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Environmental Assessment

Conger Timber and Fuels Management Projects and Forest Plan Amendment

Newport-Sullivan Lake Ranger Districts
Colville National Forest
Pend Oreille County
Washington

30-day Comment Period

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ENVIRONMENTAL ASSESSMENT

Conger Timber and Fuels Management Projects and Forest Plan Amendment Analysis Area

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ABSTRACT:

The approved alternative of the Final Environmental Impact Statement, Land and Resource Management Plan, Colville National Forest (December 29, 1988), including Regional Forester's Forest Plan Amendment No. 2, and the Inland Native Fish Strategy (INFISH) Environmental Assessment (EA), establishes Forest Management Direction for the Colville National Forest in the form of Goals and Objectives. This project, if approved, would meet some of these Goals and Objectives. The projects focus on improving forest health, vegetative restoration, and hazardous fuels reduction. Three alternatives were developed including a no action alternative.

Alternatives:

A. This alternative is a "no action" alternative; however, present planned management activities would continue.

B. This alternative meets the multiple-use objectives of the Forest Plan, Regional Forester's Forest Plan Amendment No. 2, and INFISH EA by achieving silvicultural goals through commercial (timber harvest) and non-commercial (including prescribed fire) vegetation management. This alternative would treat about 3,268 acres using vegetation management tools, including about 250 acres of regeneration timber harvest. Alternative B builds no new road and decommissions about 1.2 miles of existing roads. Net change in open roads = -1.2 miles of road.

C. This alternative meets the multiple-use objectives of the Forest Plan, Regional Forester's Forest Plan Amendment No. 2, and INFISH EA by achieving silvicultural goals through non-commercial (including prescribed fire) vegetation management. This alternative proposes to treat about 3,082 acres using non-commercial vegetation management tools, including about 33 acres of regeneration treatment. Alternative C builds no new road and decommissions about 1.2 miles of existing roads. Net change in open road = -1.2 miles of existing road.

List of Acronyms

BE	Biological Evaluation (plants, fish, wildlife)	NRHP	National Register of Historic Places (heritage)
BMP	Best Management Practice (water)	OHV	Off-highway Vehicle
BPA	Bonneville Power Administration	PM	Particulate Matter (air quality)
BPE	Biophysical Environment (vegetation)	PNV	Present Net Value (economics)
CCF	Hundred cubic feet (timber volume)	PQA	Product Quality Adjustment (financial analysis)
CFR	Code of Federal Regulations	RHCA	Riparian Habitat Conservation Area (fish)
CR	County Road	RMO	Riparian Management Objective (fish)
CT	Refers to standard provisions in the Forest Service timber sale contract	ROS	Recreation Opportunity Spectrum (recreation)
CTL	Cut-to-length (a mechanized logging system)	SHPO	State Historic Preservation Office (cultural resources)
DBH	Diameter breast height (a method of describing a tree's size)	SUP	Special Use Permit
EA	Environmental Assessment	TEA	Transactional Evidence Appraisal (financial analysis)
FEIS	Final Environmental Impact Statement	TES	Threatened, Endangered and Sensitive (wildlife, plants)
FM	Fuel Model	TMDL	Total Maximum Daily Load (hydrology)
FOFEM	First Order Fire Effects Model (air quality)	TSC	Timber Sale Contract
FPA	Forest Practice Applications (WA state land)	USAF	United States Air Force
FR	Forest Road	USDA	United States Department of Agriculture
FRCC	Fire Regime Condition Class	USFWS	U.S. Fish and Wildlife Service (wildlife)
FSM	Forest Service Manual	VQO	Visual Quality Objective (scenery)
FY	Fiscal Year	WADNR	WA State Department of Natural Resources
GIS	Geographic Information System (computerized mapping and analysis software)	WUI	Wildland Urban Interface (fire)
HRV	Historic Range of Variability (vegetation)		
ID or IDT	Interdisciplinary Team		
INFISH	Inland Native Fish Strategy (fish)		
KV	Knutson-Vandenberg Act of 1930 (money collected from timber sale purchasers to conduct certain kinds of improvement work in timber sale areas)		
LRMP	Land and Resources Management Plan also known as the Forest Plan		
MA	Forest Plan management area		
MIS	Management Indicator Species (wildlife)		
MMBF	Million board feet (timber volume)		
NEPA	National Environmental Policy Act of 1969		
NFS	National Forest System		

Definitions

Commercial thinning	“Thin from below” treatment to increase the vigor of a stand to improve resiliency to fire, insects, and disease; target species to retain are fire resisters (e.g., thick bark and high, open crowns).
Shelterwood regeneration harvest	Variable retention method to leave enough healthy trees in the overstory to provide seed and shelter for the new stand; used to regenerate stands that have enough overstory dominants of the desired species.
Sanitation treatment	Objective is to slow, stop, and/or contain the growth of diseases in a stand. Involves removal of all susceptible species in an infected area plus a 50 foot sanitation buffer.
Seed tree harvest	Even-aged regeneration method designed to mimic a stand-replacement fire.
Precommercial thinning	Involves thinning a young stand to increase its vigor and resiliency.
Broadcast burn	Designed to reduce fuels and restore fire behavior attributes characteristic to the natural fire regime; secondary objective is to reduce densities of shade tolerant/ fire intolerant species that have established due to fire suppression.
Site preparation burn	Reducing post-harvest slash and create a scarified seedbed, generally following seed tree or shelterwood harvest treatments.

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CHAPTER I PURPOSE AND NEED

INTRODUCTION

The Land and Resource Management Plan of the Colville National Forest (hereafter referred to as the Forest Plan) represents the preferred alternative of the Final Environmental Impact Statement (FEIS, approved December, 1988) and, together with the Record of Decision, as amended by the Regional Forester's Forest Plan Amendment #2 and the Inland Native Fish Strategy (INFISH), provides direction for management of the Forest and general discussions of associated environmental impacts. This Environmental Assessment (EA) is "tiered" to the Forest Plan FEIS. Projects identified in this EA are being proposed to meet some of the Forest Management Objectives identified on pages 4-3 through 4-5 of the Forest Plan.

The Newport-Sullivan Lake Ranger District is conducting this EA to analyze options for restoring forest health and reducing hazardous fuels, and to provide data from which the District Ranger can make a decision. Treatment options analyzed include commercial timber harvest, prescribed burning, and other timber, wildlife, and recreation projects.

Location

The Analysis Area encompasses about 5,708 acres of National Forest System (NFS) land within the Trimble Creek, Smalle Creek and Winchester Creek drainages. The elevation of the area ranges from about 2,200 to 4,000 feet. The legal description is all or portions of the following: Sections 5, 6, 8, T32N - R43E; Sections 4, 7, 8, 9, 16, 17, 20, 21, 29, 30, 31, 32, T33N - R43E; Willamette P.M.; Pend Oreille County, Washington. A vicinity map is located in Appendix B.

PURPOSE AND NEED

The need to implement the Forest Service Strategic Plan (revision 2000) in a manner consistent with the Colville National Forest Land and Resources Management Plan, and utilizing commercial timber sales as a tool whenever possible, forms the underlying basis for this project. This project is also designed to meet the goals of the Pend Oreille County Wildland-Urban Interface Wildfire Mitigation Plan (2005).

There is a need to reduce hazardous fuels¹ (ground fuels, ladder fuels, and forest crown continuity), for the purpose of reducing the risk of large, stand-replacing fires. The effect of reducing the risk of large, stand-replacing fires would be to: 1) decrease the probability that a future wildland fire would develop into, or be sustained as, a stand-replacing or crown fire, 2) increase the ability to provide for public and firefighter health and safety during a wildland fire, and 3) increase the effectiveness and efficiency of protecting property within the wildland-urban interface². The Pend Oreille County Wildland-Urban Interface (WUI) Wildfire Mitigation Plan includes the need to consider forest management efforts that would slow the approach of a fire that may threaten the towns of Cusick and Usk.

Wildfires are becoming increasingly expensive; dangerous to firefighters; and threatening to wildlife habitat, beneficial uses of water, and adjoining private land and property. During the past 75 years, fire suppression has resulted in increased ground and ladder fuel conditions, and increased tree-crown continuity in portions of the Conger project area. As forest fuels have increased over time, the potential for high intensity crown fires has also increased. Therefore, there is a need to start the process of reversing this hazardous and expensive trend by reducing fuel levels and stocking. Over the long-term, hazardous fuels reduction will offset and eventually reduce escalating fire suppression costs and create a more "fire-safe" forest environment.

¹ 10-year Comprehensive Strategy Implementation Plan (USDA Forest Service, 2002)

² Cohesive Strategy Priority (USDA Forest Service, 2000)

The health, resilience and productivity of fire-adapted ecosystems rely on periodic burning at ecologically appropriate frequencies. Today, many of the most serious wildfire threats and forest health issues occur in these fire-adapted ecosystems. Reducing forest fuels in these fire-dependant ecosystems can make them more resilient to wildfires.

Most of the natural fuels proposed for treatment in the Conger planning area are already in Condition Class³ 2 or are in Condition Class 1 and moving toward Condition Class 2. Reducing fuels in Condition Class 2 stands, and maintenance activities in Condition Class 1 stands, will be the focus in achieving the primary purpose as mentioned above².

The consequence of deferral is high: allowing fire-adapted forests to develop into Condition Class 3 stands greatly increases the wildfire severity. The cost of fuel reduction and maintenance burning can be substantial; yet without fuel reduction treatments, fire suppression costs, public resource losses (including wildlife & riparian habitat), private property losses, and environmental damages are expected to be significantly greater over time.

There is a need to remove diseased trees, reduce stand density, and modify tree-species composition for the purpose of improving forest health⁴. This will have the effect of 1) improving tree growth, 2) reducing tree and stand susceptibility to damaging insects and diseases, and 3) improving the distribution of stand structures⁵ across the forest landscape.

The Forest Plan directs that the Forest Service promote tree growth, have reduced insect and disease levels, and have stand densities that will sustain wood fiber production (Forest Plan pages 4-2, 4-18, 4-64, 4-65). For Forest Plan Management Areas 1, 5, 6, 7, and 8, the Forest Plan directs that insect and disease outbreaks be prevented or suppressed when management Area values are threatened (Forest Plan pages 4-72, 4-96, 4-100, 4-101, 4-104, 4-108).

Currently the Conger planning area includes many acres of vegetation that are crowded and highly susceptible to a variety of pathogens. These include bark beetles, defoliating insects, dwarf mistletoes, and root diseases. These and other forest pathogens are currently present at endemic levels; however, without stand improvements, there is a high probability of population increases resulting in significant tree mortality and increased fuel loading. Stand treatments are needed to reduce susceptibility to continuing insect and disease-caused mortality over the longer-term.

Treating excess fuel build-up and beginning to restore fire to its historic function in the ecosystem would push treated areas towards a healthier, more resilient condition. Historically, fire was the primary ecosystem disturbance shaping the upland vegetation and wildlife populations (because of fire's effect on habitat). Fire suppression through past decades has changed the relationship between fire and the landscape; this has caused shifts in species composition, stand structure, and created homogeneity. Restoring fire where possible will increase the resiliency of the landscape to stand-replacement wildfires and impacts of high insect population levels. Consistent with the National Fire Plan, this project emphasizes treatment in the portions of the Analysis Area with shorter-interval, fire-adapted ecosystems.

³ Condition Class is one way of determining a stand's potential risk to wildfire. Condition Class 1: trees tend to be widely spaced, resulting in low intensity ground fires. Most large trees survive wildfire. Condition Class 2: tree spacing is denser; fire occasionally reaches the crowns. Heavy mortality occurs in small trees, and is light to moderate in large trees. Condition Class 3: tree stands are dense with intense fire burning in most tree crowns; wildfire would cause heavy mortality to entire stand and the soil's organic layer may be removed.

⁴ A healthy forest is defined as the condition in which the forest (trees, stands and forested landscape) meets the desired conditions described in the Forest Plan.

⁵ A structural stage is a stage in development of a vegetation community. Examples of structural stages include stand initiation, stem inclusion, understory re-initiation, multi-stratum without large trees, multi-stratum with large trees, and single-stratum with large trees.

Restoring early seral species to their historic level will improve sustainability and resiliency in this ecosystem. Under historic fire regimes, early seral species played a more dominant role in the landscape. Many of the largest trees were early seral species. Harvest, especially during the homestead era, removed the largest early seral trees. Restoring early seral species would result in a landscape that is less susceptible to insects and diseases and better able to withstand effects of fire.

SUMMARY OF NEEDS

Based on management guidelines and Forest Plan Standards, the following needs have been identified:

- Reduce fuels in areas where property damage could be incurred by high-intensity (stand-replacing) fires.
- Meet the goals of the Pend Oreille County Wildland-Urban Interface Wildfire Mitigation Plan by managing NFS lands adjacent to the communities of Cusick and Usk to reduce the area of WUI land burned and losses experienced because of wildfires where these fires threaten communities in the wildland-urban interface and prioritize the protection of people, structures, infrastructure, and unique ecosystems that contribute to their way of life and the sustainability of the local and regional economy
- Reintroduce historic disturbance regime with use of prescribed fire.
- Improve fire resiliency with fire tolerant tree species (early seral species).
- Improve forest health by removing diseased trees, reducing stand density and restoring early seral species to their historic level.
- Manage stands to develop late and old (including park-like) structural stage stands.
- Improve vigor in residual stands to increase resistance to insect outbreaks.
- Regenerate areas that fall below minimum stocking levels.
- Improve cover:forage ratio in big game winter range
- Modify Management Area 1 to move to most appropriate location per Forest Plan direction.

MANAGEMENT AREA GUIDELINES

Management direction for each Management Area (MA) is provided by the Forest Plan, which describes in detail the Goals, Objectives, Standards, Guidelines and Management Prescriptions (Forest Plan Chapter 4). About 5,708 acres of NFS land and 22 acres of non-NFS land lie within the Analysis Area. The goal of each MA is briefly described below.

Management Area	Acres	Percent of Analysis Area
1	637	11%
5	1,868	33%
6	2,254	39%
7	186	3%
8	763	13%

There are five MAs in the Analysis Area. This table shows the percent of NFS land allocated to each management prescription, and maps in Appendix B show the locations of these management prescription areas.

MA-1 – Old Growth Habitat – The goal is to provide essential habitat for wildlife species that require old growth forest components and contribute to the maintenance of diversity of wildlife habitats and plant communities.

MA-5 – Scenic/Timber – The goal of these areas is to provide a natural appearing foreground, middle and background along major scenic travel routes, while at the same time providing wood products.

MA-6 – Scenic/Winter Range – The goal is to provide a natural appearing foreground, middle and background along major scenic travel routes while providing quality winter range for deer.

MA-7 – Wood/Forage – The goal is to achieve optimum production of timber products while protecting basic resources.

MA-8 – Winter Range – The goal is to meet the habitat needs of deer to sustain carrying capacity at 120% of the 1980 level, while managing timber and other resources consistent with fish and wildlife management objectives.

PROPOSED ACTION

The proposed action would treat vegetation to move this area toward the desired future condition, while attaining some of the specific Forest Management Objectives and related improvement projects (Forest Plan, Chapter 4, page 4). The proposed action would result in selling the Conger Timber Sale, planned for fiscal year (FY) 2007 and utilize prescribed fire in the project Analysis Area. This project Analysis Area would provide up to 15,500 hundred cubic feet (Ccf) (8.1 MMBF) of wood products. The proposed action is analyzed in Chapters II and III as Alternative B.

The proposed action would include:

- Prescribed underburning of approximately 2,715 acres to eliminate unwanted vegetation and reintroduce a historic disturbance regime. This would also reduce fuels in areas where property damage could be incurred by high-intensity (stand-replacing) fires.
- Timber harvest within MAs 5, 6, 7, and 8 to treat stands that are currently overstocked which makes them more susceptible to insect and disease attack. The silvicultural prescriptions on MA 5 and 6 lands would be compatible with visual quality objectives as much as possible. Management on MAs 6 and 8 lands would be compatible with management for big game winter range. Up to 1,201 acres could be treated within these areas.
- Ground-based logging systems are expected to be used for yarding the majority of the sale area. Some helicopter logging systems would be used in more remote areas.
- No new road construction is proposed. Approximately 9.5 miles of existing system road could receive light (occasional drain dip construction with associated light blading and brushing) reconstruction, and approximately 11.2 miles of existing system road could receive medium (includes “light reconstruction” plus the occasional clearing of vegetation; excavation of cutbank and roadbed for additional width to accommodate the vehicles used for commercial harvest activities, embankment construction, and culvert replacement and installation) reconstruction. Up to two existing rock sources would be further developed to provide material for road reconstruction or maintenance.
- Relocation of the existing MA-1 to a more suitable location within the Analysis Area. The relocation would convert approximately 329 acres of MA-6 and 163 acres of MA-8 to MA-1. The original MA-1 would be reclassified as MA-6, resulting in a net increase of 144 acres (5 percent) of available winter range. The relocation of the MA-1 would result in Forest Plant amendment #29.

- No project activities would occur in any Forest Plan designated roadless areas or in unroaded areas greater than 5,000 acres in size.
- No project activities would occur in recovery areas for bull trout, grizzly bear, woodland caribou, or gray wolf.
- No project activities would occur in Lynx Analysis Units.
- Any areas needing regeneration would be planted with species that are more resistant to fire, insects, and diseases.

ISSUES

The following concerns raised by the Forest Service interdisciplinary team analyzing this project will be discussed in depth in the analysis in Chapter III:

- Excessive fuel buildup near private land with residences;
- Treatment of vegetation affected by insects and disease;
- Reducing stand density, and modifying tree-species composition for the purpose of improving forest health;
- Treatment of vegetation in big game winter range for the purpose of improving cover:forage ratio;
- Relocating MA-1 to more suitable location;
- Protection of soil resources – reduce or minimize compaction, sedimentation, displacement and erosion;
- Treatment of noxious weed populations.

Major Project Issues

Major project issues that will be used to design and compare the alternatives presented in Chapter II are as follows:

Issue 1 – Reduction of Hazardous Fuels

Fire as a natural process, through suppression efforts, has been removed from the ecosystem. Tree encroachment and high fuel loads are common, especially in the dry Douglas-fir biophysical environment⁶. Fires that burn on these sites in the future will be of higher severity and result in mortality of larger trees than historically occurred. There is a need to reduce hazardous fuels, for the purpose of reducing the risk of large, stand-replacing fires, as well as reducing the chance of fires damaging private property, and return fire regime and condition class back to a historical range within the Analysis Area.

Comparison Criteria - Acres of priority stands commercially and non-commercially treated to manage existing and potential risk of stand-replacing fires.

Issue 2 – Forest Health

Since the settlement period of the early 1900s, fire exclusion has been a leading cause of alteration of structural and species diversity of many of these stands. These stands are overstocked, show signs of low vigor, and provide a climate for continued concerns for insect and disease outbreaks.

⁶ Biophysical environments represent potential natural vegetation association groups with similar fire ecology regimes.

Comparison Criteria – Acres of priority stands commercially and non-commercially treated to promote development of late and old structure, and move them toward their historic range of structural stage distribution.

Issue 3 – Winter Range Habitat

The Cover:Forage ratio goal of 50:50 is not currently being met on deer winter range in the Analysis Area. There are not enough productive foraging sites, nor quality thermal/snow-intercept cover, to meet Forest Plan standards.

Comparison Criteria – Percent of the wintering area in thermal cover and snow-intercept cover; percent increase in acres with improved forage quality and quantity. Comparison with Forest Plan standards.

DECISION NEEDED

The decision needed from the Newport-Sullivan Lake District Ranger, the responsible official, is whether or not to implement these projects, and if so, which action alternative will best address site-specific issues while meeting management direction as stated in the Forest Plan.

CHAPTER II ALTERNATIVES CONSIDERED

INTRODUCTION

This section describes the alternatives that were developed by the Interdisciplinary (ID) Team in response to the issues identified. The team identified a reasonable range of alternatives and then evaluated potential environmental impacts of the various proposals (see Chapter III). All alternatives are consistent with the Forest Plan as amended, including Regional Forester's Forest Plan Amendment #2 and the Inland Native Fish Strategy Environmental Assessment (EA).

Table 2 on page 19 uses the comparison criteria for each issue identified in Chapter I on page 5 to compare alternatives. A detailed discussion of effects by alternative is contained in Chapter III and the Analysis File. Measures required to mitigate the effects of this project are also presented in this chapter.

Alternatives

1. Alternative A – No Action

Neither the proposed action nor any other action alternative would be implemented at this time under this alternative. However, existing planned management activities would continue.

Issue 1 – Reduction of Hazardous Fuels

This alternative would continue with fire exclusion as the dominant human-related disturbance on the landscape. The current condition suggests a substantial amount of the land area in the drier forest types is in a higher condition class (FRCC 2-3) due to increased fuels and alterations of the canopy. Canopy alterations are occurring following two trajectories; both provide different outcomes for fire behavior.

Definition: The Fire Regime-Condition Class (FRCC) is used to describe the degree of departure from the historic fire regimes that result from alterations of key ecosystem components such as composition, structural stage, stand age, and canopy closure.

The first common trajectory involves areas with higher incidence of root disease, mistletoe and insect damage. In these areas, the canopy is undergoing biomass collapse and a shift from an open, healthy single-strata overstory to a brush-dominated understory with heavy fuels. This condition allows for higher windspeeds. In addition more exposure decreases site moisture and allows for earlier conditioning of fuels for a longer period of time during the summer.

The other canopy trajectory altering the fire regime is the general increase in number of trees and canopy closure from an open stand condition to a multi-strata condition. In this trajectory, the fuels complex is allowed to build and the heavy stocking in all canopy layers causes high connectivity of ladder fuels. While closed canopy conditions decrease windspeeds and result in higher understory moistures, the fuels complex is composed of mostly shade tolerant species that are unable to resist even low heat intensities. As such, fires of even low intensities would cause high rates of mortality in areas that traditionally were able to resist fires. Also, with an increase in ladder fuels, these stands would be increasingly susceptible to severe, stand-replacement fires.

The no action alternative would dramatically alter the fuels complex over time. Approximately one-half of the Analysis Area is in a frequent fire regime that promotes open timber-litter fuels structures. Under the no action alternative, fuels accumulations

would continue to shift away from light, fine fuels and grasses (fuel model⁷ 2/9) to a condition favoring coarse wood debris and high levels of litter and duff (fuel model 10). Increased fuels increases heat intensity, stand mortality, and would increase the difficulty in fire suppression tactics. During the next inevitable wildland fire event, significant cost and risk is associated with suppression tactics where fuel model (FM) 10 exists.

Issue 2 – Forest Health

The current structural and compositional distribution of vegetation on the landscape shows clear divergence from historic conditions in the amount of old forest, single stratum for the fire tolerant, warm-dry Douglas-fir/grand fir biophysical environment⁸ (BPE) and a corresponding increase in multi-strata forest types (Stages 5 and 6). This condition is directly related to the exclusion of fire as a disturbance process and would increase the risk and success of insects and diseases, primarily Douglas-fir beetle and root diseases

There are seven **structural stages** identified under the Regional Forester's Forest Plan Amendment #2: Revised Standards for Timber Sales on Eastside Forests (Lowe, 1995). All structural stages are represented in varying proportions in the watershed. Structural stages 1, 2 and 3 are considered an early structural stage of stand development. Structural stages 4 and 5 are considered a middle structural stage. Structural stages 6 and 7 are considered late or old structural stages. Variations in structural stages are a result of fire, insects, diseases, harvest disturbances, weather (precipitation level, wind, etc.) and stand development.

(e.g., Armillaria). The shifts in composition away from the open structure environment under the no action Alternative would continue to cause stress to the overstory fire-tolerant cohort, and (at the landscape scale) would not improve the movement of the stands in the Analysis Area toward the target condition. Overall, the drier BPE stand types would continue to gain biomass; in areas where root disease has not taken hold, the midstory cohort would greatly increase ladder fuels from self thinning and result in high crown connectivity and densities. Higher crown connectivity leads to increased insect and disease (especially mistletoe) transmission. Overall, loss of early seral species would continue to occur in the Conger Analysis Area. Approximately one third of the area would contain shade tolerant species dominance in areas that have traditionally never supported that species mix.

The no action alternative would not address the very serious issue of root disease and mistletoe found in virtually every proposed stand. Root disease has led to fragmentation of stands, with increased downed wood debris and a long-term structure of shrub fields. While much of the land area would gain forest cover, mostly shade-tolerant species under this Alternative, a very large segment of land area (potentially all of the warm-dry Douglas-fir stands, or ~36% of the Analysis Area is susceptible to fragmentation due to root disease. The no treatment option would allow root diseases to increase in size, thereby increasing stand fragmentation, and ultimately would lead to conversion of potential old growth, single strata (stage 7) stands to brush fields that would persist for many years. In addition, the decadent overstory of western larch that is present in many of these stands is highly infected with mistletoe and is not a viable seed source. As such the eventual decline of western larch and natural seed sources would further increase the distribution and magnitude of root disease pockets throughout the Analysis Area. Dense canopies in areas outside of the root disease infected zones have already shown some recent beetle activity, with moderate degrees of success. In many stands, stand vigor has been declining in recent years and this decline appears to be related to stocking and soil productivity. The no action alternative would allow for the eventual successful attack by insects; stand-to-stand connectivity of dense crowns would ensure a wide-spread attack, causing substantial mortality.

⁷ Fuel models are based on ground cover conditions (i.e. grass, shrubs, slash or other timber litter), and the amount of ladder fuels creating connectivity to the canopy, that describe fire hazard potential.

⁸ Biophysical environments represent potential natural vegetation association groups with similar fire ecology regimes.

Issue 3 – Winter Range Habitat

This alternative would not have a direct impact on winter range habitats because no treatments would occur. However, over time forage conditions in the project area would deteriorate as upland shrubs become less palatable, lower in nutritional value, and eventually grow beyond the reach of big game animals. In addition, encroachment by young conifers would eventually shade out herbaceous and woody species, reducing overall forage availability. Although the occurrence of wildfire could improve forage conditions by allowing understory vegetation to reestablish, fire suppression policies in recent years have created conditions (e.g., the build up of forest fuels) on the Forest that are conducive to large-scale, stand-replacement wildfires. Such fires have the potential to burn large expanses of forest and result in openings so large that they may be underutilized by forest edge-associated big game species due to the absence of nearby cover.

Description of Proposed Project Design for Alternatives B and C

The following design criteria are accepted practices that have proven effective in mitigating effects of timber harvest and fuel treatment associated activities. These actions would be taken to avoid, minimize, reduce, eliminate, or rectify the effects of management activities (40 CFR 1508.22). Best Management Practices (BMPs) are methods, measures, or practices selected by the ID Team to meet nonpoint-source erosion control needs. Ground-based logging systems may include tractor and/or cut-to-length systems.

Fuels and Vegetation Management

1. Log landings, skid roads and other areas of concentrated soil disturbance would be grass seeded as per direction by the Colville National Forest Noxious Weed Prevention Plan. All temporary roads, skid trails, landings or other areas of ground disturbance would be seeded with a Washington state certified weed-free native and desired non-native seed mix. Existing noxious weed infestations would be treated prior to burning and disturbed soil would be reseeded as soon as feasible after burning. Slash piles would also be grass seeded after burning. This helps ensure establishment of desirable vegetation and has proven effective in reducing or preventing establishment of noxious weeds.
2. Prescribed fire may be used in riparian habitat conservation areas (RHCAs) if the predicted fire effects results in less than 10% duff removal within these areas. Skid trails, handlines, blacklines, wetlines and/or fuel breaks would be used to exclude fire from RHCAs if predicted and/or actual fire effects exceed 10% bare mineral exposure. Handlines would not be constructed within RHCAs except when necessary to contain a fire burning outside burn plan parameters. Each prescribed fire project would have an approved burn and contingency plan.
3. For all treatment areas proposed for prescribed fire - Develop burn plans so that the mineral soil surface is not oxidized to a reddish color and so that some of the forest floor litter and duff layer is retained over most of the burn area. Avoid prescriptions that result in duff removal of large areas (greater than 100 square feet).
4. Fuels treatment proposed within the area should be planned and implemented in such a way as to avoid impacts of fire or smoke on power transmission lines.
5. To prevent powerline “flash-over” where activities are adjacent to power transmission lines, design requirements would include road dust abatement, equipment grounding chains, and no burning within 200 feet of the BPA⁹ right-of-way.

⁹ Bonneville Power Administration

6. Patch cut treatments in a 50 foot buffer surrounding suspected root disease pockets are proposed to be made. Treatments should be aimed to minimize ground disturbance to the greatest degree possible to avoid the spread of root disease. Following treatment, ponderosa pine, western larch, and white pine (i.e., disease resistant species) are to be planted; their establishment success would be monitored years 2 and 5 following treatment. Should root disease be observed to be outside the original buffer ring (i.e., the buffer was not large enough), further treatments and replanting of resistant species may become necessary. If any additional treatment is considered, it would be analyzed under a future NEPA¹⁰ document.
7. Regeneration success would be monitored years 2 and 5 following harvest. Monitoring for mortality due to animal damage, frost kill, or other incidence would occur during these years. Replanting may become necessary to ensure the successful regeneration establishment within 5 years.
8. Retained trees would be protected from understory and jackpot burns where appropriate. Mortality associated with prescribed burning would not exceed 20% of the retained basal area at the patch scale (200 – 500 acres). If deemed appropriate, mechanical slash treatments (such as grinding, grapple piling, etc.) may be used to protect retained trees. Monitoring for future mechanical or prescribed burn fuels treatment opportunities would follow to reduce fuels in stands where mechanical slash treatments were made.
9. Monitoring for insects, diseases, post-fire mortality, and ground cover response would occur by year 5 following treatment. Noxious weeds, excessive shrub competition (of regenerating trees) or other forest health issue would be monitored.

Noxious Weeds

10. All straw or hay used for mulching or watershed restoration activities would be weed-seed-free, as documented by inspection letter from a Washington State Noxious Weed Control Board or by using legally certified weed-free material from states with a certification program.
11. Weed prevention would be conducted using guidelines and priorities established in the Environmental Assessment for Integrated Noxious Weed Treatment, Colville National Forest (USDA, 1998) as amended by the Region 6 Preventing and Managing Invasive Plants Record of Decision (USDA, 2005). The Colville Noxious Weed EA incorporates guidelines of the Colville National Forest Land and Resource Management Plan (Forest Plan). In addition, the project would conform to the Colville National Forest Weed Prevention Guidelines and the Colville National Forest Guide to Reseeding and Revegetation.
12. Inclusion of Contract Provision CT6.343 - Noxious Weed Control, or its equivalent, would be used to require cleaning of all road maintenance or harvesting equipment prior to entry onto National Forest System lands.

Threatened, Endangered, and Sensitive Species (TES)

13. To the extent feasible, enough low vegetation would be retained along open roads adjacent to harvest areas in order to maintain existing line-of-sight distances from the roads into the stands. Typically this would entail retaining brush, seedlings saplings and pole-sized trees in clumps or linear strips that are at least 20 feet wide. Prescribed fires would not be started within these forested “buffers”. If necessary, fuels would be pulled away from the road edge or a fuel break would be cut to minimize the loss of vegetation from the roadside buffer.

¹⁰ National Environmental Policy Act

14. Management activities within structural stage 6 or 7 (late and old stand structure) would be directed toward reducing the risk of stand-replacing wildfires. Trees less than 21 inches in diameter, understory brush and fuel jackpots would be targeted for removal. If any stands meeting the North Idaho definition of old growth were identified during future reconnaissance or unit layout, they would be excluded from timber harvest.
15. All existing snags would be retained with the exception of those necessary to be felled within new equipment corridors, or for worker safety. Any snags felled for these reasons would be left on site to contribute to down log levels. Snags identified as hazard trees along the Batey-Bould Motorcycle Trail could be felled and harvested with this contract.
16. All existing down logs would be retained within harvest areas, using Region 6 interim screen standards.
17. When thinning dry forest types (ponderosa pine / Douglas fir), some overstory leave trees would be left in clumps. This would provide pockets of higher basal area and interlocking tree canopies at the stand level. An average of 2-3 clumps would be retained per harvested acre. A clump would consist of 2 to 6 ponderosa pine or Douglas fir trees that have forks below DBH or are closely spaced (2 to 8 feet apart). In addition, no treatments would be planned within discrete inclusions of shade tolerant trees (i.e. pockets of redcedar or grand fir) in such stands.
18. If a TES species is found in the project area while project activities are occurring, a biologist would be consulted as to measures required to protect the species and its essential habitat.

Management Indicator Species (MIS)

19. Where the opportunities exist, 5 acres of dense conifer seedlings/saplings/poles would be maintained per every 40 acres of commercial thinning in MAs 6 and 8. These trees would be reserved from thinning in 3- to 5-acre patches. Dense copses located on benches, saddles, and in dry draws should be the highest priority to maintain. This measure is intended to optimize cover availability for mule deer.
20. Under Alternatives B and C, prescribed fire may be used in designated travel corridors if the predicted fire effects result in a residual canopy closure that meets or exceeds eastside screens. Skid trails, roads, handlines, blacklines, wetlines and/or fuel breaks may be used to exclude fire from these areas if predicted and/or actual fire effects fail to meet the eastside screens for timber sales (Lowe, 1995).
21. To limit disturbance to wintering big game, winter harvest activities would be confined to units located in one half of the sale area, in a given winter. If winter activities were scheduled to occur north of Smalle Creek in a given winter, no winter activities would occur south of the creek, and vice-versa. The wintering period for big game runs from December 1 to March 31.
22. If an active raptor or heron nest were found within or near to an activity area, a biologist would be consulted as to specific measures needed to protect the site.

Roads

23. All haul routes with noxious weed populations would be pre-treated with herbicides (per the Noxious Weed EA, as amended by the Region 6 Preventing and Managing Invasive Plants Record of Decision (USDA, 2005)) prior to harvest activity. Noxious weed inventories would be updated prior to, during and after implementation of the project, and weeds would be treated to prevent establishment and spread as needed. The

- effectiveness of the prevention measures and treatments would be monitored during all phases of the project by the sale administrators and district personnel who have weed program responsibilities.
24. During road reconstruction, any surfacing material (rock and gravel) would be taken from sources that are known to be free of noxious weeds. Any pits used as rock sources would be treated to eradicate all noxious weeds from the pit area prior to hauling material from the pits.
 25. Unauthorized, motorized traffic on any bermed roads opened for this project would be excluded with the use of gates, signs or other means. Once project activities are complete, these roads would be effectively re-closed to motorized travel with berms, boulders, piled slash, plantings, etc. In the same manner, skid trails would be effectively blocked where they intersect open roads.
 26. For temporary roads and landings, reuse areas that are already detrimentally compacted to the extent possible in order to avoid detrimentally impacting additional new areas (e.g., use existing roads, unclassified roads and landings).
 27. Preserve the existing vegetation below reconstructed system and temporary roads as much as possible for visual screening.
 28. Protect all authorized improvements (access roads, powerlines, and telephone lines). Trees are to be felled away from powerlines.

Fisheries

29. General: Pumps and gas cans would be refueled outside RHCAs and absorbent booms and pads would be employed to capture any leaks or spills. In the event of a fuel spill during a burn project the Forest Hazardous Materials Coordinator would be contacted to coordinate clean up.
30. Fuel Treatment Projects: The use of pumps in streams is not anticipated. However, if needed, the use of pumps would not involve any streambed alteration. Pump chances would not pose any barrier to fish movement. The deployment of hose would not require any ground disturbance, and in many cases the use of hose for “wetline” could reduce the need for hand fireline construction.
31. Fuel Treatment Projects: Use construction and prescription techniques that would maintain soil productivity, minimize erosion, and prevent ash, sediment, nutrients, and debris from entering water bodies. (BMP PF-3) Some techniques may include:
 - a. Constructing water bars in fire lines;
 - b. Maintaining the integrity of the streamcourse;
 - c. Planning prescribed fires with intensities that would not result in soils becoming hydrophobic; and
 - d. Retaining or re-establishing ground cover to prevent erosion of the burned site.
32. Roads: Contain and adequately disperse of runoff within the road clearing limits to minimize the detrimental effects of additional runoff volumes related to roadway surface drainage. Roadbeds should be armored adjacent to riparian areas (RHCAs). Ditches, cross drains, water bars, dips, and grade sags should be used to control runoff volumes. (BMP PR-7)

33. Roads: Conduct road maintenance activities to minimize sediment production originating from sidecast material. During road maintenance operations, the deposition of sidecast material shall not occur where it would weaken stabilized slopes. Disposal of slide debris shall occur only at designated waste areas. Waste areas shall be revegetated using the Colville National Forest Seeding Guides immediately after disposal of waste materials. (BMP PR-11)

Water and Soil

34. Clearly delineate on a Sale Area Map all watercourses, including intermittent water courses, found during detailed timber harvest sale planning, and establish appropriately sized RHCA's for protection of these water courses.

Best Management Practices

Best Management Practices (BMPs) are the primary mechanism to enable the achievement of water quality standards.

The following BMPs have been selected and designed to meet water quality standards for the Conger Environmental Assessment. The full text of these project-specific BMPs is located in Appendix D of the EA. They are summarized below.

- PT-4 Use of Sale Area Maps for Designating Water Quality Protection Needs. Wetlands and streams have been identified that need to be placed on the Sale Area Map for protection.
- PT-7 Riparian Habitat Conservation Area (RHCA) Designation. No timber harvest will occur within the standard RHCA's as defined in the Inland Native Fish Strategy.
- PT-9 Determine tractor loggable ground. Tractors will be limited to slopes less than 35% and cut-to-length (CTL) equipment will be limited to slopes less than 40%.
- PT-12 Suspended Log Yarding in Timber Harvesting. In skyline and helicopter units, logs will generally be suspended and will be suspended across streams.
- PT-13 Erosion Prevention and Control Measures During Timber Sale Operations. Equipment will not be operated when ground conditions are such that excessive damage would result.
- PT-14 Revegetation of Areas Disturbed by Harvest Activities. Seed areas of disturbed or bare soils.
- PT-16 Erosion Control on Skid Trails. Design skid trails to drain, install water bars or other drainage structures as needed.
- PF-3 Protection of Water Quality During Prescribed Fire Operations.
- PR-7 Control of Surface Road Drainage Associated with Roads.
- PR-11 Control of Sidecast Material.
- PR-13 Diversion of Flows Around Construction Sites. Stream channel would be diverted during replacement of the culvert on FR 4300468 (Graham Creek).
- PR-14 Culvert Installation and Protection of Fisheries. Sediment producing materials will not be left within reach of anticipated flood flows during replacement of the culvert on FR 4300468.
- PR-16 Specifying Riprap Composition. Rip rap used during replacement of the culvert on FR 4300468 will be in the 15-20 inch range (class 3 or 4).
- PR-17 Water Source Development Consistent with Water Quality Protection. Water needed to supply water for road reconstruction, dust control, or fire control may

be obtained from Conger Lake, Conger Pond, unnamed streams that cross FR 3116177 and FR 3116176, or Winchester Creek.

Soils

35. The following stands include areas that are too steep to log with a tractor or CTL (stands 3017219, 3017351, 3017376, 3017379, 3017399, 3017400, 3017413, 3017414, 3017419, 3017420, 3017454, 3017480, 3017496, 3017543). The timber sale may exclude these steep inclusions or may change the logging system to skyline or helicopter for these inclusions. (BMP PT-9)
36. If a unit is logged with a tractor, the skid trails should generally be at least 130 feet apart except when converging; i.e., at landings or to avoid streams or rock outcrops. (BMP PT-11)
37. If a unit is logged with a cut-to-length system, trails would be at least 40 feet apart except when converging, and at least 80% of the trails must be effectively buffered with slash, or snow or protected by frozen ground conditions. Both the processor and the forwarder would use the same trails. If buffered by slash, the slash would need to be at least 10 inches deep prior to crushing by the equipment. If buffered by snow, the snow would generally need to be about 10-24 inches as measured in an opening. If buffered by frozen ground conditions, the ground must be frozen and unbroken after the equipment passes. (BMP PT-11)
38. For all units - Mechanized felling equipment would not be allowed to operate off of designated skid trails. If the purchaser requests to use ground-based equipment off of designated skid trails or in skyline or helicopter yarded units, the request would be reviewed and considered on a case-by-case basis. That would allow the Forest Service to consider all the pertinent conditions at the time of the request – soil moisture content, rock content, the exact equipment proposed, volume to be removed, slash available, and other mitigating circumstances such as snow or frozen conditions.
39. Leave most of the tops and branches from the removed timber on the site. Most of the nutrients in a tree are located in the bark, limbs and foliage (Grier et al., 1989). Leaving branches and foliage retains many of the important plant nutrients on the site for future growth. Applies to all treatment areas where branches may be removed – including commercial harvest and the removal of commercial-sized trees to decking areas (alternative C).
40. Leave slash on the ground for one winter prior to treating. Water soluble nutrients, such as potassium, will leach out of slash through the winter. Burning or other fuel treatments after it was over-wintered would retain more nutrients on the site. Applies to all treatment areas.
41. In areas that have recognized off-highway vehicle (OHV) use, design and implement the ground-based yarding system so that it is unattractive to OHV riders. Trails covered with slash are not as attractive to OHV riders. Applies to treatment stands 3017483, 3017485, 3017486, 3017487, 3017493, 3017496, 3017501, 3017502. (BMP P-REC-6)
42. The following stands include streams or wetlands requiring protection. These features should appear on the Sale Area Map (3017351, 3017368, 3017411, 3017413, 3017419, 3017420, 3017427, 3017438, 3017439, 3017493, 3017501, and 3017502). (BMP PT-7)
43. Stand 3017464 is wet in the spring and is slow to dry out – log in the late summer or during the winter.

Scenery Management

44. Cable logging system: project design would include keeping cabled corridors as narrow as possible to reduce contrasting line effects; oriented away from viewing location when possible. Where skyline corridors are necessary, they would run to a series of small landings rather than in a fan shape to one large landing. Designated skid trails would be kept to the minimum number and width needed to accomplish the harvest operations.
45. Created opening: project design would include using irregular shaped openings (no straight lines or corners—line, form) with grouped leave tree islands to reduce visual contrasts; and limiting the size of created openings (color contrasts). Tractor skid trails or temporary roads would follow the contour in the land in an effort to keep the linear openings perpendicular to the normal line of sight
46. Canopy texture: prescriptions should call for the retention of the highest number of trees per acre appropriate for a thinning, thus maintaining enough forest canopy to meet the middleground Partial Retention Visual Quality Objective (VQO) (leave trees may be grouped or clumped).
47. Mimicking natural density changes around created openings, and retaining the natural variances within the stand rather than “evening out” the spacing of trees, would help to reduce the obvious character changes occurring in the overall landscape.
48. Maintain hardwoods for diversity of pattern and color.

Recreation – Batey-Bould Motorcycle Trail

49. Winter logging would be required in stands that cross the Batey-Bould trail to utilize the existing road/trail system, and minimize disturbance to the trail. Applies to stands 3017501, 3017502, 3017496, and 3017493.
50. Lay out harvest units adjacent to Batey-Bould Trail such that the number of trail crossings needed for harvest operations are minimized. Any parts of the trail disturbed by timber or fuels operations are to be rehabilitated back to original condition as soon as possible.
51. Operate in units adjacent to the Batey-Bould trail outside the primary use period (June through September).
52. For safety to Batey-Bould trail users, administratively close those portions of the trail adjacent to active harvest or prescribed fire operations. Keep trail closures to the minimum necessary to complete timber & fuel operations without compromising visitor safety.
53. During sale preparation of units adjacent to the Batey-Bould trail, mark dead hazard trees that could hit the trail for removal.
54. Leave heavy vegetative stocking along the Batey-Bould trail to discourage off-trail travel by motorcycles.
55. No harvesting, hauling of timber, or moving of equipment would occur over the following holiday periods: Memorial Day weekend; Labor Day weekend; or Fourth of July holiday (considered to be a minimum of July 3-5).
56. Warning signs would be placed in conjunction with harvest activities informing forest visitors of the activity (e.g., “timber harvest ahead” or “equipment working ahead”). Manual of Uniform traffic Control Devices specifications would be utilized.
57. Timing of prescribed burning should avoid peak weekends (particularly Memorial Day and Labor Day weekends).

58. Project-created hazards adjacent to dispersed sites (e.g., partially burnt snags) shall be felled as soon as practical.
59. Road closures to facilitate harvest or burning operations should be kept to a minimum without compromising visitor safety. Access roads leading from Flowery Trail should be signed as to the closure as well as the specific secondary road.

Heritage Resources

60. Historic properties must be avoided during implementation of project activities.
61. When falling trees near historic resources that could potentially damage the site, trees need to be felled away from the historic site. Yarding and/or skidding must also avoid sites.
62. The Forest Archaeologist or qualified Heritage Program personnel would identify sites on the ground and would coordinate with appropriate project personnel to provide location information to road, presale, and fuels treatment crews.

2. Alternative B (Proposed Action)

This alternative provides the greatest emphasis upon Forest Health and number of acres treated. Both commercial (timber sales) and non-commercial (prescribed fire) activities are proposed. No new road construction is proposed with this alternative. Approximately 20.7 miles of road reconstruction within the Analysis Area is proposed. Also proposed is the relocation of the existing MA-1 to a more suitable location within the Analysis Area. The new location would convert approximately 329 acres of MA-6 and 163 acres of MA-8 to MA-1. However, the original MA-1 would be reclassified as MA-6, resulting in a net increase of 144 acres (5 percent) of available winter range. The relocation of the MA-1 would require a Forest Plan amendment.

Mechanized felling equipment would not be allowed to operate off of designated skid trails in order to minimize compaction. There would be no net change in miles per square mile of open road density. There is a culvert on Graham Creek, located on Forest Service Road 4300468, that is impassable to fish and recommended for replacement in order to provide year-round fish passage. Aggregate and other rock material sources for the Analysis Area would be developed out of the Smalle Creek Pit and the Smalle Ridge pit. Refer to maps in Appendix A for proposed treatment locations.

Issue 1 – Reduction of Hazardous Fuels

This alternative was driven by the objective to restore the fire cycles on the landscape and addresses the past 50-70 years of fire exclusion. Mechanical treatments are proposed to remove the understory biomass to allow for burning without high mortality rates or suppression risk. Alternative B would treat approximately 2,930 acres with prescribed fire treatments.

Fuels reduction through burning and (where necessary) mechanical treatments would result in an open understory capable of supporting fine fuels complexes of pinegrass, light timber-litter, and shrubs. Overall, this provides increases in forage quality for wildlife, minimizes shade tolerant encroachment, and allows for old cohorts of healthy overstory fire resister species (ponderosa pine, Douglas-fir, western larch, and white pine in certain areas).

Issue 2 – Forest Health

Alternative B would commercially treat up to approximately 1,201 acres. Non-commercial treatments would include precommercial thinning on approximately 334 acres, and tree planting of approximately 218 acres with early seral species such as western larch, western white pine and ponderosa pine. Commercial and non-commercial treatments are designed to promote old, single-stratum structure (stage 7) for drier, fire-tolerant BPEs and multi-stratum

old forest structure (Stage 6) for moist forest BPEs. Treatments are specific to the common pathogens of the Analysis Area, particularly root disease and mistletoe. As such, treatments are designed to curtail the spread of root disease by creating buffers of resistant species; mechanical treatments are targeting (in many cases) the removal of mistletoe-infested trees with a Hawksworth rating ≥ 3 . Silvicultural treatments would improve stocking levels, improve stand vigor, and move the stands toward target condition and toward the historical range of variability of structural stages.

Issue 3 – Wildlife Habitat

For this alternative, a combination of thinning, shelterwood, and seed tree regeneration harvest, and sanitation treatments would be applied to approximately 145 acres (22 percent) of winter range foraging habitats. Thinning, shelterwood, seed tree, and sanitation treatments would have a positive effect on big game forage by initially opening the forest canopy and allowing increased levels of light to reach the forest floor, which would increase the production of understory vegetation. Portions of stand 3017496 contain snow-intercept cover and would not be treated; exact acres are not known at this time.

Totals for Alternative B:

Commercial Treatments:

<u>Prescription</u>	<u>Acres</u>
Thinning	400
Thinning/Shelterwood	13
Thinning/Sanitation	564
Seed tree	96
Seed tree/Thinning	39
Seed tree/Sanitation	18
Shelterwood	20
Shelterwood/Sanitation	21
<u>Sanitation</u>	<u>30</u>
Total	1,201

Post Sale Treatments:

Non-Commercial Trts	Acres	Non-Commercial Trts	Acres
(within commercial treatment areas)		(outside commercial treatment areas)	
Planting	218	Broadcast burning	1733
Broadcast burning	982	Whipfelling	1725
Site prep burning	215	Precommercial thinning	334

3. Alternative C

This alternative was designed in an attempt to meet the purpose and need of the project but without a commercial timber sale. It proposes to cut trees on 84% of the harvest area of Alternative B (1,015 acres), and would treat approximately 185 acres less than Alternative B with prescribed fire. Harvesting equipment would be used to remove excess fuels and reduce excess stocking. However, any commercial-sized wood harvested via mechanical treatments would be moved to the nearest road (if available) and decked. In nonroaded areas, the wood would be incorporated into the burn prescriptions and burned onsite. No commercial sales would occur as part of this alternative. There is no new specified road construction with this alternative; however, approximately 18.7 miles of road reconstruction would be necessary if this alternative were implemented. Reconstruction would be needed to move mechanized equipment into the area. Mechanized felling equipment would not be allowed to operate off of designated skid trails in order to minimize compaction.

Also proposed with this alternative is the relocation of the existing MA-1 to a more suitable location within the Analysis Area. The relocation would remove approximately 329 acres of MA-6 and 163 acres of MA-8. However, the original MA-1 would be reclassified as MA-6, resulting in a net increase of 144 acres (5 percent) of available winter range. The relocation of the MA-1 would require a Forest Plan amendment. There would be no net change in miles per square mile of open road density. There is a culvert on Graham Creek, located on Forest Service Road 4300468, that is impassable to fish and recommended for replacement in order to provide year-round fish passage. Aggregate and other rock material sources for the Analysis Area would be developed out of the Smalle Creek Pit and the Smalle Ridge pit. Refer to maps in Appendix A for proposed harvest areas.

Issue 1 – Reduction of Hazardous Fuels

This alternative is similar to Alternative B in that it was driven by the objective to restore the fire cycles on the landscape and addresses the past 50-70 years of fire exclusion. Mechanical treatments are proposed to remove the understory biomass to allow for burning without high mortality rates or suppression risk. This alternative would treat 185 fewer acres with prescribed burning than Alternative B.

Fuels reduction through burning and (where necessary) mechanical treatments would result in an open understory capable of supporting fine fuels complexes of pinegrass, light timber-litter, and shrubs. Overall, this provides increases in forage quality for wildlife, minimizes shade tolerant encroachment, and allows for old cohorts of healthy overstory fire resister species (ponderosa pine, Douglas-fir, western larch, and white pine in certain areas).

Issue 2 – Forest Health

The effects to stand composition and structure are the same as in Alternative B. Approximately 185 acres (3% of the Analysis Area) in the cool-moist Douglas-fir/grand fir BPE would remain in a multi-strata structural stage and these stands would likely move toward structural stage 6 instead of structural stage 7 as under the proposed action.

This alternative would treat up to approximately 1,015 acres. Treatments are specific to the common pathogens of the Analysis Area, particularly root disease and mistletoe. As such, treatments are designed to curtail the spread of root disease by creating buffers of resistant species; mechanical treatments are targeting (in many cases) the removal of mistletoe-infested trees with a Hawksworth rating ≥ 3 . Silvicultural treatments would improve stocking levels, improve stand vigor, and move the stands toward target condition and toward the historical range of variability of structural stages. Non-commercial treatments would include precommercial thinning on approximately 334 acres, and tree planting of approximately 20 acres with early seral species such as western larch, western white pine and ponderosa pine.

Issue 3 – Wildlife Habitat

Silvicultural and prescribed fire treatments on winter range foraging habitat would be the same as those described above for Alternative B, with the exception of the seed tree harvest treatments. A combination of thinning, shelterwood regeneration harvest, and sanitation treatments would be applied to approximately 145 acres (22 percent) of winter range foraging habitats. Thinning, and sanitation treatments would have a positive effect on big game forage by initially opening the forest canopy and allowing increased levels of light to reach the forest floor, which would increase the production of understory vegetation. Portions of stand 3017496 contain snow-intercept cover and would not be treated; exact acres are not known at this time.

Totals for Alternative C:

Proposed Treatments (commercial-sized trees):

<u>Prescription</u>	<u>Acres</u>
Thinning	400
Thinning/Shelterwood	13
Thinning/Sanitation	552
Shelterwood	20
<u>Sanitation</u>	<u>30</u>
Total	1,015

Other treatments within areas of commercial size trees	Acres	Non-Commercial Trts (outside treatment areas of commercial size trees)	Acres
Planting	20	Broadcast burning	1733
Broadcast burning	982	Whipfelling	1725
Site prep burning	30	Precommercial thinning	334

Comparison of Alternatives

Table 1. Comparison of Action Alternatives (Treatments on FS Land)

Management Area Acres Treated	Alternative B	Alternative C
MA-1 ¹¹	374	374
MA-5	589	575
MA-6	1627 ¹²	1540 ¹²
MA-7	114	114
MA-8	454	394

Table 2. Comparison of Alternatives

Issue #	Issue Indicator	A	B	C
1	Acres Treated within Analysis Area (fuel reduction)	0	2930	2745
2	Acres Treated (forest health)	0	1201	1015
3	% Thermal Cover ¹³	10.2	10.2	10.2
3	% Snow-intercept cover	7.2	7.2	7.2
3	% Hiding Cover	58.2	52.2	57.6
3	% Forage ¹⁴	23.8	29.7	24.3

¹¹ Proposed new MA-1 location.

¹² 160 acres of the number listed here fall within the current MA-1, but they are included in the total for MA-6 - provided Alternative B or C is selected which would move the MA-1 location.

¹³ Treatments would occur in areas currently having marginal or non-existent cover and would improve cover in the long-term.

¹⁴ See discussion of deer and elk winter range in chapter 3 (pg. 30).

Issue #	Issue Indicator	A	B	C
	Estimated Acres of Treatments¹⁵			
	Thinning	0	400	400
	Thinning/Shelterwood	0	13	13
	Thinning/Sanitation	0	564	552
	Seed Tree	0	96	0
	Seed Tree/Thinning	0	39	0
	Seed Tree/Sanitation	0	18	0
	Shelterwood	0	20	20
	Shelterwood/Sanitation	0	21	0
	Sanitation	0	30	30
	Total Acres of Treatments	0	1201	1015
	Estimated Volume (CCF)	0	15,500	0
	Estimated Acres of Fuel Treatments			
	Broadcast burn	0	2715	2715
	Site Preparation burn	0	215	30
	Total Acres of Fuels Treatments within Project Area	0	2930	2745
	Other Proposed Treatments			
	Precommercial thinning	0	334	334
	Planting	0	218	20

MONITORING PLAN

The monitoring activities described below would be undertaken in addition to the monitoring needs identified in the Forest Plan (Forest Plan, Chapter 5).

1. General Monitoring Responsibilities

The District Ranger has the primary responsibility for implementation of the monitoring plan. The District Silviculturist would be responsible for ensuring that harvest prescriptions are designed in compliance with the project design criteria and Forest Plan direction. The District Wildlife Biologist would ensure that the necessary monitoring for winter range, snag retention levels, and old growth dependent wildlife species. The East Zone Fisheries Biologist would ensure that fish habitat projects are accomplished. The East Zone Fisheries Biologist and District Silviculturist share the responsibility to ensure that the riparian resource and water quality protection measures are correctly prescribed and placed in the timber sale contract. The District Presale Forester is responsible for insuring compliance with listed requirements during field and office sale preparation activities. The Timber Sale Officer is then responsible for implementation of these measures.

2. Specific Monitoring Responsibilities

Monitoring of project implementation would be the responsibility of Forest and District staff as follows:

¹⁵ Alternative B includes commercial treatments. For Alternative C, no commercial timber sales would occur as part of this alternative. Any commercial-sized trees harvested via mechanical treatments would be moved to the nearest road (if available) and decked.

Activity	Responsible Position
Preparation of commercial timber sale	PF, S, WB, T, FB, HR, RS, NW
Administration of timber sale contract	SA, ER, S, WB, NW
Post-sale activities	S, WB, F, NW, RS, Rec
Fire/fuels treatments	F, S, WB, HR, RS, Rec, NW, FB

WB	Wildlife Biologist	S	Silviculturist
PF	Presale Forester	SA	Sale Administrator
T	Transportation Planner	ER	Engineer Representative
F	Fuels Specialist	Rec	Recreation Specialist
HR	Heritage Resource Tech.	NW	Noxious Weed Coordinator
H	Hydrologist	FB	Fish Biologist
RS	Range Specialist		

The position listed first generally has primary responsibility.

POSSIBLE SALE AREA IMPROVEMENT PROJECTS

No KV¹⁶ projects would take place under the No Action Alternative (Alternative A) or Alternative C.

Wildlife

1. In prescribed burn areas, consider forage seeding to provide supplemental forage for big game.
2. Restore/protect aspen clones that are in decline by:
 - falling precommercial-sized conifers that are competing with the aspen for light, water, and nutrients,
 - using prescribed fire to remove decadent overstory trees and encourage profuse sprouting,
 - clear-cutting over-mature aspen trees to encourage profuse sprouting,
 - fencing declining clones to remove livestock access to young sprouts.
3. Assess the effectiveness of road closures in the project area over time. Improve the effectiveness of closures through plantings, seedings, slash piling, etc.

¹⁶ Knutson-Vandenberg Act of 1930.

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