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CHAPTER 4: ENVIRONMENTAL CONSEQUENCES

Introduction

Insert in FEIS, page 97.

Several resources listed in Chapter 3 of the FEIS where not discussed in the same order as outlined in the introduction of Chapter 4. Environmental consequences of Aspen and Heritage Resources will be updated to reflect the original intent to discuss each resource or issue in a similar organizational pattern in Chapters 1, 3 and 4.

Further discussion of effects will be disclosed as will the effects of the proposed forest plan amendment.

Forest Vegetation

Insert in FEIS, page 100 before Cumulative Effects section.

Scope of cumulative effects analysis for alternatives 2, 3, 4, and 5

Analysis of cumulative effects related to forest vegetation is limited to the analysis area. Vegetation treatments outside the analysis will not have any measurable impact on forest vegetation within the analysis area.

A discussion of the effects of past actions is described in Chapter 3 of the Rimrock EIS. The existing condition described in Chapter 3 was shaped by past actions, natural disturbances such as insect outbreaks and fire, and growth of the trees themselves. Because the proposed action was developed to include all needed forest vegetation treatments, there are very few reasonably foreseeable future actions related to forest vegetation within the Rimrock analysis area. However, reasonably foreseeable future actions will include prescribed fire implemented at regular intervals (5 to 15 years). Although not included in the proposed action or alternatives, Chapter 4 of the EIS describes prescribed fire at regular intervals as an activity that would be implemented to maintain the desired future condition related to fuels management.

Insert in FEIS, page 101 after Cumulative Effects section and before Alternative 3 heading.

Alternative 2, 3, 4, and 5

Cumulative effects related to stand density, stand structure, and species composition

The commercial thinning, precommercial thinning, and shelterwood treatments, together with projected future prescribed fire implemented at regular intervals, would do much to reverse the departure from historical composition and structure. The result would be

park-like stands of ponderosa pine with scattered, larger diameter, fire-tolerant Douglas-fir. Ground cover would be grass with scattered shrubs, and more sunlight would reach the forest floor increasing forage for domestic livestock and big game. Regular interval fires would restrict the reproduction of shade-tolerant Douglas-fir and grand fir, and prevent the reoccurrence of the overcrowded condition that presently exists. This combination of activities would also help reverse the following broad-scale trends identified in a scientific assessment for the interior Columbia River Basin (Quigley et al. 1996):

- Substantial declines in single-layer old forest structure
- Increased structural complexity in the absence of native disturbance regimes
- Increased stand density and forest stocking
- Increased homogeneity in both forest composition and structure
- Substantial increases in the amount of lethal fires

These activities would also be consistent with several of the 11 points contained in former Oregon Governor Kitzhaber's strategy for restoring eastern Oregon forests, watersheds, and communities (Kitzhaber et al. 2001).

Approximately 80% of the Rimrock planning area has been included in one or more timber sales since the first recorded timber sale in 1946. Most of that timber harvest occurred prior to 1975. The earlier timber harvests appeared to be relatively light selection harvests that removed larger ponderosa pine and Douglas-fir. Residual effects of those early sales are primarily seen in a reduction in the numbers of large trees. Canopy cover and stand density are probably at or above pre-harvest levels in the areas harvested prior to 1975 because of growth of other trees within the stands.

Timber sales since 1975 have been predominantly selection and overstory removal harvests, but have included numerous shelterwood regeneration harvests. These more recent timber harvests have residual effects of reduced canopy cover and stand density, especially in shelterwood and other regeneration harvests.

The Heppner Ranger District has completed prescribed fires on approximately 14,600 acres within the Rimrock planning area since 1987. Records indicate that none of the area has been treated by prescribed fire more than once. Those fires were all designed and implemented as low intensity fires to reduce fire risk by burning accumulations of dead and down wood. The prescribed fires within the Rimrock area killed many of the seedlings and saplings in the area and killed a few larger trees, either as isolated individuals or in small clumps. Other trees were weakened by the fires and were killed later by insects or disease. The single treatment of low intensity prescribed fires in the Rimrock area appears to have no measurable change to stand structure, density or species composition. If prescribed fires were repeated frequently over time, as projected, each succeeding treatment would be expected to have similar low impacts on the vegetation. Much of the natural regeneration, primarily Douglas-fir and grand fir, would be killed directly by the fires, and occasional larger trees would either be killed directly by the fire or indirectly by insects after being weakened by fire. Over time, stands would be expected to develop into relatively open stands dominated by large trees. If that were to occur, the planning area would be more closely aligned with the historical range of

variability with more old forest, single-stratum (OFSS) and less stem exclusion and old forest multi-strata stands (OFMS).

Fire exclusion actions over the past century have probably had a residual effect of an increased stand density, increased canopy cover, and a shift in species composition to more shade tolerant species such as grand fir and Douglas-fir compared to historical conditions. Everett (1993) and Quigley, et al., (1996) have described this effect for interior Columbia River Basin ecosystems. Evidence of those residual effects for the Rimrock area can be shown by the HRV analysis that indicates that the relatively dense old forest multi-strata stands structure is well above the historical range and the relatively open old forest, single-stratum structure is well below the historical range throughout the warm, dry and hot, dry biophysical environments in the Rimrock area.

Soil Productivity

Insert in FEIS, page 102, bottom of the page, before the Direct and Indirect Effects section.

No cumulative effects are expected to occur outside the areas proposed for treatment. Thus, cumulative effects are limited to the activity units within the project area.

Insert in FEIS, page 108, after the third complete paragraph and before the Prescribed burning section.

Alternative 2, 3, 4, and 5

Cumulative Effects:

Appendix G lists previous timber sales in the Rimrock area. Field assessments found the majority of proposed activity units have low levels of existing disturbance and meet forest plan standards. A few areas were noted with remnant skid trails and landings still evident but with the majority of the area in the low category. The broad ratings of high, medium and low can be used to estimate a range of residual soil disturbance and assess cumulative effects of proposed actions. For discussion purposes, an average percentage was chosen to represent Low and Moderate.

The following table includes estimates of soil conditions following land-disturbing activities. The estimates include past and proposed activities only. No additional activities are planned in the reasonably foreseeable future. Table S-1 does not include all units in the Rimrock area, but only a representative sample. (DCS numbers represent percent of area within the unit)

Table S-1. **Estimates of cumulative detrimental soil conditions (DCS)**

HARVEST UNIT	AVERAGE EXISTING DSC (PAST)	AVERAGE ADDED DSC (DIRECT)	CUMULATIVE DSC
28, 53, 69	2	6 (FW)	8
56, 114, 141	4	6 (FW)	10
190, 197	2	2 (H)	4

DSC= Detrimental Soil Condition, FW= Forwarder, H= Helicopter

Temporarily opening closed roads will have no added effect on soil productivity since the area in roads is already considered out of production. Reopening closed roads that have been stabilized and vegetated can increase sediment production from the road surfaces due to the renewed disturbance. Best management practices, mitigation, and road maintenance reduce effects from this activity.

Soil productivity capacity would be improved and erosion hazard reduced on the roads proposed for decommissioning or obliteration. The length for each of these may be found in the Alternative Outputs table found in the FEIS, page 38.

Insert in FEIS, page 109,after the second paragraph and before the In-stream structure maintenance section.

Little to no evidence of detrimental soil impacts from prior broadcast burning is evident. Prescribed burning over large areas in these vegetation types generally produces a very small total area of severely burned soil. Normally, heavily burned areas occur in small spots seldom over an acre in size.

Planned burning on approximately 30,000 acres would not be expected to produce severe burns in any large contiguous areas, thus erosion is not expected to occur and there would be no detrimental effects to soil productivity. Soil productivity can be improved in burn situations with less than severe intensity, as nutrients are more available after burning and the growth of microbes may be enhanced.

Piling and burning can add additional detrimental soil condition due to machine traffic and high burn intensity often found under larger piles (Umatilla Forest monitoring). The percentage of an activity unit receiving detrimental impacts from piling and burning has been found to be less than 2% of the activity unit in similar situations on the Forest.

Insert in FEIS, page 109, after the forth paragraph and before the Recreation heading.

Other past, present, and reasonably foreseeable activities

Cumulative effects:

Grazing impacts to soils tend to be very broad in extent and limited in intensity with the exception of areas around water developments and trails. Due to changes in grazing management there has been an improvement in vegetative cover and a reduction in the number of heavily impacted sites. Generally, grazing impacts are not adding to the detrimental soil conditions in the activity area. Some water developments and riparian

areas have concentrated use but the impacts are localized and not contributing to cumulative effects.

Subsoiling activities occurred on 275 acres from 1991 to 1995. This treatment was designed to reduce compaction effects from prior activities. Monitoring has shown this activity was effective in reducing the area of compacted soils and improving infiltration on the treated areas. The proposed activities are not on the same location as previously treated so there will be no cumulative effects.

Past activities with no residual effects to soils:

Previous Wildfire - no residual effects from severe burning are evident.

Non-commercial thinning activities- typically do not produce soil disturbance-since most of this work is done by hand.

Activities on private or BLM land – in this area, they have not affected the soil resource on National Forest lands.

Present activities with no residual effects to soils:

Fire Suppression - little to no fire suppression related soil disturbance has occurred recently within the analysis area.

Noxious weed treatment- proposed weed treatments will not affect the soil resource in the analysis area. Maintenance of native plant species would generally be of positive value for erosion control and soil sustainability.

Reasonably foreseeable activities with no residual effects to soils:

Sunflower-Bacon and Rail Canyon harvest activities would be in separate locations and would have no effect on the soils in the Rimrock area.

Recreation

No change from FEIS

Areas Without Roads

No change from FEIS

Visual Quality

No change from FEIS

Fish and Aquatic Habitat

Alternative 2

General Habitat

Cumulative Effects:

Insert in FEIS page 115, after the forth paragraph and before the Alternative 3 heading.

The residual effects from past harvests, road management, grazing, and fish habitat improvements would continue with this action alternative. The construction of in-stream structures in Big Wall, Wilson, and Porter Creeks (1986-1991) created pool habitat for mid-Columbia steelhead trout and resident redband trout in streams that were deficient in such habitat. These structures continue to provide spawning and rearing habitat in these streams for mid-Columbia steelhead trout and resident redband trout.

Riparian fencing was installed along Big Wall (1995), South Fork Big Wall (2000), Indian (1997), Wilson (1991), Colvin (1997) and Porter Creeks (1998), creating riparian pastures. These pastures have not been grazed since completion of the riparian fencing and are not a part of the pasture rotation. The fences are allowing the recovery of both the stream banks and the vegetation within the RHCA's.

On the perennial, non-fish bearing and ephemeral streams that do not have riparian fencing, stream bank damage and loss of riparian vegetation can occur with the current grazing program. To minimize the damage, the grazing program follows the standards and guides outlined in the Forest Plan for grazing in riparian areas. Grazing on private land on Wilson Creek, above FS land, continues to generate sediment as a result of bank trampling. The grazing on this land is also removing riparian vegetation.

To expedite the recovery of the RHCA's and to enhance the shading of the streams, willows were planted in Wilson, Big Wall, and Indian Creeks in 1993. Sedges were transplanted along Wilson, Big Wall, and Indian creeks in 1993 and 1997. Monitoring has shown these sedges are providing thermal cover and help to dissipate stream energy during high flows. The sedges also act as sediment traps, to intercept sediment from disturbances occurring outside of the RHCA.

Upland water developments in the Little Wall and Hardman Allotments are providing alternative sources of water, other than the streams, for both cattle and wildlife. Future range activities within the Rimrock Analysis include the Indian Creek Riparian Fencing Project, and the development of additional upland water sources. These projects will contribute to improved function of the RHCA's and will enhance important spawning, rearing, and migratory habitat for mid-Columbia steelhead and redband trout.

On-going activities including road use, dispersed recreation, hunting, and off highway vehicle (OHV) use will continue to contribute sediment, result in stream bank damage, and increase substrate embeddedness. The development of the 6,200-acre Morrow County OHV Park in the upper Wilson Creek Subwatershed could result in increased dispersed recreation and off highway vehicle use within the Rimrock Analysis area, with a corresponding increase in damage. Recreational activities within the Morrow County OHV Park that could potentially affect water quality downstream on Forest Service land are an unknown, as the park is new. The OHV Park currently has 85-90 miles of trail in use, and expect to develop a total of 180 miles when completed. Water projects that Morrow County has planned in the OHV Park for the near future include a bridge on Porter Creek, implementation of the "Respect the Rivers" information and education program developed by the U.S. Forest Service. The intent of these projects is to keep OHV use out of the riparian areas. The previous owners altered the hydrological connection between spring sources and tributaries of Wilson Creek with the development

of logging roads. Restoration is planned to reestablish the hydrologic connectivity between spring sources and the tributaries of Wilson Creek.

Management Indicator Species (MIS)

Alternatives 2, 3, 4, and 5

Cumulative Effects:

Insert in FEIS, page 117, after the third paragraph and before the Threatened, Endangered, Proposed and Sensitive Species heading.

The cumulative effects for the Management Indicator Species are the same as those for General Habitat. The in-stream structures in Big Wall, Wilson, and Porter Creeks (1986-1991) continue to provide spawning and rearing habitat in these streams for mid-Columbia steelhead trout and resident redband trout.

Steelhead redd surveys by ODF&W on index reaches of Big Wall (4 miles) and Wilson (5 miles) creeks (T.J. Unterwegner, personal communication, 2003) and by Heppner District personnel on Indian (1 mile), Wilson (1/2 mile), and Porter (1 ½ miles) creeks, indicate an upward trend in spawning success by mid-Columbia steelhead in these streams.

Riparian fencing was installed along Wilson, Colvin, Big Wall, South Fork Big Wall, Indian, and Porter creeks, creating riparian pastures. These streams provide most of the mid-Columbia steelhead spawning habitat within the analysis area. The riparian fencing was installed to keep cattle away from this spawning habitat and protect juvenile and adult fish. These pastures have not been grazed since fence construction and are not a part of the pasture rotation. These investments in fencing, the willow plantings in Wilson, Big Wall, and Indian Creeks in 1993, and the sedge trans-plantings along Wilson, Big Wall, and Indian Creeks in 1993 and 1997, are contributing to the upward trends in the populations of mid-Columbia steelhead and redband trout in these streams.

Grazing on private land on Wilson Creek, above Forest Service land, is resulting in the loss of riparian vegetation. The resulting loss of shade is increasing the water temperature of Wilson Creek. This increase in water temperature during the summer low flow period can stress or result in mortality of mid-Columbia steelhead juveniles and redband trout in Wilson Creek.

Water Resources

Insert in FEIS, page 118, following the Water Resources heading.

Analysis of effects was done at the subwatershed scale. These results were compiled and are discussed for the entire Wall Creek Watershed (24). The Wall Creek Watershed is sometimes referred to in this report as the "Analysis Area" or just the "area." Some watershed processes mentioned in this report occur over geologic time, but the human activities (such as timber sales) have generally taken place since the 1940s. Timber harvest is considered to have completely recovered after 20 to 33 years by the equivalent clearcut acres (ECA) model. The sediment model assumes that harvest effects cease after 6 years.

The beneficial use in question is fish and aquatic habitat. The analysis considered effects on annual water yield and peak flows, soil disturbance and the associated sediment, and stream temperatures. The measure for water yield and peak flows is amount of forest canopy that is disturbed. The measure for soil disturbance and sediment is amount of soil that is exposed. The measure for stream temperature is stream shade that is disturbed. These factors and measures have the potential to affect the beneficial use of fish and aquatic life. They were chosen because they are more likely to be affected by the tussock moth outbreak and the forest management activities proposed in this document.

Water yield was analyzed quantitatively with the Equivalent Clearcut Acres model (Ager and Clifton 1995). The ECA model was chosen to aid in the analysis of the effects of harvest, roads, and defoliation on water yield and peak flows. These activities and disturbances are more likely to affect the forest canopy over a large area, which in turn could affect hydrology at the analysis area scale. ECA was calculated for the entire watershed. The results of the model were compared with studies by Helvey and Fowler (1995), and Helvey and Tiedemann (1978) to draw conclusions about the magnitude, extent, and duration of effects to annual water yield and peak flows.

Erosion and sediment yield were analyzed quantitatively by modeling the effects of harvest, roads, and burning in the different alternatives. These actions are more likely to affect the production of stream sediment. The modeled results of sediment production are discussed by alternative.

The sediment model is a modified version of the R1-R4 model of Potyondy, et. al, 1991, which uses the measured sediment yield from the High Ridge area as a baseline (Helvey and Fowler, 1995). This model considers soil erosion by type of activity (such as the harvester/forwarded logging system, road construction, low intensity fire) and the distance sediment would have to be transported to enter a stream. Because of the natural range of variation in sedimentation, small changes over large areas are difficult to detect. Since actual changes from the Rimrock projects are expected to be small, the model is designed to exaggerate sediment yields, so clear comparisons can be made of the relative effects between alternatives. The model is not meant to predict actual future sediment yields from the Rimrock projects, and does not account for slope, soil type, PACFISH buffers, or Tussock Moth defoliation. Sediment yields were expressed as a percent increase over annual baseline levels for comparison between alternatives.

The model assumes that past harvest effects would persist for six years after the activity and that existing road effects remain constant over time. Several of the past timber harvesting projects in the analysis area (Upper Wall, Tamarack Thin, and Indian) continued to impact the results when the modeling was performed in 1999. In addition, the model assumes that all activities take place in the first year of the project, when in fact they would happen over 5 to 10 years.

Stream temperature monitoring results are reported in Chapter 3. Stream temperature could be affected by activities that affect stream shade. The effects of the different actions on shade are discussed by alternative.

It is assumed that the effects from past timber harvest, defoliation, and existing roads are similar on the land that is not managed by the Forest Service.

Replace in FEIS page 125, Figure 4.7, caption should say:

Modeled percent increase in annual sediment yield by year from the 5 proposed alternatives for the Forest Service portion of the analysis area.

Alternative 2

Cumulative effects:

Insert in FEIS, page 125, at the end of the existing cumulative effects section and before alternative 3.

Water Yield and Peak Flows

An on-going activity is fire suppression. This activity is related to the condition of the vegetation, and creates a trade-off in water yield effects (Hydrology Specialist Report, Vegetation Section).

As stated in the Forest Vegetation section (page 41), of this supplement the Rimrock projects were designed to include all needed forest vegetation treatments. Foreseeable future activities outside the analysis area, but in watersheds that eventually drain into the North Fork John Day River include Sunflower-Bacon and Rail Canyon. Sunflower-Bacon is in the Wall Creek Watershed, downstream of the Rimrock analysis area. Wall creek is a tributary of the North Fork John Day River. Sunflower-Bacon is a 2,000 acre commercial thinning with associated road work and prescribed burning. Commercial thinning typically reduces the canopy by 30 percent, so the equivalent clearcut acres for the project would be 750 acres.

There is a salvage project in Rail Canyon, south and west of the Rimrock area. Rail Canyon is a tributary of Cupper Creek, which is a tributary to the North Fork John Day River. The Rail Canyon Salvage involves 42 acres of harvest. The trees in the project area have been defoliated by the tussock moth. The existing condition equivalent clearcut acres is approximately 38 acres. After harvest, the equivalent clearcut acres would be similar. Since Rail Canyon is already defoliated, the harvest would have very little effect on the canopy.

The post-harvest equivalent clearcut acres for these projects would be in the neighborhood of 750 acres. Because less of the sub-watersheds would be affected than the 30 to 100 percent levels at which Helvey and Tiedemann, 1978; Helvey and Fowler, 1995; and Cheng, 1989; found effects, it is unlikely that there would be changes in water yield and peak flows from these projects.

Since there would be no measurable effects in the analysis area of the Rimrock sub-watersheds, nor from the Sunflower-Bacon and Rail Canyon projects, there would also be no measurable effects in the North Fork John Day River. For this reason, the activities analyzed in this alternative would comply with the Forest Plan Standard to have no more than 30 percent of a sub-watershed in the 0-10 year age class. Also, the Goal to "... maintain and enhance water ... quality and timing of stream flows..." would be met (Forest Plan, p. 4-77).

Because development pressure is low in the North Fork John Day country, forest land generally continues to be managed as forest, and range land generally continues to be managed as range. The only other significant use is recreation, which relies on the

current character of the forest and range. It is assumed that the private land in the analysis area would be managed in a manner similar to management of public land. For this reason, and those stated above, it is unlikely that there would be future effects to water yield and peak flows from private land.

Water quality-sediment

Because of the geology of the analysis area, there is a huge background of fine sediment residing in the area's streams and floodplains. Past management activities, such as harvest and roads, have contributed a small additional amount.

The watershed restoration projects (instream structure repair and road restoration) would cause short-term (1-3 years) sediment increases coupled with long term (more than 3 years) sediment decreases. Closing and obliterating un-needed roads would help move the area toward the Forest Plan (PACFISH RF-3c) guideline of "Meet RMOs by: ... closing and stabilizing, or obliterating and stabilizing roads not needed for future management activities." Non-commercial thinning would not affect sediment because soil is not exposed with this activity. The aspen treatments would not measurably affect sediment because a very small area is disturbed.

Bank stability on lands managed by the Forest Service appears to be improving under the post-1995 grazing management plans. On-going upland water source development construction would result in an indirect reduction of bank trampling and thus sediment, because they reduce livestock's and big game's need to congregate along streams for drinking water. On-going pasture and riparian fencing also reduce bank trampling because they allow range managers to better control the location of grazing. Bank stability does not appear to be recovering as quickly on all portions of non-Forest Service range land, such as Wilson Prairie.

On-going harvest, burning, and road construction on non-Forest Service land in the Rimrock analysis area is regulated by the Oregon Forest Plan, which restricts the introduction of sediment into streams. It is likely that past management has also caused small increases in sedimentation on non-Forest Service land in the area.

On-going fire suppression activities such as line construction, both on and off the National Forest may create bare soil both inside and outside of riparian areas. These fire lines are immediately rehabilitated when the danger has passed, by water-barring, mulching, and seeding, so they rarely cause sediment to enter streams (see Photo 1, page 51).

On-going recreation usually does not affect stream sediment. However, off highway vehicles (OHV) are permitted both on and off the roads in the Rimrock area. The trails and stream fords can have effects similar to road effects. The Morrow County OHV Park opened in 2003. Riding rules in the park requires riders to stay on trails and use bridges for crossing streams. Riders are discouraged from leaving the park and entering the National Forest. State laws and Federal regulations against resource damage such as driving on wet meadows and unauthorized stream crossings are enforced on lands managed by the Forest Service and in the county park.

Photo 1: Rehabilitated dozer Fireline after Bull Springs Fire, September 2003

Other on-going activities include maintenance of aspen stands, and noxious weed treatments. These projects have no effect on stream sediment, because they affect relatively small areas and rarely expose the soil. All of the proposed and on-going activities in the analysis area are planned to mitigate and/or restrict sediment production and delivery to streams, and thus are unlikely to contribute measurable amounts of sediment above the existing condition.

Foreseeable future activities outside the analysis area, but in watersheds that drain into the North Fork John Day River include Bacon-Sunflower and Rail Canyon. Bacon-Sunflower would be in the Wall Creek Watershed, downstream of the analysis area. Wall Creek is a tributary of the North Fork John Day River. This would be an approximately 2000 acre commercial thinning project, with prescribed burning, temporary road construction, and road restoration. Rail Canyon is a tributary to Cupper Ck, which flows into the North Fork John Day downstream of Wall Ck. Rail Canyon would be an approximately 42-acre salvage harvest, with prescribed burning.

Big Wall Creek and two of its tributaries, Wilson Creek and Porter Creek are listed as water quality limited for sediment on the Oregon DEQ's 303(d) list. Because of this listing, there can be no increase in sediment to Wall, Wilson, or Porter Creeks. These foreseeable projects, like Rimrock, would be designed to minimize sediment delivery to streams. Also like Rimrock, they contain watershed restoration activities that would reduce sediment delivered to streams. For these reasons, it is unlikely that Bacon-

Sunflower and Rail Canyon would cause measurable increases in sedimentation, and in fact, would reduce some of the existing sediment sources.

Since sediment increases are very unlikely in the analysis area of the Wall Ck sub-watersheds, and from the Sunflower-Bacon and Rail Canyon projects, it is also very unlikely that the North Fork John Day River would be affected. For this reason, the activities analyzed in this alternative would comply with the Forest Plan Goal to "... meet or exceed all applicable state and federal water quality standards... " (Forest Plan, p. 4-77).

Because development pressure is low in the Wall Creek country, forest land generally continues to be managed as forest, and range land generally continues to be managed as range. The other significant use is recreation, which relies on the current character of the forest and range. All three of these land uses benefit from controlling erosion. They benefit because keeping the soil in place allows timber and forage production to continue. This also maintains the visual qualities upon which recreation relies. Because of these benefits, landowners have an incentive to control erosion.

The North Fork John Day Watershed Council and the Monument Soil and Water Conservation District are working to improve water quality and prevent erosion on private land. They have completed specific projects such as replacing push-up dams with pump stations, installing off channel water sources, and fencing riparian areas. Based on attendance at meetings, conversations with landowners, and personal observations by the zone hydrologist, it is assumed that the private land in the analysis area would be managed for sustainable use and that there will be projects that reduce sedimentation. For this reason, and those stated above, it is predicted that there would not be measurable increases in sedimentation from private land in the analysis area.

Water quality-temperature

The climate of the analysis area predisposes streams to summer temperatures higher than the ideal for fish habitat (Hydrology Specialist Report, Ch. 3, Climate, p. 2). Past timber harvest, road building, defoliation, and grazing have contributed to increased stream temperatures by reducing riparian shade.

The only reductions in riparian vegetation from the Rimrock project are from cutting a small number of trees when closed roads are opened for use and when temporary roads are constructed. Because such a small number of trees would be cut, there would not be a measurable effect on stream temperature. Road restoration in riparian areas would allow recovery of vegetation and shade. The non-commercial thinning is unlikely to affect stream shade because it is not proposed for riparian areas. The aspen treatments affect a very small area, and would not cause a measurable effect in stream temperature.

On-going grazing management plans are allowing riparian vegetation to improve on the National Forest. Vegetation is not increasing as quickly on some non-Forest Service lands, such as Wilson Prairie. Both on and off the National Forest, on-going upland water source development construction results in a long-term increase in riparian shade by reducing cattle clusters along streams. On-going pasture and riparian fencing also benefit vegetative recovery, because fencing allows range managers to better control the location of grazing.

Wildfire suppression is an on-going activity that may require the cutting of riparian trees and vegetation. This may be part of fire line construction. When it is done, the reduction of shade from suppression is usually very small compared to the reduction from the fire itself. This is partially mitigated by using existing road crossings for fire line when possible, and by fire bosses' calculations of the risks and benefits of cutting these trees. Unless a fire is very large, it is not likely that fire suppression activities would have a measurable effect on stream temperatures.

On-going timber harvest, road construction, burning, non-commercial thinning, and juniper reduction on other ownerships is regulated by the Oregon Department of Forestry, and the removal of riparian shade is restricted.

Other on-going activities include maintenance of aspen stands, recreation, and noxious weed treatments. These projects have no effect on riparian shade.

Proposed and on-going activities in the analysis area are planned to mitigate and/or restrict the reduction of shade on streams.

Foreseeable future activities outside the analysis area, but in watersheds that eventually drain into the North Fork John Day River include Sunflower-Bacon in the Wall Creek Watershed, downstream of the analysis area. Sunflower-Bacon would be in the Wall Creek Watershed, downstream of the analysis area. The project would include 2,000 acres of commercial thinning with prescribed burning, temporary road construction, and road restoration. Rail Canyon is a tributary to Cupper Creek, which flows into the North Fork John Day downstream of Wall Ck. Rail Canyon is a 42-acre salvage harvest, with prescribed burning.

Big Wall Creek and two of its tributaries, Indian Creek and Wilson Creek are listed as water quality limited for temperature by the Oregon DEQ's 303(d) list. Wall Creek is a tributary of the North Fork John Day River that is also listed for temperature. Because of this listing, there can be no increase in temperature in Wall, Indian, or Wilson Creeks. These Sunflower-Bacon and Rail Canyon, like Rimrock, would be designed to minimize the reduction of shade. Also like Rimrock, they contain watershed restoration activities that would increase riparian vegetation.

Since increases in stream temperatures are very unlikely in the analysis area of the Rimrock sub-watersheds, and from the Bacon-Sunflower and Rail Canyon projects, they would also be very unlikely in the North Fork John Day River. For this reason, the activities analyzed in this alternative would comply with the Forest Plan requirements to follow the Clean Water Act.

For the rational include in the discussion in the water quality-sediment section, it is unlikely that there would be measurable increases in stream temperature from private land in the analysis area.

Alternative 3

Cumulative effects:

Insert in FEIS, page 126, at the end of the existing cumulative effects section and before alternative 4.

Water yield and peak flows

The past, ongoing, and foreseeable future activities in the area would be the same as described in Alternative 2. The proposed activities in Alternative 3 are similar to Alternative 2, except there are fewer acres of harvest and fewer miles of roads. Thus the equivalent clearcut acres are slightly less than Alternative 2 (Figure 4.6). Because the equivalent clearcut acres for this alternative would be slightly less than Alternative 2, the resulting cumulative effects would be slightly less. These cumulative effects would be less than the levels at which Helvey and Fowler, 1995; Helvey and Tiedemann, 1978; and Cheng, 1989 found measurable changes to water yield and peak flows.

Water quality-sediment

The proposed activities in Alternative 3 are similar to Alternative 2, except there would be no skidder harvest, less road surface disturbance and less activity fuels treatments. This type of activity is less likely to reduce soil cover; thus the sediment model's estimated increase of 60 percent for this alternative in addition to the 40 percent from past activities is less than the increase from Alternative 2 (Figure 4.7). Also, there would be no temporary roads constructed in riparian areas. This reduces the risk of sediment actually reaching a stream. Because the sediment model estimate for Alternative 3 is less than the estimate for Alternative 2, and because of no temporary road construction in riparian areas, the resulting cumulative effects would be less than those for Alternative 2.

Water quality-temperature

The proposed activities in Alternative 3 are similar to Alternative 2, except there would be no temporary roads constructed in riparian areas. Thus there is less likelihood that water temperature would be affected, even immeasurably. Because no temporary roads would be constructed in the riparian areas, the resulting cumulative effects to temperature would be less than those for Alternative 2.

Alternative 4

Cumulative effects:

Insert in FEIS, page 125, at the end of the existing cumulative effects section and before alternative 4.

Water yield and peak flows

The past, ongoing, and foreseeable future activities in the area would be the same as described in Alternative 2. The proposed activities in Alternative 4 are similar to Alternative 2, except there are fewer acres of harvest. Thus the ECA for this alternative is the lowest of all the alternatives (Figure 4.6). Because the ECA for this alternative would be slightly less than any of the other alternatives, the resulting cumulative effects would be slightly less. These cumulative effects would be less than the levels at which Helvey and Fowler, 1995; Helvey and Tiedemann, 1978; and Cheng, 1989 found measurable changes to water yield and peak flows.

Water quality-sediment

For the sediment model, the decrease in total acres harvested is offset by the increase in acres harvested by skidders. Because of these changes, the sediment model estimates an increase in sediment of 65 percent for this alternative in addition to the 40 percent increase from past activities (Figure 4.7). This is the same as the increase for Alternative

2. Because the sediment model estimate for Alternative 4 is the same as the estimate for Alternative 2, the resulting cumulative effects would be similar to those for Alternative 2.

Water quality-temperature

The resulting cumulative effects to temperature would be the same as for Alternative 2.

Alternative 5

Cumulative effects:

Insert in FEIS, page 125, at the end of the existing cumulative effects section and before the Fuels heading.

Water yield and peak flows

The past, ongoing, and foreseeable future activities in the area would be the same as described in Alternative 2. The proposed activities in Alternative 5 are similar to Alternative 3, except that 122 acres that were to be commercial thinned are proposed for regeneration harvest. Thus the ECA for this alternative is the highest of all the alternatives (Figure 4.6), but still less than 8 percent. Because the ECA for this alternative would be slightly more than any of the other alternatives, the resulting cumulative effects would be slightly higher. However, these cumulative effects would be less than the levels at which Helvey and Fowler, 1995; Helvey and Tiedemann, 1978; and Cheng, 1989 found measurable changes to water yield and peak flows.

Water quality-sediment

The cumulative effects on stream sedimentation would be the same as in alternative 3.

Water quality-temperature

The cumulative effects on stream temperature would be the same as in alternative 3.

Move from FEIS page 100 to page 127 before the Fuels heading.

Aspen

Direct and Indirect Effects: Aspen stands are considered unique habitats. Aspen stands have been declining in abundance in recent decades. The 12 aspen stands in the Rimrock Projects are generally in poor health with little reproduction. The fencing and other aspen restoration activities proposed for [alternative 2] and other action alternatives would stimulate new growth and protect both the new and existing aspen trees and sprouts. Fencing has been successful in reinvigorating aspen stands on the Heppner Ranger District. Photo 2 shows the results after 2 years of fencing an aspen stand on the Heppner Ranger District near the Rimrock planning area.

Photo 2. Long Prairie Aspen Fence

Insert in FEIS page 127 following the above paragraph.

Cumulative effects: Past activities such as cattle and wildlife grazing and fire suppression have contributed to aspen stand degradation. Historical connectivity or aspen occurrence would not be achieved with this one project but with the proposed fencing and root stimulation, aspen stands would show an increase in reproduction and increased vigor. Within the exclosures, future damage caused by grazing would be nearly eliminated resulting in increased aspen clone distribution. As fuel loads in the immediate area are reduced and fire is reintroduced into the system it is expected that these 12 aspen stands would increase in size.

Fuels

Alternative 2, 3, 4, and 5

Cumulative Effects Common to All Action Alternatives

Insert in FEIS, page 129, following last paragraph in Cumulative Effects Common to all Actions and before the Air Quality heading.

One of the most important considerations in managing fuels is managing fuel levels to minimize the chance of a high intensity fire occurring within a watershed or sub-watershed. The current fire management policy directs that all unplanned and natural fires within the analysis area be suppressed. This policy does not allow for management of fuel levels with the use of naturally occurring fires. With the use of prescribed fire,

fuel levels can be managed to minimize the chance of a high intensity fire occurring. Mechanical treatments are an alternative but limited by factors such as work rate, cost and are subject to equipment use restrictions during times of high fire danger.

Under the action alternatives, the commercial and non-commercial thinning would reduce large to medium diameter fuels and the low-intensity prescribed burning would reduce the small diameter fuels (< than 3 inches). The small diameter fuels contribute to active wildfire behavior. It is assumed that treatments will be repeated every 5 to 15 years to maintain desired fuel loading levels. Effects from these burns will be short lived (2-4 years) with a vigorous increase in growth from shrubs, forbs and grasses. Burn patterns will be a mosaic, breaking up the continuity of fuel distribution.

In the area south of Rimrock, the Bologna Basin project will landscape burn over 5,000 acres over a period of seven years. Rimrock and Bologna will be on a rotational burning schedule. Both project areas will be managed using similar methods. Sunflower-Bacon is in the planning stages and analysis will begin in 2005. It is expected that this project will use similar fuel treatments. Combined, the projects will result in large-scale fuel reduction and distribution of varying fuel density over the landscape. The changes will reduce the rate of spread and intensity of any future wildfire.

Air Quality

Alternative 2, 3, 4, and 5

Cumulative Effects Common to All Action Alternatives

Insert in FEIS, page 131, after the cumulative effects paragraph.

Air quality would be affected on a short-term basis during the implementation of any prescribed burn treatment. The amount of particulate matter released into the air will be dependent on the size of the area burned and weather conditions. All burning would be done in accordance with State of Oregon, Department of Smoke Management regulations in order to ensure that clean air requirements are met. The State of Oregon, Department of Smoke Management monitors air quality. Scheduled burning requires coordination with the State of Oregon, Department of Smoke Management to ensure that overall emission standards are not exceeded.

The proposed treatments will reduce fuels loads and understory biomass on a landscape basis. The long-term result will be a decrease in the amount of particulate matter released into the air during a wildfire. Frequent prescribed burning will lessen the amount of fuel and biomass on the forest floor thus decreasing the quantity of smoke emitted from future wildfire. Prescribed burning provides the opportunity to burn when weather, wind and fuel conditions are favorable, resulting in reduced smoke emissions with greater particle distribution. Wildfire does not allow this type of control or coordination with the State of Oregon Department of Smoke Management.

Insert in FEIS page 131, after the Cumulative Effects paragraph and before the Transportation heading.

Heritage Resources

Activities implemented under this document will be conducted in accordance with the National Historic Preservation Act (NHPA), its implementing regulations (36CFR 800) and the Programmatic Agreement among the United States Department of Agriculture, Forest Service, Pacific Northwest Region (Region 6), The Advisory Council on Historic Preservation, and the Oregon State Historic Preservation Officer regarding Cultural Resource Management on National Forests in the State of Oregon, dated March 10, 1995 (Agreement). Consultation with the State Historic Preservation Office has been completed for the Rimrock activities. The NHPA will be followed in the event of any unanticipated discoveries.

Transportation

No change from FEIS

Non-Forest Vegetation

No change from FEIS

Wildlife Habitat

In this wildlife supplement, "analysis area" refers to management area C3 within the Rimrock Analysis Area (Rimrock EIS Map 1: Management Area Strategy). "Project Area", includes the affected area of each action. When "affected area" is used it is referring to specific stand/unit or portion thereof where a proposed activity or action will occur.

General Habitat

Insert in FEIS page134, at the end of the effects discussion for Alternatives 2, 3, 4, and 5 and before the Management Indicator Species (MIS).

Late and Old Structure

Old Growth Habitat

Alternative 1, 2, 3, 4, and 5

Direct and Indirect Effects: No further analysis of environmental effects, see Chapter 3 of DSEIS (page**Error! Bookmark not defined.**).

Late and Old Structural Stages

Alternative 1

Direct and Indirect Effects:

In the short term, dry forest late and old structure would continue to occupy 61 percent of the Lower Wall drainage. However, single-layer old forest would remain below the historical range of variability and multi-layered old forest would remain above the historical range of variability. Indirectly, the amount of late and old structure would change over time. With the existing management direction, including fire suppression, late and old structure stands in the project area would continue to grow into a multistory structure, including old forest single stratum stands. This multi-layer condition would increase the stand density, making the stands increasingly susceptible to high-intensity wildfires and susceptible to insect or disease outbreaks. A major disturbance on the landscape like a wildfire would change the composition and structure to an open shrubland/grassland with little or no tree cover. This would result in fewer or no late and old structure stands in the analysis area. In particular old forest single stratum would remain below the historical range of variability and old forest multi-strata could be within, but no longer above, the historical range of variability.

Alternative 2, 3, 4, and 5

Direct and Indirect Effects

Timber harvest, including salvage or commercial thinning would occur in late and old structural stages in the project area. Approximately, 270 acres of late and old structure would be thinned, potentially changing the composition and/or structure of the stand. Harvest activities in multi-layered stands (192 acres) will eventually move those units toward a single-layered old forest condition with a higher percentage of ponderosa pine and western larch in the stand. Approximately, 80 acres of single-story old forest would be maintained as single-story old forest after harvest. As a result of harvest activities, in late and old stands, there would be no measurable change in the historical range of variability for the dry forest type in the Lower Wall drainage. After harvest, old forest single stratum would remain below the historical range of variability and old forest multi-strata would remain above the historical range of variability. Harvested stands would maintain the ponderosa pine composition and an old forest structure for an extended period of time. Late and old forest condition would remain near 60 percent, for the dry forest type in the Lower Wall drainage. The understory would be a mosaic of open understory and dense patches of regeneration or young forest in the stand. Thinning activities could reduce the late and old structure stands susceptibility to potential high-intensity wildfires and disease or insect outbreaks.

Temporary roads and existing roads used for harvest would not change the composition or structure of late and old structure stands in the project area. Therefore, no direct or indirect effects would occur to late and old structure stands from this action.

Cumulative Effects

Past and present timber harvest activities (Appendix G) and management direction including wildfire suppression, and the Rimrock Ecosystem Restoration Project have directly and indirectly affected the structure and composition of large trees and the understory in the analysis area. Through the continued growth of desirable (dry forest)

and non-desirable trees (not-dry forest), this has led the analysis area, and Lower Wall drainage to its current late and old structure condition of 61 percent, for the dry forest type. Proposed harvest activities will eventually move some old forest multi-layered stand to a single-layered old forest condition, but essentially the area remains unchanged. As a result, the Lower Wall drainage has essentially recovered or is in the process of recovering from past and present harvest activities.

The exclusion of fire through suppression activities has allowed an increase in the density of trees and a change in species composition. This could be a contributing factor for the large amount of old forest multi-layer in the Lower Wall drainage. As a result, fire behavior has changed in the drainage from frequent low-intensity to infrequent potentially high-intensity stand replacing burns. Few late and old structure stands have burned in more recent times, in the drainage, but all old forest multi-strata stands in the analysis area will continue to be susceptible to stand replacement fires

Future activities and events in the watershed with the potential to effect late and old structure stands include the Sunflower-Bacon timber harvest project. Approximately 2,000 acres in the Sunflower-Bacon project is proposed for harvest and could potentially affect late and old structure. Some old forest multi-layer stands could be thinned and result in the stand moving toward a single-layered old forest condition. Single-layered old forest stands are expected to retain their old forest structural condition.

As result of past, present, and reasonably foreseeable future activities and natural events, late and old structure would remain near 61 percent, of the dry forest type in the Lower Wall drainage and meet the requirements in the Regional Foresters Amendment #2 (1995) for late and old structure.

Connectivity

Alternative 1

Direct and Indirect Effects

In the short term, late and old structure stands and old growth stands would remain generally connected across the landscape and within the project area with medium to large trees, corridor widths greater than 400 feet and late and old structure stands connected by two or more corridors. Indirectly, connectivity to late and old structure stands in the project area could change over time. With the existing management direction including fire suppression, stands in the project area would continue to grow into denser multi-layered stands. This condition would increase the stands susceptibility to wildfire and insect or disease outbreaks. A major disturbance on the landscape would change the composition and structure of the analysis area to an open shrubland/grassland with little or no tree cover. As a result, late and old structure and old growth stands outside the analysis area could be disconnected from other late and old structure stands in the analysis area. This could limit “free” movement between late and old structure stands for wildlife species associated with a late and old structure conditions in the analysis area.

Alternative 2, 3, 4, and 5

Direct and Indirect Effects

Timber harvest (commercial thinning) would occur on about 830 to 926 acres within habitat types of stem exclusion, closed and open canopy, old forest single stratum, old forest multi strata, and understory reinitiation structural stages. Thinning activities are expected to change the density of live trees and/or remove dead trees in the stand. As a result, the composition or structure of the stand could change. Multi-layered stands could eventually change to single-layer stands and closed canopy stands could be more open. Stand composition could shift from a Douglas-fir, grand fir, mixed conifer type to a more historical ponderosa pine, western larch type. After harvest, late and old structure stands in the project area would remain connected to other late and old structure stand in the project area and the analysis area, by two or more connections.

As a result of non-commercial thinning activities, the understory composition would change to a more fire tolerant tree species, such as ponderosa pine, and somewhat more open conditions. This action would not change the overstory composition or structure with regards to connectivity. Structural conditions that resulted from harvest activities would remain unchanged by thinning activities. After thinning, the understory would represent a more ecologically appropriate dry forest condition. Thinning activities would reduce the stands' susceptibility to high-intensity wildfires and insect or disease outbreaks. Habitat connectivity would not change and remain as described after harvest activities.

Cumulative Effects

Past and present timber harvest activities (Appendix G), management direction including wildfire suppression, and the Rimrock Ecosystem Restoration Project have directly or indirectly affected the structure and/or composition of vegetation in the analysis area. Timber harvests in the area have directly affected the structure and composition of medium and large trees in the analysis area through the removal of trees greater than 12 inches diameter breast height. The exclusion of fire has allowed an increase in the density of trees and a change in species composition. As a result, fire behavior in the area has changed from frequent low-intensity to potentially infrequent high-intensity stand replacing burns. Many multi-layered stands in the watershed remain highly susceptible to stand replacement fires.

Through the continued growth of desirable (dry forest) and non-desirable trees (not-dry forest), this has led the analysis area to its current condition of habitat connectivity. Essentially, the area has recovered or is recovering from past and present activities to where habitat connectivity meets the Forest Plan Amendment # 2 (1995).

Future activities in the watershed, with the potential to affect habitat connectivity across the landscape include the Sunflower-Bacon timber harvest project. Approximately 2,000 acres in the Sunflower-Bacon project is proposed for harvest and could potentially affect habitat connectivity. The project is expected to maintain habitat connectivity were possible and provide 2 or more connective corridors to late and old structural stage stands. As result of past, present, and reasonably foreseeable future activities in the analysis area, habitat connectivity is expected to be maintained and meet the requirements in the Regional Foresters Amendment #2 (1995).

Dead Wood Habitat

Dead Standing Trees

Alternative 1

Direct and Indirect Effects

Within the next three to five years, dead standing trees (snags) would continue to occupy the project area at current densities and size classes. With the existing management direction including fire suppression, snags would eventually fall and change the density within the project area. Numerous factors influence the length of time snags remain standing on a site, including weather events, diameter, tree species, height, aspect, slope, elevation, and soil type/moisture (Bull et al 1997). Diameter is one of the most important factors that influence snag fall rates. Typically, large diameter snags ($\geq$ 20 inches diameter breast height), stand longer on a site then small diameter snags (Bull et al 1997). This is attributed to decay moving through the sapwood quicker than the heartwood, and small diameter trees generally have a higher proportion of sapwood than heartwood. Another important factor with regards to utilization and longevity is tree species. Typically, ponderosa pine and Douglas-fir are favored by cavity excavators and tend to stand longer on dry sites (Bull et al 1997).

Based on a snag study (Bull and Partridge 1986) in northeast Oregon with a similar tree species composition, 50 percent of the snags less than 20 inches in diameter would be expected to fall within 6 years and 50 percent of the snag greater than 20 inches diameter breast height would fall within 9 years in the affected area. Without recruitment, within 10 years the snag density in the affected area would be 50 percent less than the current estimate. That would be approximately 13 snags per acre greater than or equal to 10 inches diameter breast height, 8 snags per acre greater than or equal to 12 inches diameter breast height, and 1 snag per acre greater than or equal to 20 inches diameter breast height. Even with an additional 50 percent falling in the 10-inch and 12-inch diameter class, densities would exceed Forest Plan standards in all size classes. Assuming some recruitment would occur; snag density could be slightly greater than the estimated 50 percent level and remain above Forest Plan standards for dead standing trees.

Beyond the next 10-year period, snag densities in the affected area would continue to decline, especially in the 10-inch and 12-inch size classes. Snags greater than or equal to 20 inches diameter breast height would persist longer on the site than the smaller size classes. With the continued amount of snag fall occurring on the site, the dead downed wood component would increase. With an increasing downed wood density, the susceptibility to a wildfire event would increase on the site. Depending on the intensity and severity of the fire, this would reduce or even eliminate snags currently occupying the site. However, snags resulting from a wildfire would most likely be sufficient to meet Forest Plan standards, based on the size and density of live trees on the site prior to the fire. However, many of the newer snags would be fire hardened and not available to most cavity excavators until they begin to decay and soften, about two-three years after the fire. At some point in time, the project area, especially after a series of wildfires, would be below the Forest Plan standard for dead standing trees.

At the watershed scale, dead standing trees would continue to occur at current densities and size classes for the next three to five years. When compared to white-headed

woodpecker cumulative species curves in DecAid, for this habitat type and structural condition, densities would continue to exceed the 80 percent tolerance level for the white-headed woodpecker in the 10-inch group and remain near the 50 percent tolerance levels for the 20-inch group. With the existing management direction including fire suppression, snag densities would have the potential to increase across the watershed within the next five to ten years. The potential increase would result from increasing tree mortality from insect and disease infestation from live trees within the denser patches of conifers not previously thinned by the tussock moth outbreak. In addition, as a result of the current tree density, composition, and structure, the watershed would remain susceptible to wildfire. Depending on the size and severity of the next major disturbance, snag density would increase temporarily (for more than 10 years) in the watershed, and then fall back to "normal" levels, maintained by the "natural" mortality of green trees. The resulting high snag density in the watershed would exceed the 80 percent tolerance level for the white-headed woodpecker in the 10-inch group and most likely exceed the 50 percent tolerance levels for the 20-inch group.

Alternative 2, 3, 4, and 5

Direct and Indirect Effects

Proposed harvest activities (salvage and commercial thinning) and associated activity like temporary road construction would directly and indirectly affect dead standing trees in the project area. A high proportion of the trees being harvested would be dead trees. Harvesting dead trees would reduce the density of dead trees in the affected area for all size classes. In addition, the effects of harvest operations (skidding, skid trails, landings, etc.) would reduce snags in the project area. However, three of the largest dead standing trees per acre would not be harvested and would remain standing in the affected area. Snags greater than 20 inches diameter breast height would remain in the affected area when that size class occurs on the site. Ponderosa pine and Douglas-fir would be the preferred snag for retention. As a result of this action, snag density after treatment would be at least 3 dead standing trees per acre or about 2,778 snags over the 920 harvested acres (Table W-10). This would be above the Forest Plan standard by 0.75 snags/acre for the total snags required. Essentially, all snags retained would be at least greater than or equal to 12 inches diameter breast height, and approximately a third or more of the remaining snags would be greater than or equal to 20 inches diameter breast height after harvest. Snags would be retained as clumps, singles, or groups in the affected area. Additional snags of varying size classes would be maintained in non-harvest areas like riparian habitat corridors and outside the affected area.

Thinning (non-commercial) would not directly or indirectly affect dead standing trees left in the project area. Dead standing trees would not be cut down during thinning activities; only green trees (saplings) generally up to seven inches diameter breast height would be thinned or removed.

When compared to Alternative 1, the proposed activities in this alternative would reduce the total number of snags in the affected area. Dead standing trees greater than or equal to 10 inches would decrease from 27 snags per acre to 3 snags per acre, a reduction of about 24 snags per acre in the affected area. However, the retention of 3 snags per acre (greater than or equal to 10 inches diameter breast height) in the project area is above the

Forest Plan standard of 2.25 snags per acre. Snag densities for the 10- and 12-inch size classes, when compared to Alternative 1, would also be lower in this alternative because most of the snags removed by harvest would occur in these size classes. In addition, the intent is to retain the larger size classes (greater than 16 inches) in lieu of the smaller size class (10-inch and 12-inch) densities, as much as possible. The larger snags have a better chance of remaining upright on the site than smaller snags (less than 16 inches). Cavity excavators can use snags more extensively when they remain on the site longer. The density estimates for the 20-inch size class, in this alternative, would be about the same as Alternative 1 (1 snag per acre).

At the watershed scale changes in snag density is not that apparent, when considering the affected area and the size of the watershed. To determine potential changes in snag density at the watershed scale (dry forest); the total numbers of snags were derived for the watershed and the affected area. Total snag numbers were determined by multiplying the estimated snag density by the area to arrive at pre-harvest estimates for snag in the watershed and the affected area (Table W-10). Post-harvest snag numbers were derived for the affected area using the post-harvest retention density of 3 of the largest snags per acre. Based on snag density estimates from stand exams, 3 snags per acre, greater than or equal to 20 inches diameter breast height, does not occur in the affected area, there is approximately 1 snag/acre ≥ 20 inches in the watershed (Table W-10). To meet the retention standard, the remaining snags (2/acre) would occur between 10 inches and 20 inches. Therefore, the retention rate of 3 snags/acres for the ≥ 10 inch group and 1 snag/acre for the ≥ 20 inch group was used to arrive at post-harvest snag numbers in the affected area (Table W-10). Then, total snags for the post-harvest, affected area were determined by multiplying the retention rate by the affected area. Total snags from the pre-harvest affected area were subtracted from the total snags in the post-harvest, affected area. The difference between the pre- and post-harvest total snags is the number of snags removed from the affected area (Table W-10). Post-harvest, total snags were determined by subtracting the pre-harvest total snags from the total snag, difference (removed snags) from the affected area. Post-harvest total snags for the watershed, were divided by the acres in the watershed to arrive at a post-harvest snag density of 8 snags/acre for the ≥ 10 inch group and 2 snag/acre for the ≥ 20 inch group in the Wall watershed (Table W-10).

At the watershed scale, effects from the proposed action would reduce the snag density for the greater than or equal to 10-inch group by less than 0.3 snags per acre (Table W-10) when compared to the current condition (Table W-10). This is about a 3 percent reduction in snags between 10 and 20 inches. No change in snag density is expected to occur in the greater than or equal to 20-inch group (Table W-10). When compared to white-headed woodpecker cumulative species curves in DecAid, for this habitat type and structural condition, densities would continue to exceed the 80 percent tolerance level for the white-headed woodpecker in the 10-inch group and remain between the 30 percent and 50 percent tolerance level for the greater than or equal to 20-inch group.

Table W-10. **Snag Densities for Pre-harvest and Post-harvest in the Affected Area and the Wall Watershed, Dry Forest Type.**

Evaluation Units		Unit	Diameter Group >= 10" dbh	Diameter Group >= 20" dbh
Analysis Area	Affected Area	Acres	926	926
	Watershed		66,780	66,780
Snag Density	Affected Area	Snags/Acre	27	1
	Watershed		8	2
Pre-Harvest	Affected Area	Total Snags	25,002	926
	Watershed		534,240	133,560
Post-Harvest	Affected Area	Snags/Acre	3	1
		Total Snags	2,778	926
	Watershed	Total Snags	512,016	133,560
		Snags/Acre	8	2
Difference (Pre (-) Post Harvest)	Affected Area	Total Snags	22,224	0

As mentioned previously, thinning (non-commercial) would not directly or indirectly affect dead standing trees left in the affected area. Therefore, dead standing trees should not be affected and snag densities at the watershed scale would not change as a result of thinning and planting.

Cumulative Effects

Past and present timber harvest activities, fuel wood harvest, (Appendix G) and management direction including fire suppression, and the Rimrock Ecosystem Restoration Projects have directly or indirectly affected dead standing trees in the analysis area. Timber harvest in the C3 analysis area has directly affected snag density through the removal of dead standing trees greater than or equal to 10 inches diameter breast height and greater than or equal to 20 inches diameter breast height, and the potential recruitment of snags through wildfire. Overall, past and present activities have led to a higher proportion of snags greater than 10 inches and lower proportion of snags greater than 20 inches in the affected area (Table W-1) and across the watershed (Table W-2). At the watershed scale, the current summation of past and present activities has resulted in 8 snags per acre greater than or equal to 10 inches diameter breast height and 2 snags per acre greater than or equal to 20 inches diameter breast height. These densities are above the Forest Plan standard (Table W-1) and greater than the 50 percent tolerance level identified for the white-headed woodpecker in DecAid.

Historically, fire played a role in reducing heavy fuel build-up and recruiting snags on the landscape, typically in small patches. Fire exclusion has interrupted deadwood dynamics on the landscape, allowing dead standing trees and resulting downed wood to remain longer on the site, and build to high densities on the landscape. This has resulted in the current density of deadwood at the watershed scale. Large patches and high densities of

dead wood remain susceptible to a high intensity wildfire event. A large wildfire, like the Wheeler Point fire in 1996, could result in a decrease in snag densities below the Forest Plan standard and near the 30 percent tolerance level for the white-headed woodpecker (DecAid). To re-establish snags in the area and meet Forest Plan standards, it would take more than 80 years for trees to develop into the 20 inch size class. Wildfire can also recruit snags on the landscape. However, potential snags for the area would be limited to the fire perimeter where fire intensity and severity would be less.

Future activities in the watershed, with the potential to affect dead standing trees in the watershed include the Sunflower-Bacon timber harvest project and fuelwood harvest. Approximately 2,000 acres in the Sunflower-Bacon project is proposed for harvest, including the removal of dead standing and green trees. However, snags will be left in the affected area at the rate of 3 of the largest snags per acre. Every effort would be made to retain snags greater than 20 inches diameter breast height and meet or exceed the standard for this size class. Snags in the 10-inch and 12-inch size class may be deferred to the larger size class. Overall, dead standing trees in the Sunflower-Bacon area would be retained to meet or exceed Forest Plan standard. In addition, snag densities at the watershed level are expected to remain above or near the 50 percent tolerance level for the white-headed woodpecker in the greater than or equal to 10-inch group or the greater than or equal to 20-inch group for all past, present and reasonable foreseeable future activities in the watershed.

Snag Replacement Trees

Alternative 1

Direct and Indirect Effects

Within the next three years, green/live trees would remain available for recruitment into the snag population. Snag replacement trees (live/green) would continue to occupy the project area near current densities and size classes, exceeding Forest Plan objectives. With the existing management direction including fire suppression, mortality among live trees would continue within the denser patches of conifers not previously thinned by the tussock moth outbreak. Denser patches of conifers in the affected area remain susceptible to insect and disease outbreaks. Therefore, beyond the next three to five years, the availability of replacement trees is expected to decrease. However, current densities of green trees in the affected area would need to decline approximately 50 percent to fall below Forest Plan objectives for replacement trees. Given sufficient time, this could potentially occur as a result of a wildfire, given the current composition and structure in the affected area. Depending on the intensity and severity of the fire, this would reduce or even eliminate green replacement trees currently occupying the site. After a severe fire event, like the Wheeler Point fire in 1996, it would take in excess of 80 years to regain sufficient quantities of replacement trees, in all size classes, to meet the Forest Plan objectives for the area.

Alternative 2, 3, 4, and 5

Direct and Indirect Effects

Commercial thinning and related actions could directly and/or indirectly affect green trees in the project area. Approximately, 926 acres would be thinned, reducing the

density of green trees in the affected area. Harvest activities would reduce stand density in multi-layered stands and in dense patches of single-layered stands. However, at least 16 (15.8) green trees per acre greater than 10 inches diameter breast height would be retained in the affected area as snag replacement trees. This would include about 10 (10.2) trees per acre greater than 12 inches diameter breast height and 1 (1.1) tree per acre greater than 20 inches diameter breast height. As a result of harvest activities in the affected area, a sufficient number of green trees would be retained and recruited as snags throughout the life of the stand. A snag replacement tree density of 16 trees per acre would meet the Forest Plan snag replacement tree objective. Green trees greater than 21 inches diameter breast height will not be harvested.

Thinning (non-commercial) would not directly or indirectly affect snag replacement trees in the project area. Large ponderosa pine and Douglas-fir trees (>10 inches) would not be removed during thinning activities. Only green trees (saplings) generally up to 7 inches diameter breast height would be thinned or removed.

When compared to Alternative 1, the proposed activities in this alternative would reduce the total number of green trees in the affected area by about 31 trees per acre greater than 10 inches. Currently, there are approximately 47 trees per acre greater than 10 inches in the affected area. At least 16 trees per acre, greater than 10 inches, would be retained in the affected area as snag replacement trees in order to meet Forest Plan snag replacement objectives.

Cumulative Effects

Past and present timber harvest activities (Appendix G) and management direction including wildfire suppression and the Rimrock Ecosystem Restoration Project have directly and/or indirectly affected green tree (snag replacement) densities in the analysis area. Past harvest activities removed green trees in the analysis area, of varying size classes and numbers. Overall, the affects have led to higher proportion of green trees less than 20 inches and a lower proportion of trees greater than 20 inches in the affected area. Through the continued growth of desirable (dry forest) and non-desirable trees (not-dry forest), this has resulted in 47 trees per acre greater than or equal to 10 inches diameter breast height and 5 trees per acre greater than or equal to 20 inches diameter breast height. All green trees greater than or equal to 21" diameter breast height will remain in the affected area and at least 16 trees per acre, greater than 10 inches diameter breast height will be retained in the affected area after harvest. Retention densities of green trees will meet or exceed the Forest Plan objectives for snag replacement trees. As a result, past and present harvest activities in the analysis area are of sufficient numbers to provide snags throughout the life of the stand.

The exclusion of fire through suppression activities has allowed an increase in the density of trees and a change in species composition. This could be a contributing factor to the high density of green trees in the affected area and resultant tussock moth outbreak in the analysis area. As a result, fire behavior on the landscape has changed from frequent low-intensity to infrequent potentially high-intensity stand replacing fires. A high intensity wildfire event like Wheeler Point fire could result in a total loss of green trees in the project area. This could result in a reduction of green trees for future snags in the affected area to levels well below Forest Plan objectives for snag replacement trees. It could take more than 80 years to re-establish a snag replacement tree component to the area.

Future activities in the watershed, with the potential to affect green replacement trees in the watershed include the Sunflower-Bacon timber harvest project. Approximately 2,000 acres in the Sunflower-Bacon project is proposed for harvest, including the removal of green trees. However, at least 16 green trees, greater than 10 inches diameter breast height will be retained in the project area at. Green trees greater than 21 inches diameter breast height should be retained in the affected area and not harvested. As a result, past present and reasonable foreseeable future project in the affected area will meet or exceed Forest Plan (amended) objectives for green replacement trees.

Dead Downed wood

Alternative 1

Direct and Indirect Effects

Over the next three to five years, dead downed wood would continue to occupy the watershed near the current density of 8 pieces per acre, well above the Forest Plan standard of 3 to 6 pieces per acre. Over the next ten years, falling snags would be the primary source of downed wood habitat, maintaining or slightly increasing downed wood densities in the C3 portion of the Rimrock analysis area. With the existing management direction including fire suppression, stands in the analysis area would continue to grow into denser multi-layered stands. Eventually, tree vigor would decrease and trees would become stressed, increasing their susceptibility to insects and disease. As a result, tree mortality would increase in the small to medium (≤12-inch) size classes. Within 6 years, snags would fall, maintaining downed wood levels above the Forest Plan standard of 3 to 6 pieces per acre in the analysis area and the watershed. Increases in downed wood density would also increase fuel loading at the site and the susceptibility of the site to wildfire. Typically, a wildfire would eventually increase the amount of downed wood in the affected area through snag fall. After a series of major wildfire disturbances on the site, downed wood densities could eventually fall below the Forest Plan standard. Replacing downed wood on a site could take up to 80 years, to develop downed wood replacement trees greater than 12 inches diameter breast height.

Alternative 2, 3, 4, and 5

Direct and Indirect Effects

Proposed harvest activities (salvage and commercial thinning) and temporary roads would not have a direct effect on dead downed wood, because current levels of downed wood in the affected areas would not be harvested or removed from the site by this action. Indirectly, dead wood may be affected by harvest operations (skidding, skid trails, landings, etc.) or temporary roads, where existing down logs may be moved, cut in pieces, or broken apart within the project area. However, direct and indirect effects of the proposed action would not be expected to reduce the downed wood densities in the affected area or the watershed level. Downed wood densities in the affected area would be expected to meet or exceed the Forest Standard of 3 to 6 pieces per acre greater than 12 inches in diameter (large end) and greater than 6-foot lengths after harvest. Pieces of downed wood meeting this standard would remain on site as singles, groups, or piles. Because downed wood densities would not be expected to change in the affected area, downed wood would remain at or near 8 pieces per acre at the watershed scale after

harvest. Downed wood densities in the analysis area would be maintained in non-harvest areas like riparian habitat corridors.

Thinning (non-commercial) would not directly or indirectly affect dead downed wood left in the project area. Dead wood would not be cut or removed during thinning activities. Only green trees (saplings) generally up to 7 inches diameter breast height would be thinned or removed.

When compared to Alternative 1, the proposed activities in the action alternatives would not reduce the density of downed wood in the affected area. Essentially, there is no difference in downed wood densities between Alternative 1 and after the proposed action is implemented. Downed wood densities would remain at or near 8 pieces per acre at the watershed scale for all alternatives, because downed wood pieces across the landscape, including the affected area would not be removed from the site.

Cumulative Effects

Past and present timber harvest activities, fuel wood harvest, (Appendix G) and management direction including fire suppression, and the Rimrock Ecosystem Restoration Project have directly or indirectly affected dead standing trees in the analysis area. Timber harvest in the C3 analysis area has directly affected downed wood density in the watershed, through the removal of downed wood and dead standing trees in various sites across the watershed. Fuel wood harvest occurs within 300 feet of open roads and is limited to downed wood less than 24 inches at the stump (large end). With the random distribution of downed wood on the landscape, effects from fuelwood harvest are not measurable.

Historically, fire played a role in reducing heavy fuel build-up and recruiting downed wood on the landscape, typically in small, dispersed patches. Fire exclusion has interrupted deadwood dynamics on the landscape, allowing dead standing trees and resulting downed wood to remain longer on the site, and build to high densities on the landscape. This has resulted in the current density of dead downed wood at the watershed scale. Large patches and high densities of dead wood remain susceptible to a high intensity wildfire event. A large wildfire, like the Wheeler Point fire in 1996, could result in a downed wood density below the Forest Plan standard.

Overall, past and present activities have led to current levels of downed wood in the affected area and across the watershed. At the watershed scale, past and present activities have resulted in the current estimate of 8 pieces of downed wood per acre. These densities are 2 to 5 pieces per acre above Forest Plan standard for dead downed wood.

Future activities in the watershed, with the potential to affect dead downed wood in the watershed include the Sunflower-Bacon timber harvest project and fuelwood harvest. All other reasonably foreseeable future activities with the potential to affect dead standing trees are outside the watershed. Approximately 2,000 acres in the Sunflower-Bacon project is proposed for harvest, including the removal of dead standing trees. Snags will be left in the affected area at the rate of 3 of the largest snags per acre and downed wood currently in the affected area will remain on the site and not harvested. Dead downed wood in the Sunflower-Bacon area would be retained on site and meet or exceed Forest Plan standard of three to five pieces per acre. In addition, downed wood densities at the watershed scale are expected to remain above the Forest Plan standard and near the

current level of 8 pieces per acre for all past, present and reasonable foreseeable future activities in the watershed.

Management Indicator Species

Rocky Mountain Elk

Alternative 1

Insert in FEIS page 135, after the first paragraph and before Cumulative Effects.

Direct and Indirect Effects in C3 area only: In the short term, elk habitat would remain unchanged. With the existing management direction, including fire suppression, over time stands would continue to grow and develop into a multistory structure, increasing the amount of total cover above 30 percent and satisfactory cover above 15 percent. Generally, overtime stands could shift from forage to cover and marginal cover to satisfactory cover. Overall, the elk habitat effectiveness index would remain near 67 or decrease slightly for the Monument winter range because patches of forage could (over time) develop into cover; reducing the distribution of cover-forage, potentially changing the habitat effectiveness value.

In the long-term the potential increase in cover and multi-layer condition, could increase the areas susceptible to higher intensity wildland fires and disease or insect outbreaks. A disturbance event similar to the Wheeler Point fire in 1996 (22,000 acres) and the Monument Complex fire in 2001 (32,000 acres) is likely, given the Rimrock analysis area has a similar vegetative condition. The severity of effects observed following those events could shift cover habitat to forage habitat, resulting in a reduction of total cover below 30 percent and satisfactory cover below 10 percent for the Monument winter range. If a similar event occurs in the Rimrock area the habitat effectiveness index for the Monument winter range could be less than 67 because of the loss of cover (satisfactory and total) and the increase in foraging habitat.

The open road density in the Monument winter range during the winter use period would remain at 0.5 miles per square mile. With the current management direction the road density is not expected to change.

Table W-11. **Effects of Alternatives on Big Game Habitat within the C3 Analysis Area.**

Habitat Parameter	Forest Plan Standard (C3)	Alternatives 1	2	3	4	5
Satisfactory Cover (%)	≥10	15	15	15	15	15
Total Cover (%)	≥30	44	44	44	44	44
Habitat Effectiveness Index	≥70	67	67	67	67	67

Alternative 2, 3, 4, and 5

Insert in FEIS page 135, after the last full paragraph and before Cumulative Effects.
Direct and Indirect Effects in C3 area only:

Project activities would occur in satisfactory and marginal cover of the Monument winter range. Harvest and thinning activities occur in approximately 926 acres of the C3 management area. Seven units totaling about 290 acres change from satisfactory cover to marginal cover. In the remaining units of the C3 management area, the composition and structure will not change significantly, resulting in no change in the current cover condition for those units. Forage habitat would not increase or decrease as a result of the proposed project.

After project implementation, total cover would be at 44 percent and satisfactory cover would be 15 percent. Total cover would be above the minimum standard of 30 percent for the winter range and satisfactory cover is above the minimum standard of 10 percent and at the lower range of "desirable" identified in the Forest Plan. The habitat effectiveness index value would be 67, which remains below the habitat effectiveness index standard of 70 identified in the Forest Plan, but unchanged when compared to the current condition. A habitat index of 67 is consistent with the forest plan, as amended.

During harvest activities (summer), elk have the potential to be displaced from a unit that is being harvested. This shift is temporary and not expected to displace elk outside the analysis area. In the winter, harvest activities will not occur therefore elk will not be displaced by harvest activities. In the winter and summer, elk are expected to utilize the area as they have in the past. This is because the change in cover from current condition to post harvest condition is not a sufficient quantity to constitute a change in the habitat effectiveness index.

Temporary roads and existing roads used for harvest would not change open road densities because these roads would be closed and harvesting would not occur in the Monument Winter Range during the restricted winter-use period (December 1 to April 15). The open road density in the Monument winter range during the winter-use period would remain at 0.5 miles per square mile.

Elk vulnerability in the area will be maintained near the current level because open road density in the area will not change significantly above the current road system. Approximately 2 miles of temporary roads will be used for harvest activities and will be closed and revegetated after harvest operations.

A sensitivity analysis of habitat effectiveness index was conducted for the Monument winter range relative to open roads. How many miles of open roads would need to be closed during the winter use period to reach a habitat effectiveness index of no less than 70? The answer was 24 miles. What would happen if all 47 miles of open road were closed? With all roads closed in the Monument winter range the habitat effectiveness index would be 73.

While achieving a habitat effectiveness index of no less than 70 is theoretically possible and may be achieved someday, achieving 70 was not the purpose of and need for action for this specific project (FEIS, pages 5-10). The purpose and need for this action focused mainly on forest health and fuels. In addition, future projects that are intended to improve habitat effectiveness index are not precluded, nor is the attainment of 70 prevented.

All cover related values displayed in Table W-11 are consistent with Forest Plan standards. In meeting the cover related management direction for elk in the C3, management area the Monument winter range will continue to provide sufficient cover habitat (total, satisfactory, and marginal) as well as continue to contribute to the elk management population objectives of the State of Oregon in the Heppner Unit. As such, it follows that recreation hunting opportunities (State issued permits) will continue in the Monument winter range. These impacts are relevant because the big game habitat effectiveness index model predicts the effects of forest management on elk and other big game species. Potential big game populations are assumed to be proportional to the Habitat Effectiveness Index (HEI) for elk and deer (Forest Plan EIS, page IV-71). Therefore, an index of 67, while not 70, provides a high level of potential habitat effectiveness and maintains elk populations in the Heppner management area near or above management objectives.

The forest plan habitat effectiveness index amendment for the Rimrock project will change the habitat effectiveness index value from 70 to the existing condition of 67 in the Monument winter range for the duration of the Rimrock project. The direct and indirect effects of changing the Forest Plan habitat effectiveness index standard for this project are expressed in the habitat effectiveness index value of 67 and the high quality habitat it provides. The direct and indirect effects of the amendment on elk habitat remains essentially unchanged from current conditions (Project File) and therefore the ability of the State to manage the elk herd in the monument winter range is maintained. Because the amendment only applies to the Monument winter range, for the duration of this project, there are no impacts to other winter ranges across the forest.

Insert in FEIS page 136, after the first paragraph and before Neotropical Birds (NTMB).

Cumulative Effects in C3:

Past, present and reasonably foreseeable future activities considered in this analysis are displayed in Appendix G; in particular this includes the Bologna Basin and Sunflower-Bacon projects. The direct and indirect effects to cover and habitat effectiveness index values for the action alternatives (Table W-11) were added to residual past, present, and reasonable foreseeable future effects relative to the evaluation criteria for elk (total cover,

satisfactory cover, and habitat effectiveness index). The cumulative value for total cover is 44 percent, 15 percent for satisfactory cover, and 67 for the habitat effectiveness index.

Past harvest and road building actions throughout the area impacted the structure and composition of cover in the winter range through the removal of trees and understory vegetation. Decades of fire exclusion have reshaped the landscape of the Rimrock analysis area. Historically, fire played a role in thinning the forest and maintaining a higher proportion of fire resistant species, such as ponderosa pine. Although well intentioned, fire exclusion has resulted in an increase in the density of trees and a change in species composition. Ironically, fire exclusion may have contributed to the amount and distribution of total cover. While beneficial to elk, these increases may not be sustainable over time partly because fire and insect disturbances within the ponderosa pine ecosystem are inevitable. The current cover and habitat effectiveness index values for the Monument winter range (Table W-11) reflect the sum of impacts of all past human actions and natural disturbances.

Present and reasonably foreseeable future activities and events could change cover, open road densities, the distribution of cover and forage across the area, and/or the habitat effectiveness index. For example the Rimrock project decreased the amount of satisfactory cover and close roads; however, the cumulative result is no change in the habitat effectiveness index.

All cumulative values, relative to cover are consistent with Forest Plan standards. In meeting the cover related management direction for elk in the C3 management area the monument winter range will continue to provide sufficient cover habitat (total, satisfactory, and marginal) as well as continue to contribute to the elk management population objectives of the State of Oregon. As such, it follows that recreation hunting opportunities (State issued permits) will continue in the Monument winter range and Heppner unit. The cumulative effects are elk habitat remains essentially unchanged from current conditions and therefore the ability of the State to manage the elk herd in the monument winter range is maintained. While a habitat effectiveness index of 70 would not be achieved by implementation of the Rimrock project, this project does not cumulatively reduce the index from its current level.

The forest plan habitat effectiveness index amendment for the Rimrock project and the present and reasonably foreseeable future habitat effectiveness index amendments for the Bologna Basin and Bacon-Sunflower projects will change the habitat effectiveness index value to the existing condition of 67 only in the Monument winter range and for those projects. Because the cumulative amendments only apply to the Monument winter range for the duration of those projects there are no changes in the habitat effectiveness index standard for other winter ranges across the forest. All other cumulative effects of amending the forest plan habitat effectiveness index standard are the same as described for direct and indirect effects.

Neotropical Migratory Birds

Dry Forest Habitat

Alternative 1

Insert in FEIS page 136, after the first complete paragraph in the Neotropical Birds (NTMB) heading, Alternative 1.

Direct and Indirect Effects

The direct and indirect effects to the dry forest habitat are the same as those previously described in the *Late and Old Structure* section and *Dead Wood Habitat* section. Patch size would remain in its current condition until stands become susceptible to high-intensity wildfires or insects and disease outbreaks. A major disturbance on the landscape like the Wheeler fire in 1996 could change the composition and structure to an open shrubland/grassland with little or no tree cover. This could potentially reduce or eliminate the old forest patches in the project area and limit connectivity to late and old structure stands. As a result, old forest stands outside the project area may be disconnected from other old forest stands in the analysis area.

Insert in FEIS page 136, after the second complete paragraph in the Neotropical Birds (NTMB) heading, Alternative 1.

Riparian Shrub Habitat

Direct and Indirect Effects

Riparian shrub habitat would not be directly affected by current management direction because habitat criteria would essentially remain unaltered in the project area in the short term. Over time, riparian shrub stands in the project area would continue to grow and develop into a more dense community, eventually occupying more area on the site. Herbaceous, open areas would decrease in size with the encroachment of shrub cover. Tree seedlings and saplings may also encroach in openings and occupy those sites along streams in the project area. Patch size would increase as shrubs occupy more of the area. As upland vegetation grows and develops into a dense, multi-layer condition, uplands and riparian shrub communities would become more susceptible to high-intensity wildfires and insect or disease outbreaks. A major disturbance on the landscape would change the composition and structure of riparian communities. Initially, riparian communities would have little vegetative cover, but eventually they would become occupied with shrubs and grasses. After such a disturbance, typically, shrub densities would increase and occupy more than 60 percent of the site. Tree densities would decrease initially, but may eventually regenerate along the stream channel. Patch size would ultimately increase as shrubs occupy more of the site. Overall, habitat suitability for the willow flycatcher would improve as the riparian shrub community developed.

Alternative 2, 3, 4, and 5

Insert in FEIS page 136, after the fifth complete paragraph in the Neotropical Birds (NTMB) heading, Alternative 2, 3, 4, and5.

Direct and Indirect Effects:

Dry Forest Habitat

Commercial thinning and non-commercial thinning activities would affect old forest single stratum, the forest mosaic, openings, snag densities, and patch size of dry forest habitats. The direct and indirect effects to old forest single stratum and snag densities are the same as those discussed in the *Late and Old Structure* section and *Dead Wood Habitat* section for Alternative 2, 3, 4, and 5. Changes in the composition and structure of a stand, after harvest and thinning, would generally result in a change in the structural stage.

Thinning activities are not expected to significantly increase the amount of structural diversity (mosaic) in the analysis area. This is because the overstory will be retained and the understory and/or mid-story thinned, essentially retaining the over all structure of the stand. As a result, all structural stages currently in the analysis area would still occur in the analysis area after harvest. Potential shifts in structure would, essentially be multi layered stand moving to a single layered stand. Harvest and thinning activities will move structural stages in the affected area to a more sustainable condition and toward a more balanced historical range of variability and mosaic condition in the analysis area. In addition, units harvested and thinned would provide a mosaic of open areas, shrub patches, large trees, and medium-small trees in the affected area. Proposed harvest and thinning activities would promote the development of larger trees, single-layered canopies, open park-like understory dominated by herbaceous cover, scattered shrub cover, and pine regeneration. Patch size is not expected to change through harvest and thinning activities. Habitat conditions for migratory landbird in the dry forest type will improved in the affected area, because old forest single stratum, forest mosaic, openings, snag densities, and patch size will either be maintained or improved as a result of harvest or commercial thinning.

Insert in FEIS page 136, after the sixth complete paragraph in the Neotropical Birds (NTMB) heading, Alternative 2, 3, 4, and5 and before Cumulative Effects.

Riparian Shrub Habitat

Commercial harvesting and non-commercial thinning activities will not occur in riparian habitat corridors. Therefore, no direct or indirect effects would occur to migratory birds associated with riparian shrub habitat.

Cumulative Effects:

Insert in FEIS page 136, after the last paragraph.

Dry Forest Habitat

Past and present timber harvest activities, grazing (Appendix G) and management direction including wildfire suppression and the Rimrock Ecosystem Restoration Project have directly and/or indirectly affected dry forest habitat types in the analysis area. Past activities removed green trees and dead standing trees that resulted in a change in composition and structure, both in the overstory and the understory. Through the continued growth of desirable (dry forest) and non-desirable trees (not-dry forest), this

has resulted in the current dry forest habitat condition for migratory birds in the C3 analysis area.

The potential for livestock to utilize forage and shrubs continues, although to a lesser extent than in the past. Current allotment management plans balance livestock utilization with other wildlife management objectives, resulting in a shared utilization of the forage/shrub resource. Fire suppression has excluded the historical role of fire on the landscape, resulting in an increase in the density of trees and a change in species composition. As a result, past present activities are expected to maintain the current suitability of dry forest migratory bird habitat in the C3 analysis area.

Future activities and events in the watershed with the potential to effect dry forest habitat for migratory landbirds include the Sunflower-Bacon timber harvest project (Appendix G). Approximately 2,000 acres in the Sunflower-Bacon project is proposed for harvest and could potentially change the structure and composition of affected stands. Harvest activities are expected to maintain the current amount of late and old structural condition in the watershed. Generally, stands will be thinned, with some stands moving closer to a late and old forest condition. Therefore, as a result of past, present, and reasonably foreseeable future activities dry forest habitat would be maintained in the current suitable condition for migratory birds in the analysis area.

Riparian Shrub Habitat

Past and present timber harvest activities, grazing (Appendix G) and management direction including wildfire suppression and the Rimrock Ecosystem Restoration Project have directly and/or indirectly affected riparian habitat types in the analysis area. In the past harvest activities most likely occurred in riparian corridors, potentially changing the composition and structure of riparian vegetation to a more conifer dominated stand. The potential for livestock to utilize riparian shrubs for forage continues, although to a lesser extent than in the past. Current allotment management plans balance livestock utilization with other wildlife management objectives, resulting in a shared utilization of the forage/shrub resource. Fire suppression has excluded the historical role of fire on the landscape, resulting in an increase in the density of trees and a change in species composition. As a result, fire behavior has changed from frequent low-intensity to infrequent high-intensity stand replacing burns. High-intensity fires within riparian corridors are not desirable because of the probable loss of overstory tree cover. However, low-intensity fires would periodically maintain and improve shrub quality and quantity in the analysis area. However, these past and present activities have resulted in the current habitat condition for migratory birds associated with riparian shrubs in the C3 analysis area.

Future activities and events in the watershed with the potential to affect riparian shrub habitat for migratory landbirds include livestock grazing (Appendix G). Livestock grazing would continue as described for the present condition. Therefore, as a result of past, present, and reasonably foreseeable future activities riparian shrub habitat would be maintained in the current suitable condition for migratory birds in the analysis area.

THREATENED, ENDANGERED, PROPOSED, CANDIDATE, and SENSITIVE SPECIES

Threatened Proposed and Endangered Species

Alternative 1

Direct and Indirect Effects:

Insert in FEIS page 137, after the second paragraph and before cumulative effects section.

Northern Bald Eagle - Threatened

The bald eagle would not be directly affected by current management direction because the Site Specific Management Plan for the Dry Creek Nest Site provides guidance for successful eagle occupation and nesting in the Bald Eagle Consideration Area. Indirectly, nesting habitat in the Bald Eagle Consideration Area could change. Over time stands in the Bald Eagle Consideration Area could potentially grow and develop into a multistory old forest stands, maintaining or slightly increasing the amount of potential nesting habitat in the Bald Eagle Consideration Area. However, the multi-layer condition would increase stand density making stands increasingly susceptible to high-intensity wildfires and susceptible to insects and disease outbreaks. A major disturbance in the Bald Eagle Consideration Area, such as the Wheeler Point Fire or Monument Fire, would change the large tree composition and structure, reducing potential nesting habitat in the Bald Eagle Consideration Area.

Gray Wolf - Threatened

The gray wolf would not be directly affected by current management direction in the analysis area because the species is not known to occur in the analysis area. Indirectly, open road density in the analysis area is expected to remain at 0.5 miles per square mile in the Monument winter range. Openings for potential use as natal dens or rendezvous sites may experience some conifer encroachment over time but not enough to significantly reduce the overall size of the opening in the analysis area.

Alternative 2, 3, 4, and 5

Direct and Indirect Effects

Insert in FEIS page 138, after the second paragraph and before the Cumulative Effects section.

Northern Bald Eagle - Threatened

Harvest and thinning activities would not directly or indirectly affect bald eagle habitat and individuals. Live trees greater than 21 inches diameter breast height would not be harvested as per the Regional Forester's Plan Amendment #2 (USDA Forest Service, 1995). Eagles prefer large diameter (greater than 21 inches) snags, with widely spaced limbs for roosting or perching. These types of snags are the most desirable, and where feasible would be maintained. No harvest units are within the Dry Creek Bald Eagle Consideration Area. Proposed harvest and thinning activities would not alter potential

nesting habitat or potential nest trees, because no activities would occur within the Bald Eagle Management Area.

The proposed harvest and thinning would not affect perching or roosting habitat (USDI, FWS 1986) for wintering eagles. Proposed harvest is outside the Bald Eagle Management Area and harvest is limited to trees, which are less than 21 inches in diameter. Snags would be retained as described previously across the analysis area and in harvest units to provide potential perching sites. Currently, the majority of winter eagle use (perching) is within one mile of the North Fork John Day River and on the ridgeline north of the river.

Harvest activities would only be permitted in the winter range from April 15 through November 31. This would preclude any activity during bald eagle winter use and nesting season.

The proposed activities would have a *"No Effect*" on the northern bald eagle or its habitat. This determination was based on surveys, which indicate nesting, and/or foraging eagles occur outside the project area. Proposed thinning would not alter potential nesting habitat or potential nest trees, because no activities would occur within the Bald Eagle Management Area. In addition, proposed activities would not alter riparian habitat along major streams in the analysis area. Winter eagle use is relatively low and sporadic within the analysis area. Perching or roosting habitat would remain along the river corridor and would not be affected by the proposed thinning activities. Prey species should continue to occur along the river corridor and proposed activities would not affect potential habitat for those species.

Gray Wolf - Threatened

Thinning activities would not directly affect the gray wolf because the species is not known to occur in the project area. Indirectly, thinning activities that change forage availability for deer and elk populations affect wolves. Opening up the overstory and reducing the understory through thinning or burning would result in an increased production of grasses, forbs and shrubs in the understory. Forage productivity would remain moderate to high, until the overstory closes and forage production decreases. Populations of deer and elk would continue to be managed at their current management objective for the management area. Open road density would be maintained at the current level.

For the gray wolf and its habitat a "No Effect" determination was reached because:

- No populations currently occupy this Forest.
- No denning or rendezvous sites have been identified.
- There is an adequate prey base.

Cumulative Effects

Insert in FEIS page 139, after the second paragraph and before the paragraph that begins "No Lynx Analysis Units exist…".

Northern Bald Eagle - Threatened

No past and present activities listed in Appendix G have impacted potential Northern bald eagle populations or their habitat in the North Fork John Day river system. Over the last 15 years, bald eagle populations (residents and migrants) have been increasing in the North Fork John Day river system (Isaacs and Anthony 1998). Currently, the Dry Creek nesting pair nests along the lower portion of the North Fork John Day River. Nesting sites could expand throughout the North Fork John Day river system as long as reproductive success continues in the resident population. Wintering eagle populations have expanded throughout the river system more rapidly than resident populations and should remain stable or increase over the next few years.

Habitat along and adjacent to the river corridor continues to improve and recover. Numerous large trees (greater than 30 inches in diameter) for roosting and nesting occur within the analysis area and the North Fork John Day river system. Habitat connectivity is adequate on National Forest lands but tends to fragment on private lands downstream from the analysis area. Habitat should maintain or improve its "potential" for nesting sites along the river corridor. Foraging habitat should improve through the system as fish populations increase in the North Fork John Day River.

No proposed and future activities in Appendix G would impact potential northern bald eagle populations or their habitat in the North Fork John Day river system because the activities are too far from the eagles' habitat.

Gray Wolf – Threatened

Past and present activities (Appendix G) and events in the Monument Winter Range that have affected prey species or road density include fire suppression, timber harvest, (including the Rimrock Ecosystem Restoration Project), prescribed burning, road construction, and livestock grazing. Vegetation manipulation and use have affected forest structure and composition, including grasses, forbs, and shrubs. Tree harvesting has increased the quantity of forage, and prescribed fires and wildfires have improved the quality of forage, resulting in the current population levels of deer and elk. Livestock grazing competes with big game for forage, potentially affecting prey populations. Current allotment management plans balance livestock utilization with big game management objectives, resulting in a shared utilization of the forage resource. Open road densities have increased over the years as a result of past management activities. More recently, new road construction has declined and road closure and obliteration has increased, resulting in a declining, open road density in the analysis area.

Fire suppression has excluded the historical role of fire on the landscape, resulting in an increase in the density of trees and a change in species composition and structure, resulting in changes in forage and cover availability. As a result, fire behavior has changed from frequent low-intensity to infrequent high-intensity stand replacing burns. While high-intensity fires are not desirable for big game, because of the probable loss of cover, low-intensity fires would periodically enhance forage quality and quantity in the analysis area. Overall, past and present activities have led to the current habitat condition

across the watershed. Potentially habitat remains suitable for the gray wolf in the C3 portion of the Rimrock analysis area.

Future activities and events in the watershed that could affect forage and road density include harvesting and thinning in the Sunflower-Bacon project and livestock grazing. The assumption is that stands would be harvested, resulting in a more open overstory, allowing more grasses, forbs, and shrubs to develop, increasing the forage availability for deer and elk. Potential road closures would reduce human-wildlife interactions, benefiting prey species and potential wolf populations. Livestock grazing would continue as described in the present condition. Therefore, reasonably foreseeable future activities are expected to maintain the current habitat suitability for gray wolf in the analysis area.

Sensitive Species

Alternative 1

Direct, Indirect and Cumulative Effects

Insert in FEIS page 139, after the sixth paragraph and before Alternative 2, 3, 4, and 5 heading.

Gray Flycatcher - Sensitive

The gray flycatcher would not be directly affected by current management direction in the analysis area because the species is not known to occur in the analysis area. Indirectly, potential flycatcher habitat (open ponderosa pine with a shrub understory) in the project area would remain unchanged for the short term. Over time, stands in the project area would continue to grow and develop into dense multistory stands. The understory would primarily consist of grand fir and Douglas-fir tree species. These tree species would out compete shrub species. As a result, habitat in the project area would slowly become unsuitable. The multi-layer condition would increase the stands susceptibility to high-intensity wildfires and insect or disease outbreaks. A major disturbance on the landscape would change the composition and structure to an open shrubland with little or no tree cover. This would result in unsuitable habitat for the gray flycatcher.

Alternative 2, 3, 4, and 5

Direct and Indirect Effects

Gray Flycatcher - Sensitive

Insert in FEIS page 140, following the first complete paragraph and before the Cumulative Effects section.

The gray flycatcher would not be directly affected by thinning activities because the species is not known to occur in the project area. Indirectly, thinning would change the structure and composition of potential habitat characteristics (open ponderosa pine with shrubby understory) for the flycatcher. Commercial thinning activities would change the

density of live trees in units from closed stands to open stands and thinning would change multi-layered stands to single-layered stands. Stand composition would shift from Douglas-fir, mixed conifer types to a more historical ponderosa pine type. The majority of stands would change to a stem exclusion open canopy condition with the understory changing to more fire tolerant tree and shrub species. After non-commercial thinning and harvest, stands would represent a more ecologically appropriate dry site condition. Thinning activities would reduce the stands' susceptibility to high-intensity wildfires and insect or disease outbreaks. Harvest and non-commercial thinning in the affected area is not expected to change habitat suitability for the gray flycatcher. Habitat in the affected area will remain as open ponderosa pine with a shrubby understory.

For the Gray Flycatcher and its habitat a "No Impact" determination was reached because the probability of use of habitat within the affected area by flycatchers is expected to be remote. Habitat suitability will be maintained after harvest activities. The alternative would have no environmental impacts on habitat, individuals, the population or the species.

Cumulative Effects

Insert in FEIS page 140, following the second complete paragraph and before the Species of Concern heading.

Gray Flycatcher - Sensitive

Past and present activities (Appendix G) in the watershed that could affect flycatcher habitat include wildfire, fire suppression, grazing, and water developments. Fire suppression has excluded the historical role of fire on the landscape, causing juniper to encroach onto sagebrush-dominated habitats reducing the total biomass of herbaceous cover and shrub cover. In addition, the density of trees has increased and plant diversity and species composition has changed. As a result, fire behavior has changed from frequent low-intensity to infrequent high-intensity stand replacing burns. High-intensity fires are not desirable because of the probable loss of overstory tree cover. However, low-intensity fires would periodically maintain and improve the quality and quantity of shrub and herbaceous vegetation in the analysis area. The potential for livestock to utilize forage and shrubs continues, although to a lesser extent than in the past. Current allotment management plans balance livestock utilization with other wildlife management objectives, resulting in a shared utilization of the forage/shrub resource. Water developments provide habitat and water for potential flycatchers in the area. Overall, past and present activities have led to the current habitat condition across the watershed. At the watershed scale, potentially suitable habitat remains as scattered patches of juniper woodland and shrubland. Ponderosa pine with a shrubby understory remains more wide spread across the analysis area.

Future activities and events in the watershed with the potential to affect flycatcher habitat include livestock grazing. All other foreseeable future projects occur outside the analysis area. Livestock grazing would continue as described in the present condition. Therefore, as a result of past, present, and reasonably foreseeable future activities gray flycatcher habitat would be maintained in the current suitable condition for potential nesting and foraging in the analysis area.

Species of Interest [Concern]

Alternative 1

Direct, Indirect, and Cumulative Effects:

Insert in FEIS page 140, following the fifth complete paragraph and before Alternative 2, 3, 4, and 5.

Northern Goshawk

Direct and indirect effects to the habitat in the project area would remain unchanged for the short term. Over time, stands in the project area would continue to grow and develop into dense multistory stands. As a result, potential nesting habitat would essentially remain unchanged because of the continued presence of large diameter trees. However, foraging habitat could be reduced, as the area grows denser and more homogenous, resulting in fewer microhabitats for prey species. The multi-layer condition could increase the susceptibility of stands to high-intensity wildfires and insect or disease outbreaks. A major disturbance on the landscape like the Wheeler Point fire in 1996 could change the composition and structure of the area to an open shrubland/grassland with little or no tree cover. This would result in fewer large trees or no large tree habitat in the project area for potential nest sites. Foraging habitat could be limited to edges of the disturbance or other locations in the analysis area.

Olive-sided Flycatcher

No further analysis of environmental effects, see remarks Chapter 3, page **Error! Bookmark not defined.**.

Bats of "Interest"

The forest bats of interest (long-eared myotis, long-legged myotis and Yuma myotis) would not be directly affected by current management direction because potential roosting habitat (large snags and trees) would remain unchanged in the project area. Indirectly, habitat in the project area would remain unchanged for the short term. Over time, stands in the project area would continue to grow and develop into dense multistory stands. As a result, potential roosting habitat would essentially remain unchanged because of the continued presence of large diameter snags and trees in the project area. However, the multi-layer condition would increase the susceptibility of stands to high-intensity wildfires and insect or disease outbreaks. A major disturbance on the landscape could change the composition and structure to an open shrubland/grassland with little or no tree cover. This would result in fewer large green trees and typically an abundance of large snags for a twenty-to-thirty year period. Roosting habitat would be limited to the amount of large snags and green trees in the project area, remaining after a natural disturbance.

Alternative 2, 3, 4, and 5

Direct and Indirect Effects

Insert in FEIS page 141, following the first paragraph.

Northern Goshawk

Proposed activities would not directly affect the northern goshawk nest stand or post fledging area because harvest activities will not occur in those areas. Commercial thinning will occur in potential foraging habitat but outside the post fledging area and nest stand. Approximately, 926 acres would be thinned, changing the composition and/or structure of the stand. Harvest activities in multi-layered stands, will eventually move those units toward a single-layered condition with a higher percentage of ponderosa pine and western larch in the stand. As a result of harvest activities, in late and old stands, there would be no measurable change in the historical range of variability for the dry forest type in the Lower Wall drainage. Late and old forest condition would remain near 60 percent, for the dry forest type in the Lower Wall drainage. The understory would be a mosaic of open understory and dense patches of regeneration or young forest in the stand. Harvest activities would maintain or add to the forest mosaic condition in the analysis area. Thinning activities could reduce the susceptibility to potential high-intensity wildfires and insect or disease outbreaks. Harvest activities would retain all live trees 21 inches in diameter at breast height or larger, and generally move stands toward a late and old structural condition and potential goshawk nesting habitat

Insert in FEIS page 141, following the sixth complete paragraph and before The Northern Sagebrush Lizard paragraph.

Bats of "Interest"

Snag habitat provides temporary roosting habitat for foraging bats. Bat habitat could be affected by a reduction in snag habitat due to dead tree removal and potential hazard tree removal, but not significantly because of presumed very low density of bat use in the area. No suitable hibernacula (hibernating habitat) or colonial roosting habitats are known to occur within the analysis area. Snag retention guidelines for dead standing trees in harvest units, would provide potential day roost habitat for bats within the affected area. Dead trees retained in riparian habitat corridors would also provide potential roosting habitat for bats. Dead stand trees outside the affected stands would remain at their current densities and available as potential roost trees.

Cumulative Effects:

Insert in FEIS page 141, following the last paragraph.

Northern Goshawk

Past and present timber harvest activities (Appendix G) and management direction including wildfire suppression, and the Rimrock Ecosystem Restoration Projects would directly and indirectly affect the structure and composition of large trees and the understory in the analysis area. The continued growth of desirable (dry forest) and non-desirable trees (not-dry forest) has led the analysis area and Lower Wall drainage to its

current late and old structure condition of 61 percent for the dry forest type. The exclusion of fire through suppression activities has allowed an increase in the density of trees and a change in species composition. This could be a contributing factor for the large amount of old forest multi-layer in the Lower Wall drainage. As a result, fire behavior has changed in the drainage from frequent low-intensity to infrequent potentially high-intensity stand replacing burns. Stands in the analysis area continue to be susceptible to stand replacement fires. As a result of past and present activities in the analysis area, goshawk habitat has essentially remained available, resulting in its current suitable condition.

Future activities and events in the watershed with the potential to affect goshawk habitat include the Sunflower-Bacon timber harvest project (Appendix G). Approximately 2,000 acres in the Sunflower-Bacon project is proposed for harvest and could potentially change the structure and composition of affected stands. Proposed activities would follow guideline provided in the "Eastside" screens (USDA 1995), for goshawk and late and old forest structure. Harvest activities are expected to maintain the amount of late and old structural condition in the watershed. Generally, stands will be thinned, with some stands moving closer to a late and old forest condition. Therefore, as a result of past, present, and reasonably foreseeable future activities goshawk habitat would be maintained in the current suitable condition for nesting and foraging birds in the analysis area.

Bats of "Interest"

Past and present activities that could affect bat roosting habitat in the watershed include timber harvest activities (Appendix G), fire suppression and current management direction. As a result of past harvest activities and with the continued growth of desirable (dry forest) and non-desirable trees (not-dry forest), this has led the analysis area to the current composition and structure. The exclusion of fire through suppression activities has allowed an increase in the density of trees and a change in species composition. As a result, fire behavior has changed in the area from frequent low-intensity to infrequent potentially high-intensity stand replacing burns. Stands in the analysis area continue to be susceptible to stand replacement fires. As a result of past and present activities in the analysis area, bat roosting habitat has essentially remained available, resulting in its current suitable condition.

Future activities and events in the watershed with the potential to bat roosting habitat include the Sunflower-Bacon timber harvest project (Appendix G). Approximately 2,000 acres in the Sunflower-Bacon project is proposed for harvest and could potentially change the structure and composition of affected stands. Harvest activities are expected to maintain the amount of late and old structural condition in the watershed. Generally, stands will be thinned, with some stands moving closer to a late and old forest condition. It is assumed that dead trees will be harvested, resulting in a reduction of dead standing trees in the project area. However, snag densities are expected to remain above Forest Plan standards in the affected area and densities at the watershed scale will be maintained near current levels as a result of this action. Therefore, as a result of past, present, and reasonably foreseeable future activities bat roosting habitat would be maintained in the current suitable condition for forest associated bats in the analysis area.

Economics and Social

No change from FEIS

Range

No change from FEIS

Insert in FEIS page 149 after the fifth paragraph and before Compliance with Other Laws, Regulations, and Policies

Forest Plan Amendment

Direct, Indirect and Cumulative effects: Forest Vegetation, Soil Productivity, Recreation, Areas Without Roads, Visual Quality, Fish and Aquatic Habitat, Water Resources, Aspen, Fuels/Air Quality, Heritage Resources, Transportation, Non-Forest Vegetation, Economics and Social, and Range would not be effected by the proposed forest plan amendment because the amendment would not affect the existing standards and guidelines as described in the forest plan for these resources nor would goals or objectives change for these resources due to the proposed forest plan amendment.

Compliance with Other Laws, Regulations, and Policies

Forest Plan Consistency

Insert in FEIS, page 156.

This project tiers to direction in the Forest Plan and its Record of Decision, and incorporates by reference the analysis disclosed in its environmental analysis.

In the Forest Plan, the National Forest System lands within the Umatilla National Forest have been divided into management areas that differ from each other in resource emphasis. The management area that falls within the project area of this DSEIS is C3—Big Game Winter Range. Chapter 1 of the Rimrock EIS includes a discussion of the C3 management direction. Changes in land use designation that have been established in the Forest Plan are not part of this project and were not evaluated in this analysis.

Forest Plan Forest-wide direction is presented in Appendix L – Forest Plan Direction. Forest-wide direction applies to all areas across the Forest. Additional Forest Plan direction applicable to the C3 management area is also presented in Appendix L. Management Area direction is supplemental to and supersedes the general Forest-wide direction.

Alternatives analyzed in this document include a Forest Plan amendment that would change the minimum big game habitat effectiveness index for the Monument Winter Range from 70 to 67. Disclosures within this document and project file support that all action alternatives considered in detail would be consistent with Forest Plan direction as amended for the Monument Winter Range.

The following disclosures summarize specific project consistency with the Forest Plan. This summary is intended to be fairly inclusive of applicable key direction by resource/issue topic. However limiting the following examples may be, consistency was assessed on the entirety of the Forest Plan direction.

Recreation

All alternatives would be consistent with Forest Plan direction for recreation. The dominant recreation use in this project area is dispersed recreation, largely associated with hunting. Mitigation measures listed in Chapter 2 require the protection of dispersed recreation sites during logging activities. Little change in recreation opportunities is expected because of this project.

All alternatives would meet visual quality objectives. Elements of the design and development of the Rimrock projects that would contribute toward meeting visual quality objectives include: the selective nature of harvest, leaving large woody debris and snags, low impact helicopter and forwarder yarding.

Cultural Resources

All alternatives would be consistent with Forest Plan direction for cultural resources. The area has been surveyed for cultural resources. Consultation with the Oregon State Historic Preservation Office has been completed under the Programmatic Agreement among the United States Department of Agriculture, Forest Service, Pacific Northwest Region (Region 6), The Advisory Council on Historic Preservation, and the Forests in the State of Oregon, dated March 10, 1995. All known sites will be protected by prohibiting any disturbance within 50 feet of the site's perimeter.

Wildlife Habitat

Old Growth

All alternatives would be consistent with Forest Plan direction for old growth, including direction as amended by Forest Plan Amendment #11 (Regional Forest Plan Amendment #2), the Eastside Timber Sale Screens. Appendix J—Screens contains a detailed description of the project's consistency with the Eastside Timber Sale Screens. The Rimrock project would not cause a loss of old growth within the planning area.

Dead and Down Tree Habitat

All alternatives would be consistent with Forest Plan direction for dead and down tree habitat, including direction as amended by Forest Plan Amendment #11, the Eastside Timber Sale Screens. Appendix J—Screens contains a detailed description of the project's consistency with the Eastside Timber Sale Screens. All alternatives would maintain dead and down tree habitat at or above Forest Plan standards as discussed in the Wildlife Habitat discussion in Chapter 4 of the DSEIS.

Nongame Wildlife Habitat

All alternatives would be consistent with Forest Plan direction for nongame wildlife habitat. A nest site known to have been used recently by a northern goshawk will be protected by deleting the proposed unit in which it is located, protecting a foraging area around the nest site, and by prohibiting disturbance during nesting. Large dead and down woody materials will be maintained at or above Forest Plan requirements. Mitigation

measures included in Chapter 2 require that all seeps, springs, bogs, and other wet areas be protected.

Riparian Areas

All alternatives would be consistent with Forest Plan direction for riparian areas. No timber harvest or pre-commercial thinning is proposed in riparian areas under any alternative.

Big Game

Alternatives 2 through 5 include a Forest Plan amendment. The amendment would change the value for big game habitat effectiveness index (HEI) from 70 to 67. The change in HEI is limited to the Monument Winter Range. Chapter 4 of the SDEIS includes a full discussion of the effects of the amendment. HEI is currently calculated as 67 and following timber harvest and thinning would remain at 67 for all alternatives.

All alternatives would be consistent with the requirements that a minimum of 10% of each winter range will be maintained as satisfactory cover and that a minimum of 30% of each winter range will be maintained as total cover and an HEI of 67. Logging activities other than travel along open roads will be restricted between December 1 and April 15 within the winter range. The planned prescribed burning is expected to improve forage for big game.

Riparian/Fish Habitat

All alternatives would be consistent with Forest Plan direction for riparian and fish habitat. Best management practices (BMPs) would be implemented to protect riparian habitat (See Appendix B). Forest Plan standards and guidelines list requirements for stream classes I through IV. Those requirements will be achieved for all stream classes by avoiding all riparian habitat conservation areas (RHCA's) during timber harvest and precommercial thinning. All seeps, springs, bogs and other wet areas will be protected from disturbance.

Range

All alternatives would be consistent with Forest Plan direction for range. Range forage is abundant within the planning area and expected to remain so following planned activities. Range structural improvements will be protected during timber sale activities.

Ecosystems & Diversity

All alternatives would be consistent with Forest Plan direction for ecosystems and diversity. Biological assessments found in the analysis file include detailed analyses of the effects of the project activities on sensitive species. Chapter 4 includes detailed analyses of the effects of the alternatives on threatened, endangered, and sensitive species; management indicator species; species of interest; and neo-tropical migratory birds. The analyses in the biological evaluations, biological assessments, and Chapter 4 indicate that all species currently found in the planning area will be maintained in the planning area.

Vegetation treatments are designed specifically to move the forested stands within the planning area closer to their historic conditions. The historic range of variability (HRV) analysis indicates that the planning area currently has a very high percentage of dense, multi-storied stands compared to historic conditions. The proposed thinnings would

move the composition of forested stands closer to the historic condition of more open stands dominated by ponderosa pine. The result will be a range of species, and horizontal and vertical diversity more representative of historical conditions in the Rimrock area.

Dead and down wood and old growth/mature tree distribution requirements will be met (See Appendix J—Screens).

Riparian vegetation and instream conditions will be met by avoiding RHCA's, compliance with PACFISH requirements, and BMP implementation.

Timber

All alternatives would be consistent with Forest Plan direction for timber. All lands proposed for harvest have been field verified as tentatively suitable for timber production. Silvicultural systems are consistent with the management area emphasis.

Commercial thinning prescriptions will produce marketable trees meeting accepted utilization standards. Helicopter and forwarder are both readily available logging systems selected because of low impact to soils and water quality. Prescriptions will meet multiple-use objectives by maintaining wildlife habitat requirements, protecting water quality, maintaining recreational opportunities, and maintaining visual quality. Thinning was selected as the management prescription in part because it best contributes to desired species, composition, density, and rates of growth. Basal area guidelines were selected based on plant association specific recommendations to minimize risks from insects, disease, and wildfire. Based upon recent experience with regeneration prescriptions in adjacent stands, stands proposed for shelterwood regeneration harvest in Alternative 5 can be adequately reforested using normal reforestation practices. All timber harvest proposals use commonly accepted harvest and transportation methods that have proven to be practical and economical in the local area. While economic returns were considered in the analysis, the cutting methods were not selected because they would produce the greatest dollar return or highest timber output. On the contrary, a higher percentage of regeneration harvest would have produced a considerably higher dollar return and timber output. No clearcutting is proposed in any of the alternatives. Analyses in Chapter 4 indicate that site productivity will be maintained, and water and soil resources will be conserved.

Timber sale provisions will ensure Forest road system is left in a condition to meet C3 management area emphasis. All closed roads needed for timber harvest will be closed again following timber sale activities.

Silviculture prescriptions will developed in accordance with guidelines and FSH direction. Understocked stands will be planted and will have shelterwood overstory left to ensure adequate reforestation. Natural regeneration will be a component of regenerated stands. Planting will be used to assure satisfactory stocking and to manage species composition. Contract provisions will protect advance regeneration where it is suitable for stand management objectives.

Precommercial thinning is consistent with management objectives and is needed to protect the stands from loss due to insects, diseases, and stagnation.

Openings greater than 40 acres may occur in the 122 acres of shelterwood harvest proposed in Alternative 5. However, the openings would be the result of insect caused

defoliation. An exception to the 40-acre opening limitation is permitted under the Forest Plan in the event of natural catastrophic situations such as insect attacks. Timber harvest will not increase the size of openings beyond that caused by the defoliation.

In both the thinning and regeneration prescriptions, species preference for ponderosa pine, western larch, Douglas-fir based on consistent recommendations for insect, disease, fire resistance in dry sites (Schmitt, 1999; Spiegel and Schmitt, 2003; Schmitt, 2000; Scott, 2002). While the preferred species will be present in higher percentages following silvicultural treatments, all tree species currently found in the planning area will be maintained to meet biological diversity goals. Planted units will have at least two species included in the planting. The most common plant association in the planning area is Douglas-fir/common snowberry, which only has two commonly occurring species (Johnson, 1992). Other species will be planted when appropriate to the site. No special or unique sites (aspen or other hardwood) are found in the C3 management area of Rimrock.

Water

All alternatives would be consistent with Forest Plan direction for water. The alternatives comply with the Clean Water Act, as discussed earlier in Chapter 4.

The Forest Plan requires that, for all lands within the National Forest, no more than 30 percent of the forest land within a subwatershed will have timber stand age classes of 0-10 years. Because of the historical timber harvest practices and absence of large, high intensity fires, very few openings have been created in recent years. The highest percent of forestland in the 0-10 year age class is in Middle Big Wall (24D) with 8%. The only new 0-10 year age class associated with the proposed projects will be the 122 acres of shelterwood harvest in the Indian Creek subwatershed (24G) or Lower Big Wall subwatershed (24A). Assuming all 122 acres will be in the 0-10 year age class following treatment, the Indian Creek subwatershed would have approximately 9% of the forestland in the 0-10 year age class.

The Water Resources section in Chapter 4 documents the cumulative effects of activities on water quality. All proposed actions meet wetlands and floodplains direction as discussed earlier in Chapter 4. The Chapter 4 discussion indicates the project will not degrade water quality, fish, or aquatic resources.

Best management practices were selected for the project and are documented in Appendix B of the EIS. Actions required by BMPs will be implemented in project design or through TSC. The monitoring plan in Chapter 2 states that BMPs will be monitored by Forest Service personnel.

A water quality restoration plan has been developed and is available in the project analysis file. Watershed rehabilitation projects have been identified and are included in the proposed action, e.g., road closures, road decommissioning, road resurfacing, in-stream structures, and improvement of low-water crossings to improve fish passage.

Soils

All alternatives would be consistent with Forest Plan direction for soils. Pre-harvest reconnaissance indicates existing impacts are generally light. Helicopter and forwarder logging systems selected for alternatives 3 and 5 are among the lowest impact systems available. Tractor/skidder logging systems permitted in some units in alternatives 2 and 4

would have more area of soil disturbance than helicopter and forwarder systems, but experience with tractor/skidder logging indicates that Forest Plan standards and guidelines can still be met. As discussed in the soils discussion in Chapter 4 of the EIS, the proposed harvest will comply with soil productivity guidelines, i.e., a minimum of 80 percent of the area will be in a condition of acceptable productivity potential.

No active slump areas occur in areas planned for road construction. No wetlands or floodplains will be affected by proposed activities. No logging is proposed in riparian habitat conservation areas.

Subsoiling and road decommissioning are planned to restore or improve soil conditions in the planning area.

Transportation System

All alternatives would be consistent with Forest Plan direction for the transportation system. No new permanent roads would be constructed. Existing roads would be reconstructed or maintained, as needed, to provide the level of access appropriate to project and management area objectives

Temporary roads would be obliterated following use. Road closures of system roads have been proposed based on water, soil, wildlife, fish values or a combination. Roads that are currently closed but needed for harvest activities would be closed again following use.

Fire and Fuels

All alternatives would be consistent with Forest Plan direction for fire and fuels. Proposed thinning and fuel treatments would help meet management objectives relative to fuel loadings. Where possible and where markets exist, small diameter wood residues would be utilized through the timber sale contract. Non-merchantable wood residues produced by the timber sales will be treated by the Forest Service using brush disposal funds collected from the timber sale purchasers. Burn plans will be prepared to ensure that resource and air quality objectives are met.

Air Quality

All alternatives would be consistent with Forest Plan direction for air quality. All prescribed burning will take place within the guidelines of he Oregon Smoke Management Program. Burns are not conducted on days when it is expected that smoke would impact population centers.

Pest Management

All alternatives would be consistent with Forest Plan direction for pest management. Silvicultural activities included in the alternatives were designed to reduce risk of widespread insect outbreaks. The proposed thinning treatments are the primary method of increasing resistance to insects and diseases in the planning area. Stocking guides for the Umatilla National Forest were developed to maintain stands in a condition where they are relatively resistant to insects and disease. The proposed thinning treatments will thin stands to levels recommended in the Umatilla stocking guide.

Chapter 2 lists various prevention strategies to prevent the introduction of noxious weeds. Annual surveys are prescribed to check for noxious weeds and manual treatment will be implemented to eradicate the noxious weeds. All proposed plans for preventing and

controlling noxious weed spread are consistent with Managing Competing and Unwanted Vegetation EIS.

Threatened, Endangered, and Sensitive Species

All alternatives would be consistent with Forest Plan direction for threatened, endangered, and sensitive species. As discussed in Chapter 4, biological assessments have been completed for all endangered or threatened species present in the analysis area. Consultation with USDI Fish and Wildlife Service and NOAA Fisheries Service (formerly National Marine Fisheries Service) has been completed.

Biological evaluations have been completed for all sensitive species present in analysis area. Results are discussed in Chapter 4.

Management plan has been completed for Dry Creek Bald Eagle site. This project complies with requirements of plan.

Community Development and Human Resources

All alternatives would be consistent with Forest Plan direction for community development and human resources. The Rimrock projects are within ceded lands of Confederated Tribes of the Umatilla Indian Reservation and Confederated Tribes of Warm Springs Indian Reservation. Communication with the tribes has occurred throughout the planning process and the alternatives are consistent with maintaining tribal treaty rights.

General Procedures

All alternatives would be consistent with Forest Plan direction for the general procedures listed in the Forest Plan. Multiple uses of the National Forest have been incorporated in the design of the alternatives and have been addressed in project planning for the alternatives.

Economic efficiency was considered for all alternatives (see analysis in Chapter 4).

A site-specific Forest Plan amendment has been proposed in alternatives 2 through 5. The proposed amendment was analyzed in Chapter 4 considering the, extent, duration, and season of the activities proposed.

Appropriate agencies landowners, tribes, interest, and user groups have been involved throughout the planning process.