

Chapter 4

Environmental Consequences

Chapter 4 of the Supplemental Draft EIS is incorporated by reference, in accordance with 40 CFR 1500.4(j) and (o), 1502.21 and 1506.4. The incorporated material can be found on pages 4-1 through 4-212 in Volume 1 of the Supplemental Draft EIS. The content is briefly summarized below, with changes based on public comment and internal review following the summary.

Summary

Environmental Consequences

The following section summarizes the key effects of the alternatives on various elements of the ecosystem.

Physical Setting

Over the long term, Alternative S2 would maintain and restore soil productivity, hydrologic functions, and watershed processes better than Alternative S3, followed by Alternative S1. Alternative S2 would also maintain riparian ecological functions better than Alternatives S3 and S1. Alternative S1 would have the greatest adverse effects on air quality because of smoke from large wildfires. Prescribed fire activity

under Alternatives S2 and S3 would generate more frequent but lesser amounts of smoke in the short term and would have lower total air quality impact in both the long and the short term than Alternative S1.

Soil Functions and Processes, Including Soil Productivity

- ♦ The majority of Forest Service- and BLM-administered lands would be in the low and very low soil disturbance category for all alternatives over the next 100 years. Long-term soil productivity would not decrease from implementing any of the alternatives.
- ♦ Activities in the high restoration priority subbasins for Alternatives S2 and S3 are predicted to cause a slight change of land from none, very low, or low soil disturbance to moderate levels. This would not decrease long-term soil productivity because restoration activities are designed to resemble soil disturbance effects that would be expected under natural disturbance processes.
- ♦ In the high restoration priority subbasins, reductions in negative effects from uncharacteristic wildfire and livestock grazing would benefit soil productivity over the next 100 years.

- ◆ Snags and large downed wood are key components in maintaining and restoring soil functions and providing for soil productivity over the long term. Alternative S2 places the most emphasis on increasing snags for the long term. The amount of large downed wood is currently greater than historical levels on most forested lands and would increase under all alternatives. Alternative S2 is predicted to be slightly more effective than Alternatives S3 and S1 in using prescribed fire to manage for desirable concentrations of large downed wood.
- ◆ Over the next 100 years, Alternative S2 would provide more maintenance and restoration of soil productivity than either Alternative S3 or Alternative S1 because of its reduced rate of departure (change) from the historical range of variability (HRV).
- ◆ Predicted decreases in road-related adverse effects would benefit long-term recovery of soil productivity by re-establishing soil functions and processes. Benefits to soil productivity would be highest under the intensive restoration emphasis of Alternative S2, followed by Alternative S3 then Alternative S1.

Hydrology and Watershed Processes

- ◆ Alternative S2 would maintain or slightly restore (improve) hydrologic functions and watershed processes more than Alternative S3 as a result of activities to decrease the rate of HRV departure (change from the historical range of variability). Activities in Alternative S1 are not expected to decrease the rate of HRV departure; therefore, trends for hydrologic function and watershed processes are predicted to gradually decline over the long term.
- ◆ Alternative S2 would reduce adverse effects from uncharacteristic wildfire slightly better than Alternative S3, and would provide higher protection and maintenance of hydrologic function and watershed processes. The management approach to wildfire in Alternative S1 would do little to protect and maintain hydrologic function and watershed processes.
- ◆ Changes in vegetation (for example, plant species changes, and changes from grasses to shrubs) and soils (for example, soil surface characteristics) caused by livestock grazing would trend back

toward historical conditions the strongest in Alternative S2. The trend would be slightly less strong in Alternative S3. These trends would lead to increased maintenance and restoration of hydrologic function and watershed processes. With regard to effects from livestock grazing, Alternative S1 would provide fewer improvements to hydrologic function and watershed processes compared to Alternatives S2 and S3.

- ◆ Road density trends for Alternative S1 are not estimated to change in the long term. The restoration emphasis of Alternatives S2 and S3 would result in fewer roads than Alternative S1. Decreases in adverse road effects with short- and long-term benefits to hydrologic function and watershed processes would be highest for Alternative S2, then Alternative S3 and Alternative S1, respectively.
- ◆ Greater levels of landscape restoration would occur in the high restoration priority subbasins in Alternatives S2 and S3. Activities would contribute to the restoration of integrated ecological processes. Activities such as those planned under the restoration strategy in Alternatives S2 and S3 are more likely to be successful in protection, maintenance, and restoration of watershed processes at the broad scale as compared to Alternative S1.
- ◆ Alternative S2 would maintain riparian ecological processes through time and would contribute most to protecting, maintaining, or restoring watershed processes and hydrologic function, compared to Alternatives S3 and S1.
- ◆ The higher rate and frequency of step-down analysis under Alternatives S2 would be more likely than Alternatives S3 and S1 to protect and restore hydrologic function and watershed processes, because of the use of a hierarchical and integrated landscape approach.

Air Quality

- ◆ The dispersion modeling analysis indicates that there may be significantly greater impacts on the National Ambient Air Quality Standards (NAAQS) from wildfires than from prescribed burning under any alternative.
- ◆ Modeling prescribed burning emissions suggests that at a coarse scale (20 km [12.5 mile] and 4 km [2.5 mile] grids) NAAQS would not be violated

(averaged across the 20 km grid) under any alternative. However, compliance with the NAAQS at a local level must be evaluated at subsequent planning levels to assure they are not violated.

- ◆ Increased short-term haziness (a reduction in viewing distance and ability to detect finer features on the landscape) would likely result from the increased use of prescribed burning in Alternatives S2 and S3. It can be inferred that because of higher concentrations of emissions associated with wildfires, the magnitude of visibility impairment from wildfires under Alternative S1 would be greater than the highest levels of prescribed fire used in Alternatives S2 and S3. However, more frequent lower visibility impacts can be expected from prescribed fire than wildfire.
- ◆ Other criteria pollutants produced from prescribed fire under any alternative are not likely to have an impact on public health because of the small levels produced, distances to populated areas, and the rapid dilution or modification of these substances within relatively short time frames.
- ◆ Alternatives S2 and S3 would allow more opportunity than Alternative S1 to reduce fuel accumulations across the landscape, lessening the adverse effects from wildfire.

Succession/Disturbance

- ◆ Compared to Alternatives S1 and S3, Alternative S2 is expected to better repattern vegetation to provide a proper mix of habitats so that vegetation would be sustainable and more resilient to disturbance in the long term.
- ◆ Adverse effects from uncharacteristic wildfire are expected to increase slightly under Alternative S1 and decrease in Alternatives S2 and S3, with Alternative S2 slightly better on Forest Service- and BLM-administered lands in the long term.
- ◆ Uncharacteristic insect and disease effects are expected to remain near current levels on Forest Service- and BLM-administered lands in the long term. Alternative S2 should be slightly better than Alternatives S3 and S1, respectively.
- ◆ The higher concentration of restoration activities in high restoration priority subbasins is expected to lead to a more healthy landscape in those areas under Alternatives S2 and S3.

Vegetation Composition and Structure

- ◆ Alternative S2 is expected to increase the geographic extent of old forests to near historical levels slightly more than Alternative S3, followed by Alternative S1 on Forest Service- and BLM-administered lands in the long term.
- ◆ Alternative S2 is expected to increase the geographic extent of single story old forests more than Alternative S3. Both are expected to fall short of historical levels. Alternative S1 would also increase the extent but fall far short of historical levels on Forest Service- and BLM-administered lands in the long term.
- ◆ All alternatives are expected to increase geographic extent of ponderosa pine (which is desired). Alternatives S2 and S3 would increase extent to near historical levels, while Alternative S1 would result in above historical levels (go too far). Alternatives S2 and S3 would do a better job of increasing the extent of vegetation types that have declined substantially from historical to current periods within this cover type.
- ◆ Alternatives S2 and S3 are expected to increase the extent of western white pine to slightly below historical levels. Alternative S1 would result in levels lower than Alternatives S2 and S3.
- ◆ All alternatives are expected to increase the geographic extent of whitebark pine (which is desired), but none would be able to prevent the future decline of the late seral single story structure.
- ◆ Over the long term, all three alternatives are projected to reverse the major vegetation changes within the woodland and cool shrub potential vegetation groups (that is, woody species encroachment and increasing density in shrublands and/or herblands) on BLM- and Forest Service-administered lands. Reversal (which is desired) would be more pronounced in Alternatives S2 and S3 than in Alternative S1.
- ◆ Under all alternatives, vegetation types that have declined substantially in geographic extent from historical to current periods in the project area (for example, mountain big sagebrush, fescue-bunchgrass, and wheatgrass bunchgrass) would increase in the woodland and cool shrub potential vegetation groups as a result of the

reversal in trend for encroachment of woody species.

- ♦ The rate of expansion of noxious weeds and other exotic undesirable plants on BLM- and Forest Service- administered lands in the project area would be slowed more in Alternatives S2 and S3 than in Alternative S1. However, for all alternatives the extent of noxious weeds and other exotic undesirable plants would continue to increase from current projected levels.
- ♦ The wheatgrass-bunchgrass and fescue-bunchgrass vegetation types within the dry grass potential vegetation group, and the big sagebrush vegetation type within the dry shrub potential vegetation group, all of which have declined substantially in geographic extent from historical to current periods, would continue to decline and trend away from historical amounts.

Terrestrial Species

In general, Alternatives S2 and S3 would be more beneficial to plants and terrestrial invertebrates than would Alternative S1. In general, Alternative S2 would result in better conditions for terrestrial vertebrates on BLM- and Forest Service-administered lands than Alternatives S3 and S1, respectively. Differences among alternatives would be smaller when looking at all lands because of the higher proportion of human effects on private lands. Relative to the differences among alternatives, most of the species in the following groups would see improved conditions compared to current conditions: old-forest species, riparian species, and species that use habitats that have declined substantially in geographic extent from historical to current periods. Conditions for rangeland species are expected to be stable or declining because of a lack of restoration technology and available resources for active restoration. Within high restoration priority subbasins, the differences among alternatives would be greater. In the long term, passive management would have adverse effects on some terrestrial species and management actions to benefit one species could harm another.

Plants

- ♦ Plant species in all major plant groups would remain stable in their likelihood of persistence under Alternatives S2 and S3 relative to current

conditions. In contrast, plant species in all major plant groups would have a reduced likelihood of persistence under Alternative S1 relative to current conditions.

- ♦ All alternatives would promote development and maintenance of biological crusts. Alternatives S2 and S3 would provide more restoration focus on biological crusts than Alternative S1.

Terrestrial Invertebrates

- ♦ Alternatives S2 and S3 should provide more general benefits to invertebrates than would Alternative S1.

Broad-scale Terrestrial Vertebrates

- ♦ Generally, substantial differences among the alternatives are not evident for broad-scale terrestrial vertebrates.
- ♦ Habitat for terrestrial species dependent on old-forest conditions would generally increase from current levels under all alternatives, sometimes approaching historical levels.
- ♦ Habitat for terrestrial species that use multiple vegetation types would generally remain stable at current levels under all alternatives.
- ♦ Habitat for terrestrial species dependent on shrublands or grasslands would generally decrease from current levels under all alternatives.
- ♦ Habitat conditions among species would generally be better on Forest Service-or BLM-administered lands compared to all lands under all alternatives.
- ♦ Management of ecosystems, such as in Alternatives S2 and S3, is more effective for maintaining a diverse array of species than optimizing conditions for a single species. For example, most Terrestrial Families have at least one species with reduced habitat capability, so an action to benefit one species could adversely affect another species.

Terrestrial Riparian and Wetland Species

- ♦ For riparian- or wetland-dependent terrestrial vertebrates, Alternative S2 would provide general improved results compared to Alternatives S3, which would have slightly improved results compared to Alternative S1.

Special Status Terrestrial Species

- ♦ Woodland caribou, gray wolf, and grizzly bear would trend toward recovery within recovery areas under Alternatives S2 and S3, and to a lesser extent under Alternative S1. Basin-wide conditions would remain greatly reduced from historical conditions for gray wolf and grizzly bear under all alternatives.
- ♦ Lynx were listed as threatened by the U.S. Fish and Wildlife Service in March 2000. Alternatives S2 and S3 would provide additional requirements through plan amendment to conserve lynx, restore lynx habitat, and promote lynx recovery compared to Alternative S1.

Aquatic–Riparian–Hydrologic Component

The largest increase in aquatic habitat capacity would come from Alternative S2, followed by Alternative S1 and then Alternative S3. Alternative S2 would maintain or improve riparian ecological processes, while Alternative S1 would likely maintain them and Alternative S3 would contain more uncertainty. Water quality effects can be thought of as indicators of the upland physical and biological processes. For example, high water quality generally suggests that these processes are on an improving trend and are characteristic of historical succession and disturbance regimes. Aquatic habitat on BLM- and Forest Service-administered lands is vital to native fish populations, but other factors are also important, such as effects from harvest, dams that restrict fish migrations, nonnative aquatic species, and human activities and habitat conditions on private lands.

Aquatic and Riparian Habitats

- ♦ In the long term, all three alternatives are projected to improve aquatic habitat conditions on BLM- and Forest Service-administered lands compared to projections of current conditions. The largest increase in aquatic habitat capacity would occur under Alternative S2, the smallest increase under Alternative S3.
- ♦ Alternative S2 would maintain and improve riparian ecological processes through time, based on the interim RCA delineation criteria. Some uncertainty is associated with the other two alternatives, where one-half site potential

tree height is used as an interim RCA delineation criterion.

Water Quality

- ♦ In the long term (100 years) all three alternatives are predicted to improve water quality conditions on BLM- and Forest Service-administered lands compared to current conditions.
- ♦ Alternative S2 is predicted to have the most positive influence on water quality, while Alternative S3 is predicted to result in the least improvement.

Aquatic Species

- ♦ All alternatives are expected to result in improved population status and habitat capacity for the six key salmonids over the long term. Predicted changes in population status reflect less improvement than does habitat capacity because of other biological constraints on a population's response (for example, exotic species and migratory corridor survival) and uncertainty in the analysis. Overall, Alternative S2 is expected to result in the most improvement for these six species. Alternative S3 is expected to result in the least improvement when compared to the other two alternatives.
- ♦ Other factors beyond Forest Service or BLM management authority may limit the response of aquatic species to habitat conservation and restoration on federal lands. These factors include condition of non-federal habitat and non-native fish species. It is assumed that habitat conditions on non-federal lands would remain stable or would slightly improve over the long term.
- ♦ Although stream-type chinook and steelhead habitat capacity would substantially improve under all alternatives, population status outcomes reflect little to no improvement. Population status outcomes reflect the assumptions regarding biological constraints which influence survival throughout their life cycle. The greatest uncertainty is associated with migration corridor survival, especially for populations above several dams in the Snake River and Upper Columbia River. Management of habitat on Forest Service- and BLM-administered lands is expected to play a

major but not exclusive role in the future status of the species. Rehabilitation of depressed populations above several dams cannot be accomplished via federal habitat improvement alone but will require improvements in migration corridor survival and efforts to address causes of mortality in other life stages. However, securing and restoring federal freshwater habitat may be critical to the short-term persistence of many anadromous populations. Trends in improving habitat and strong population status associated with Alternative S2 were slightly greater than those in Alternatives S1 and S3; thus, Alternative S2 is expected to result in more favorable conditions supporting the persistence of anadromous fish.

Social–Economic–Tribal Component

The effects analysis on biophysical resources differs from the socio-economic effects analysis in that most of the biophysical analysis focuses on the long term (100 years) while the socio-economic analysis is more concerned with the short term (10 years). One main priority of Alternatives S2 and S3 is restoration of ecosystems and watersheds. Along with ecological benefits, restoration activities also make an important human contribution through generating employment and economic activities. Livestock grazing on BLM- and Forest Service- administered lands and the number of related jobs are expected to decline the most under Alternative S2, followed by Alternative S3, as a result of rangeland management objectives. Conversely, first-decade increases in timber volume, forest and rangeland restoration activities, and related jobs are expected to be slightly higher under Alternative S2 than Alternative S3. Alternative S1 is expected to keep livestock grazing, timber volumes, restoration, and jobs related to federal land outputs near current levels. No broad- scale changes were predicted for levels of recreation and related jobs. In general, economic and social effects at the broad scale would be small. However, this may not be true for geographically isolated communities whose economies are specialized in sectors that depend on outputs from federal lands. In these places, adverse economic and social effects would likely be greater if the levels of outputs and activities from BLM- and Forest Service-administered lands decline. Overall, Alternative S2 would be best for tribal rights and interests, with Alternative S3 next and Alternative S1 last.

Social and Economic Considerations

Products and Services

- ♦ Timber harvest levels in the first decade are projected to increase at both the basin level and by all RAC/PAC areas under Alternative S2 and Alternative S3, compared to Alternative S1. Estimated increases would be just over 21 percent for Alternative S2 and just under 21 percent for Alternative S3. Harvest level increases would come primarily from commercial thinning and other harvest activity designed to promote ecosystem and forest stand restoration (stewardship harvest). While harvest levels would increase in Alternatives S2 and S3, the size and quality of logs produced would decrease because of the stand restoration objectives guiding the thinning and harvest activities.
- ♦ Model projections indicate domestic livestock use of forage, as measured by animal unit months (AUMs), could decline basin-wide and by all RAC/PAC areas (with one minor exception), in the first decade under Alternative S2 (10 percent) and Alternative S3 (11 percent), compared to Alternative S1. Reductions in AUMs could result indirectly from watershed and rangeland protection and restoration, and directly from the continued historical trend of a decrease in the livestock industry in the basin from other social, cultural and economic factors.
- ♦ Forest/woodland restoration activity (pre-commercial thinning and planting), would increase by 40 percent for Alternative S2 and 36 percent for Alternative S3, compared to Alternative S1. There would be a modest increase in rangeland restoration and maintenance: nine percent for Alternative S2 and four percent for Alternative S3. With the focus on reducing forest and range susceptibility to uncharacteristic wildfire, and wildfire threats in the urban–rural–wildland interface areas, there would be large increases in acres treated by prescribed fire and fuels management in the first decade compared to Alternative S1: seven-fold for Alternative S2 and five-fold for Alternative S3.

Jobs and Employment

- ◆ Given the broad scale and refined focus of this EIS, there are no projected changes in recreation use among the alternatives. Therefore, there are no expected changes in recreation-related employment among alternatives.
- ◆ Impacts on total basin-wide employment would be negligible—an increase of less than 0.03 percent of jobs in the first decade. However, local impacts, both positive and negative, could be much more significant, particularly for rural and tribal communities that are isolated and economically specialized in economic sectors dependent on goods and services from Forest Service- and BLM-administered lands.
- ◆ Average annual direct employment associated with Forest Service- and BLM-administered lands would increase by about 3,900 jobs for Alternative S2 and by a little over 3,100 jobs for Alternative S3, compared to Alternative S1. About 35 to 40 percent of the increase would be associated with stewardship timber harvest, and 60 to 65 percent associated with prescribed fire and fuels management. An increase of about 100 jobs per year in forest and rangeland restoration jobs would be off-set by a possible decrease in grazing-related jobs.

Communities

- ◆ Specific effects of the alternatives on local communities or other areas smaller than RAC/PAC areas (county, subbasin, community) cannot be measured directly because of the broad-scale nature of this analysis. However, it is likely that isolated and economically specialized communities would be more affected by changes in output and activity levels than communities that are not isolated or economically specialized. And it is likely that, where projected changes within a RAC/PAC area are greater, those communities in counties with higher socio-economic resiliency would likely tend to manage change more readily than similar communities in counties where socio-economic resiliency is low.
- ◆ Under the action alternatives, restoration activity in the first decade would be focused on high restoration priority subbasins (which include a component that is responsive to community

economic need). Within those subbasins, activities would be first concentrated as near as possible to those isolated and economically specialized communities that are in greatest need of economic stimulus. Alternative S2 would have more acres of restoration and prescribed fire/fuels management work scheduled per year than would Alternative S3. In addition, the work in Alternative S2 would initially be concentrated in 40 high restoration priority subbasins, compared to 51 high restoration priority subbasins in Alternative S3. Therefore, it is expected that the direct community effects in high restoration priority subbasins would be greater under Alternative S2 than under Alternative S3 because more acres would be treated across a smaller area.

- ◆ Each of the three alternatives has a certain degree of uncertainty and unpredictability associated with it. The non-traditional broad-scale outcome-based objectives and standards in Alternatives S2 and S3—designed to achieve restoration and maintenance of sustainable ecosystems—have not been operationally tested at this scale before; therefore, there is uncertainty about the projected levels of goods and services and effectiveness of the proposed restoration activities. On the other hand, Alternative S1, with its continuation of varying management direction across the basin and no systematic requirements for hierarchical ecosystem analysis (Subbasin Review or EAWS) also faces uncertainty in implementation. Project-by-project and area-by-area consultation and mitigation requirements for protection of species listed under the Endangered Species Act (ESA), would continue without broader scale context. Thus, for Alternative S1, the individual mitigation requirements may be more varied, and more restrictive in total, than the management direction; A1, A2, and T designations; and restoration focus of Alternatives S2 and S3.

Federal Trust Responsibility and Tribal Rights and Interests

- ◆ Generally, Alternatives S2 and S3 would provide the best approach to appropriate government-to-government consultation because of more consistent consultation direction.

- ♦ Alternatives S2 and S3 would provide more opportunities for tribal involvement in both planning and decision-making processes than Alternative S1. Alternative S2, with a greater emphasis on step-down analyses, would provide more opportunities for tribal involvement in planning processes than Alternative S3 or Alternative S1. While Alternative S3's increased emphasis on restoration actions near reservations and tribal communities may provide for greater consultation opportunities in project decision-making, the difference is negligible since Alternative S2 would have more restorative actions overall. Therefore, Alternative S2 would likely provide more opportunities for tribal consultation and involvement than Alternatives S1 or S3.
- ♦ Alternative S2 appears to be most responsive to honoring the federal trust responsibility and consideration of tribal rights and interests because it would provide more upfront direction (processes and prescriptions) and therefore better certainty to tribes of consistent and accountable implementation.
- ♦ Alternatives S2 and S3 both would respond better than Alternative S1 to protection and/or restoration of identified species of interest to tribes, with Alternative S2 being somewhat more responsive than Alternative S3.
- ♦ Alternatives S2 and S3, because of their broad-scale landscape, terrestrial, aquatic, economic, and restoration strategies, appear most responsive to the restoration of ecological processes as well as consideration of tribal resource concerns. Alternative S3 would provide a better response than Alternative S2 to some social and economic concerns by emphasizing more high restoration priority subbasins that are also high priority tribal restoration subbasins. However, Alternative S2, with a higher rate and intensity of restoration and more analysis to target restoration at lower scales, is predicted to be more responsive than Alternative S1 and somewhat more responsive than Alternative S3 in addressing most social and biophysical concerns.

Modifications Made to ICBEMP Supplemental Draft EIS Chapter 4

Page/Column/Paragraph or
Table/Fig/Map/Photo

Change Made (bold = new; ~~strikeout~~ = delete)

Introduction

4-10/right

Insert after last paragraph:

Effects from Revision of Supplemental Draft EIS Alternative S2

The Science Advisory Group (SAG) reviewed the revisions to Alternative S2 for the Final EIS and determined there were enough changes to the EIS to change the effects from what they predicted for the Supplemental Draft EIS. The SAG determined there would be only very small differences in the effects, except for those related to the revised A1/A2 subwatershed criteria. They estimated that although the A1/A2-related effects would be somewhat different from what was predicted for the Supplemental Draft EIS, they would still be within the range of effects projected in the *Draft SAG Effects Analysis for the SDEIS Alternatives* (Quigley 2000). The predicted effects from the changes in the A1/A2 subwatershed criteria are included in the Landscape Dynamics Component: Terrestrial (Upland) Vegetation, Terrestrial Species Component, Aquatic-Riparian-Hydrologic Component, and Social-Economic-Tribal Component sections of this chapter.

Landscape Dynamics Component: Physical Setting

4-37/right/last para/
3rd to last line

Revise: ~~smoke management plan submitted for approval (as a component of the State Smoke Implementation Plan)~~ **state implementation plan for visibility.**

Landscape Dynamics Component: Terrestrial (Upland) Vegetation

4-49/Map 4-4

Revise Map 4-4, “Wildland Fire Use for Resource Benefit” Activity Classes. The Washington and Oregon portion of the map were unintentionally left blank in the Supplemental Draft EIS. (The revised map is at the end of Chapter 4.)

4-53/left

Insert after Effects of the Alternatives on Potential Vegetation Groups title:

As described in Chapter 3 of the Final EIS, a validation exercise related to the A1/A2 subwatersheds was undertaken following the release of the Supplemental Draft EIS. The intent to do that validation is described in Chapter 3 of the Supplemental Draft EIS, on page 3-133. The validation exercise increased the number of subwatersheds that meet the criteria in the Supplemental Draft EIS for designation as A1 and A2 subwatersheds, especially for those subwatersheds related specifically to westslope cutthroat trout and redband trout. After the validation exercise, the Executive Steering Committee decided to modify the criteria for identification of A1/A2 subwatersheds related to

Modifications Made to ICBEMP Supplemental Draft EIS

Chapter 4 (Continued)

Page/Column/Paragraph or
Table/Fig/Map/Photo

Change Made (bold = new; strikeout = delete)

westslope cutthroat trout. The validation exercise and changes in criteria for westslope cutthroat trout resulted in an increase in the total acreage of subwatersheds that meet the revised A1/A2 criteria by approximately 268,000 acres (2.0 percent more than the original acreage under Alternative S2).

The Science Advisory Group evaluated the effects of the changes in A1/A2 subwatersheds resulting from the validation exercise and the change in criteria on broad-scale landscape components. Although some effects have changed slightly, they remain within the range of effects that are discussed in the Supplemental Draft EIS. The results of the SAG evaluation indicates there should be no ecologically significant effects on landscape attributes on Forest Service- and BLM-administered lands at the broad scale nor on forests or range-lands compared to those presented in the Supplemental Draft EIS for Alternative S2. There may be local effects as a result of the shifting locations of A1/A2 subwatersheds that are not ecologically significant at the broad scale. These can be addressed at finer scales during step-down analysis. This is particularly relevant in south central Oregon and the Blue Mountains.

Terrestrial Species Component

4-84/viability sidebar/last para/
1st sentence

Revise: The regulation also makes it clear that viability is a requirement of the federal landscape (that is, the planning area) on Forest Service-administered lands within the planning area.

4-85/left

Insert after Effects of the Alternatives on Terrestrial Vertebrates title:
As described in Chapter 3 of the Final EIS, a validation exercise related to the A1/A2 subwatersheds was undertaken following the release of the Supplemental Draft EIS. The intent to do that validation is described in Chapter 3 of the Supplemental Draft EIS, on page 3-133. The validation exercise increased the number of subwatersheds that meet the criteria in the Supplemental Draft EIS for designation as A1 and A2 subwatersheds, especially for those subwatersheds related specifically to westslope cutthroat trout and redband trout. After the validation exercise, the Executive Steering Committee decided to modify the criteria for identification of A1/A2 subwatersheds related to westslope cutthroat trout. The validation exercise and changes in criteria for westslope cutthroat trout resulted in an increase in the total acreage of subwatersheds that meet the revised A1/A2 criteria by approximately 268,000 acres (2.0 percent more than the original acreage under Alternative S2).

The Science Advisory Group evaluated the effects of the changes in A1/A2 subwatersheds resulting from the validation exercise and the change in criteria on broad-scale terrestrial species. Although some effects have changed slightly, they remain within the range of effects

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that are discussed in the Supplemental Draft EIS. The results of the SAG evaluation are as follows.

The SAG found no evidence to suggest that effects on plants of conservation concern would be different from those presented in the Supplemental Draft EIS for Alternative S2 (Croft and Owen 2000).

The SAG found no evidence of changes in environmental outcomes on Forest Service- and BLM-administered lands compared to those projected for any of the 31 species-seasonal combinations that were initially analyzed by Raphael et al. (2000). The shifting locations of A1/A2 subwatersheds will likely result in local (fine-scale) increases and decreases in habitat conditions for terrestrial species whose ranges include affected subwatersheds.

The SAG found no evidence that effects on mule deer, white-tailed deer, or elk would change from the model predictions of effects for Supplemental Draft EIS Alternative S2 at the scale of the RAC/PAC areas.

The SAG found no evidence that there would be a change in overall riparian and wetland conditions for associated vertebrates at the broad scale compared to those disclosed for Alternative S2. At finer scales, such as for subwatersheds, shifts in the quality of terrestrial riparian habitats would be expected to be proportionate to the shift in subwatersheds designated as part of the A1/A2 system.

4-85/right

Insert sidebar after Rangeland Habitat title:

It is possible that the environmental and population outcomes that were projected as C, D, or E for broad-scale terrestrial vertebrates could be improved through further management direction at the broad scale. One approach that could improve outcomes is the designation of a spatially explicit network of habitats (Wisdom et al. 2000a). This direction could have improved local conditions for many species with C, D, or E outcomes and would complement additional direction that could be developed at the broad scale. The risks associated with not implementing broad-scale direction for a habitat network are identified accurately in the outcomes projected for the three alternatives in Table 4-26, and in the general description of effects on terrestrial vertebrates in Chapter 4.

4-91/ right/last para/1st sentence

Revise: ... except for woodland caribou, lynx and wolverine **and only with Alternative S1 Lewis' woodpecker (migrant)** because of the improving environmental outcomes, ...

4-91/right/1st full para/
last sentence

Add to end of sentence: The outcome levels would be either "A" "B" or "C" **(except for Lewis' Woodpecker under Alternative S1).**

4-91/right/ last para/

Revise: ...for wolverine because of small population size and disturbance near denning sites, **and for Lewis' woodpecker with Alternative S1 due to the persistence of low habitat capacity.**

Modifications Made to ICBEMP Supplemental Draft EIS Chapter 4 (Continued)

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
4-93/Table 4-24	Revise: grasshopper sparrow: Alt. S1 (55 58) Alt. S2 (0 1) (59-61) Alt. S3 (0 1) (58 60)
4-94/Table 4-25	Revise: northern goshawk (summer): Cumulative All Lands Current (-44-40) Alt. S1 (66 69) Alt. S2 (70 74) Alt. S3 (70 73) Revise: hoary bat: Cumulative All Lands Current (52 46) Alt. S1 (56 59) Alt. S2 (59 63) Alt. S3 (59 62) Revise: grasshopper sparrow: FS/BLM Lands Alt. S1 (44-19) Alt. S2 (45 22) Alt. S3 (45 21) Revise: grasshopper sparrow: Cumulative All Lands Alt. S1 (40-14) Alt. S2 (44 16) Alt. S3 (40-15)
4-95/Table 4-26	Revise: Lewis' woodpecker: FS/BLM Lands Alt. S1 (0 D) Revise: Lewis' woodpecker: Cumulative All Lands Alt. S1 (0 D) Alt. S2 (0 D) Alt. S3 (0 D) Revise: hoary bat: Cumulative All Lands Current (C) Alt. S1 (C) Alt. S2 (0 B) Alt. S3 (0 B) Revise: grasshopper sparrow: FS/BLM Lands Current (D) Alt. S1 (E) Alt. S2 (E D) Alt. S3 (E D)
4-97/right/2 nd full para	Revise: ...from current with Alternative S1. The reduction in source habitat for grasshopper sparrow is related to a continuing, substantial loss of grassland or savannah habitat to tree encroachment.
4-98	Add as sidebar: <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p>The Science Advisory Group (SAG) modeled two restoration scenarios that build on Alternative S2. These scenarios were designed to assess whether outcomes modeled for the <i>SAG Effects Analysis for the SDEIS Alternatives</i> (Quigley et al. 2000) could be improved for sage grouse and Columbian sharp-tailed grouse habitats and populations. Results of these analyses are summarized in <i>Shrub Steppe Source Habitat Transitions and Potentials for Future Restoration in the Interior Columbia River Basin</i> (Hemstrom et al. 2000a) and <i>Modeled Effects of Shrub-steppe Restoration on Sage Grouse and Columbian Sharp-tailed Grouse</i> (Wisdom et al. 2000b). The two restoration scenarios involved the following changes in rangeland effects and management in relation to those modeled for Alternative S2: scenario (1) decreasing detrimental livestock grazing effects by approximately 50 percent and increasing active restoration of rangeland habitats by approximately 30 percent; and scenario (2) decreasing detrimental livestock grazing effects by approximately 100 percent and increasing active restoration of rangeland habitats by approximately 30 percent. These scenarios were assessed for Forest Service- and BLM-administered lands only, and were limited to portions of areas within the historical ranges of sage</p> </div>

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Table/Fig/Map/Photo

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grouse and Columbian sharp-tailed grouse, as opposed to assessing basin-wide changes. Similar rangeland restoration options are discussed in the Supplemental Draft EIS (Chapter 4, pages 100-101).

One option mentioned in the Supplemental Draft EIS is to increase funding for additional active restoration. However, it is noted that the amount of funding available to accomplish restoration objectives is limited to a “reasonable amount.” Two other options mentioned in the EIS are that detrimental effects of livestock grazing could be reduced through changing livestock management strategies, which may include reducing livestock stocking rates. It is concluded in the Supplemental Draft EIS that the direction in Alternative S2 sets the sideboards of what needs to be achieved, but that specific management strategies to achieve the objectives would need to be developed and analyzed at finer scales.

Livestock stocking levels or authorized AUMs are not prescribed in the ICBEMP EIS, because those decisions require finer-scale analyses. However, the SAG predicted that Alternative S2 would result in a 10 percent reduction in authorized AUMs in both the short and long terms. To explore the response of the outcomes to the effects of livestock grazing, the SAG adjusted their assumptions about the change in detrimental livestock grazing effects under Alternative S2 for the two restoration scenarios. Scenario 1 assumed a 50 percent reduction and Scenario 2 assumed a 100 percent reduction in detrimental livestock grazing effects. The SAG again predicted the implications of these scenarios on authorized AUMs as applied to Forest Service- and BLM-administered lands within the ranges of the two grouse species. A 50 percent reduction in grazing effects was predicted to result in a 25 to 60 percent reduction in authorized AUMs over the 100-year projection period compared to that predicted for the current time period. A 100 percent reduction in grazing effects was predicted to result in a 85 to 99 percent reduction in authorized AUMs over 100 years. The percentage reductions in livestock grazing would apply to only a portion of Forest Service- and BLM-administered lands, so that when averaged across Forest Service- and BLM- administered lands, the percentage reduction would be less.

The SAG analysis found that an additional investment of 20 to 39 million dollars annually, coupled with reducing detrimental livestock grazing effects by 50 to 100 percent, could improve the projected environmental outcomes for sage grouse and sharp-tailed grouse on Forest Service- and BLM-administered lands. The SAG models indicate that the environmental outcome for sage grouse (on Forest Service- and BLM-administered lands) would increase from the “D” outcome that was predicted under Alternative S2 in the Supplemental Draft EIS to a “C” under both scenarios. The population outcome of “D” on all lands would not change. The environmental outcome for Columbian sharp-tailed grouse on Forest Service- and BLM-administered lands would remain a “D”, but would improve within the “D” outcome range with Scenario 1, and would improve to a “C” with Scenario 2. The population outcome of “E” predicted for sharp-tailed

Modifications Made to ICBEMP Supplemental Draft EIS Chapter 4 (Continued)

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grouse (on all lands) in the Supplemental Draft EIS would remain an “E” under either scenario.

The SAG concluded that these results suggest an aggressive combination of livestock grazing management (including managing the season, timing, frequency, duration, intensity, and amount of livestock grazing pressure) and restoration activities could improve long-term conditions for sage grouse and Columbian sharp-tailed grouse in the basin. However, restoration costs may be high. Moreover, the need to integrate and apply a variety of restoration practices across vast areas of the two species’ ranges has never been attempted and would be logistically challenging. An added uncertainty is the degree to which restoration treatments will be effective in controlling or stopping the continued spread of undesirable, invasive, exotic plants; this uncertainty is especially problematic, considering the extensive losses of shrub-steppe that have occurred due to cheatgrass invasion following fires.

Consequently, step-down planning and adaptive management approaches, designed to detect and build on successful methods, seem prudent.

Alternative S2 contains direction to maintain and restore rangeland habitats, including direction that could result in reduction of detrimental livestock grazing effects by 50 percent or more. For example:

- 1) Objective B-O10, taken from the *Healthy Rangelands* guidelines, would be applied to both BLM- and Forest Service-administered lands;
- 2) Priority would be given to address detrimental livestock grazing impacts in areas where grazing might be a “factor in causing an area to function ‘at risk’;”
- 3) Vegetative composition would be managed to maintain and restore source habitats of concern for Terrestrial Families 11 (includes sage grouse) and 12 (includes Columbian sharp-tailed grouse); and
- 4) Source habitats would be managed to be resilient to natural disturbances and to maintain or restore noxious weed-free plant communities.

Alternative S2 also includes broad-scale information which can be used to guide restoration priorities. For example:

- 1) Broad-scale opportunities for various species have been identified and mapped (Map 2-11a and Map 3-5, on pages 2-106 and 3-97 of the Supplemental Draft EIS) to aid in prioritizing existing funds to benefit rangeland species.
- 2) The areas identified for high restoration priority (see Map 3-8 in the Final EIS) include all 3 high priority rangeland subbasins and 8 of the 21 moderate priority rangeland subbasins.

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However, it appears, based on the SAG analyses cited above, that funding may limit implementation of habitat maintenance and restoration objectives, and consequently may limit the improvement of rangeland species outcomes.

A solution to this could be to reallocate modeled funds from other identified high restoration priority subbasins to some of the moderate priority rangeland subbasins.

However, the high restoration priority subbasins were identified using an integrated approach, which recognized and incorporated the many resource needs in the basin. Reallocating funds would reduce the emphasis given to other resources of concern, such as listed aquatic species and old forest species. Further, the agencies have significant opportunity to prioritize use of existing funds or to request additional funding through the appropriations processes to implement the maintenance and restoration direction in Alternative S2. This opportunity is addressed in the Supplemental Draft EIS (in the Analysis of Implementation Costs and Outputs section): The management direction is adjustable to variable future funding levels.

4-98/right/1st para/2nd sentence

Revise: The predicted environmental outcomes on Forest Service-and BLM- administered lands would decrease for ~~three~~**two** of five species with Alternatives S2 and S3.

4-99/left/1st para/1st sentence

Revise: ~~all alternatives~~ **Alternative S1**, the predicted population outcome classes would improve from current for 11 species-seasonal combinations and would remain stable for 19 species-seasonal combinations. **For Alternatives S2 and S3, outcome classes would improve for 12 species-seasonal combinations and remain stable for 18.** The number of species-seasonal combinations with predicted outcomes of "A," "B," "C," "D," or "E" **under Alternative S1** would be 4, 4, ~~40~~**9**, 6 ~~7~~, and 6, respectively (see Table 4-26). **The number of species-seasonal combinations with these outcome classes for Alternatives S2 and S3 would be 4, 5, 8, 7, and 6, respectively.**

4-106/left/1st para/

Insert prior to last sentence: Grizzly bear populations in the Selkirk-Cabinet-Yaak and North Cascades recovery areas are stable, but below and well below, respectively, recovery goals. There appear to be no grizzly bears in the Bitterroot Recovery Area.

4-106/right/1st para/
1st sentence

Revise: The northern subspecies of northern Idaho ground squirrel is ~~proposed to be~~ listed as threatened.

4-106/right/1st para/
1st sentence

Revise: Lynx, ~~proposed to be~~ listed as threatened, are included in Terrestrial Family 3.

4-109/Table 4-27

Revise: Species: canada lynx (~~proposed~~, **threatened**)

Revise: Species: northern Idaho ground squirrel (~~proposed~~, **threatened**)

Aquatic-Riparian-Hydrologic Component

4-114/right/1st full para/
last sentence

Insert after last sentence:...the aquatic SAG linked key processes in aquatic systems and conditions to landscape characteristics that are predicted to change as a result of management activities. **The Aquatics**

Modifications Made to ICBEMP Supplemental Draft EIS

Chapter 4 (Continued)

Page/Column/Paragraph or
Table/Fig/Map/Photo

Change Made (bold = new; strikeout = delete)

4-123/left/1st para

Chapter (Lee et al. 1997) *of the Assessment of Ecosystem Components* described some of the effects of mining and recreation on aquatic habitats; however, data were not available to model existing or projected mining and recreation activities under proposed alternatives or to be incorporated into the analysis of effects. Effects of specific mining and recreation proposals will be analyzed and disclosed during finer scale NEPA analysis.

Insert after Native Fish Species title:

As described in Chapter 3 of the Final EIS, a validation exercise related to the A1/A2 subwatersheds was undertaken following the release of the Supplemental Draft EIS. The intent to do that validation is described in Chapter 3 of the Supplemental Draft EIS, on page 3-133. The validation exercise increased the number of subwatersheds that meet the criteria in the Supplemental Draft EIS for designation as A1 and A2 subwatersheds, especially for those subwatersheds related specifically to westslope cutthroat trout and redband trout. After the validation exercise, the Executive Steering Committee decided to modify the criteria for identification of A1/A2 subwatersheds related to westslope cutthroat trout. The validation exercise and changes in criteria for westslope cutthroat trout resulted in an increase in the total acreage of subwatersheds that meet the revised A1/A2 criteria by approximately 268,000 acres (2.0 percent more than the original acreage under Alternative S2). The total acreage of A1 subwatersheds *decreased* by approximately 54,000 acres (0.8 percent less than the original acreage under Alternative S2) and A2 subwatersheds *increased* by approximately 322,000 acres (4.7 percent more than the original acreage under Alternative S2).

The Science Advisory Group evaluated the effects of the changes in A1/A2 subwatersheds resulting from the validation exercise and the change in criteria on broad-scale aquatic species. Although some effects have changed slightly, they remain within the range of effects that are discussed in the Supplemental Draft EIS. The results of the SAG evaluation are as follows.

The effects on stream-type chinook and steelhead would be similar to those presented in the Supplemental Draft EIS for Alternative S2, because the number of subwatersheds meeting the A1/A2 criteria for these species were only slightly changed from the original number.

There was a small increase in the number of subwatersheds meeting the revised A1/A2 criteria for bull trout, and there would likely be a related small increase in the probability of high habitat capacity and strong population status for this species compared to those presented in the Supplemental Draft EIS for Alternative S2.

The number of subwatersheds meeting the revised A1/A2 criteria for redband trout and Yellowstone cutthroat trout increased. There would likely be increases in the probability of high habitat capacity and strong population status for these two species compared to those presented in the Supplemental Draft EIS for Alternative S2.

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Table/Fig/Map/Photo

Change Made (bold = new; strikeout = delete)

4-132/left/1st para/
last sentence

The number of subwatersheds meeting the revised A1/A2 criteria for westslope cutthroat trout decreased slightly, with a comparable small decrease in the probability of high habitat capacity and strong population status compared to those presented in the Supplemental Draft EIS for Alternative S2.

Revise: The remaining ~~40-12~~ listed or proposed species would be best addressed....

Social-Economic-Tribal Component

4-145/right

Insert after Effects of the Alternatives on Annual Levels of Goods and Services section:

As described in Chapter 3 of the Final EIS, a validation exercise related to the A1/A2 subwatersheds was undertaken following the release of the Supplemental Draft EIS. The intent to do that validation is described in Chapter 3 of the Supplemental Draft EIS, on page 3-133. The validation exercise increased the number of subwatersheds that meet the criteria in the Supplemental Draft EIS for designation as A1 and A2 subwatersheds, especially for those subwatersheds related specifically to westslope cutthroat trout and redband trout. After the validation exercise, the Executive Steering Committee decided to modify the criteria for identification of A1/A2 subwatersheds related to westslope cutthroat trout. The validation exercise and changes in criteria for westslope cutthroat trout resulted in an increase in the total acreage of subwatersheds that meet the revised A1/A2 criteria by approximately 268,000 acres (2.0 percent more than the original acreage under Alternative S2).

The Science Advisory Group evaluated the effects of the changes in A1/A2 subwatersheds resulting from the validation exercise and the change in criteria on social-economic concerns. Although some effects have changed slightly, they remain within the range of effects that are discussed in the Supplemental Draft EIS. The results of the SAG evaluation indicate that in general this change would result in few differences in socio-economic effects observable at the broad scale compared to those presented in the Supplemental Draft EIS for Alternative S2. There would be shifts in the level of restoration activities away from central Oregon with attendant reductions in economic benefits, especially in some counties of concern (such as Grant, Wallowa, Harney, and Lake).

4-146/left/2nd para/1st bullet

Revise: Livestock use measured as authorized animal unit months (AUMs), representing the number of domestic livestock that graze on Forest Service- and BLM-administered rangelands;

4-146/Table 4-33

Revise: Output or Activity: **Authorized** Animal Unit Months

4-147/left/1st para

Revise: Estimated domestic livestock use on Forest Service- and BLM-administered lands, measured in **authorized** AUMs, is shown in Table 4-34 by RAC/PAC for each alternative. **(See Glossary for definition of AUM.)**

4-147/right/2nd para

Revise:such as shifts in the share of range feeding vs. stockyard feeding for cattle, **changes in demand for beef in the U.S. and world markets**, shifts in the culture and...

Modifications Made to ICBEMP Supplemental Draft EIS Chapter 4 (Continued)

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
4-147/left/2 nd para/2 nd sentence	Revise: Authorized AUMs were calculated....
4-147/right/3 rd para/1 st sentence	Revise: The projected decline in Authorized AUMs...
4-147/Table 4-34/title	Revise: Projected Authorized Animal Unit Months (AUMs), by...
4-147/Table 4-34	<p>Add footnote 2 after “Total - Project Area”:</p> <p>² The Project Area totals shown here are about 16,000 - 18,000 AUMs (approximately 0.6%) less than the Project Area totals shown in the <i>Socioeconomics Evaluation Chapter</i> (Crone and Haynes 2000) of the <i>Evaluation of the SDEIS Alternatives</i>. The difference is that the AUM numbers, as modeled by SAG, included small pieces of subwatersheds in the Sierra Front-Northwestern and Wyoming RACs that cross the political boundaries into the neighboring states. Since those two RACs are not included in the ICBEMP decision space, the associated AUMs were subtracted from the SAG totals to arrive at the totals shown above.</p> <p>Insert as sidebar:</p>
4-148	

After the release of the Supplemental Draft EIS, the Science Advisory Group (SAG) conducted additional analysis of two restoration scenarios to explore potential benefits and costs of reducing detrimental livestock grazing effects and increasing restoration actions that could improve outcomes of sage grouse and Columbian sharp-tailed grouse habitats and populations in the basin. Results of these analyses are contained in reports by Hemstrom et al. (2000a) and Wisdom et al. (2000b). Two scenarios were modeled that:

- 1) decreased detrimental livestock grazing effects by approximately 50 percent and increased active restoration of rangeland habitats by approximately 30 percent (scenario 1); and
- 2) decreased detrimental livestock grazing effects by approximately 100 percent and increased active restoration of rangeland habitats by approximately 30 percent (scenario 2).

The intent of this modeling was to explore potential benefits to habitat for sage grouse and Columbian sharp-tailed grouse. The models indicated possible negative socio-economic effects. The SAG concluded that if the combinations of additional funding and grazing management strategies were actually implemented, average annual authorized AUMs on Forest Service- and BLM-administered lands in the project area within sage grouse and Columbian sharp-tailed grouse range could be reduced. A 50 percent reduction in grazing effects was predicted to result in a 25 to 60 percent reduction in authorized AUMs over the 100-year projection period compared to that predicted for the current time period. A 100 percent reduction in grazing effects was predicted to result in a 85 to 99 percent reduction in authorized AUMs over 100 years. These estimated reductions in authorized AUMs would occur only on portions of Forest Service- and

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BLM-administered lands within the historical ranges of sage grouse and sharp-tailed grouse in the basin. The percentage reductions in livestock grazing would apply to only a portion of Forest Service- and BLM-administered land, so that when averaged across Forest Service-and BLM- administered lands, the percentage reduction would be less. The SAG further concluded that it would require *both* the additional rangeland restoration investments *and* the additional grazing management strategies to improve outcomes. Reduction in detrimental grazing effects or increased active restoration as individual management actions would not be sufficient. To the degree that additional funding might be made available in the future for this focused rangeland restoration work, and that additional grazing management strategies might be adopted in conjunction with that funding increment, additional uncertainty could be introduced into the projections of first decade authorized AUMs discussed for Alternative S2.

4-148/left/2nd full para/
1st sentence

Revise: With Alternatives S2 and S3, all RAC/PAC areas would see a decline in **authorized** AUMs...

4-148/left/4th full para/
2nd sentence

Revise: ...a more substantial effect from changes in **authorized** AUMs...

4-157/before Recreation-related
Employment heading

Insert as sidebar:

After the release of the Supplemental Draft EIS, the Science Advisory Group (SAG) conducted additional modeling (Hemstrom et al. 2000a, Wisdom et al. 2000b) to explore potential benefits and costs of rangeland management and restoration actions that could improve outcomes for sage grouse and Columbian sharp-tailed grouse habitats and populations on Forest Service- and BLM-administered lands in the project area. Two restoration scenarios were examined that incorporated reductions in detrimental grazing effects and additional rangeland restoration funding (see additional discussion in the Livestock AUMs/Production Levels section of this chapter). The projected reductions in authorized AUMs for scenarios 1 and 2 are averaged over 100 years. In ten years (short-term), there would be some lag time to implement reductions; therefore, average reductions would be less in the first decade due to this lag time. **NOTE:** The majority of the reductions estimated for Alternative S2 was projected to occur within the first 10 years. Under the assumptions of this analysis, additional uncertainty could be introduced into the projections of grazing-related jobs compared to the projected decline of 112 grazing-related jobs in Alternative S2 over the first decade.

4-157/left/ subheading under
Potential Effects

Revise: Total **Direct** Employment

4-157/right/2nd para/2nd sentence

Revise:includes an **upward** adjustment of 20 percent...

Modifications Made to ICBEMP Supplemental Draft EIS Chapter 4 (Continued)

Page/Column/Paragraph or Table/Fig/Map/Photo	Change Made (bold = new; strikeout = delete)
4-161/left/1 st full para/1 st sentence	Revise: In general, Forest Service and BLM land use decisions have little influence basin-wide on factors important to socio-economic resiliency.
4-166/left/3 rd para/ last sentence	Revise: This lag time would result in part from the need to complete any required Subbasin Review, EAWS, and NEPA analysis for individual projects or groups of projects, and in part to the need to develop additional local laborforce capacity to handle the added restoration work and mill capability to handle the flow of smaller diameter and poorer quality wood.
4-170/left/2 nd full para/ 5 th sentence	Revise: External forces that may affect social and economic conditions include population changes, industry restructuring, changes in economic supply and demand, labor force availability, mill capacity, lifestyle preferences, and climatic changes.
4-170/left/last para before Quality of Life section/ 3 rd to last sentence	Revise: External forces that may affect... industry restructuring, local labor force and mill capacity, changes in economic supply and demand...
4-171/right	Insert the following paragraphs before Sense of Place:

Natural Areas

Natural areas are unique in that they provide opportunities for recreation, scenery, and conservation of native plants and animals and rare plant communities, among other things. They provide resources for study as well as for teaching. Often they sustain some native ecological processes and functions. Many natural areas overlap with roadless areas, designated wilderness, or wilderness study areas.

Currently about 56 percent of the 12.5 million acres of natural areas are in the None and Low class of Composite Historical Range of Variability Departure (Composite HrvDep), which means that the ecological processes and functions in about 56 percent of natural areas are the same as or similar to their historical range of variability. In comparison, lands not in designated natural areas have about 38 percent in the None and Low classes. In the long-term (100 years), continuation of current management (Alternative S1) in natural areas should result in conditions declining to about 18 percent of None and Low classes of Composite HrvDep. The other alternatives (S2 and S3) are expected to have similar outcomes. The models show little improvement under Alternatives S2 and S3 because they do not call for a substantial increase in active restoration of fire processes combined with control of invasive weeds within natural areas. Current levels of prescribed fire and “wildland fire use for resource benefit” (prescribed natural fire) are not expected to increase within natural areas because of the risks to life and property by allowing fires to burn in the summer.

More specifically, the areas of increasing Composite HrvDep (where conditions are increasingly different from the historical range of

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variability) are strongly correlated with the larger contiguous blocks of cold forest, moist forest, and cool shrub/grassland in the wilderness of central Idaho, north-central Montana, north-central Washington, northeastern Oregon, and southeastern Oregon. These areas present a substantial risk of large wildfire occurrence and of escape of summer prescribed natural fires. Most of these areas also contain patches of invasive weeds that are at substantial risk to increase after a wildfire.

Lack of active management would result in a general decline in conditions due primarily to wildfires, insects and disease, weed invasion, vegetation succession, and negative recreational use effects. This will reduce the value of natural areas particularly in contributing to conservation of landscapes with natural process and native species habitats intact. Potential effects on the natural areas will be further analyzed and considered through mid-scale and fine-scale analyses during the step-down process to evaluate local options to improve outcomes for natural areas.

4-179/right/2nd para

Insert the following paragraphs before first paragraph of Important Species and Habitats section:

As described in Chapter 3 of the Final EIS, a validation exercise related to the A1/A2 subwatersheds was undertaken following the release of the Supplemental Draft EIS. The intent to do that validation is described in Chapter 3 of the Supplemental Draft EIS, on page 3-133. The validation exercise increased the number of subwatersheds that meet the criteria in the Supplemental Draft EIS for designation as A1 and A2 subwatersheds, especially for those subwatersheds related specifically to westslope cutthroat trout and redband trout. After the validation exercise, the Executive Steering Committee decided to modify the criteria for identification of A1/A2 subwatersheds related to westslope cutthroat trout. The validation exercise and changes in criteria for westslope cutthroat trout resulted in an increase in the total acreage of subwatersheds that meet the revised A1/A2 criteria by approximately 268,000 acres (2.0 percent more than the original acreage under Alternative S2).

The Science Advisory Group evaluated the effects of the changes in A1/A2 subwatersheds resulting from the validation exercise and the change in criteria on broad-scale tribal concerns. Although some effects have changed slightly, they remain within the range of effects that are discussed in the Supplemental Draft EIS. The results of the SAG evaluation are as follows. The potential slight increases in probabilities for high aquatic habitat capacity and strong population status for bull trout and Yellowstone cutthroat trout (species of tribal concern) compared to those presented in the Supplemental Draft EIS for Alternative S2 may result in additional benefits for tribes. Decreases in probabilities for high aquatic habitat capacity and strong population status for westslope cutthroat trout (also a tribal species of concern) may have negative effects on tribes.

Modifications Made to ICBEMP Supplemental Draft EIS Chapter 4 (Continued)

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Table/Fig/Map/Photo

Change Made (bold = new; strikeout = delete)

4-192/right

Insert after last paragraph:

Cumulative Effects

ICBEMP EIS and the Cohesive Strategy for Protecting People and Sustaining Resources in Fire-Adapted Ecosystems

In Title IV of the Fiscal Year 2001 Appropriations Act for the Department of the Interior and other Related Agencies, Congress directed the Forest Service to publish the *Cohesive Strategy for Protecting People and Sustaining Resources in Fire-Adapted Ecosystems* (USDA, Forest Service) in the *Federal Register* and to explain any differences between the *Cohesive Strategy* and certain rulemakings and planning efforts in EISs for those rulemakings and planning efforts. The *Cohesive Strategy* was published in the *Federal Register* on November 9, 2000. The following discussion explains how the *Cohesive Strategy* was analyzed in developing this Final EIS and identifies differences between the strategy and the three management alternatives presented in this document.

The *Cohesive Strategy* established a policy framework to restore and maintain ecosystem health in fire-adapted ecosystems on lands administered by the Forest Service. The purpose of the policy is to provide policy direction to the Forest Service to improve the resilience and sustainability of forests and grasslands; to conserve priority watersheds, species, and biodiversity; reduce wildland fire costs, losses, and damages; and better ensure public and firefighter safety. The focus is on restoration and maintenance of ecosystems with frequent natural fire regimes. For an additional discussion of the *Cohesive Strategy*, see the discussion in Chapter 1.

The *Cohesive Strategy* is consistent with the *Scientific Assessment* (1997) and the Draft and Supplemental Draft EISs (1997 and 2000, respectively). Much of the understanding developed from the comprehensive *Scientific Assessment* and *SAG Effects Analysis for the SDEIS Alternatives* became the foundation for development of and analysis for the *Cohesive Strategy*.

The condition class definitions used in the *Cohesive Strategy* are similar to the composite historical range of variability departure information used in the Supplemental Draft EIS (see Appendix D of the *Cohesive Strategy*). Both classifications were derived from 250-acre (1 square kilometer) data on vegetation cover type, structure, and site potential; fire regime; and topography. However, the *Cohesive Strategy* data, which encompass the lower 48 states, are less accurate than the ICBEMP data because of the higher variability of ecosystems and disturbance regimes across the much larger area. Work is underway to develop science-based analytical tools and finer-scale

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Change Made (bold = new; strikeout = delete)

maps to support consistent integration of the *Cohesive Strategy* with ICBEMP, as well as other planning efforts across the nation.

The management direction for Alternatives S2 and S3 is consistent with the *Cohesive Strategy*. For example, there is direction to restore vegetation conditions to lessen uncharacteristic fire regimes. The urban-rural-wildland interface is a focus area (see Objective R-O5). Maintenance of existing low risk areas (categorized as “Condition Class 1” in the *Cohesive Strategy*), readily accessible municipal watersheds, and threatened and endangered species habitat are addressed in the EIS with a focus to “repattern succession/disturbance regimes and achieve sustainable landscape conditions” (see Objective R-O4). Alternatives S2 and S3 also address restoration of the vegetative composition, structure, patch size, and pattern to match the historical disturbance regime. This is consistent with assumptions for predicting outcomes in the Consequences of Deferral section of the *Cohesive Strategy*.

In contrast, the No-action Alternative (S1) is not consistent with the *Cohesive Strategy*. Alternative S1 is based on direction from existing land use plans as amended by interim direction (PACFISH, INFISH and Eastside Screens). The general intent of managing forestland vegetation management in Alternative S1 is to rely on even-aged management practices, favor early seral species with reduced stand densities, and improve growth and yield. Current wildland fire management (Alternative S1) follows the federal fire policy with little increase in “wildland fire use for resource benefit” (prescribed natural fire).

In the No-action Alternative, Forest Service- and BLM-administered lands throughout the project area would continue to be managed under the 62 land use plans, which range from 6 to 21 years old. Many of the plans were developed with the assumption that ecological conditions were healthy, or that disturbances (such as fire, insects, and disease) would not substantially affect planned actions or desired outcomes. In addition, the Eastside Screens interim strategy (for eastern Oregon and eastern Washington National Forests) focuses on short-term protection of old forests and short-term risks from management activities and does not recognize risks from uncharacteristic fires.

The *Cohesive Strategy* recognizes these issues in a broad national context and provides policy on the purpose and focus of restoration in fire-adapted ecosystems. The ICBEMP proposed decision/preferred alternative (Alternative S2) provides the foundation for a NEPA decision that would amend the Forest Service and BLM land use plans within the project area to implement the cohesive restoration policy.

ICBEMP EIS and Fiscal Year 2001 Wildland Fire Emergency Appropriations

Title IV of the Fiscal Year 2001 Interior Appropriations for the Department of the Interior and Related Agencies contains additional appro-

Modifications Made to ICBEMP Supplemental Draft EIS Chapter 4 (Continued)

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priations and Congressional direction to address the impacts of wildland fires that burned in the summer of 2000.

This new Congressional direction requires the BLM and Forest Service to work closely with states and local communities to maximize benefits to the environment and to local communities. Agencies are also expected to seek the advice of governors and local and tribal government representatives in setting priorities for fuels treatments, burned area rehabilitation, and public outreach and education. Increased funding for hazardous fuels treatments will be focused on projects within the urban-rural-wildland interface on federal lands or adjacent non-federal lands.

Increased levels of thinning, prescribed fires, and other restoration projects are expected in response to the higher funding levels. Forest Service regional offices and BLM state offices have made initial estimates of lands that will be affected by fuels reduction projects. It is expected that the increased levels of management activities pursuant to the additional appropriations will fall within the range of projected activities estimated in the Supplemental Draft EIS (Tables 4-3, 4-35, 4-37 through 4-41, 4-57 through 4-60). The cumulative effects of additional activities are therefore expected to fall within the range of projected effects.

ICBEMP EIS and the Forest Service Roadless Area Conservation Final EIS

Overall, Alternatives S2 and S3 would be consistent with the preferred alternative identified in the Forest Service Roadless Area Conservation Final EIS (Roadless Final EIS) .

The Roadless Final EIS is at a broader scale than the ICBEMP. The Roadless EIS addresses roads and timber harvest within all Forest

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Table/Fig/Map/Photo

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Service-administered inventoried roadless areas, while the ICBEMP EIS addresses a diverse array of land management issues on both Forest Service- and BLM-administered lands in the interior Columbia River Basin, and parts of the upper Klamath Basin and Great Basin. This overlap in planning areas requires that the two EISs be consistent.

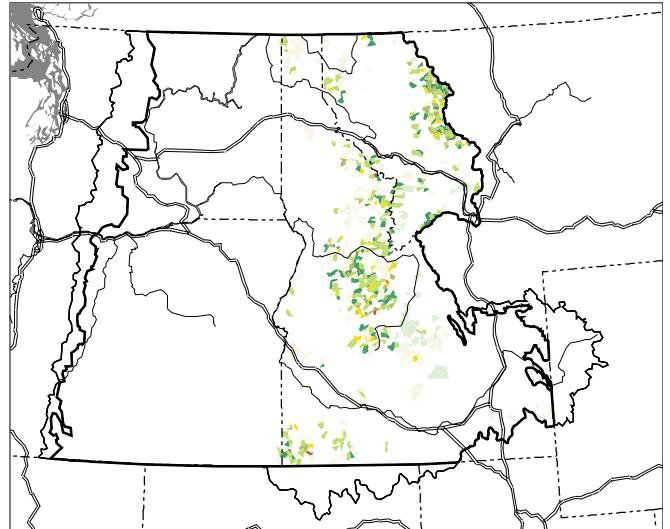
The preferred alternative identified in the Roadless Final EIS precludes most road building within Forest Service roadless areas and allows timber harvest within inventoried roadless areas only when those activities have a stewardship emphasis. The preferred alternative/proposed decision (Alternative S2) identified in the ICBEMP Final EIS focuses on stewardship harvest of timber throughout the project area, which encompasses more than Forest Service-administered inventoried roadless areas. Although Alternative S2 would not restrict road construction or reconstruction within roadless areas, it does state that road construction or reconstruction within unroaded areas would be rare.

The preferred alternative in the Roadless Final EIS and the preferred alternative/proposed decision in the ICBEMP Final EIS are consistent for timber harvest for stewardship purposes within Forest Service-administered inventoried roadless areas in the ICBEMP project area. The preferred alternative in the Roadless Final EIS would be more restrictive than any of the ICBEMP Final EIS alternatives regarding road construction or reconstruction within Forest Service-administered inventoried roadless areas. Because road building within unroaded areas would be rare under ICBEMP Alternatives S2 or S3, this difference would have little if any effect on the basin-wide effects disclosed in the ICBEMP Final EIS or Supplemental Draft EIS.

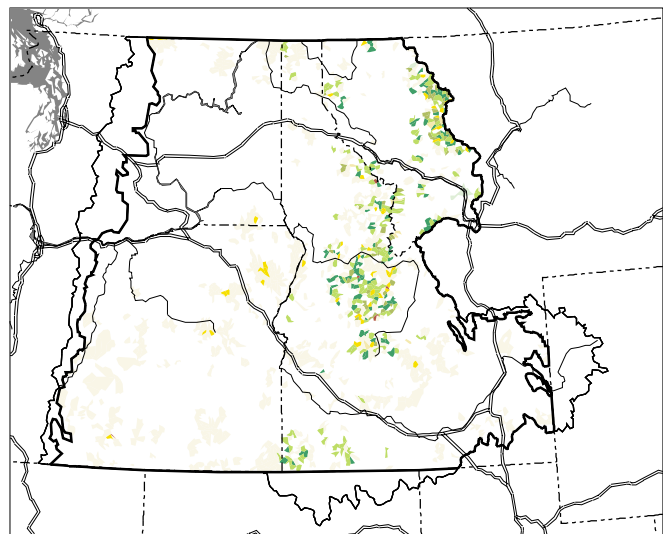
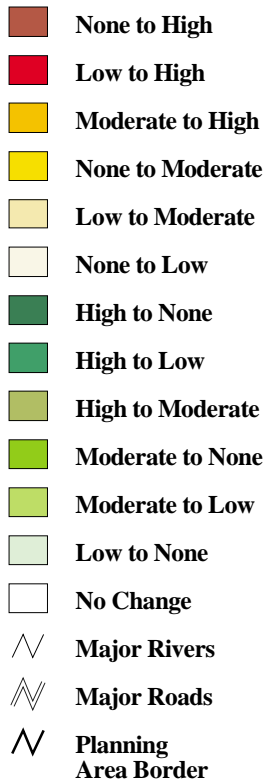
4-194/left/4th para/2nd sentence

Revise: In general, Alternative S1 is expected to produce somewhat larger logs, yet lesser **total** volumes of saw timber than Alternatives S2 and S3.

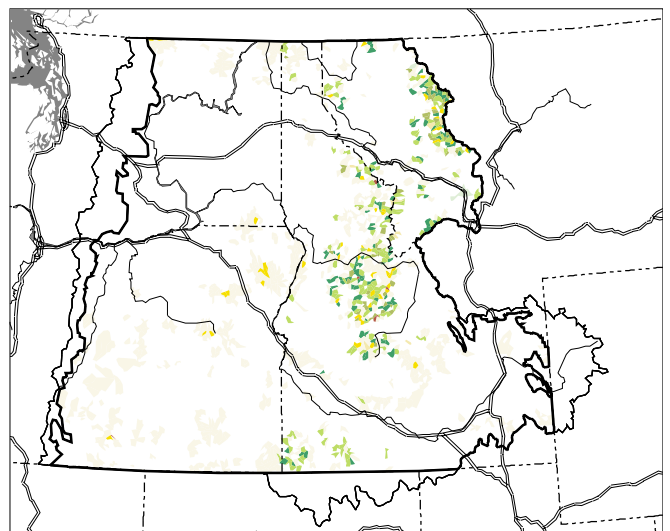
Map 4-4.
"Wildland Fire Use
for Resource Benefit"
Activity Classes:
Change from Current



Alternative S1



Alternative S2



Alternative S3