the project area are currently functioning to support healthy native fish populations. Most streams in the project planning area are intermittent and overland flow is non-existent to the boundary edges. Fish bearing streams are located predominantly outside the project area and most riparian buffers are inaccessible due to steep canyons and incised drainages (maps Appendix A). Asotin watershed has been selected as an intensely monitored watershed (IMW) by the Snake River Salmon Recovery Board in 2008 to evaluate recovery processes and restoration projects implemented (Fisheries Report, page 17). Because current aquatic conditions are improving and meeting PACFISH RMOs (Chapter 3, Table 3-14), this alternative was considered but not analyzed in detail.

Alternative G - Focus on wildlife habitat enhancement , watershed restoration activities, old growth protection (minimum fragmentation), and fewer impacts to non-motorized recreation

In reviewing the elements of this suggested alternative it was determined that it does not address the project's purpose and need to improve health, vigor, and resilience to fire, insects, and disease in upland forests that are outside their historical pre-fire suppression conditions for species composition (including hardwood species), structural diversity, stocking densities, and fuel loads, nor would it provide sawlogs and wood fiber products for utilization by regional and local industry. The purpose and need for this project includes the need to continue to provide and manage over time for wildlife habitat and its components (Chapter 1, page 1-5). Alternative D for this project is designed to maintain existing cover and structure in old forest stands and maintain existing structure in other declining stands that are still providing essential habitat for many wildlife species (p. 2-26). Implementation of proposed activities in Alternatives B, C, and D would continue to meet Forest Plan goals to provide and maintain wildlife habitat (pages 2-42 to 2-44). Based on the information above, this alternative, as stated, was considered but not analyzed in detail.

COMPARISON OF ALTERNATIVES

The following tables compare all alternatives considered in detail by activity, purpose and need, and issues analyzed for environmental effects.

Table 2-11 Summary Comparison of Alternatives

	Alternative A	Alternative B	Alternative C	Alternative D
Fuels Treatments – Activity				
Mechanical Grapple Piling/Pile Burning	0 acres	870 acres	870 acres	540 acres
RX burning of activity fuels (Jackpot and Broadcast)	0 acres	2,030 acres	2,030 acres	1,370 acres
Fuels Treatments – Natural				
Non-commercial mechanical thinning and ladder fuel removal	0 acres	800 acres	800 acres	800 acres
Non-commercial manual thinning and ladder fuel removal	0 acres	350 acres	350 acres	350 acres
Landscape prescribed fire	0 acres	3,000 acres	3,000 acres	3,000 acres
RHCA non-commercial mechanical fuels treatment	0 acres	25 acres	25 acres	25 acres
Vegetation Removal				
Intermediate Harvest: Improvement Cut	0 acres	3,020 acres	3,020 acres	2,420 acres
Intermediate Harvest: Low Thinning	0 acres	80 acres	80 acres	80 acres
Regeneration Harvest: Seedtree w/reserves	0 acres	550 acres	550 acres	100 acres
Regeneration Harvest: Clearcut w/reserves	0 acres	250 acres	250 acres	0 acres
Volume of timber removed	0 ccf	47,250 ccf	47,250 ccf	25,350 ccf
Logging Methods				
Helicopter	0 acres	300 acres	550acres	300acres
Skyline	0 acres	850 acres	625acres	500 acres
Conventional Ground Based (tractor or skidder)	0 acres	2,750 acres	2,725 acres	1,800 acres
Roads Used – Haul Routes				
Seasonal Open System – Maintenance level 3	0 miles	33 miles	33 miles	33 miles
Seasonal Open System – Maintenance level 2	0 miles	13.5 miles	13.5 miles	13 miles
Closed System – Maintenance level 1	0 miles	32.5 miles	32.5 miles	24.5 miles
Other Road Activity				
New temporary road construction (All temporary roads will be decommissioned post project)	0 miles	3 miles	0 miles	2.25 miles
System roads decommissioned(Appendix G, Table G-3))	0 miles	0 miles	31 miles	0 miles
Unauthorized non-system roads and ATV trails decommissioned	0 miles	0 miles	15 miles	0 miles
Danger Tree Removal	Ongoing	As needed	As needed	As needed
Economics				
Total Timber Value at Predicted High Bid Rate (Revenue)	$0	$2,315,250	$1,701,000	$1,039,350

The following table shows a comparative synopsis by alternative to purpose and need statements made in Chapter 1. In this table the numbers of acres in some categories overlap and are not to be considered additive. This is the result of more than one action occurring on the same acre.

Table 2-12 Comparison Response to Purpose and Need by Alternative

<table>
<tr><th>Purpose and Need</th><th>Alternative
A</th><th>Alternative
B</th><th>Alternative
C</th><th>Alternative
D</th></tr>
<tr>
<td>Forest Species Composition
Existing tree species composition is not within its historical range of variability.

Before implementation dry upland forest potential vegetation groups (PVG) had 3 cover types outside of HRV and moist upland forest PVG had 6 cover types that were outside of HRV (Chapter 3, Table 3-18).
.</td>
<td>No silvicultural activities would occur to change existing species composition on the total forest vegetation affected environment (about 14,060 acres) see Chapter 3, Table 3-16.
<table>
<tr><th>Species</th><th>Pre acres</th><th>Percent</th></tr>
<tr><td>Herb-shrub</td><td>210</td><td>1</td></tr>
<tr><td>Ponderosa Pine</td><td>1,910</td><td>14</td></tr>
<tr><td>Douglas-fir</td><td>2,100</td><td>15</td></tr>
<tr><td>Western Larch</td><td>310</td><td>2</td></tr>
<tr><td>Lodgepole Pine</td><td>300</td><td>2</td></tr>
<tr><td>Grand fir</td><td>6,840</td><td>49</td></tr>
<tr><td>Spruce-fir</td><td>2,390</td><td>17</td></tr>
</table></td>
<td>Post implementation acres on the total forest vegetation affected environment (about 14,060 acres) see Chapter 3, Table 3-25.
<table>
<tr><th>Species</th><th>Post acres</th><th>Percent</th></tr>
<tr><td>Herb-shrub</td><td>210</td><td>1</td></tr>
<tr><td>Ponderosa Pine</td><td>2,060</td><td>15</td></tr>
<tr><td>Douglas-fir</td><td>2,770</td><td>20</td></tr>
<tr><td>Western Larch</td><td>1,750</td><td>12</td></tr>
<tr><td>Lodgepole Pine</td><td>200</td><td>1</td></tr>
<tr><td>Grand fir</td><td>4,910</td><td>35</td></tr>
<tr><td>Spruce-fir</td><td>2,160</td><td>15</td></tr>
</table>
After implementation dry upland forest PVG has 2 cover types outside of HRV and moist upland forest PVG has 5 cover types that are outside of HRV (Chapter 3, Table 3-26).</td>
<td>Same as Alternative B</td>
<td>Post-implementation on the total forest vegetation affected environment (about 14,060 acres) see Chapter 3, Table 3-34.
<table>
<tr><th>Species</th><th>Post acres</th><th>Percent</th></tr>
<tr><td>Herb-shrub</td><td>210</td><td>1</td></tr>
<tr><td>Ponderosa Pine</td><td>2,060</td><td>15</td></tr>
<tr><td>Douglas-fir</td><td>2,620</td><td>19</td></tr>
<tr><td>Western Larch</td><td>1,090</td><td>8</td></tr>
<tr><td>Lodgepole Pine</td><td>200</td><td>1</td></tr>
<tr><td>Grand fir</td><td>5,840</td><td>42</td></tr>
<tr><td>Spruce-fir</td><td>2,040</td><td>15</td></tr>
</table>
After implementation dry upland forest PVG has 2 cover types outside of HRV and moist upland forest PVG has 5 cover types that are outside of HRV (Chapter 3, Table 3-35).</td>
</tr>
</table>

<table>
<tr><th>Purpose and Need</th><th>Alternative
A</th><th>Alternative
B</th><th>Alternative
C</th><th>Alternative
D</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr>
<td>Forest Structural Stages
Existing forest structural stages are not within the historical range of variability.

Before implementation dry upland forest PVG had 4 structural stages that were outside of HRV and moist upland forest PVG had 5 structural stages that were outside of HRV (Chapter 3, Table 3-20).</td>
<td>No silvicultural activities would occur to change forest structural stages on total forest vegetation affected environment (about 14,060 acres) see Chapter 3, Table 3-19.
<table>
<tr><th>Structural Stage</th><th>Pre Acres</th><th>Percent</th></tr>
<tr><td>Stand Initiation</td><td>570</td><td>4</td></tr>
<tr><td>Stem Exclusion Open Canopy</td><td>2,710</td><td>19</td></tr>
<tr><td>Stem Exclusion Closed Canopy</td><td>3,000</td><td>21</td></tr>
<tr><td>Understory Reinitiation</td><td>4,200</td><td>30</td></tr>
<tr><td>Young Forest Multi Strata</td><td>310</td><td>2</td></tr>
<tr><td>Old Forest Multi Strata</td><td>1,120</td><td>8</td></tr>
<tr><td>Old Forest Single Stratum</td><td>2,140</td><td>15</td></tr>
</table></td>
<td>Post implementation acres on the portion of total forest vegetation affected environment (about 14,060 acres) see Chapter 3, Table 3-28.
<table>
<tr><th>Structural Stage</th><th>Post Acres</th><th>Percent</th></tr>
<tr><td>Stand Initiation</td><td>1,370</td><td>10</td></tr>
<tr><td>Stem Exclusion Open Canopy</td><td>3,400</td><td>24</td></tr>
<tr><td>Stem Exclusion Closed Canopy</td><td>1,940</td><td>14</td></tr>
<tr><td>Understory Reinitiation</td><td>3,140</td><td>22</td></tr>
<tr><td>Young Forest Multi Strata</td><td>310</td><td>2</td></tr>
<tr><td>Old Forest Multi Strata</td><td>1,040</td><td>7</td></tr>
<tr><td>Old Forest Single Stratum</td><td>2,860</td><td>20</td></tr>
</table>
After implementation dry upland forest PVG has 2 structural stages that are outside of HRV and moist</td>
<td>Same as Alternative B</td>
<td>Post implementation acres on the portion of total forest vegetation affected environment (about 14,060 acres) see Chapter 3, Table 3-37.
<table>
<tr><th>Structural Stage</th><th>Post Acres</th><th>Percent</th></tr>
<tr><td>Stand Initiation</td><td>670</td><td>5</td></tr>
<tr><td>Stem Exclusion Open Canopy</td><td>3,460</td><td>25</td></tr>
<tr><td>Stem Exclusion Closed Canopy</td><td>2,160</td><td>15</td></tr>
<tr><td>Understory Reinitiation</td><td>3,560</td><td>25</td></tr>
<tr><td>Young Forest Multi Strata</td><td>310</td><td>2</td></tr>
<tr><td>Old Forest Multi Strata</td><td>1,040</td><td>7</td></tr>
<tr><td>Old Forest Single Stratum</td><td>2,860</td><td>20</td></tr>
</table>
After implementation dry upland forest PVG has 2 structural stages that are outside of HRV and moist</td>
</tr>
</table>

<table>
<tr><th>Purpose and Need</th><th>Alternative
A</th><th>Alternative
B</th><th>Alternative
C</th><th>Alternative
D</th></tr>
<tr><td></td><td></td><td>upland forest PVG has 4 structural stages that are outside of HRV (Chapter 3, Table 3-29).</td><td></td><td>upland forest PVG has 5 structural stages that are outside of HRV (Chapter 3, Table 3-38).</td></tr>
<tr><td>Forest Tree Density
Existing tree density classes are not within the historical range of variability.

Acres moved from high density to low or moderate density in order to resist insects, diseases, and stand replacing wildfire(s).

Before implementation dry upland forest PVG had 2 tree density classes that were outside of HRV and moist upland forest PVG had no classes that were outside of HRV (Chapter 3, Table 3-22).</td><td>No silvicultural activities would occur to change tree (stand) density levels on the total forest vegetation affected environment (about 14,060 acres) see Chapter 3, Table 3-21.

<table><tr><th>Density class</th><th>Acres</th><th>Percent</th></tr><tr><td>Low</td><td>5,060</td><td>36</td></tr><tr><td>Moderate</td><td>5,200</td><td>37</td></tr><tr><td>High</td><td>3,800</td><td>27</td></tr></table></td><td>Implementation of this alternative on the total forest vegetation affected environment of about 14,060 acres would result in the following change in acres in tree density classes (Chapter 3, Table 3-31).

<table><tr><th>Density class</th><th>Acres</th><th>Percent</th></tr><tr><td>Low</td><td>7,050</td><td>50</td></tr><tr><td>Moderate</td><td>4,830</td><td>34</td></tr><tr><td>High</td><td>2,180</td><td>16</td></tr></table>
After implementation dry upland forest PVG has 1tree density class that is outside of HRV and moist upland forest PVG has 2 tree density classes that are outside of HRV (Chapter 3, Table 3-32).</td><td>Same as Alternative B</td><td>Implementation of this alternative on the total forest vegetation affected environment of about 14,060 acres) would result in the following change in acres in tree density classes (Chapter 3, Table 3-40).

<table><tr><th>Density class</th><th>Acres</th><th>Percent</th></tr><tr><td>Low</td><td>6,140</td><td>44</td></tr><tr><td>Moderate</td><td>5,420</td><td>39</td></tr><tr><td>High</td><td>2,500</td><td>18</td></tr></table>
After implementation dry upland forest PVG has 1tree density class that is outside of HRV and moist upland forest PVG has 1 tree density classes that is outside of HRV (Chapter 3, Table 3-41).</td></tr>
<tr><td>Fuels:
Treat forest stands in Condition Classes 2 and 3 to begin to restore vegetation characteristics and fire return intervals</td><td>Existing Condition Classes would remain the same in the project planning area.

• Class 1
Acres - 65</td><td>Condition Classes post treatment of project activities for Fire Regimes I, III, and IV

• Class 1
Acres – 7,950</td><td>Same as Alternative B</td><td>Condition Classes post treatment of project activities for Fire Regimes I, II, III, and IV

• Class 1
Acres – 5,170</td></tr>
</table>

Purpose and Need	Alternative A	Alternative B	Alternative C	Alternative D
characteristic of historical fire regimes.	Percent -<1% • Class 2 Acres 17,940 Percent 87% • Class 3 Acres - 2,550 Percent 13%	Percent – 39% • Class 2 Acres – 10,480 Percent – 52% • Class 3 Acres – 2,065 Percent – 10%		Percent – 24% • Class 2 Acres – 13,295 Percent – 65% • Class 3 Acres – 2,100 Percent – 10%
Fuels: Crown fire potential – decrease the probability of uncharacteristic high intensity wildfires by lowering stand densities, and reducing existing ladder, surface, and canopy fuels	Existing Crown Fire Potential: Dry Forests • High – 2,760 acres • Medium – 840 acres • Low – 35 acres Moist Forests High – 10,035 acres Medium – 1,470 acres Low – 0 acres	Crown Fire Potential post treatment: Dry Forests • High – 955 acres • Medium – 670 acres • Low – 1,975 acres Moist Forests • High – 6,415 acres • Medium – 935 acres • Low – 4,155 acres	Same as Alternative B	Crown Fire Potential post treatment: Dry Forests • High – 1,855 acres • Medium – 730 acres • Low – 1,045 acres Moist Forests • High – 7,375 acres • Medium – 1,050 acres • Low – 2,083 acres
Timber Production There is a need to provide sawlogs and wood fiber for utilization by regional and local economies	N/A	See Economics in Table 2-13 below	See Economics in Table 2-13 below	See Economics in Table 2-13 below
Wildlife Habitat There is a need to continue to provide and manage over time, for wildlife habitat and its components (cover and forage).	See Wildlife Habitat in Table 2-13 below	See Wildlife Habitat in Table 2-13 below	See Wildlife Habitat in Table 2-13 below	See Wildlife Habitat in Table 2-13 below

Table 2-13 – Comparison by Alternative of Key Issues and Other Resource Issues

Resource	Alternative A	Alternative B	Alternative C	Alternative D
OLD FOREST HABITAT– Key Issue				
Acres of old forest affected by proposed activities	0 acres	1,010 acres	1,010 acres	430 acres
Acres of old forest connective corridors affected by proposed activities	0 acres	180 acres	180 acres	180 acres
Acres where trees ≥21 inches DBH may be removed.	0 acres	620 acres	620 acres	620 acres
Acres converted to old forest stand structure	0 acres	640 acres	640 acres	640 acres
ACCESS MANAGEMENT – Key Issue				
Miles of temporary road construction (decommissioned after use)	0 miles	3.0 miles	0 miles	2.25 miles
Miles of system road decommissioning	0 miles	0 miles	31 miles	0 miles
Miles of non-system unauthorized roads and trails	0 miles	0 miles	15.5 miles	0 miles
Extension of seasonal road closure	No	No	Yes	No
SOILS				
Detrimental soil disturbance (DSC) in the following: • harvest units (acres)	57 acres	248 acres	244 acres	183 acres
• Non-commercial thinning units (acres)	23 acres	40 acres	40 acres	40 acres
• Temporary road construction (acres)	0 acres	7.2 acres	0 acres	5.5 acres
• Roads and trails rehabilitated (acres)	0 acres	0 acres	94 acres	0 acres

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Effective Ground Cover	Within acceptable condition, and meets Forest Plan standards	Within acceptable condition, and meets Forest Plan standards	Within acceptable condition, and meets Forest Plan standards	Within acceptable condition, and meets Forest Plan standards
HYDROLOGY				
Road density – opened and closed by subwatershed (miles per square mile)	S. Fork Asotin Creek – 2.5 Upper George Creek – 3.5	Remain the same as existing condition	S. Fork Asotin Cr. – 2.1 Upper George Cr. – 1.8	Remain the same as existing condition
Number of stream crossings	S. Fork Asotin Creek – 42 Upper George Creek – 40	Remain the same as existing condition	S. Fork Asotin Creek – 30 Upper George Creek – 12	Remain the same as existing condition
Water Temperature	Would improve slowly over time as near channel vegetation grew and provided more shade	Change to water temperature would not be measurable. Effects would be negligible.	Same as Alternative B	Same as Alternative B
Sediment	Sediment is not detectable as streams leave National Forest Service lands	No measurable effect No detectable increase	Same as Alternative B	Same as Alternative B
Equivalent Treatment Acre Model – Percentages by subwatershed	S. Fork Asotin Cr. - 3.1% Upper George Cr. – 3.1%	S. Fork Asotin Cr. – 13.4% Upper George Cr. – 8.9%	S. Fork Asotin Cr. – 13.2% Upper George Cr. – 8.2%	S. Fork Asotin Cr. – 8.9% Upper George Cr. – 5.5%
TES AQUATIC SPECIES				
Snake River Steelhead and Critical Habitat (MIS and ESA – Threatened) - Biological determination	No action	Biological determination of *May Effect – Not Likely To Adversely Affect (ME-NLAA)* Short-term potential for sediment introduction during seasonal high flows. No measurable offsite effects to hydrologic function, water temperature, or sediment load. Roadwork would reduce erosion.	Same as Alternative B	Same as Alternative B
Bull Trout and Critical Habitat (ESA – Threatened) –	No action	Biological determination of *May Effect – Not Likely To Adversely Affect (ME-NLAA)* Short-term potential for	Same as Alternative B	Same as Alternative B

Resource	Alternative A	Alternative B	Alternative C	Alternative D
		sediment introduction during seasonal high flows. No measurable offsite effects to hydrologic function, water temperature, or sediment load. Roadwork would reduce erosion.		
Redband Trout (MIS and Sensitive) and Margined Sculpin (Sensitive)	No action	Biological determination of *May Impact Individuals Or Habitat But Will Not Likely Contribute To A Trend Towards Federal Listing.* Short-term time potential for the introduction of sediment and or other materials to the creek during seasonal high flows; however, this is not expected to be measureable above background levels.	Same as Alternative B	Same as Alternative B
All other TE&S Species (Chapter 3, Table 3-15)	No action	Biological determination *T&E – No Effect* *Sensitive – No Impact*	Same as Alternative B	Same as Alternative B
AIR QUALITY				
Tons of Particulate Emission $PM_{2.5}$ – (over a 5-10 yr period) Activity Fuels Landscape Burn Pile Burning	 0 0 0	 1,035 tons 364 tons 478 tons	Same as Alternative B	 699 tons 364 tons 297 tons

Resource	Alternative A	Alternative B	Alternative C	Alternative D
WILDLIFE SPECIES and HABITAT				
Deadwood Habitat	Additional snags and large down wood would be created as overstory mortality occurs.	Potential reduction of snags wherever harvest activities would occur (4,150 acres maximum). Snags within harvest units would be retained above the minimum levels required in the Forest Plan. The number of acres with 2-4 snags per acre would increase and be more in line with reference conditions.	Same as Alternative B	Potential reduction of snags wherever harvest activities would occur (2,900 acres maximum). Snags within harvest units would be retained above the minimum levels required in the Forest Plan. The number of acres with 2-4 snags per acre would increase and be more in line with reference conditions.
Management Indicator Species (MIS) Forest Plan Standards – Satisfactory Cover – 15% MA C4 - HEI - 60 MA C3 - HEI - 70 Acres of Habitat	**Rocky Mountain Elk –** Satisfactory Cover – 34% MA C4 - HEI - 71 MA C3 -HEI - 80 **Primary Cavity Excavators** The area would continue to provide snags and down large wood for cavity dependent species **Pileated Woodpecker** There are approximately 200,000 acres of source habitat on Umatilla National Forest	**Rocky Mountain Elk** Satisfactory Cover – 19% MA C4 - HEI - 68 MA C3 - HEI - 77 **Primary Cavity Excavators** Overall direct, indirect, and cumulative effects would result in a small negative habitat trend for primary cavity excavators. The project would affect less than 1 percent (.006) of the forested land on Umatilla National Forest. The amount of effect is too small to cause changes to cavity excavator populations. **Pileated Woodpecker** Harvest and fuel treatments would affect about 2,800 acres of existing habitat in	**Rocky Mountain Elk** Satisfactory Cover – 19% MA C4 – HEI – 69 MA C3 – HEI – 77 **Primary Cavity Excavators** Same as Alternative B **Pileated Woodpecker** Same as Alternative B	**Rocky Mountain Elk** Satisfactory Cover – 24% MA C4 - HEI - 68 MA C3 - HEI - 77 **Primary Cavity Excavators** Same as Alternative B **Pileated Woodpecker** Harvest and fuel treatments would affect about 1,300 acres of existing habitat in

Resource	Alternative A	Alternative B	Alternative C	Alternative D
	and about 7,800 acres of habitat distributed throughout the project planning area. Existing habitat would remain in its current state in the short-term. In the mid and long-term additional habitat would become available.	the project planning area. The remaining 5,000 acres of pileated woodpecker habitat would not be affected by timber harvest and fuels reduction activities. Thinned stands as well as other areas that currently do not quite qualify as habitat now would eventually develop into complex, mature stands and provide more pileated woodpecker habitat.		the project planning area. The remaining 6,500 acres of pileated woodpecker habitat would not be affected by timber harvest and fuels reduction activities. Thinned stands as well as other areas that currently do not quite qualify as habitat now would eventually develop into complex, mature stands and provide more pileated woodpecker habitat.
	Three-toed Woodpecker The approximately 7,000 acres of potential foraging habitat in the project planning area (approximately 4% of the 170,000 acres of forest-wide habitat) would remain in its current state in the short-term. There may be increases in insect outbreaks, which would benefit three-toed woodpecker.	**Three-toed Woodpecker** About 2,530 acres foraging habitat (36 percent of habitat in the project planning area) and about 540 acres of possible nesting habitat (19 percent) would be affected by timber harvest and fuels treatments. The remaining 4,470 acres of potential three-toed woodpecker habitat would not be affected by timber harvest and fuels reduction, and would continue to provide foraging and nesting opportunities.	**Three-toed Woodpecker** Same as Alternative B	**Three-toed Woodpecker** About 1,250 acres foraging habitat (18 percent of habitat in the project planning area) would be affected by timber harvest and fuels treatments. No nesting habitat would be affected. The remaining 5,750 acres of potential three-toed woodpecker habitat would not be affected by timber harvest and fuels reduction, and would continue to provide foraging and nesting opportunities.
	American Marten (Pine Marten) Existing marten habitat (about	**American Marten (Pine Marten)** About 735 acres of marten	**American Marten (Pine Marten)** Same as Alternative B	**American Marten (Pine Marten)** Marten habitat would not be

Resource	Alternative A	Alternative B	Alternative C	Alternative D
	2,800 acres in the project planning area) would remain in its current state in the short-term. In the long-term additional habitat would be available. Umatilla National Forest currently has 100,000 acres of source marten habitat.	habitat would be affected by harvest. Overall direct, indirect, and cumulative effects would result in a small negative habitat trend for marten. Because the project impacts less than 1 percent (.007) of the marten habitat on the forest (about 100,000 acres on Umatilla Forest) the amount of effect from this project is too small to cause changes to the population.		affected by harvest because no harvest would occur in moist old forest
Endangered and Sensitive Terrestrial Species Biological determination (T) – Threatened (S) – Sensitive * NE-No Effect **NI-No Impact ***MI-May Impact	No action	Biological determinations: Canada Lynx – (T)-NE* Gray Wolf – (S)-NI** CA Wolverine – (S)-NI Townsend's big-eared bat-(S)-NI Preble's shrew – (S)-NI Bald Eagle – (S)-NI Peregrine Falcon – (S)-NI Great Gray Owl – (S)-MI*** Gray Flycatcher – (S)-NI White-headed woodpecker-(S)-MI Mountain Quail – (S) NI Upland Sandpiper – (S)_NI Green-tailed Towhee – (S)-NI Striped Whipsnake – (S)-NI Northern leopard frog – (S)-NI	Same as Alternative B	Same as Alternative B
Neo Migratory Birds Habitat	The current condition of habitats for birds in the	About 500 acres of open ponderosa pine created.	Same as Alternative B	Same as Alternative B

Resource	Alternative A	Alternative B	Alternative C	Alternative D
	planning area would not change in the short-term. Snags would likely increase in number, benefiting many snag associated species.	Snag reductions would occur as described in cavity excavator section of Chapter 3. Other habitats would have minimal or no effects. Overall, fewer areas would have a high potential for crown fire that can lead to loss of large areas of forest bird habitat.		
INVASIVE PLANTS(NOXIOUS WEEDS)				
Potential for introducing new infestations: Harvest units - acres Haul Routes - miles	 0 acres 0 miles	 3,900 acres 79 miles	 3,900 acres 79 miles	 2,600 acres 71 miles
TES PLANT SPECIES				
Biological Determinations Threatened Sensitive	 No action No action	 No Effect No Impact	 Same as Alternative B	 Same as Alternative B
RANGE				
Livestock distribution (increase or decrease)	No change	Due to increase in forage and accessibility - in the long-term (approximately 5 years) livestock distribution could increase in uplands and decrease in riparian areas.	Same as Alternative B	Same as Alternative B
RECREATION				
Developed and Dispersed		During activities effects of	During activities effects of	

Resource	Alternative A	Alternative B	Alternative C	Alternative D
Recreation	No change	dust, noise, and smoke to developed and dispersed recreation.	dust, noise, and smoke. After road decommissioning a reduction in dispersed campsites off of decommissioned roads. Numerous alternative dispersed sites would be available.	Same as Alternative B
Travel Access	No change	During activities some roads will be temporary closed. No changes to existing travel system after project implementation.	After 4.3 miles of system road decommissioning a 10% reduction in miles of road open to all motorized travel. Seasonal closure on Hogback road would be 10 weeks longer than existing time frame.	Same as Alternative B
VISUALS (SCENERY)				
Visual Quality Objectives	No change	Would meet Forest Plan standards for Visual Quality Objectives	Same as Alternative B	Same as Alternative B
ECONOMICS				
Sale Viability – value of wood fiber per one hundred cubic feet (ccf) above base rates	N/A	$49.00	$36.00	$41.00
Benefit to local and regional economy –number of jobs	N/A	140	140	75
POTENTIAL WILDERNESS AREAS (PWAs)				
Using Forest Service Inventory criteria (FSHB 1909.12, Chapter 71) to identify PWAs in the project planning area	No change	No PWAs added to inventory	No PWAs added to inventory	No PWAs added to inventory

Resource	Alternative A	Alternative B	Alternative C	Alternative D
OTHER UNDEVELOPED LANDS				
Physical and biological resources and social values	No change	Environmental effects to physical and biological resources meet Forest Plan standards and guidelines and other applicable laws.	Same as Alternative B	Same as Alternative B
Change or no change in acres of other undeveloped lands – 8,785 acres	No change in acres	Change in acres (-1,405)	Change in acres (-1,405)	Change in acres (-955)