
APPENDIX F. RESPONSE TO COMMENTS

Introduction

This chapter presents the comments on the Draft EIS and the Forest Service's responses. The Forest received 74 comment letters on the Draft EIS; 60 were modified form letters. Comment letters were received from one Federal agency and one State agency. Six letters were from environmental groups. The other 66 letters were from one or more individuals. Fifty-nine comment letters stated opposition to Meteor or supported the No Action Alternative, and one supported a sale.

Similar comments have been summarized and combined. Whenever possible, the response includes a reference to the location in the documents where the reader may find changes or supporting information. All page references for the Draft EIS are for the hard copy version; unfortunately, converting the Draft EIS to Adobe Acrobat changed the page numbers slightly. The numbers following each comment are the numbers assigned to the comment letters and can be used by commenters to identify their comments. A list of those who commented and their assigned numbers is included at the end of the responses. Scanned copies of the two agency comment letters follow the numbered list.

Possible responses to comments include the following (40 CFR 1503.4):

1. Modify alternatives including the proposed action.
2. Develop and evaluate alternatives not previously given serious consideration by the agency.
3. Supplement, improve, or modify its analyses.
4. Make factual corrections.
5. Explain why the comments do not warrant further agency response.

Response to Comments

Vegetation

Comment 1: The proposed timber sale would not meet the identified Purpose and Need because it would decrease the health of many of the stands being entered. The Draft EIS refers to insects and disease, but fails to provide any information on what insects and disease are present and at what levels, and fails to demonstrate that the proposed logging is necessary to control insects and disease. In many cases, insects and disease, including mistletoe, are maintained at endemic levels and are a natural and important component of healthy forest ecosystems. The Draft EIS relies on outdated and inappropriate concepts of forest health that view large, old trees and old-growth forest as "decadent," "over-mature" and "unhealthy." The best available science indicates that logging and road construction as proposed in the sale will not help alleviate risk to adverse impacts from forest pathogens, and will in fact degrade forest health and exacerbate insect and disease problems (Perry 1994, Schowalter 1995, Franklin and others 2000).

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Response 1: Insects and diseases are an important part of the forest ecosystem; the intent is not to remove them entirely. The Action Alternatives would reduce stand densities and remove infected trees in selected stands, increasing overall stand health and promoting stand growth to meet the objectives outlined on page 1-3 of the Meteor Draft EIS. The proposed action would treat only about 1% of the total acres in the fourteen 7th field drainages covered by this assessment; Alternative 3 would treat slightly less.

The method of reducing pest damage and losses on forest ecosystems to levels commensurate with resource management objectives is known as integrated pest management (FSM 3404.11). *Forest Plan Standards and Guidelines* 21-58 through 21-61 address integrated pest management. Preventative treatments are key in integrated pest management to maintain insect and disease at endemic levels. Poor logging practices and road building can lead to insect and disease problems as discussed in the

articles cited. The Action Alternatives are designed to use BMPs; avoid tree injury during falling and removal operations; time activities properly; regulate stand density, composition, and age; and match planting stock to the site to reduce and prevent pest-related problems. The Forest continues to develop better management practices through adaptive management using lessons learned from monitoring past projects.

Many insects and diseases are present in the project area, such as mountain pine beetle (*Dendroctonus ponderosae*), Fir flatheaded borer (*Melanophila drummondii*), Fir engraver (*Scolytus ventralis*), Red ring rot (*Phellinus pini*), velvet top fungus (*Phaeolus schweinitzii*), Cytospora (*Cytospora abietis*), Annosus root disease (*Heterobasidiun annosum*), and dwarf mistletoes (*Arceuthobium* spp.). The principles of integrated pest management call for managing the stands in a manner that reduces the impact of these and other pests on the forest.

There is an exhaustive body of research showing how reducing stand density helps reduce the incidence of pest damage to a stand. Some examples are as follows:

Fiddler, G.O. and others. 1995. Silvicultural Practices (Commercial thinning) are Influencing the Health of Natural Pine Stands in Eastern California. *In* General Technical Report RM-GTR-267.

Oliver, W.W. 1995. Is Self-Thinning in Ponderosa Pine Ruled by *Dendroctonus* Bark Beetles? *In* General Technical Report RM-GTR-267.

Sartwell, C. 1971. Thinning Ponderosa Pine to Prevent Outbreaks of Mountain Pine Beetle. Proceedings on Precommercial Thinning of Coastal and Intermountain Forests in the Pacific Northwest. Washington State University.

Oliver, C.D. 1990. Forest Stand Dynamics. McGraw-Hill, Inc.

Large old trees are not routinely classified as "decadent", "overmature", or "unhealthy" due to size alone. Many large trees in the analysis area are healthy. The thinning objective is to create conditions where the remaining trees can grow, becoming larger, more vigorous, and more resistant to stress. Some large trees in poor health would be removed. Matrix objectives, as stated in the *Forest Plan* and on page 1-3 of the Draft EIS, include stand health, vigor, and sustainability and contributing to a sustained timber program. The removal of larger trees in poor condition due to competition for moisture and nutrients, disease, and insect attacks can make way to nurture the younger and more vigorous trees in the stand. Large old trees are also left within the stands to provide for wildlife habitat and other mature tree attributes (Meteor Draft EIS page 3-8).

The commenter suggests that the best available science states that logging and road building as proposed in this project will degrade forest health. The commenter is confused; no road construction is proposed in either Action Alternative as stated on page 1-4 of the Draft EIS. The commenter cites Franklin and others (2000) as the best available science. Jerry Franklin was one of the framers of the NW ROD (Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl 1994), which provided direction for the land allocations and standards incorporated in the *Forest Plan*. This management direction was followed in the preparation of the Action Alternatives as explained on pages 1-4 through 1-5 of the Draft EIS. The "science" (a critique by Franklin and others) attacks the simplified forest management in place prior to the NW ROD as expressed by clearcutting and intensive silviculture that lead to simplified stand structure. Green tree retention instead of clearcutting and attention to maintaining components of mature forests during harvest on Matrix land is included in the Action Alternatives and is part of the NW ROD and *Forest Plan*; the value of this system is explained in Franklin and others (1997, 2002b). The *Forest Plan* also includes large areas of reserves to provide for late-successional and old-growth vegetation, consistent with the critique developed by Franklin and others (2000).

The commenter appears to associate forest health with large tree size and old age by claiming that the EIS does the opposite. Franklin and others (2000) state, "Susceptibility, however, depends on the particular insect or pathogen, the tree species, and the environmental context. In some cases, older trees are more susceptible, in other cases, younger trees are. In most cases, factors other than tree age are the primary determinants of susceptibility. The dynamics of host-pest relations emerge from complex

interactions among climate, efficacy of the natural enemy complex, uniformity of host species across landscapes, and vigor of individual trees (Perry 1994).” “From a managerial perspective, the key is specificity – identification of the pathogens of specific concern and development of silvicultural prescriptions that balance those concerns against other objectives” (Franklin and others 1997). The variety of silvicultural prescriptions developed for the Action Alternatives on pages 3-6 through 3-7 of the Draft EIS are consistent with the concepts presented by these scientists. The Stand Record Cards, incorporated by reference on page 3-5 of the Draft EIS, provide detailed prescriptions for each stand, based on site-specific conditions. The emphasis on developing stands of vigorous trees resilient to pests as expressed in the purpose and need for action in Chapter 1 is also consistent with these concepts.

The conclusions of Schowalter (1995), who is cited by the commenter, also support the Action Alternatives’ achievement of Purpose and Need: “Younger and/or disturbed stands with lower diversity of habitats, and/or more extreme microclimatic conditions, supported subsets of the arthropod fauna found in old-growth canopies.” Schowalter (1995) also states, “...landscapes with a high proportion of stands composed largely of a single tree species and narrow age range will be susceptible to pest outbreaks, whereas landscapes composed of more diverse stands and stand types will tend to restrict incipient outbreaks.” Unlike the monoculture Douglas-fir type studied by Schowalter, the mixed conifer types in the project area support a variety of species in the overstory as explained on page 3-3 of the Draft EIS. The regenerated areas would be planted with a mixture of species as explained on page 3-8 of the Draft EIS. The assessment area also exhibits a wide mixture of age classes due to the variety of land allocations including Wilderness, Late-Successional Reserves, Riparian Reserves, and Matrix; refer to Responses 7 and 13. The Action Alternatives would maintain the mixture of age classes by thinning the majority of stands and regenerating a small number; refer to Response 76 for amount of regeneration. “Different species of bark beetle attack different age classes and species of trees as well as different sizes and conditions of material. Typically, retained trees are much older and have a different set of insect pests than the younger, managed component of a stand” (Franklin and others 1997).

Comment 2: The World Book Encyclopedia Dictionary of 1965 defines “vigor” as active physical strength/force or the time or conditions of greatest activity or strength. Clearly mature and ancient trees have greater physical strength and force than conifer plantations. It defines “resilient” as “springing back, returning to the original form or position.” Conifer seedlings growing towards sunlight are to one extent springing back, but cannot be claimed to be returning to the original form. If the purpose is to maintain stand health, doesn’t this indicate the stand is healthy to begin with?

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Response 2: Stand health, related to forest management, and the terms vigor and resiliency refer to the forest’s ability to defend itself against catastrophic events such as insect and disease attacks that threaten to remove desired components of the stand. Trees have a complex set of mechanisms protecting them from insect and disease attack. Like other organisms, the tree’s ability to protect itself is dependant upon its vigor. A tree with adequate water, light, and nutrients to maintain its disease resistance systems is more likely to fend off insults than a tree with compromised immunity. Individual trees become stressed in overstocked stands where water is limited throughout the summer dry season. Tree sap does not completely fulfill its normal function of transporting nutrients and protective resins, so does not protect the tree from insect attack. The proposed stand management would reduce tree stocking, making more moisture, nutrients, and light available for the remaining trees. The resulting stand would be more resilient to insect and disease attacks. Refer to Response 1.

Comment 3: How will natural conifer and other floral diversity in the area be impacted? Are insects and disease easier to keep in check when there is naturally diverse flora?

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Response 3: The commenter is correct that insects and disease are often easier to keep in check in when there is a more diverse flora. The conifer and floral diversity would not be decreased over the analysis area, and in fact the diversity may be increased at some scales. The trees species to be removed are common throughout the analysis area. Many stands proposed for thinning have become less diverse as they have developed; the crowns of the overstory conifers have shaded out the hardwoods,

brush, herbs, and grasses that once populated the understory. The treatments would allow the reestablishment of some species and increase diversity. The proposed underburning would also have an effect upon the reestablishment of the understory species. The resulting stands would be closer to stand compositions that would have developed under unaltered fire frequencies than the current stands.

Comment 4: The Final EIS should include stand information such as timber volume by species, percent of stand by species and size class after logging and fuel treatment, last logging entry and prescriptions, next logging entry and prescriptions, management activities proposed or that have occurred adjacent to the units, last forest fire or prescribed fire entry.

28, 67

Response 4: The EIS includes the information necessary to analyze environmental effects and make a decision on the proposed actions. Most of the information requested is incorporated by reference in the Draft EIS. The stand record cards contain information on stand structure (basal area and percent cover by species), stand history (previous treatments and fires), and prescriptions (planned activities including harvest, reforestation, fuel treatments, and stand exams). Stand prescriptions for density and habitat management focus on the residual stand after treatment; therefore the timber volume by species is not calculated. Management activities that have occurred in the project area are taken into account by the CWE modeling (Draft EIS pages 3-40 through 3-56).

Comment 5: The Draft EIS provides no justification why multiple healthy sugar pines are marked for extraction.

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Response 5: Sugar pine trees on Forest are managed according to the following guidelines set forth in the memo, *Sugar Pine Policy* by Richard Svlich and Chuck Frank dated August 4, 1999 and incorporated by this reference:

- All known resistant sugar pine need to be protected. Activities should occur to promote long-term sustainability of known resistant trees.
- Trees that appear to be rust free should not be harvested if they have not been tested for resistance or slow rusting.
- Harvest or precommercially thinning of rust-free or relatively rust free sugar pine should only be done if removal is essential to meet stand management objectives. Sugar pine trees that appear to have the potential to be big seed producers should only be harvested if it is essential to meet stand management objectives. Trees with low to moderate levels of rust, less than 50% live crown infected with rust, should be left as they have the potential to be pollen receptors from resistant or slow rust trees. Also, trees with signs of rust can still be slow rusters.
- Dying or very heavily infected, more than 50% of live crown infected with rust, can be harvested from stands without the stand management objective justification.

The marking prescriptions are in accordance with the policy and have been field reviewed by the Forest Silviculturist. There is currently a testing program in place to test selected sugar pine trees for resistance to blister rust.

Comment 6: It is assumed that the stands are able to “provide a sustained yield of wood products” while following all relevant environmental laws. This project area has experienced extensive habitat fragmentation, excessive sedimentation, road disturbance, and loss of sensitive species habitat due to management activities and fires.

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Response 6: The stands are being harvested in a sustainable manner following all relevant laws. The stands are appropriate for timber harvest and the associated treatments while meeting all agency standards for resource protection as described on page 3-9 of the Draft EIS. Also refer to BMP discussion in Responses 46 and 47. For responses to the questions of “extensive habitat fragmentation, excessive

sedimentation, road disturbance, and loss of sensitive species habitat due to management activities and fires,” refer to Responses 8, 39, 40, 45, 50, 51, 52, 53, 75, 76, 77, and 81.

Comment 7: Through all the current Salmon River sales, much of the remaining low elevation ancient forest in the district would be removed, affecting all old-growth dependent species in the area.

2, 4, 5, 6, 7, 8, 9, 10, 11, 13, 15, 16, 19, 20, 22, 29, 30, 32, 33, 34, 35, 36, 37, 40, 42, 45, 46, 48, 49, 50, 51, 52, 53, 55, 61, 64, 73, 74

Response 7: The LSR network was designed to protect and enhance late-successional and old-growth forests as well as the species that depend on them. Forestwide, approximately 23% of the land is within LSRs. The Salmon River District has an extensive network of LSRs (21% of the area) that include many acres of low elevation forests. In addition, 41% of the Salmon River District is designated wilderness. Refer to Draft EIS pages 3-56 through 3-63 for a discussion of the effects on NSO habitat. The RR system and the 15% retention within the Matrix lands account for many more acres of land managed for mature forest characteristics.

The Action Alternatives were designed to retain large trees and other elements to provide structural components in all treated stands on Matrix and in RRs, providing for diversity and other resource needs as recommended by Franklin and others (1997, 2002b). Structural retention is one approach for maintaining large-diameter snags, logs, and old decadent trees as a part of managed stands, and mimics catastrophic disturbance regimes (Franklin and others 2002b). Also refer to Responses 8, 27, 76, and 77.

There is a very vocal and active group in the nation who would like to see all old growth left alone. Two past chiefs of the Forest Service have suggested that this would be a way to reduce social conflict around old-growth (Dombeck and Thomas 2003). Jack Ward Thomas was one of the developers of the NW ROD that established the *Forest Plan's* land allocation system. The developers of the NW ROD hoped that it would end social conflict as well, while achieving desired conditions in the forest. Unfortunately, people's definitions of old growth vary widely, there is no agreement on its definition, and the term has been applied to almost all forest conditions, including the types of forest management that the two past chiefs state everyone should support. The *Forest Plan* is the guiding document for management of the Klamath National Forest and was developed using intensive public involvement. As supported by a considerable number of scientists cited in these responses, the interdisciplinary team believes that site-specific prescriptions are best for determining how to achieve the desired conditions established for the Forest. A hands-off approach is not always the solution as shown by the catastrophic western pine beetle problem affecting southern California trees, where vast areas of tree mortality are creating immense fire danger (Blackwell 2003). It would be a real loss to science to not apply the NW ROD land allocation scenario adopted by the *Forest Plan* long enough to assess how well these state-of-the art scientific principles work. The adaptive management process described on page 4-11 provides a means for mid-course corrections as necessary.

Comment 8: The Lower South Fork and Upper South Fork are considered two separate 5th field watersheds and should to be assessed as such. The Lower South Fork has only 18% late-successional forest remaining, without including Knob. Is the 47.8% figure in the Draft EIS from averaging the two watersheds? What is the Forest's definition of late successional? The 55% capable figure has no science behind it.

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Response 8: Lower South Fork and Upper South Fork are not 5th field watersheds. Upper South Fork is a 6th field watershed. Lower South Fork is comprised of several 6th field watersheds. As stated on pages 3-4, 3-39, and 3-42 of the Draft EIS, the South Fork is the 5th field watershed. An interagency watershed group approved the watershed boundaries, which followed mapping criteria consistent throughout the nation.

The 47.8% figure is the percent for the entire South Fork 5th field; *Forest Plan* Standard and Guideline 6-4 is applied at the 5th field scale. Late successional is defined as the mature and old growth forest seral stages. To determine the acres that currently support late-successional vegetation, the GIS layer was queried for timber type size classes 4, 5, and 6; these types include saw timber above 25 inches diameter

breast height. One-fourth of the 3G type was also determined to fit this definition; size class 3 includes small saw timber between 11 and 25 inches diameter breast height, type G indicates crown closure greater than 70% and a good density rating (USDA Forest Service 1995b, page 3-32). Capable lands are those where at least 20 cubic feet of commercial wood products can be grown per acre per year. Sites that do not have the soil depth and fertility to grow this amount of wood fiber generally do not support a forested stand. These values have been used to measure the productivity of sites for decades.

Timber types and non-capable areas were mapped from aerial photos and field verified using Forest Inventory plots. The 55% is a simple calculation of the total acres mapped as capable divided by the total acres in the watershed.

Comment 9: The main problem in the area seems to be the abnormally high percentage of stands in early seral stage. Why convert more stands to early seral stages, which exacerbate fire danger and the spread of disease? The Draft EIS remarkably transforms overstocked stands and fuel buildups allegedly causing fire dangers into the desired conditions of well-stocked conifer plantations, ignoring evidence that trees of the same age packed closely together are a virtual timber box and are prone to disease, gophers, etc. Successful regeneration would increase fire risk.

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Response 9: The stands in the Meteor project are spread over different areas with varying amounts of late, middle, and early seral vegetation. Approximately 108 acres of the 744 harvest acres would be regenerated with Alternative 2 or 78 acres with Alternative 3, creating early seral vegetation. That amounts to less than 15% of the harvested area and much less than 1% of the affected watersheds. Most of these regeneration areas would be small openings of less than 5 acres in size nestled in mature stand types. The areas selected for regeneration harvest currently are in very poor condition, often with advanced mortality or disease problems. Harvest would remove high-risk trees before they increase the already serious fire liability in those stands. Stands and portions of stands that are harvested, site prepared to remove fuels, planted, and subsequently released would have a low fuels rating. Early seral conditions would be created in many parts of the project area where they are not currently abundant. Most of the plantations are now more than 15 years old and do not provide the young succulent browse that is available in the younger stands. This food source is important to early seral species such as deer, elk, and bear. Plantations and natural stands in the 10 to 40 year age class can be at great risk to stand-replacing fire if not properly managed. Overstocked stands choked with brush will have a high fire liability. The proposal to masticate 131 acres of plantations and one natural stand in Alternative 2 or 41 acres in Alternative 3 would improve the ability of the young stands to survive a fire, allow firefighters better access to the area for fire control, and accelerate tree growth. Improved growth and stand health would decrease the potential for disease problems in those stands.

Comment 10: The complex ecosystem of roots, trees and soil that create this rich area of unparalleled biodiversity is not understood.

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Response 10: The ecology and biodiversity of forest ecosystems is understood and well documented (Perry 1994, Waring and Schlesinger 1985, Franklin and others 1981, Kohm and Franklin 1997, FEMAT, USDA Forest Service and USDI Bureau of Land Management 1994a, Oliver 2000, Taylor and Skinner 1998, Toth 1988, and Swanson and Spies 2001).

Comment 11: Dwarf mistletoe is a necessary part of the ecosystem and late-successional forests and mortality. We suggest that areas with an uncharacteristic amount be treated with prescribed fire as it greatly reduces mistletoe. Dwarf mistletoe has many benefits that should be discussed in the EIS. It only becomes a problem when land managers attempt to make highly productive forest or tree farms grow timber according to computer-modeled production rates (Pollock and Suckling 1995). Logging practices contribute to the spread of dwarf mistletoe. Mistletoe seed production increases after entry due to improved nutrition of infected leave trees that do not now display symptoms. More open stands will promote regeneration and the new trees can become infected by mistletoe seeds dropped from infected leave trees. Moreover, increased mortality can occur in the remaining overstory trees; some heavily infected trees are not able to adjust to release from competition. (Knutson and Tinnin 1980). The Grouse

Creek WA discusses the buildup of dwarf mistletoe in stands that have been selectively harvested and have not had periodic ground fires. Mistletoe has a slow rate of growth and spread, especially in mixed conifer. There are endemic and rare mistletoes in the Klamath Mountains and species viability must be protected under the National Forest Management Act.

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Response 11: Although dwarf mistletoe is an important part of the ecosystem providing nest platforms and a food source, it has now become a problem to forest management due to fire exclusion over the past 60 to 80 years. With the forest's changed structure, age class, density, and composition, it is difficult to deal with the quantity of dwarf mistletoe by underburning alone. "If significant amounts of dwarf mistletoe are left high in the crown, you can end up with a worse situation than when you started. If underburning is accompanied by sanitation removal of trees where dwarf mistletoe levels are high and the DM is high in the crown, then the combined treatment can have long-lasting effects" (Pete Angwin, Plant Pathologist, personal communication with Dan Blessing on May 4, 2004). In some areas of the District, mistletoe infections have led to the mortality of all or nearly all of the trees including the reproduction. The resulting fuel build-up could cause a larger stand-replacing fire. It is true that logging practices that are poorly designed can lead to an exacerbation of the mistletoe problem, but the lack of management altogether can be much worse.

Underburning can reduce or remove the lower infections in trees with low limbs, but much of the upper canopy infection can be above the flame's reach. Treatments designed to encourage a mix of conifer species can buffer the stand against the spread of mistletoe. An integrated program that includes proper silvicultural methods including harvest, underburning, and species management can help to improve and sustain the forest ecosystem over time. Mistletoes are specific to the trees that they infect. The trees that are proposed for harvest (Douglas fir, ponderosa pine, incense cedar, sugar pine, and white fir) have common mistletoe parasites, which are not currently listed as rare and endangered.

The Commenter does not state what forest or ecological types the Grouse Creek WA is associated with or indicate if there is a cause /effect relationship. The relevance to the Meteor project area is unclear.

Comment 12: The statement "even-aged harvest, include more successful and faster growing regeneration" is obviously untrue if one looks at a thinned forest compared to a clearcut unit.

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Response 12: The commenter seems to misunderstand the statement. The statement does not compare the growth rates of young seedlings with that of a well-thinned stand of mid-mature trees. It compares the growth rates of regeneration under a mature canopy with regeneration in the more open environment created by regeneration harvest. Regeneration refers to the small seedlings growing in a stand. These seedlings can be planted trees or seed in naturally. Trees that are so young have a difficult time competing with an established stand of large conifers and often succumb to stress brought on by lack of available water in the summer months or low light levels. Seedlings growing under a dense canopy grow slower than those in an opening, if all other factors are similar. There are many studies showing the negative effects of overstory trees on seedling growth (McDonald 1976, McDonald and Reynolds 1999, Hobbs and others 1992). Clearcutting is not proposed in either of the Action Alternatives; refer to Responses 1 and 76 for discussions of the differences between clearcutting and the prescriptions proposed in the Action Alternatives.

Comment 13: In the Action Alternatives, trees over 250 years will be regenerated in the matrix despite limitations such as critical habitat, RRs, and unstable slopes.

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Response 13: It is true that trees over 250 years old would be harvested within the Matrix land allocation. Matrix lands do not include those lands classified as RRs. Most of the lands listed as critical habitat for the NSO are within the LSR system. There are some lands within the Matrix classification that are critical habitat. Special prescriptions were developed for the lands classified as RR (including unstable slopes) and critical habitat to protect and improve those lands; the prescriptions were developed by the silviculturist in conjunction with the appropriate specialists including wildlife biologist, fisheries biologist,

hydrologist, and geologist. These special prescriptions are stand specific and can be found in the stand record cards. The prescriptions focus on removing the smaller and younger trees in those areas in order to reduce the mortality and the future build-up of fuels. Some larger trees may be harvested where the trees are in poor condition and at high risk of dying in the near future and contributing to the fire liability in the stand.

Some stands in Matrix are proposed for regeneration to create a variety of age-classes throughout the Forest Matrix. This age class variety would fulfill the functions of various seral stages in the future as well as provide for sustained timber yields in the long term.

For more information on the effects of treating the areas listed in the comment, refer to the Draft EIS pages 3-26, 3-52 through 3-55, 3-56 through 3-58, and 3-61 through 3-62. The Hydrology, Geology, and Fisheries Reports contain supporting data for the discussions in this section. Also refer to Responses 51 and 78.

Comment 14: The need for highly controversial salvage logging practices is not addressed.

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Response: Salvage is a minor, but important, component of this project. The need to pursue salvage logging is addressed in Table 1 on page 1-3, and on pages 3-3, 3-5 through 3-7, 3-10, 3-13 through 3-17 of the Draft EIS. The salvage proposed would be consistent with the recommendations found in the Beschta Report (Beschta and others 1995); refer to page 3-17 of the Draft EIS and the Soil Report. The Beschta Report is the one most commonly cited by those who are opposed to fire salvage.

Comment 15: "(T)here is considerable evidence that the wheels of management activities is the major vector by which this disease [Port Orford cedar root rot] is spread."

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Response 15: Port Orford cedar is not found on the Salmon River except for a single tree on the Sawyers Bar compound that was planted many years ago in the yard of one of the houses. The timber sale contract will have a clause to ensure that vehicles and equipments that are brought into the area are properly cleaned before showing up on the District.

Comment 16: Reconstruction of the 37N02 spur road to Unit 139 involves a disproportionate amount of work, money, and environmental impact for the relatively small volume of timber produced.

69

Response 16: Road 37N02B rated a very high risk to the aquatic environment in the Roads Analysis. Twelve indicators are looked at for each road rating, including mass wasting, surface erosion, stream proximity, channel crossings, hydrological connectivity, and diversion potential. Because Road 37N02 is in poor condition and has the potential to add sediment to the hydrological system, reconstruction would constitute a restorative action. Because the road would be used in the timber sale, the sale would provide the means to reconstruct the road in a more self-sustaining condition, leading to a lower potential for environmental effects than currently exists.

Comment 17: "(W)ill there be any attempt to avoid genetically modified grain if strychnine is used to kill gophers? Why so little follow-up in trying to find carcasses which might lead to discovering how much secondary poisoning is involved...?"

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Response 17: The origin of the grain that is used to blend with the strychnine is not known and not a concern to the project design. Follow-up monitoring of gopher baiting occurs. Inspectors are also at the site during application to assure compliance with the terms of the contract. A monitoring plan will be followed and a report written by the wildlife biologist discussing the results. Baiting uses probes that deposit the grain into the underground tunnels without opening up the plugged exit holes. Past analysis, monitoring, and studies of gopher baiting show little risk of secondary poisoning of non-target species as discussed on page 2-13 of the Draft EIS (refer to Granite Gopher Baiting EA; Scott River Gopher Control EA; Gopher Baiting BA; Wildlife BA, page 23; Bulkin and others 1997; Nolte and Wagner 2001, Cuenca

2003). Refer to Response 76.

Comment 18: Will any trees too large for the masticator be logged in Jones Gulch or Methodist Creek?" Page 3-17 states, "Non-commercial trees and brush would be masticated in plantations and in one natural stand." This sounds like hardwood removal for a monoculture or close to monoculture plantations, rather than assisting in maintaining biological diversity in the area.

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Response 18: The stands slated for mastication are not proposed for commercial harvest. "Non-commercial trees" refers to trees that are too small to have a commercial value and are therefore masticated in place instead of being removed from the site. Some of the smaller hardwood trees would be masticated; however, 5 to 7 hardwoods per acre would be retained to provide for diversity at the site scale. Refer to Response 88 for effects on hardwoods in harvest stands.

Comment 19: Mastication is a relatively new and undocumented practice. It leaves all fuels on the ground, heavily impacts soils, destroys coarse woody debris, and harms rare plants and medicinal plants. It is a ground-based machine that is to be allowed on up to 45% slopes, while tractors are only allowed on up to 35%.

23, 29, 62, 66

Response 19: Page 3-29 of the Draft EIS and the soil report, referenced on page 3-28 of the Draft EIS, discusses the effects of masticating equipment on the soil resource. Recent soil monitoring of mastication on the Salmon River District in 2001 and 2003 showed that 30 to 60% of the soil within masticated areas was not disturbed and 36 to 57% was lightly disturbed. Heavy disturbance from the machine turning or on access travel routes ranged from 0 to 12%, averaging 7% of the masticated areas. Masticating machinery can impact coarse woody debris when the cutting head encounters a large log, but these logs are easily avoided. The more decomposed logs, such as decomposition class 4 and 5 logs, are the ones that can be disrupted by the machinery tracks, because these logs are not easily seen by the operator. The effect of disturbing these class 4 and 5 logs on soil productivity is insignificant. Masticating machinery is allowed on steeper slopes than tractor skidding or tractor-piling equipment because the equipment travels over masticated material and is not in contact with the soil; therefore, there is minimal impact to the soil surface. Monitoring showed that only 10 to 23% of the masticated areas had slopes greater than 35%. Post-mastication soil cover monitoring showed that cover ranged from 88 to 99%; therefore, soil erosion would be minimal to none.

Refer to Yreka Hazardous Fuels Reduction Project web page and its photo gallery web page for pictures of masticators:

<http://www.fs.fed.us/r5/klamath/projects/projects/yrekafuels/index.shtml>

<http://www.fs.fed.us/r5/klamath/publications/photos/yrekafuels/index.shtml>

Comment 20: Do not destroy this environment rich with medicinal lichens (e.g. *Usnia*), mushrooms, plants (Oregon grape, yarrow) and other important natural medicines that depend on a healthy and undisturbed forest. This area is used for spiritual well being and for medicine making. Members of the community will be affected by the cumulative impacts of this and other recent projects in the area. Many of the plants harvested for medicine and foods are ancient forest dependent. Further loss of their already limited habitat will have direct effects on the livelihood and ability of herbalists to provide medicine and healing to the community.

14, 15, 23, 50, 62, 66

Response 20: The Meteor project area would be widely scattered over the Salmon River watershed. There are numerous acres where the above listed plants (which are very common species) and fungi occur that would not be affected with either Action Alternative. The species of lichen *Usnea longissima* that is associated with older forests has not been found on the Forest. Many of the stands in the Meteor project are not ancient forests at all, but younger stands needing thinning. The prescribed burning in scattered units would undoubtedly be a benefit for mushroom collectors as the genus *Morchella*, a highly sought after edible group of mushrooms, increases in burned areas. People interested in collecting plants

on National Forest System land, medicinal or otherwise, can inquire as to possible locations where those species can be found, and apply for a permit. Medicinal plants occur on vast acreages of the Forest.

Comment 21: The proposal to log on unstable slopes will affect critical habitat needed by threatened, endangered, and sensitive plant species.

15

Response 21: The Biological Assessment/Biological Evaluation for TES Species completed on May 23, 2003, and updated on September 9, 2003, evaluates habitat. Surveys were conducted in potential habitat, and no TES plant species were found in the proposed project area. Neither Action Alternative would affect TES plant species or their habitat as discussed on page 3-9 of the Draft EIS.

Comment 22: The Draft EIS fails to acknowledge or survey for all the Survey and Manage (S&M) Species. It does not mention fungi, plant, or lichen species. The Draft EIS offers no information on *Ptilidium californicum* except that there is habitat that may be affected in the Blue Ridge Mountain area.

29, 36

Response 22: Botanical species of concern include vascular plants, fungi, bryophytes, and lichens. All botanical species formerly considered Survey and Manage were analyzed as documented in the Botanical Pre-field Review Analysis Flowchart, attached as Appendix A-2 of the Biological Assessment/Evaluation, which is incorporated by reference on page 3-5 of the Draft EIS. As explained on page 3-4 of the Draft EIS, surveys were conducted for botanical species of concern that had suitable habitat within the proposed project area. The survey for *Ptilidium californicum* was conducted on June 9 and 11, 2003. No botanical target species were found as explained on pages 3-4 and 3-9 of the Draft EIS.

Since the Draft EIS was circulated to the public, the Record of Decision To Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines was approved on March 22, 2004, and the decision became effective on April 21, 2004. This *Forest Plan* amendment removes the S&M Mitigation Measure Standards and Guidelines. The Final Supplemental Environmental Impact Statement to Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines identified 13 S&M botanical species that met the criteria for inclusion on the Region 5 Sensitive Species List (USDA Forest Service and USDI Bureau of Land Management 2004a, Table 2-5). The Regional Forester issued a letter on April 26, 2004, and an amendment on May 12, 2004, designating 13 plant and fungi species as Region 5 Sensitive. A supplemental Biological Evaluation of the effects of the Meteor project on the 13 botanical species added to the Region 5 Sensitive Species List was completed on May 29, 2004. The Vegetation Section of the Final EIS has been updated to include this information.

Comment 23: The Draft EIS fails to adequately examine the potential impact from spreading additional noxious weeds in the area (for example, star thistle and spotted knapweed) as a result of logging and ground disturbance. Local residents have also identified several populations of yellow star thistle and Marlahan Mustard (Dyer's Woad) on the haul road, near the units, or on the proposed landing. Equipment cleaning only helps prevent the transporting of noxious weeds in or out of the Salmon River basin. It fails to address the potential spread of these species within the project area and basin by equipment and people in the units, on landings, haul roads, and at equipment storage areas, and at any possible camping sites for the loggers. In addition, the ground disturbance associated with the proposed actions significantly increases the risk potential for spreading noxious weeds.

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Response 23: Page 3-10 of the Draft EIS states, "With the implementation of the Resource Protection Measures, identified in Chapter 2, either Alternative 2 or 3 would have a low risk of spreading and/or introducing noxious weeds." The supporting analysis is included in the Noxious Weed Risk Assessment, which is incorporated by reference on page 3-5 of the Draft EIS.

In the Noxious Weed Risk Assessment, the potential impact of weed spread is addressed on pages 6 and 7. The Meteor Project does not propose to initiate control of Yellow Star thistle, and there are many other non-project related vectors, as described in the Weed Assessment. If local residents have information in

addition to what was presented in the Weed Assessment, they may call Marla Knight at (530) 468-1238 to add that information to the weed layer, and mitigations can be proposed. All landings would be bladed clean before activities can begin, to prevent the transport of weed seeds from landings. The Weed Risk Assessment addresses equipment moving from within infested areas of the project to un-infested areas of the project on page 7. The Equipment Cleaning clause identified on page 2-12 of the Draft EIS, **does** include within project cleaning. Some risk of weed spread due to project vectors of increased traffic in the area is acceptable. This risk would be no more than what already exists in increased traffic, camping, and river recreation by the public during the summer months. Such traffic is usually confined to main roads, which are monitored annually.

Comment 24: The project is located in an area with high knapweed occurrence and could greatly impact species diversity and introduce knapweed to upslope areas. This will affect a community that has put seven years into eradication and will force chemical spray in a community with many chemically sensitive members.

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Response 24: The community, the Salmon River Restoration Council, and the Forest Service have worked cooperatively for seven years on the eradication of knapweed in the watershed as mentioned on page 3-77 of the Draft EIS. Progress towards that goal has been significant, and illustrated in reports available to the public by both the Salmon River Restoration Council and the Forest Service. The knapweed location near one unit on the South Fork is very small and has not produced seed in at least two years. This location and all others are monitored numerous times during the year. There is no likelihood that seeds from this location could spread unchecked. Mitigation for the blading of the road is outlined on page 2-12 of the Draft EIS. Upslope areas are also monitored every year.

The application of chemicals is not currently needed in the knapweed control program and would not be used without extensive analysis, as has been done in the Salmon River Knapweed Project Environmental Assessment of June, 2000.

Fire and Fuels

Comment 25: The proposed actions will open up the canopy which will make the understory more open and exposed, with increased sunlight, temperatures, and wind, decreased air humidities and fuel moisture levels, decreased conifer regeneration, and increased shrub and herb growth, leading to increased fire risk in the stands. "For example, Agee (1996) concluded that reducing groundfuels is the most effective treatment to prevent crown fires, while thinning tree canopies results in hotter, drier, windier conditions on the ground surface." [Commenter's footnote for this sentence: Agee, J.K. 1997. Severe fire weather: Too hot to handle? Northwest Science 71:153-156]. "This conclusion is supported by a joint U.S. Department of Commerce and U.S. Department of Agriculture document entitled 'Fire Weather' which describes the closed canopy forest as providing a variety of benefits that decrease the risk of forest fires, states that all features of the environment that affect heating and cooling are significant in affecting fire behavior, and concludes that logging and logging roads change the fire prevention characteristics of the closed canopy forest and increase the chance of wildland fire."

28, 67

Response 25: A recent study comparing forest timber types from 1986 satellite imagery to fire severity mapping after the 1987 wildfires in the Klamath Mountains found that open forests and plantations in the Douglas-fir type had a higher percentage of high intensity fire than closed forests (Odion and others 2004). The Odion publication provided no information on the vegetation types defined as open or on past management; however, because commercial thinning was seldom used prior to 1987, the stands were either naturally open or likely had some kind of partial cutting unaccompanied by fuel treatment. The Odion findings are consistent with Forest Service findings after wildland fires in the 1980s and 1990s, which led the Forest to a change in management practices. The Forest adapted their management practices, based on the field experience of Forest Service fuel managers, silviculturists, and other employees during fire suppression, post-fire stand mapping, and fire recovery efforts. Fuel treatment is now a standard practice as is site preparation. Following the Hog Fire, trees were planted through the slash in some areas. Prior to 1987, precommercial thinning of plantations was not accompanied by fuel

reduction. The regenerated stands created in either of the Action Alternative are not expected to respond like the plantations in the Odion study; although the general principle that they would burn with a higher percentage of high intensity fire than closed stands is expected to hold true. Refer to Response 28 for additional discussion of plantations. This higher risk is a reasonable trade-off for achieving other management goals such as timber yields, increased age-class diversity, and early seral habitat to provide for diversity.

Another consideration is that mixed conifer forests have undergone the greatest change since fire exclusion (Agee 1996), so the findings of Odion and others (2004) on the Douglas-fir type with a undercanopy of tanoak and hardwoods types would be limited to the stands with similar forest types in the project area. The Odion publication cautions "this model of fuel dynamics needs to be tested before it is exported to other forests." The percentage of area that burns at high intensity is also related to fire size, as well as to the factors of previous wildfire and roaded areas studied by Odion and others (2004). Skinner's data on fire frequency in the Klamath Mountains indicated that fast fires that burn in a few days are mostly high severity, while fires that burn for a month are usually 60 to 70% low severity with little moderate and high severity (Carl Skinner personal communication at Powerpoint Presentation to Happy Camp Ranger District, Happy Camp and Seiad Fire Safe Councils on February 12, 2003). Skinner's information on large fires is consistent with the findings of Odion and others, who found that 58.5% of the entire landscape burned at low intensity for the portion of the 1987 wildfires within their study area.

The studies cited in the EIS that show thinning combined with fuel treatment can reduce the risk of stand-replacing fire were relied upon in the EIS analysis as more applicable than studies that look at fire effects based on old forest practices that do not include fuel treatment. A large number of publications related to this topic show that minor opening of canopies due to thinning when accompanied by fuel treatments reduces fire risk in stands; refer to page 3-14 of the Draft EIS. The commenters focus on the effects of opening canopies and ignore the effects of the follow-up fuel treatment that would occur with either Action Alternative. As explained on page 3-16 of the Draft EIS, all harvest units would receive fuel treatment including underburning, handpiling, and jackpot burning. Other stands would be masticated to reduce ground fuels. These fuel treatments would treat the fine ground fuels as suggested by the commenter. This is the basis for the conclusion on page 3-16 that "Fuel loading after treatment would be at or lower than what currently existed prior to treatment (less than a Fuel Model 10 in individual stands)."

There is no evidence of the conclusion the commenter alleges to Agee in either the 1996 or 1997 or later publications. On the contrary, for mixed conifer forests Agee states, "To reduce fire damage from wildfires, future thinning operations must concentrate on small trees with operations called low thinning, removing the trees that have invaded these sites since fire exclusion began, and cleaning up the debris... By leaving the largest trees and treating fuels, fire tolerant forest conditions are created, so that fire severity can be significantly reduced (Agee 1997, page 155)." This same idea is expressed in Agee's 1996 publication, "A low severity fire regime is one where the effect of the typical historical fire is benign. Fires are frequent (often <20 years), of low intensity, and the ecosystems have dominant vegetation well-adapted to survive fire...The low severity fire regimes (such as mixed conifer) have undergone the most change since fire exclusion policies were enacted, and have high levels of both risk (chance of a fire starting) and hazard (fuels and their condition, such as low fuel moisture). In the low severity fire regimes, strategies that address both surface and crown fire potential are more likely to be adopted... Low thinning, pruning, and surface fuel treatment with pile or broadcast burning might be among the fuel reduction techniques applied. Intensive management includes the techniques above plus management of crown bulk density <0.10 kg m³, so that even under severe fire weather the fire is likely to remain a surface fire (Agee 1996, pages 52 and 66). Agee does not conclude that crown fires can be prevented by reducing ground fuels as the commenter states, but rather "The development and maintenance of a forest relatively free of crown fire potential is primarily dependent on management of the structure of crown fuels" (Agee 1996, page 55). Further, "Rather than attempt a 'one-size-fits-all' approach, there may be instead a combination of approaches that can be applied to each situation depending upon the forest type and competing objectives" (Agee 1996, page 66).

In Agee's more recent work he reinforces the idea of a combination of approaches: "Not every forest is at risk of uncharacteristically severe wildfire, but drier forests are in need of active management to mitigate fire hazard. Factors increasing fire resilience include reduction of surface fuels, increasing the height to

live crown, decreasing crown density, and retaining large trees of fire-resistant species. Thinning and prescribed fire can be useful tools to achieve these objectives. Low thinning will be more effective than crown or selection thinning, and management of surface fuels will increase the likelihood that the stand will survive a wildfire (Agee and Skinner 2003). The project area supports drier forest types with a fire ecology as explained on page 3-12 of the Draft EIS. "Low thinning" is the same as the thinning prescription described on page 3-7 of the Draft EIS. Thinning in conjunction with fuel treatment will reduce surface fuels, increase the height to live crown, decrease crown density, and retain the larger trees that are generally the more fire resistant. The regeneration and regeneration/thinning prescriptions in conjunction with fuel treatment will also reduce surface fuels, increase the distance to live crown, reduce crown densities, and retain the larger fire resistant trees for the trees remaining in the stand. "Slash burning and other activities are often used to reduce or redistribute fuels" (Franklin and others 1997). Refer to Responses 26 and 27.

Recent research that reviewed the work of many fire ecologists found "Crown fires are dependent on the sequence of available fuels starting from the ground surface to the canopy. Limiting crown fires in these forests can be accomplished by actions that manage in concert the surface, ladder, and crown fuels. Reducing crown fire and wildland fire growth across landscapes decreases the chances of developing large wildfires that affect human values adjacent to forested areas. However, a narrow focus on minimizing crown fire potential will not necessarily reduce the damage to homes and ecosystems when fires do occur... Fire effects on ecosystems can also occur during surface fires where surface and understory fuels and deep organic layers are sufficient to generate high temperatures for long periods." (Graham and others 2004). Harvesting and follow-up fuel treatment in the Action Alternatives were designed to manage surface, ladder, and crown fuels. The "Fire Weather" statement only relates to crown fuels. The "Fire Weather" document was published in 1970, when the logging practices were primarily clearcuts; logging practices are much different today as explained in Response 76.

Meteor is not a National Fire Plan project. Reducing the risk of catastrophic/high intensity fire in the treated stands is only one of several purposes for the proposal as explained on page 1-1 through 1-2 of the Draft EIS. Either Action Alternative would be consistent with the National Fire Plan. "Managing the Impact of Wildfires on Communities and the Environment - A Report to the President In Response to the Wildfires of 2000" from the National Fire Plan includes information from the Congressional Research Service (CRS): "The CRS stated: '[T]imber harvesting removes the relatively large diameter wood that can be converted into wood products, but leaves behind the small material, especially twigs and needles. The concentration of these fine fuels on the forest floor increases the rate of spread of wildfires. Similarly, the National Research Council found that logging and clearcutting can cause rapid regeneration of shrubs and trees that can create highly flammable fuel conditions within a few years of cutting. Without adequate treatment of small woody material, logging may exacerbate fire risk rather than lower it.'" As mentioned above, the Action Alternatives are designed to adequately treat ground fuels.

"Managing the Impact of Wildfires on Communities and the Environment – A Report to the President in Response to the Wildfires of 2000" also cites a report published in *Proceedings from the Joint Fire Science Conference and Workshop, 1991* where "researchers studied four large in Montana, Washington, California, and Arizona to determine if previous fuel treatment and thinning activities had any impact on fire severity... The findings indicated that fuel treatments mitigate fire severity. 'Although topography and weather may play a more important role in fuels governing fire behavior, topography and weather cannot be realistically manipulated to reduce fire severity. Fuels are the leg of the fire environment triangle that land managers can change to achieve desired post-fire conditions.'" Refer to the Joint Fire Science Program website for current and future research on fuel reduction:

<http://jfsp.nifc.gov/>

Comment 26: Several of the stands are currently in good condition in regards to potential risk to catastrophic fire as demonstrated by their continued persistence after several large fires burned within them and adjacent stands. The Draft EIS (page 3-14) states "Stands that remain after large fires are not an indication that the stand is resistant to catastrophic wildfire or that it would survive another fire event," but fails to provide adequate data, scientific evidence or analyses to support this assertion.

Response 26: Many different variables come into play that can and do contribute to a stand surviving a wildfire. Some of these variables are the time of fire season (early, mid, or late), fuel loading within and adjacent to the stand, time of day the fire passes through the stand, relative humidity, aspect, wind speed and direction, inversions and suppression actions. “Other factors influencing survival include site conditions, available growing season moisture, and incidence of insect attacks” (Dietrich 1979). When entomologist John Pierce visited the Hog Fire four years later, he found “detrimental effects of fire injury are still developing on Douglas-fir in the area of the Hog Fire of 1977. Many scorched trees are now chlorotic, and some are infested and killed by the flatheaded fire borer, *Melanophila drummondi*. Long-term survival of scorched trees is uncertain” (Pierce 1981).

Because a stand survived a major fire is not an indicator that the stand is in the condition to survive another fire event. In many instances damage to vegetation in and around these stands may have created a heavier fuel loading than existed prior to the wildfire. These heavier fuel loadings in combination with the variables listed above may leave these stands susceptible to greater damage or loss in the next fire event.

Refer to Response 25. Reducing fire risk is only one of several purposes for the Meteor Project. The interdisciplinary team worked hard to develop alternatives that would achieve the multiple purposes of the project, while meeting all environmental laws and minimizing the effects on all resources. Multiple specialists with extensive experience in managing these types of forested landscapes visited all stands on the ground. Prescriptions were developed and refined based on the specific conditions of each site, including vegetative and fuel condition.

Fire researchers have found that fire management must consider the conditions of the local area. “Appealing as the idea may be, there is no ‘one size fits all’ solution. Given that fire behavior and resulting severity result from the combination of weather, available fuels, and physical setting, the design of site-specific solutions will be highly variable. Although there continues to be a need for further work to understand fire behavior, a long-standing and large body of knowledge about the role of forest structure and fuels on fire behavior and severity provides a sound foundation for managers to develop prescriptions for hazard reduction and restoration of dry conifer forest at the stand level (for example, within individual treatment units). Fuel management intended to mitigate the effects and behavior of large fires, however, requires a landscape level perspective, encompassing many forest types, stands, treatment units, prescriptions, and their spatial arrangement” (Graham and others 2004).

In a letter to President Bush and Members of Congress dated September 17, 2002, a number of fire researchers and ecologists who expressed the opinion that “removal of more mature trees can increase fire intensity and severity, either immediately post-logging or after some years” also agree that “fire threats in western forests arise from many causes, and solutions will require a suite of treatments adjusted on a site-by-site basis” (Franklin and others 2002a).

The National Fire Plan Report, “Protecting People and Sustaining Resources in Fire-Adapted Ecosystems – A Cohesive Strategy,” which was published in the Federal Register on November 9, 2000, discusses a rationale similar to that proposed by the Action Alternatives. Page 67484 of the Cohesive Strategy states, “Fuel reduction treatment techniques will range from maintenance prescribed burning, where fire is used to maintain forest conditions in lower-risk acres, to restoration treatments in higher-risk areas where mechanical thinning is followed by prescribed burning.” Some stands that currently meet the desired Fuel Model would not meet it in the future as fuels continue to build over time, as discussed on page 3-16 of the Draft EIS.

Comment 27: The Draft EIS fails to address the significant body of scientific literature that concludes logging late-successional and old-growth forest is actually more likely to increase fire risk and degrade forest health, including the National Fire Plan’s “Managing the Impact of Wildfires on Communities and the Environment – A Report to the President in Response to the Wildfires of 2000” and the “Forest Service Cohesive Strategy.”

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Response 27: The only two reports cited by the commenter were developed for the National Fire Plan, which is designed to develop a cohesive strategy for fire management. These reports clearly state that

they are not intended to change direction in the *Forest Plan*, which permits removal of large trees when it leads to achievement of desired conditions. The Action Alternatives in Meteor are consistent with the scientific information presented in these reports and the overall philosophy for fuel management, even though Meteor is not a National Fire Plan project and has multiple objectives of which reducing the fuel risk in the treated stands is one.

“Managing the Impact of Wildfires on Communities and the Environment – A Report to the President in Response to the Wildfires of 2000” states “The removal of large, merchantable trees from forests does not reduce fire risk and may, in fact, increase such risk. Fire ecologists note that large trees are ‘insurance for the future – they are critical to ecosystem resilience.’ Targeting smaller trees and leaving both large trees and snags standing addresses the core of the fuels problem.” As stated on page 3-17 of the Draft EIS, the Action Alternatives use a combination of harvest and fuel treatment to reduce ground and ladder fuels. The Draft EIS does not claim that logging alone would reduce fire risk as the commenter seems to infer. Refer also to Response 25.

The commenter’s point was not addressed in the Draft EIS because large trees are not being “targeted” for removal, although some large trees are proposed for removal. The Action Alternatives are designed to leave both large trees and snags in all treated stands to provide structural components. Most of the prescriptions proposed in the Action Alternatives would leave the larger trees in the stand as discussed on pages 3-6 through 3-7 of the Draft EIS. Thinning prescriptions are proposed for 42% of the area in Alternative 2 and 48% in Alternative 3; thinning would leave the larger, more vigorous, more fire resilient dominant and codominant crown classes. The Group Selection prescription on 42% of the area in Alternative 2 and on 40% in Alternative 3 would remove small groups of trees of all sizes on about 20% of the stand with 80% being thinned to remove the smaller and less vigorous trees. The Salvage Prescription on 7% of the area in Alternative 2 and on 8% in Alternative 3 would remove dead trees, which are a fire hazard. The Seed Tree prescription on 6% of the area in Alternative 2 would leave the largest, most vigorous trees scattered through the stand, as they are the best seed producers and would likely be the most fire resistant. The Green Tree Retention prescription on 5% of the area in Alternative 2 and on 4% in Alternative 3 would leave islands of mature trees with the best chance of surviving and providing late-successional structural features. Fuel ladders around these islands would be removed.

Page 67484 of the Cohesive Strategy states, “Under this strategy, ecologically sensitive areas and late successional forest, will be avoided.” The direction in the Cohesive Strategy applies to “fire management and forest health.” The Cohesive Strategy was not intended to amend the *Forest Plan* or change its direction, nor was it intended to replace the direction for all other Forest Service programs, such as the timber program. Page 67502 states, “Implementation will occur consistent with Land and Resource Management Plan direction and other ongoing initiatives.” The *Forest Plan* permits logging of trees of any size on Matrix land, if it leads to the achievement of the desired conditions identified for that management area. The *Forest Plan* permits stocking control in RRs to achieve desired conditions and ACSOs. The Cohesive Strategy further states, “The strategy **complements** other work...” and “action needs to be expanded over broader areas and coordinated among Forest Service research, state and private forestry, and **National Forest System programs**” (emphasis added). Page 67502 states, “The strategy ...relies on a variety of treatments – including thinning, some harvest, other mechanical treatments and prescribed burning – to reduce fuels and the consequent risks of loss or long-lasting damage resulting from wildland fire.”

Franklin and others (2000) state, “The variety of forest types, environmental conditions and approaches to logging precludes a simple yes-or-no answer to the question of whether or not logging older stands reduces fire hazard.”

Refer to Responses 25 and 26 for additional discussion of the body of literature on fuel management.

Comment 28: A majority of proposed units are adjacent to plantations or historic burns that have been logged and replanted. US Forest Service research suggests that **managed stands are more prone to high-severity fires**, and a critical threshold may be reached where fire regimes are influenced at a larger landscape scale. “Changes in fire regimes and vegetation are likely to be more dramatic in areas where suppression actions and logging have been concentrated, while effects may be minimal or even absent in other parts of the same landscape” (Baker 1993). On the Forest, plantations affected by the 1987 fires

(many within this project area) “were uniformly destroyed with few exceptions ... the vast majority suffered complete mortality” (USDA Forest Service 1994). Detailed analysis of the Dillon Fire by Key (2000) found that clearcuts and plantations burned with higher intensity than unmanaged stands and intense fire behavior in plantations in turn led to increased fire intensity in neighboring unmanaged forests. Once older forest are embedded within a matrix of flammable even-aged stands, “the potential exists for a self reinforcing cycle of catastrophic fires” (Perry 1995). Fire research conducted locally by the U.S. Forest Service does not support the preferred alternative or demonstrate that it would meet the purpose and need. The extreme variability of the Klamath region makes it unique; it is relatively difficult to predict the fire regime of a particular patch of forest, as it may be equally or more influenced by the spread of fire from adjacent vegetation (e.g. Taylor and Skinner 1998). The North Fork WA indicates that areas harvested in the past currently have increased fuel loading due to lack of slash treatment (North Fork WA, page 6-5). The Headwaters Forest Reserve Proposed Resource Management Plan and Final EIS/EIR, Volume I, page 3-25, Spread of Fire section identifies the risk of fire spread from pole and shrub-sapling seral stage stands into unharvested old-growth stands as a major concern. It further states that the relative topographical position of various seral stages and the fuel condition of seral stage are the two key elements of fire spread.

28, 29, 67

Response 28: A study by Weatherspoon and Skinner (1995) of mortality from the 1987 wildfires in Northern California found highly significant relationships between fire mortality in plantations with fire behavior in the adjacent stands and with site preparation. Stands that had the fuel beds reduced before planting were more likely to survive a fire than stands where the fuel was left untreated. Treating the stands to improve the fuel condition in the Action Alternatives will not only protect the treated stand, but will influence the survivability of adjacent stands. This was shown to be true in the 1987 fires on the Salmon River District. Some stands were treated by broadcast burning after harvest, while others had no fuel treatment prior to planting. The stands with adequate fuel treatment were more likely to survive than stands without treatment. In an adaptive management approach, the Forest Service now emphasizes site preparation in newly created plantations to reduce fuels and create plantable spaces, based on what was learned by monitoring past wildfires. Refer to Response 25.

Pages 3-6 through 3-9 of the Draft EIS explain how silvicultural and fuels treatments would produce stands that are healthier, with less mortality, and more resilient to disturbance. The Reforestation Section on page 3-8 explains that site preparation would occur on all acres to be reforested. Pages 3-9 and 3-17 explain how thinning and masticating brush, hardwoods, and suppressed conifers in younger stands outside harvest units on 131 acres in Alternative 2 or 41 acres in Alternative 3 would abate the fuels buildup or fire hazard. Implementing either of the Action Alternatives would meet the *Forest Plan* desired conditions as well as meeting the purpose and need of the EIS.

Many studies support the effectiveness of silvicultural activities combined with fuel treatment in modifying fuel behavior as discussed on page 3-14 of the Draft EIS. “The Effects of Thinning and Similar Stand Treatments on Fire Behavior in Western Forests” (Graham and others 1999), a compilation of many studies, concludes that the best success in modifying fire behavior through the use of thinning is when applied in conjunction with prescribed fire. “The Effect of Fuels Treatment on Wildfire Severity” (Omi and others 2002) also found “that treated stands experience lower fire severity than untreated stands that burn under similar weather and topographic conditions.” Recent fires as discussed on page 3-14 of the Draft EIS also document the reductions in fire intensity and spread when confronted with areas that had been treated previously.

Comment 29: The Draft EIS relies on coarse-scale fuel models (e.g. BEHAVE and GTR INT-122) that only address gross amounts of fuel loads and do not reflect or account for the numerous interrelated factors influencing fire behaviors and potential severity in forest stands.

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Response 29: The *BEHAVE PLUS* Users’ Guide (Andrews and Bevins 2001) provides an understanding of how the model uses fuels, weather, and topography to predict fire behavior. This model does use site-specific input data to predict fire behavior for a point and time in space.

Fuels on site were categorized into fuel models to be able to predict fire behavior. A description of each fuel model is provided in General Technical Report INT-122 (Anderson 1982). This report provides an understanding of the fuels profiles before and after treatment. Fuels models include such factors as climate, season, and local weather.

The Draft EIS emphasizes fuels because it is the leg of the fire environment triangle that land managers can influence; refer to Response 25.

Comment 30: The Draft EIS lacks information on long-term fuels conditions within the project area in terms of fire and fuels. There is no site-specific information on current fuels conditions, the size of woody material to be removed in the timber sale, or the resulting fuels conditions in terms of size classes, continuity, and distribution.

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Response 30: Long-term fuels conditions are trends that are addressed at the landscape level. Standard and Guideline 22-16 of the *Forest Plan* on page 4-55 states that landscape level analysis should address fuels accumulations over time. The Draft EIS on pages 3-16 through 3-17 explains how silvicultural and fuels treatments would produce stands that are healthier, with less mortality, and more resilient to disturbance. Fuel loading after treatment would be at or lower than what currently existed prior to treatment (less than a Fuel Model 10 in individual stands).

Table 8 on page 3-16 of the Draft EIS summarizes information on current and post-treatment fuels conditions. No units in either Action Alternative are proposed for stand treatment without fuels treatment. The size of the material to be removed would vary from site to site. The specific size of the material that would be removed is not relevant to an assessment of fuel conditions post-treatment; it is what remains that would constitute future risk. Refer to Response 29. Material needed to meet other resource objectives such as large logs and snags would remain on-site as needed. The information provided is adequate to make a reasoned decision about environmental effects. The implementing regulations for NEPA state that an EIS “shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The descriptions shall be no longer than is necessary to understand the effects of the alternatives” (40 CFR 1502.15).

Comment 31: The logging units target the largest, most fire-resistant trees on the Salmon River and in many cases would leave only fine fuels behind. The Forest Service should be focusing on protecting communities from fire – not creating a more fire-prone landscape by removing all of the large trees in a remote area.

1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, 19, 20, 21, 24, 28, 29, 34, 35, 36, 37, 38, 39, 40, 42, 43, 44, 45, 49, 52, 55, 56, 57, 58, 59, 60, 61, 63, 65, 67, 68, 69, 70

Response 31: Refer to Response 27.

Page 67483 of the Cohesive Strategy associated with the National Fire Plan states, “The purpose of this report is to establish priorities for treatment,” but “The strategy does not require that every high, medium or low risk acre be treated, nor does it eliminate all risks...” The Action Alternatives are consistent with this philosophy of the National Fire Plan; some short-term increased fire risk would be incurred to achieve a long-term reduced fire risk as described on page 3-17 of the Draft EIS. This can also be applied to larger trees; removing some large trees in some prescription types would maintain the growth rate and increase the vigor of the remaining stand, creating a greater likelihood of it persisting in the future.

In their publication, “Forging a Science-Based National Forest Fire Policy”, Jerry Franklin and James Agee state, “The wildland/development interface is emphasized in current policy initiatives. However, fuel treatments of forests outside this interface are necessary to prevent significant losses of forest attributes that are important to society, such as wildlife habitat and watersheds. Large areas ... are likely to experience uncharacteristic stand-replacing fires without active fuel treatments...” They use the Sierra Nevada as an example, clearly indicating that this applies to other areas as well. The Forest Fuels Program is focusing on protecting communities per the direction in the National Fire Plan. The District is working with the local fire safe council to develop a fuel reduction strategy for the Sawyer's Bar area. A project is currently being planned. The Forest Timber Program provides opportunities to treat areas

outside the wildland/urban interface, without deflecting any of the funding of the Fuel Program. The Action Alternatives are designed to achieve both vegetation management and fuel objectives.

Fuels treatments proposed for either of the Action Alternatives would target reducing fine fuels. Fine fuels are small diameter (less than ¼ inch) fuels such as grass, leaves, draped pine needles, and twigs. Under the right conditions, fine fuels ignite readily and are rapidly consumed. This can have an impact on fire behavior affecting ignition, spread, and intensity. Reducing the fine fuels would reduce rates of spread and fire intensity, thereby reducing the likelihood of uncharacteristic stand-replacing fires.

Comment 32: Consider having local organizations and the regional inhabitants contribute to fuels reduction with environmentally sound methods. Cutting and burning dead trees and brush and creating fire lines that don't disturb old growth are a better alternative.

14

Response 32: Refer to Response 105 for community involvement. "Managing the Impact of Wildfires on Communities and the Environment – A Report to the President in Response to the Wildfires of 2000" recognizes that working with local communities is a critical element in restoring damaged landscapes and fuel treatment projects. The report states "Expanding the participation of local communities in efforts to reduce fire hazards and the use of local labor for fuels treatment and restoration work". A current Forest priority is to improve the health, diversity, and vitality of our forest ecosystems. In these times of tight Federal budgets, every tool available is needed to do the job effectively and efficiently. Refer to Response 33.

Comment 33: There are many areas of dead trees standing, yet you continue to log small green trees which should be growing for the future, while you increase the risk of fire danger.

18

Response 33: "Managing the Impact of Wildfires on Communities and the Environment – A Report to the President in Response to the Wildfires of 2000" states "Implicit in the Administration's efforts to reduce wildland risk through the elimination of brush, small diameter trees, and other fuels and the reintroduction of fire to the forest and rangeland ecosystems is the understanding that reversing the effects of a century of aggressive fire suppression will be an evolutionary process, not one that can be completed in a few short years". The report further states "Reduction of fuels can be achieved in a variety of ways – by mechanical, chemical, biological and manual methods. The prudent use of fire, either alone or in combination with other means, can be one of the most effective means of reducing such hazardous fuels". As stated on page 3-17 of the Draft EIS, the Action Alternatives use a combination of harvest and fuel treatment to reduce ground and ladder fuels. The Action Alternatives include the removal of some dead trees. The Salvage Prescription on 7% of the area in Alternative 2 and on 8% in Alternative 3 would remove dead trees, which are a fire hazard.

Comment 34: Prescribed burns are dangerous and wasteful. In a world of severe pollutions do we need more?

18

Response 34: This comment is not supported by scientific evidence. For a number of scientific studies that have upheld the value of prescribed fire and other fuel treatments, refer to page 3-14 of the Draft EIS, and Responses 25, 27, 28, and 31.

Forest Service Manual 5100, Fire Management, Chapter 5140, Fire Use, establishes direction on using fire to accomplish land and resource management objectives. The Federal Wildland Fire Management Policy adopted December 18, 1995, by the Secretaries of Agriculture and the Interior directs agency heads and other officials to implement the principles, policies, and recommendations in the Final Report of the Federal Wildland Fire Management Policy and Program Review (FSM 4101.4). Additional direction is in the Wildland and Prescribed Fire Management Policy Implementation Procedures Reference Guide (FSM 5140.32, 5108). The objectives of the above mentioned policies "are to use fire from either management ignitions or natural ignitions in a safe, carefully planned, and cost effective manner to benefit, protect, maintain, and enhance National Forest System resources; to reduce future fire

suppression costs; and, to the extent possible, to restore natural ecological processes and achieve management objectives adopted in approved forest land and resource management plans (forest plans) (FSM 1920).”

Although the comment is unclear, it is assumed that the reference is to air pollution. Air quality considerations are an integral part of the fire use program. Fire use projects are applied by appropriate air quality specialists consistent with Federal, State, and county regulatory authorities. Computer modeling techniques described in the Implementation Guide (FSM 5140.32) are used to estimate potential downwind impacts. Smoke management contingency plans are developed to mitigate negative or unacceptable impacts of smoke on air quality in such areas as Class I air sheds, identified smoke sensitive areas, hospitals, main travel routes, and airports. Refer to Response 38 for more information on Smoke Management Plans and air quality monitoring.

Comment 35: Past logging has left terrible slash piles all summer, deadly fire hazards. All that wood could have been used for firewood, and the rest turned to compost by shredding. I would have loved to have some of the oak that was there.

18

Response 35: Slash piles created from harvesting operations are under Forest Service Timber Sale Contract(s) until required work has been completed as determined by the Sale Administrator and/or the Forest Service Representative. When the required work is completed, the slash will be disposed of by methods disclosed in the NEPA document for that project. The line officer has the authority to offer the slash piles for sale or open them for public firewood cutting areas. Areas that will provide firewood will not be disposed of before there has been adequate time for the removal of firewood. The District recently opened up an area of log decks for firewood cutting.

Comment 36: A 3 to 5 year increase in fuel hazard is the initial stage of our next catastrophic wildfire.

50

Response 36: It is suggested that the short-term increase in activity fuels prior to fuel treatment will cause catastrophic wildfires. Recent large wildfires on the Salmon River District include Specimen 1994 (7000 acres), Yellow 1987 (47,500 acres), Glasgow 1987 (13,000 acres), Hotelling 1987 (16,000 acres), Hog 1977 (46,500 acres), and Saint Claire 1987 (8,600 acres). Only Yellow and Specimen started in activity fuels and in both cases the fire moved across the landscape in natural fuels until weather and topography enabled firefighters to gain control. In all other cases, poor access, stand encroachment, and fuels buildups were the primary cause of the fires burning with high intensities and high rates-of-spread that exceeded control efforts causing resource damage.

As explained on page 3-16 of the Draft EIS, all harvest units would receive fuel treatment including underburning, handpiling, and jackpot burning. Fuel loadings would increase for approximately 1 to 2 years until these fuel treatments were completed. Some units would be treated the first year; others might take longer until weather conditions were favorable. These fuel treatments would treat the fine fuels. This is the basis for the conclusion on page 3-16 that “Fuel loading after treatment would be at or lower than what currently existed prior to treatment (less than a Fuel Model 10 in individual stands.” The effectiveness of fuel treatment combined with harvesting is further supported by a list of scientific publications cited on page 3-14 of the Draft EIS.

The 3 to 5 year increase mentioned on page 3-17 of the Draft EIS is associated with release, precommercial thinning, felling of noncommercial conifers and some hardwoods. As explained on page 3-17, these treatments would be scattered throughout the stand and not pose a significant threat to the stand or adjacent stands. The stands to be treated with these activities are also scattered throughout the assessment area and generally very small in size; refer to Table 4 on page 2-6 of the Draft EIS.

Comment 37: How can the Action Alternatives lead to beneficial cumulative effects by reducing the opportunities for human-caused fire starts, when there will be an increase in management activities and wider, more travelable roads?

67

Response 37: Road improvements proposed for either of the Action Alternatives would benefit Fire Management by maintaining access for fire suppression and fuel management projects. Treatment of fuels adjacent to roads created by either Action Alternative would reduce the opportunity for human-caused fires. Road improvement projects within the project area would provide for firefighter and public safety by providing safe travel corridors for access and egress for fire suppression and fuel management projects. Roads can and do make excellent fuel breaks that can be used in stopping the spread of wildfire. These roads can be used in combination with other fire suppression tactics (engines with water, aerial resources and use of “back firing” and “burning out”) and produce areas where these fire suppression actions could be safely and efficiently applied. Roads also provide effective control lines when implementing prescribed fire or fuel reduction projects. They also break of the continuity of fuels by creating openings in the canopies and removing ground fuels.

Air Quality

Comment 38: The Final EIS should identify the state and federal air quality standards and significance thresholds, and provide a comparison with anticipated PM₁₀ levels associated with prescribed burns. The Final EIS should also discuss how the Forest Service will monitor PM₁₀ levels during prescribed burns, and respond if PM₁₀ levels approach a National Ambient Air Quality Standard exceedance.

26

Response 38: California and Federal ambient air quality standards were described in the Meteor Project Prescribed Fire Air Quality & Emissions Assessment prepared by Thomas Herold, dated April 8, 2003, which was incorporated by reference in the Draft EIS on page 3-20. A table including this information has been added to the Final EIS in the Air Quality Section of Chapter 3. California standards are not to be exceeded. National standards are not to be exceeded more than once a year.

Little monitoring has been done on the Forest to characterize actual particulate emissions during prescribed fires. Particulate standards are based on 24-hour or annual averages, whereas smoke from prescribed fires may degrade air quality in a community or at a sensitive site for only a few hours before dispersing (USDA Forest Service 2002e). Such short term, negative smoke impacts are unlikely to result in a violation of ambient air quality standards as discussed on pages 3-21 and 3-22 of the Draft EIS. In Siskiyou County, the only times the 24-hour standards have been exceeded in the last several years have been during summer wildland fires such as the Biscuit Complex in Oregon in 2002, and during the Big Bar Complex near Hoopa, California in 1999 as explained on page 3-19 of the Draft EIS.

As explained on page 2-8 of the Draft EIS, Smoke Management Plans are required to be submitted to the local air district for each Burn Plan. In addition, prior to ignition for each prescribed burn, the District coordinates with the local air district and receives permission to burn. Measures to reduce smoke impacts include scheduling prescribed burns during favorable weather conditions to disperse smoke, applying emission reduction techniques, and limiting the material to be burned in one day. Ignitions would be slowed or stopped when changes in meteorological conditions cause smoke intrusions into sensitive areas, or when the fuels and weather conditions go out of prescription. A qualified Burn Boss monitors these conditions on the site.

Monitoring of PM₁₀ levels during prescribed fires is primarily done by visually monitoring the track of the smoke plume during prescribed burning projects, and recording complaints received during prescribed burning. During the period October 4-17, 2002, the Siskiyou County Air Pollution District conducted particulate monitoring (PM₁₀ and PM_{2.5}) in Tennant, CA, approximately 1.2 miles east of the Fire Surrogate Project prescribed burn on the Goosenest Ranger District. Monitoring showed that the burning did not impact air quality; in fact, the levels of particulates were slightly reduced from ambient levels recorded prior to the burning due to weather factors. The monitoring was conducted to address past community concerns about smoke from prescribed burning projects. Over the last two burning seasons, the Forest has not received any complaints related to prescribed burning.

Refer to Response 34, paragraph 2.

Geology

Comment 39: “The Mass Wasting Model grossly underestimates the obvious predictable landslides

which will likely result from road improvement and logging activities proposed. The assumptions that older logging, roadway and fire damage 'have more than half recovered' is ridiculous: regular, frequent winter landslides immediately adjacent to the proposed logging areas continue unabated...The Cumulative Watershed Effects Analysis underestimates the vulnerability of these steep, previously logged riparian reserves by relying on aerial photos which do not show many of the landslide-prone areas because of the substantial old-growth overstory..."

52

Response 39: Road improvement activities do not cause landslides when properly implemented. Rather, they reduce landslide potential associated with roads. Road improvement can incur a short-term (1 to 3 years) increase in surface erosion, but this effect is very small relative to the reduction in landslide potential. The model makes estimates of landslide sediment likely to be initiated by harvesting on unstable lands. These estimates are based on local inventories of actual sediment production in the Salmon River (de la Fuente and Haessig 1994).

The landslide model assumes that de-vegetated areas (logged or burned) recover to pre-disturbance conditions in about 40 years. The rationale behind this assumption is that the loss of root support and other hydrologic effects (such as evapotranspiration, as well as effects on snow accumulation and melt rate) caused by tree mortality and removal is recovered when new vegetation reaches this age. Some studies suggest that recovery of root support occurs more rapidly (Ziemer 1981). No recovery is assumed for roads.

The Geologist inspected proposed units in the field and assessed the potential adverse effect of logging on and off site. The Geologist also evaluated landslides adjacent to units and developed appropriate mitigation measures (such as moving unit boundaries).

Estimates of landslide production used in the CWE model are based on a thorough landslide inventory of the Salmon River Watershed from 1944 through 1988 (de la Fuente and Haessig 1994). The inventory involved both air photo and field techniques. Proposed units on the Meteor project were field inspected by the Geologist in addition to air photo interpretation.

Comment 40: The geologic instability of the Jones Gulch area is likely to contribute to stream sedimentation and a decrease in the water quality contrary to the values which led to Wild and Scenic protection of the river. The assessment of the 1997/1998 storm events clearly show that the type of activity proposed for the Jones Gulch area significantly increases the risk of landslide activity and associated sedimentation.

69

Response 40: The Jones Gulch area is occupied by a large, dormant, deep-seated landslide. The toe zone of this slide moved during the 1964 flood initiating a debris flow that delivered sediment to the Salmon River. The landslide did not move in response to the 1997 flood. Should a flood like that in 1964 occur again today (approximately 100-year return interval), it is possible that more sediment would be produced at this site. However, the difference in risk associated with harvesting or not harvesting the proposed units in Jones Gulch is small as discussed on pages 3-25 through 3-27 of the Draft EIS.

Landsliding in the Salmon River Basin during the 1997 flood was very limited relative to the areas around the communities of Happy Camp, Seiad, and Scott Bar to the north (de la Fuente and Elder 1998).

The removal of less than 5% of the vegetative cover across the 548-acre watershed draining through the dormant landslide in Jones Gulch would have a small adverse effect in Alternative 2. The adverse effect associated with this harvest is due to the reduction in evapotranspiration associated with logging. The areas proposed for logging occur in small patches (about 6 acres for Green Tree Retention and small groups of an acre or so). These units are on gentle parts of the landscape that exhibit no indication of recent landslide activity. The adverse effect would be offset to some degree by the proposed stormproofing of roads in the same watershed. Stormproofing would have a small positive effect, reducing the potential for landsliding associated with water diversions that could be caused by the roads under flood conditions.

Soil Productivity

Comment 41: The Draft EIS fails to ensure that soils and long-term site productivity will be protected and ensure the conservation of soil and water resources. Extensive management activity in the project area has significantly degraded soil productivity. There is no analysis of how Meteor will be different from past projects or how these other projects contribute to cumulative effects on soil productivity. The Draft EIS fails to analyze the role of mycorrhizal fungi, especially during the early successional stages (associated with hardwoods, not conifers) in soil productivity. Replanting sites with conifers works to eliminate this important stage in soil development.

28, 67

Response 41: Pages 3-28 through 3-30 of the Draft EIS specifically discuss the direct, indirect, and cumulative effects of each proposed management activity on short- and long-term soil productivity. The Soil Report referenced on page 3-28 of the Draft EIS provides additional supporting data. The Resource Protection Measures for soils, identified on page 2-9 of the Draft EIS ensure the protection of soil productivity and conservation of the soil resource.

The level of existing detrimental soil disturbance within project units ranges from 0 to 11% and averages 3%, which is below the allowable level in the Regional Soil Quality Standards; this and other supporting information is included in the Soil Report. Proposed units that have experienced past logging, prescribed fire, and wildfires are identified on page 3-30 of the Draft EIS and their effects discussed in the cumulative effects section with the conclusion that Alternatives 2 and 3 would not significantly decrease short- or long-term soil productivity.

As discussed on page 3-29 of the Draft EIS, the design features and resource protection measures provide for maintenance of soil hydrologic function and biological system. The Soil Report provides more detail on how achieving *Forest Plan* standards provides for maintenance of soil productivity, including soil biological components. The Soil Report discusses changes in the soil biological components on pages 9, 10, 13, 14, 16, 18, and 22. Although either Action Alternative would change soil organism population densities, these changes would be highly variable and temporary. The soil biological population would stabilize as the forest floor returns to pre-disturbance levels. The mycorrhizal fungi associated with hardwoods would not be eliminated, because hardwoods would not be selectively removed from these sites. Conifer planting would not change the densities of hardwoods.

Comment 42: As a result of the failure to address the direct, indirect, and cumulative impacts associated with the proposed activities, the Draft EIS fails to ensure that timber will be harvested only where soils will not be irreversibly damage. Past, present and future actions that have impacted soils are not disclosed.

28, 29

Response 42: Pages 3-28 through 3-30 of the Draft EIS specifically discuss the direct, indirect, and cumulative effects of each proposed management activity with the conclusion that Alternatives 2 and 3 would not significantly decrease short- or long-term soil productivity. This means that there will be no irreversible damage to the soil resource. Past logging, prescribed fire, and wildfires are identified on page 3-30 of the Draft EIS by unit in the cumulative effects section. Other projects and future projects within these watersheds do not include any management actions within the proposed treatment areas of the Action Alternatives, so would not contribute to cumulative effects on soils.

Comment 43: Tractor logging and piling is very detrimental to soil productivity and can cause soil displacement and compaction. In Green Tree Retention and Group Selection units, coarse woody debris standards would not be met and soil would be displaced. There would be little opportunity for soils to be naturally replenished through decomposition in the future. Nitrogen loss is an issue with burn piles and with material removed. Will this project throw off the ability of the forest to replenish itself due to nitrogen loss and displacement? Tractor logging is proposed in previously burnt non-recovered areas that will likely be unable to regenerate due to soil impacts. Microbial population will be in bad shape post-project and the animal that science has shown to be helpful to microbial processes, the gopher, will be killed with no justification.

29

Response 43: The effects of tractor logging were specifically discussed on pages 3-28 through 3-30 of the Draft EIS. It is estimated that only 10% of the tractor-logged acres may not meet the Regional Soil Quality Standards; this is below the 15% allowable level included in the Regional Soil Quality Standards as explained on page 3-29 of the Draft EIS. Tractor piling would have only scattered short-term negative effects on soil productivity as described in the Draft EIS. Supporting data is included in the Soil Report.

Coarse woody debris levels would be partially affected by the Action Alternatives as discussed on page 3-29 of the Draft EIS. Some of the more decomposed logs (decomposition class 4 and 5 logs) may be disturbed by heavy equipment operations. Overall, a sufficient number of trees would remain on site in the treatment areas and coarse woody debris would increase over time by the natural falling of standing trees and snags, allowing guidelines to be met.

Mechanical or hand piling and subsequent burning of the piles would occupy from one to 5% of the treated area. The nutrient loss from the burned pile area would not have a significant effect on soil productivity (loss of nitrogen). Other nutrients, such as cations, would increase in the soil due to leaching. The levels of nitrogen across the landscape are highly variable and since the piles would only occupy a small percentage of the treated sites, any loss of nitrogen in the burned material and in the upper few inches of the soil would not be significant in each treated stand of trees. Also, nitrogen fixation would increase as more nitrogen-fixing vegetation sprouts due to more open canopies. These interactions are discussed in the Soil Report and summarized in the Draft EIS on pages 3-29 through 3-30. Guidelines for fertility would be met.

Approximately 10% of the tractor-logged acres could exceed Soil Quality Standard soil porosity threshold values. This indicates that 90% of each tractor-logged Green Tree Retention or Group selection stand could be regenerated because these soils would not negatively impact planted or natural seedlings. This would meet regeneration requirements.

The Soil Report thoroughly discusses the effects of gopher baiting on the soil resource. Gopher baiting using strychnine bait placed beneath the soil surface would not cause any significant changes to soil processes. There would be short-term nonsignificant changes in microbial populations. In general, strychnine did not appear to affect microbial populations (bacteria, actinomycetes, and fungi) at 7 and 56 days (Starr and others, 1996). Reductions in gopher populations are short-term and not likely to significantly alter gopher caused pedoturbation (soil mixing) over the long-term.

Comment 44: Regeneration failures throughout the watershed show that timber management greatly impairs soils. Furthermore, the Draft EIS gives no discussion of different soil types in the area and effects to different soil types.

29

Response 44: There is no record of reforestation failure on the Salmon River due to impaired soils from past logging practices. Most of the reforestation failures are due to brush or grass that became established before there was a chance to reforest those areas. Without the use of herbicides, these areas will be slow to naturally reforest themselves. In general, most of the reforestation areas are slowly establishing trees and the openings may provide an early seral vegetation stage different than the surrounding stands. Pages 3-28 to 3-30 of the Draft EIS summarize the primary effects on soils related to the alternatives due to vegetation management or no action. The Soil Report contains supporting information including detailed soil data tables, interpretations, hazards and limitations, based on the individual soil type (soil map unit).

Comment 45: "(H)as the intensification of storms (including of tropical moisture from El Nino-type storm systems) due to global climate change been taken into account when analyzing how much soil from managed areas may erode and become sediment in streams which currently support anadromous (sic) fish species, as well as how much landslide activities from logging roads and logging sites may impact the watercourses below and downstream?"

67

Response 45: There is no consensus in the literature indicating intensification of precipitation events due to global warming. The erosion data in the Soil Report and in the CWE analysis was calculated using the

standard 2-year 6-hour precipitation rate as determined by the California Department of Water Resources. For the project area this value was 1.34 inches of precipitation. This represents more intense precipitation events than the normal or average type of precipitation event that deposits from less than 1 to 2 inches of precipitation in a 24-hour period.

Water Quality

Comment 46: "Overall, Regional Water Board staff considers the risk of water quality degradation presented by the Meteor Proposed Action to be relatively low. We perceive that the most significant risks to water quality result from improper or incomplete application of BMPs during road work activities in the vicinity of watercourse crossings, and the cumulative short term impact of administering several road related projects within an individual subwatershed (5th Field). The Meteor Draft EIS discusses Resource Protection Measures that are designed to minimize the potential impacts of project activities at the site specific (project) scale and cumulative (watershed) scale... (W)ith proper implementation of Resource Protection Measures, with special emphasis on strict adherence to the BMPs listed in the DEIS, the potential for the degradation of water quality resulting from Meteor Proposed Action should be minimized... (A)ll BMPs listed in Appendix B of the Meteor DEIS and/or any otherwise applicable BMPs, shall be listed and included in the various contracts for Meteor project activities."

27

Response 46: We agree that with proper implementation of the Resource Protection Measures and BMPs, the potential for degradation has been minimized and the risk is relatively low. BMPs are included in contracts for implementation of various activities. Appendix C of the Draft EIS, page C-12, explains the process: "There is a 'crosswalk' defined that structures the transfer of information from the EIS to the Timber Sale Contract. The District Ranger signs off this document, to ensure that all applicable actions, such as BMPs and Resource Protection Measures, are followed through from EIS to Contract". At this point in time, all projects currently planned or being implemented would have a staggered implementation and should not have stacked short-term cumulative impacts.

The Forest has a good track record for implementing BMPs as shown by past monitoring by the Forest and the North Coast Water Quality Control Board (USDA Forest Service 2000d, 2001c, 2002e, 2003b, Arcand 2000, Arcand and Bennett 2001, Snavelly 2004).

Comment 47: "(I)t is an ongoing concern of Regional Water Board staff that soil disturbing activities in the vicinity of watercourses cease and erosion control be kept current *at any time of year* when saturated soil conditions exist or when precipitation may result in sediment transport to watercourses. This concern is addressed by several BMPs listed in Appendix B of the Meteor DEIS. Proper implementation of these BMPs is critical for the protection of water quality during summer thunderstorms that might occur when yarding, hauling, and roadwork activities are under way.

27

Response 47: We agree that this concern is addressed with the application of pertinent BMPs, and also by adherence to the Forest's WWOS that are applicable during any portion of the year when saturated soil conditions exist.

Comment 48: The Draft EIS does not contain any hard data or evidence to support the conclusion that the North Coast Water Quality Control Plan objectives for sediment and turbidity will be met by this project.

28

Response 48: As stated on page 2-6 of the Draft EIS, BMPs are water quality maintenance and implementation measures developed in compliance with the Clean Water Act and are certified by the State Water Resources Control Board and approved by the Environmental Protection Agency. They were developed to specifically meet the Board's objectives for water quality. As stated on page C-12 of the Draft EIS, field inspections of completed timber sales with the Regional Water Board staff have shown that BMPs have been implemented successfully on the Forest.

Comment 49: The Final EIS should include a discussion of what types of stream de-watering methods

might be employed during proposed roadwork, and the associated impacts on aquatic resources. In addition, the document should include a discussion of the regulatory requirements for work that impacts water of the U.S.

26

Response 49: Page 3-47 of the Draft EIS includes a discussion of roadwork and the potential impacts. "Specific dewatering methods (pipe, pump, coffer dam) would be determined on a site-by-site basis by the District and/or Forest Engineer." This would occur during the design and contract phase of the project. Associated impacts are discussed in a worst-case scenario on the same page and the potential short-term impacts versus long-term benefits are weighed on page 3-46. Monitoring of "in-channel construction" and "road decommissioning" projects on the Forest between 1997 and 2002 indicates that activity-generated sediment delivered the first year averaged 0.34 cubic yards per site (values for the 80 samples ranged from 0 to 3.0 cubic yards); 67% of the sites monitored exhibited no measurable signs of sediment delivery (Elder 2003a). The EIS also discusses the Project Design Standards for the roadwork with the conclusion that implementation of BMPs, RR standards and guidelines, and Project Design Standards increase the likelihood that activity-generated sedimentation would be less than in the existing condition. The Project Design Standards for Watershed Health and Fisheries were updated in the Final EIS to include more detail and correct some errata.

Page 3-31 includes both the state and federal regulatory requirements for water quality.

Comment 50: Several units of the Meteor Timber Sale are located in 7th Field Watersheds that have units from other concurrent timber sales. The cumulative effects are incorrectly being disguised by separate assessments. The different scale of the assessment as well as difference types of methodology makes it difficult to compare or to add up the total impacts caused at the 7th and/or 5th Field Watershed levels. Impacts not included are from forest fires, green tree and salvage logging, road building and management, landing construction, and other land disturbing activities associated with the Upper South Fork, Heiney Shiltos, Tower, Jessups, Evening Star, and Eddy Blowdown Timber Sales, Fork Fire, Specimen Fire, Salmon Complex Fires, Hog Fire, fire suppression in general, recent floods and landslides, past mining, new mining grazing, chemical use, water diversions, roadside salvage, fuel activities, and off-highway vehicle use. Watershed cumulative effects are very high given the timing is the same for Knob and Meteor.

28, 29

Response 50: Cumulative effects are not disguised by separate assessments. As stated in the Draft EIS on page 3-33, "The CWE modeling uses the most up-to-date Forest GIS coverages to describe existing conditions as of February 28, 2003... Modeling for the current conditions includes past actions, including wildfires, as well as present actions that have been approved in a decision document, but have not been completed. These include Glassups Timber Sale, Knob Timber Sale, Taylor Fuel Project, Jackson 1 Underburn, Summerville Roads Project, and Yoakumville Roads Project. This is considered baseline or current condition. The modeled effects of the alternatives are added to the current condition to determine the project's effects. The modeled effects of reasonably foreseeable actions on top of past and present (including the proposed project) are used for cumulative watershed effects analysis. The Meteor Project Cumulative Watershed Effects Analysis Specialist Report by Don Elder (2003b) contains a more detailed explanation of the methods used in the modeling process and displays data outputs for each model for the alternatives. It is incorporated by reference and on file in the project record." Table A of Elder's report lists all past, current, and future projects included in the modeling. Minor recovery was exhibited in the model runs from 2002 to 2003. Harvest and/or wildfire disturbances from 1962, 1972, 1982, or 1992 crossed decadal step recovery coefficients (Elder 2003b).

The modeling is consistent in scale from project to project within any given 7th field watershed and cumulative effects are calculated at that scale. The 5th field level cumulative effects is a compilation of all the individual 7th fields within the watershed and this scale is discussed on pages 3-32 through 3-42 of the Draft EIS.

The timing is not the same for Knob and Meteor. The decision for Meteor would likely be signed sometime in 2004. The decision for Knob was made in December 2002; it has been upheld first in

administrative appeals, then again in a Federal Court. Its sale date is scheduled several years before Meteor's.

Comment 51: Cumulative watershed impacts: Much of Knob and Meteor are in landslide-prone decomposed granitic soils, and many units are directly along the river or in riparian reserves.

1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13, 15, 16, 20, 21, 22, 23, 24, 25, 34, 35, 36, 37, 38, 39, 40, 41, 43, 45, 49, 50, 51, 52, 55, 56, 57, 58, 59, 60, 62, 63, 64, 65, 66, 68, 70, 73

Response 51: There are no units proposed on decomposed granitic soils in either of the Action Alternatives in Meteor as explained on page C-6 of the Draft EIS. The 3 units in Hydrologic RRs and the 14 units in Geologic RRs that include a forest health prescription in Alternative 2 were field reviewed by the District Hydrologist and Forest Geologist, respectively. The activities proposed were developed specifically to meet all applicable standards and guidelines as discussed in the Draft EIS and supported by information in the Soils, Geology, Hydrology, and Fisheries Reports. The Draft EIS discloses the effects of treating RRs on pages 3-53 through 3-55, including cumulative effects. There would be negligible direct effects to both Hydrologic and Geologic RRs. Tree vigor would increase due to the additional water and nutrients available to the remaining dominant overstory trees thereby insuring future stability of Geologic RR. In addition, large trees would be available sooner for recruitment to the streams within Hydrologic RR. The RRs would also be more resilient to wildfire due to the fuels reduction activities. There would not be any indirect or cumulative effects on channel form or floodplain connectivity as discussed on page 3-55 of the Draft EIS.

Comment 52: The "watershed effects evaluation does not consider adequately the past, current, and future road decommissioning projects as positive impacts that reduce cumulative effects. However, even though road decommissioning is likely to result in long-term benefits to aquatic habitat conditions, there are immediate, short-term impacts from the road decommissioning activities themselves which contribute to negative cumulative effects in the short-term. For example, the Biological Opinion and Conference Opinion for Road Maintenance, Trail Maintenance, Watershed Restoration, and January 1997 Food Damage Response Actions discusses short term impacts from culvert replacement on page 12."

28

Response 52: Refer to Response 50 for an explanation of how past, current, and future road projects are considered in cumulative effects. Page 3-81 of the Draft EIS explains, "Emphasis in the Salmon River Drainage, as a key watershed, has been on closing, improving, and decommissioning roads with very little new road construction since 1996... (P)rojects completed since 1996 have decommissioned 22 miles of roads, while current and foreseeable future actions target up to 53 miles of additional roads for decommissioning. The majority of this work is included in the Summerville and Yoakumville Roads Projects. Summerville in Upper South Fork Watershed is under contract and much of the work has been completed." Work on Yoakumville in the Lower South Fork Watershed began in 2003 and is scheduled for completion by the end of 2006. The Final EIS includes this updated information on Yoakumville's status.

The Meteor Project Cumulative Watershed Effects Analysis Specialist Report (Elder 2003b), referenced on page 3-33 of the Draft EIS, contains a detailed explanation of the methods used in the modeling process. For the Mass Wasting and Surface Erosion models, it is the **net benefits** from decommissioning and stormproofing that are displayed. The net benefit modeled includes minor/discountable short-term adverse effects that reduce the long-term benefits calculated for the improvement work. The roadwork is displayed separately in the models, showing the net sediment "saved" by the actions before being included in the totals for the individual 7th fields. The modeling was based on findings after the 1997 flood (de la Fuente and Elder 1998). Forest monitoring since 1997 (Elder 2003a) has found activity-generated sediment from road improvement work delivered the first year to be minor as discussed on page 3-47 of the Draft EIS and page 23 of the Biological Assessment/Biological Evaluation For Threatened, Endangered, Proposed, Petitioned and Sensitive Species That may be affected by the Meteor Timber Sale (Fish BA). Also refer to Response 49.

Comment 53: The Draft EIS fails to address the likely impacts from the use of roads for hauling in the project area. Even though wet weather operating periods are called for, the use of the roads for hauling during the dry season will cause substantial disturbance to the road systems, creating a large amount of

“fluffed-up” sediment on the road, which is then likely to be delivered during the first rains.

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Response 53: Page 3-21 of the Draft EIS specifically addresses dust abatement. Dust emissions from hauling would be minimized through the implementation of dust abatement plans in the contracts. The primary objective of dust abatement is to protect public health and safety. A discussion of the effects of dust abatement on public health has been added to the Social Section in the Final EIS. Dust abatement actions also protect the life of the road surface, reduce the amount of dust that settles on vegetation and in stream courses, and reduce road-related erosion.

Comment 54: The Draft EIS does not adequately analyze the potential impacts from the proposed temporary road and landing construction. It fails to provide site-specific information on the proposed roads and landings, such as specific location, size, soils, slopes, and proximity to streams and RRs.

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Response 54: No new temporary roads or landings are proposed for construction with this project as stated on pages 1-4 and 2-9 of the Draft EIS. Only existing landings and roads would be used with either Action Alternative.

Comment 55: The Draft EIS does not adequately assess water quality effects, timing, and quantity changes related to management activity. Please incorporate in the Final EIS the specific language and intent of the National Academy of Science Report (2003).

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Response 55: Water quality effects are adequately addressed on pages 3-35 through 3-43 of the Draft EIS. As explained on page 3-33, “In the ERA model, the ERA is compared to a theoretical TOC to create a risk ratio, with values of 1.0 serving as the inference point. This risk ratio is used to assess the risk of altering hydrologic runoff.” Each 7th field watershed is discussed in the Draft EIS and the Hydrology Report (Koorda, 2003) with regards to potential changes in runoff.

The National Academy of Science report (National Research Council 2004) lists six recommendations for the recovery of endangered suckers and threatened coho salmon in the Klamath Basin that are far more reaching than just the Salmon River. Only two of these recommendations possibly affect the Forest directly. Forest management direction comes from the *Forest Plan*, which incorporates the NW ROD (and therefore the Aquatic Conservation Strategy) as explained on page 1-4 of the Draft EIS. The *Forest Plan* anticipates timber output from Matrix lands, consistent with the Multiple Use-Sustained Yield Act of 1960. The purpose and need for the Meteor project fits within this as discussed on pages 1-1 through 1-3 of the Draft EIS.

The ACS was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. The strategy would protect salmon and steelhead habitat on federal lands managed by the Forest Service and Bureau of Land Management in the range of Pacific Ocean anadromy (ROD, pg B-9). All applicable standards and guidelines have been followed for the Meteor Project. The Fish BA made the conclusion that the Meteor Project does not retard the attainment of the ACS.

Comment 56: The Draft EIS has incorrect, inconsistent, confusing, or missing data. The Kanaka/Olsen watershed had a sediment yield that is 407% and a surface erosion level that is 284% over background conditions. These risk ratings and other indices identify this watershed as having significant cumulative impacts. Several of the 7th field watersheds have similar problems including Negro/Hotelling, and Knownothing. The 7th field watersheds that are over threshold should not have more short and particularly long-term negative impacts added to them.

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Response 56: It is unclear where the commenter derived the 284% and 407% over background values as all analyses used risk ratios. Page 3-33 of the Draft EIS explains the inference points and “percent over background” for each of the sediment models. Background is defined as a watershed’s natural

sediment production and delivery, or sediment delivery, assuming no disturbance; this definition has been added to the Final EIS. The background value is used to calculate the level of risk of adverse cumulative watershed conditions, called CWE levels. Modeled CWE levels, relative to defined inference point values, are expressed as risk ratios and are displayed in **Tables 12, 13, and 14** of the Draft EIS. Risk ratios are calculated by dividing accelerated sedimentation and ERA values by an inference point value. For the Surface Erosion and Mass Wasting Models, existing levels are shown as percent over background. Surface Erosion estimates the sediment generated from surface erosion. Mass Wasting estimates the sediment generated from landslide features. ERA estimates changes in peak flow runoff influenced by disturbance activities. The inference point (or risk ratio equal to 1.0) for the Surface Erosion Model has been identified as 800% over background, while the inference point (or risk ratio equal to 1.0) for the Mass Wasting Model is 200% above background. The ERA model compares the current level of disturbance within a given watershed with the theoretical maximum disturbance level acceptable. The impact to watershed conditions of each alternative is assessed by considering the difference between the current and post-action conditions in the context of the background conditions.

The inference point values have been used provisionally on the Forest since the late 1980s. They played a large role in determining CWE associated with *Forest Plan* AWWCs shown in the *Forest Plan* ROD (USDA Forest Service 1995c). Professional judgment and knowledge of individual watersheds originally established these values, including the 200% and 800% over background inference points. Inference point values were affirmed during the Indian Creek CWE review (USDA Forest Service 1998c) and the Westside CWE assessment (Elder 1998). Study of the 1997 Flood (de la Fuente and Elder 1998) showed that watersheds experiencing the greatest flood effects had CWE model values over inference point values (Elder 2003b).

Kanaka-Olsen is discussed on pages 3-38 through 3-39 of the Draft EIS. Page 3-38 specifically discusses the Mass Wasting model and acknowledges that it is over the inference point as shown by the risk ratio rating. The risks are discussed in this section as well as the short and long-term effects. Mass Wasting is high; the current risk ratio is 1.68. The high values are a result of the wildfire disturbance from the 1977 Hog Fire and the 1987 Fires. The modeled result of sediment delivered for Alternative 2 is very low; however the Mass Wasting risk ratio would remain the same with implementation of either Action Alternative. The small modeled result would be additive with pre-existing high risk conditions; however, the road actions would give a small, but larger benefit. The risk of increasing the rate of landslide initiation and sediment delivery would be minimized to the extent possible through project design standards.

East Fork Knownothing subwatershed is discussed on page 3-39 of the Draft EIS. The harvest prescription and logging method is low impact and stand structure would not be substantially altered. Any increases in runoff would be short term and minimal in the 6,382-acre watershed. For cumulative watershed effects, the Surface Erosion and ERA Models show modeled increases that would be indiscernible on the ground as discussed in the Water Quality Section of the EIS. The Mass Wasting Model shows no change. All three models are well below inference points.

Negro-Hotelling is discussed on page 3-40. The Surface Erosion and Mass Wasting Models would remain below the inference points with the addition of the one thinning unit. The ERA model reflects the high level of long-term disturbance that has occurred in the 7th field watershed. Either Action Alternative would show an insubstantial increase of 1.0 in the ERA value with no change to the 1.85 risk ratio. This increased amount of disturbance would not lead to a noticeable decline in water quality nor affect beneficial uses.

Comment 57: The Draft EIS should identify what the ERAs are for each of the activities proposed.

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Response 57: Table 14 on page 3-37 of the Draft EIS displays the total ERAs attributed to all project activities for each of the 14 7th field watersheds in the project area. Table 14 on page 3-42 of the Draft EIS displays the cumulative watershed effects risk ratios for the 5th field watersheds. Page 3-33 incorporates by reference the "Meteor Project Cumulative Watershed Effects Analysis Specialist Report" (Elder 2003) which contains a more detailed explanation of the methods used in the modeling process and displays data outputs for each model for each alternative. It is in those tables that harvest and road treatment ERAs are listed separately for analysis. This level of detail is used in the analysis, but for ease of

discussion the summary displaying the total ERAs is used.

Comment 58: Several of the 7th field watersheds should also be identified as AWWCs, consistent with the *Forest Plan*.

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Response 58: The *Forest Plan* ROD (USDA Forest Service 1995c) identified AWWCs, based on considerations of high disturbance levels, potential for landsliding and surface erosion, and poor aquatic conditions. Page 3 of the *Forest Plan* ROD specified that watershed analysis be conducted prior to implementing site-disturbing activities in AWWCs. The intent of the watershed analysis was to validate the conditions identified for each AWWC by completing a more refined analysis than was conducted at the Forest scale. The subsequent WAs for the Salmon River determined that some of the watersheds identified in the *Forest Plan* ROD did not need to remain in the AWWC category and others were appropriately categorized. In addition, others not considered in the Forest ROD were classified as AWWCs due to the more refined analysis conducted with the subsequent WAs. For this project, the confirmed AWWCs are identified on page 3-23 of the Draft EIS and discussed under the Water Quality Section on pages 3-39 and 3-40.

Comment 59: Kanaka-Olsen. "Logging and regeneration harvest using tractors above a known deep seeded (sic) slide that has failed before, that has not recovered from past salvage logging using green tree harvest and road-building where the road density is 6.3 miles per square mile in the riparian reserves in the headwater of an AWWC is insane... and cannot be mitigated at all especially not by decommission (sic) a small undefined section of road in which there is no scientific justification behind."

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Response 59: Page 3-23 of the Draft EIS includes a detailed discussion of the current condition of Jones Gulch. Page 3-24 includes the methods used to evaluate the risk: "The risks of triggering slope failure are discussed for each alternative using the estimates generated by the Mass Wasting Model. GIS coverages were queried separately to determine the amount of disturbance in the Jones Gulch Drainage as it is too small to be discernable in the Mass Wasting Model. The effects for Jones Gulch in the Kanaka/Olsen 7th field watershed were evaluated based on the results of field observations in 2002, air photo evidence, past experience, and monitoring after the 1997 flood. Logging, harvest, and fire history were reviewed in conjunction with historical air photos to get a more refined look at the disturbance history of this area; GIS layers were refined, as necessary. The Forest Geologist evaluated proposed harvest units and any active landslides downslope of proposed activities in the field to assess the landslide potential." This is a very comprehensive approach to determine the risk associated with the proposed actions.

Pages 3-25 through 3-27 discuss the indirect and cumulative effects with details of why the actions would not be a significant risk to slope stability. Proposed actions in Jones Gulch in Alternative 2 involve regeneration harvest on about 25 acres, or 4.6% of the headwaters draining through the landslide complex. The landform itself is stable and only a very small proportion of the watershed area and landslide complex is involved. Despite some soil disturbance and displacement, the six acres of tractor piling in Alternative 2 is expected to have a minimal effect on landslide potential. Hand piling, jackpot burning, and underburning would all maintain adequate soil cover in either Action Alternative, so the effects on landslide potential would be negligible. Post-harvest silvicultural activities would maintain or increase soil cover, so are expected to have negligible effects on landslide potential. At a more localized scale, the potential for adverse cumulative watershed effects occurs in the headwaters of Jones Gulch. Reduced evapotranspiration from harvest could increase groundwater in downslope areas. However, it is estimated that there would be only a very small adverse effect on the water balance for the landslide complex, because only a small proportion of the watershed area is involved. Only a very small increase in landslide risk is anticipated, as the area did not re-activate during the 1997 flood. Road decommissioning of a short spur and stormproofing Road 39N27 would offset this small adverse effect in Alternative 2. Alternative 3 would not contribute to potential adverse cumulative effects in the Jones Gulch watershed. Road decommissioning of a short spur and stormproofing Road 39N27 would have a small restorative effect in this area.

The commenter does not provide any supporting data for her conclusion that regeneration harvest using

tractors in the Kanaka-Olsen area is insane. The statement that the area has not recovered is inaccurate; as explained on page 3-23 of the Draft EIS, the area has experienced 15 years of recovery since the 1987 Fires and 25 years of recovery since the Hog Fire. The Forest Geologist's conclusions are based on 32 years of experience with the interactions of management activities and landslide potential in the Klamath Mountains, including extensive monitoring after the 1997 Flood and studies of sediment in the Salmon Subbasin in which he was personally involved, as explained on page 3-25 of the Draft EIS and in the Geologic Report.

Comment 60: The Draft EIS claims only a storm event could trigger a landslide and also says the effects of logging last at least 20 years. The possibility of triggering a landslide is high if the weather pattern continues. Effects of a huge sediment pulse need to be addressed; especially in light of the 2002 Klamath fish kill.

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Response 60: As stated on page 3-23 of the Draft EIS landslide episodes in the Salmon River system occurred in 1964, 1972, 1974, 1983, and 1997. These episodes are documented in the Salmon Sub-basin Sediment Analysis (de la Fuente and Haessig 1993) and in the Phase I Assessment of the 1997 Flood (de la Fuente and Elder 1998). Increases in landslide rates associated with roads and regeneration harvest are addressed in these documents. The landslide episodes are associated with higher than normal precipitation events, so this established pattern of prolonged intense storm events and potential for triggering landslide is well documented. Stand alteration is not of the intensity or scale, as substantiated by the models, to yield a high risk of triggering a huge sediment pulse from this project.

A huge sediment pulse was not the cause of the 2002 Klamath River fish kill. As stated in the National Research Council report (2004), "The immediate cause of death was massive infection by two types of pathogens that are widely distributed and generally harmful to fish under stress, particularly if crowding occurs" (page 9). Page 9 also provides two hypotheses for the cause. One includes "the Klamath main stem changed in 1997-1998 under the influence of high flows, which caused fish entering the river to be unable to proceed upstream under low-flow condition". The other is "that an unusual combination of temperature, flow, and migration conditions occurred in 2002, possibly in association with weather that prevented the river from showing nocturnal cooling to the extent that would usually be expected."

Comment 61: We are concerned that TMDL limits have not yet been established for the Salmon River.

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Response 61: The State of California Water Resources Board is establishing the TMDL limits for all river systems within the state. This matter is beyond the scope of the project and not within the Forest's management authority. However, The Forest Service has been working cooperatively with the North Coast Water Quality Control Board in their study of the Salmon River. The North Coast Water Quality Control Board is finalizing a draft report that will tentatively be out for review in September.

Comment 62: I am very angry that the Forest Service would consider logging in the area where Sawyers' Bar gets its water. Go up to Eddy's Gulch where those helicopter landings are. Salmon River was just another place to shit. Can I expect the same sanitary conditions while they are logging in the area where I get my drinking water?

18

Response 62: Only existing landings would be used in either Action Alternative. The RR buffer widths are determined to be adequate to act as filters and trapping areas for mobilized sediment (or in this case other matter) to protect water quality (Spence and others 1996). All activity is well beyond the RR buffer width from the drinking water source for Sawyers Bar as discussed on page 3-37 of the Draft EIS.

Comment 63: No one can say what will happen to the water table once an area has been logged. Many of the potentially affected streams supply water to family households. A disruption in the water supply can put those properties at risk.

18, 50

Response 63: Stand alterations are not of the intensity nor size (in acres) that a noticeable change in the water table would occur. If any change at all occurs in the water table it would be a slight rise due to less stems per acre drawing up water by root systems for the first year until the residual stand trees expand their root systems and increase their uptake.

Fisheries

Comment 64: The Draft EIS fails to properly assess ACS compliance at all relevant scales or include relevant analysis of cumulative watershed effects. Road density (Table 11, page 3-32) surface erosion (Table 12, page 3-36), mass wasting (Table 13, page 3-36), and sediment yield over background (Appendix, Table 1) violate the intent of ACS, and thus constitute a violation of the ACS. This information suggests that significant cumulative effects of concern are not adequately considered at all relevant spatial scales.

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Response 64: In assessing compliance with ACS objectives, heavy reliance was placed on the information summarized in the Geology, Soil Productivity, Water Quality, Riparian Reserve, and Fisheries sections, especially the information regarding multiple scales. Throughout the Fisheries Section there are multiple references to effects at the 7th field, 5th field, and larger scales. In addition, the Biological Assessment/Biological Evaluation For Threatened, Endangered, Proposed, Petitioned and Sensitive Species analyzes effects at these scales for all 18 habitat indicators across 14 7th field watersheds and two 5th field watersheds. The Fisheries Biological Assessment dated January 28, 2004 has been included in the Final EIS. The Water Quality Section on pages 3-31 through 3-43 of the Draft EIS also uses methodology and analyzes effects at the 7th field, 5th field, and larger watershed scales.

The Record of Decision Amending Resource Management Plans for Seven Bureau of Land Management Districts and Land and Resource Management Plans for Nineteen National Forests within the Range of the Northern Spotted Owl – Decision to Clarify Provisions Relating to the Aquatic Conservation Strategy (ACS ROD) was signed on March 22, 2004. The Final EIS includes this information. Page 1 of the ACS ROD states, "... the ACS objectives were never intended to be applied or achieved at the site-specific (project) scale or in the short-term; rather they were intended to be applied and achieved at the 5th-field watershed and larger scales, and over a period of decades or longer rather than in the short-term." Page 1 further states, "The decision clarifies the proper spatial and temporal scale for evaluating progress toward attainment of ACS objectives and clarifies that no project-level finding of consistency with the ACS objectives is required".

Pages 6 through 10 of the ACS ROD show the differences in language between the NW ROD and the ACS ROD. Page 7 includes the new language, "... (A)n individual project (or individual management activity) would rarely, if ever, have sufficient scope and duration to preclude or achieve any of the Aquatic Conservation Strategy objectives at fifth-field watershed and larger scales. Decision makers are not able or required to assess the contribution of a site-specific project to achieving Aquatic Conservation Strategy objectives. The Aquatic Conservation Strategy objectives are not to be interpreted as standards and guidelines applicable to individual project." Pages 8 through 9 include the new language, "The project is consistent with Riparian Reserve standards and guidelines on pages C-31 – C-38 of this attachment that include direction to "meet", "not adversely affect", "not retard or prevent attainment of" or otherwise achieve ACS objectives, if the decision maker determines from the record that the project is designed to contribute to maintaining or restoring the 5th-field watershed over the long term, even if short-term effects may be adverse." Table 17 on pages 3-50 through 3-51 of the Draft EIS demonstrates how each of the alternatives would contribute to maintaining or restoring the 5th field watershed over the long term.

Comment 65: The Salmon River provides a critical source of cold water to the Klamath River, which supports the most productive Chinook salmon fishery in California and also hosts coho salmon, green sturgeon and other critically imperiled fish species. The Draft EIS fails to adequately analyze and disclose impacts to Threatened, Proposed, Sensitive, and Management Indicator fish species. A recent study by the National Academy of Sciences on the Klamath River calls for restricting logging around the streams that feed the Salmon River. Heavy fish kills occurred due to sedimentation and dissolved oxygen levels. The Salmon River and its tributaries provides habitat for Chinook and coho salmon.

2, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 19, 20, 21, 23, 25, 28, 29, 32, 33, 34, 36, 37, 38, 39, 40, 43, 44, 46, 49, 50, 53, 55, 56, 57, 58, 59, 60,61, 62, 63, 64,65, 66, 68, 70, 73, 74

Response 65: Pages 3-44 through 3-45 of the Draft EIS set the stage for analysis of the listed and sensitive fish species. As stated on page 3-44, the Fisheries Specialist Report provides the basis for the analysis included in the EIS and is incorporated by reference. In addition, this report was the basis for the Biological Assessment for the SONCC coho salmon, SONCC coho designated critical habitat, Essential Fish Habitat analysis, and the Region 5 sensitive species analysis (Upper Klamath-Trinity Chinook salmon and Klamath Mountains Province steelhead). The Fish BA was finalized on January 28, 2004 and is incorporated by reference. The determinations for Alternative 2 are May Affect and is Not Likely to Adversely Affect for SONCC coho and its critical habitat; will not adversely affect Chinook and coho salmon Essential Fish Habitat; and may affect individuals but is not likely to trend towards federal listing or loss of viability of Klamath Mountains Province steelhead or Upper Klamath-Trinity Chinook salmon. NOAA Fish concurred with the determinations for coho salmon and Essential Fish Habitat in their Letter of Concurrence dated April 5, 2004. Some minor changes to the Fisheries and Riparian Reserves Sections were made in the Final EIS as a result of completing the Biological Assessment and working with NOAA Fish.

The primary stream indicators that could be altered by timber harvest are water temperature, turbidity/sediment, large woody debris, and peak/base stream flow. These indicators are analyzed on pages 3-45 through 3-50. Direct, indirect, and cumulative effects are discussed.

The National Academy of Sciences report (National Research Council 2004) lists six recommendations that are far more reaching than just the Salmon River. The Forest's actions are authorized by the *Forest Plan* that incorporates guidance from the NW ROD as explained on page 1-4 of the Draft EIS. In addition, the National Academy of Sciences report discusses the Klamath River fish kill of 2002. Page 9 states, "The immediate cause of death was massive infection by two types of pathogens that are widely distributed and generally harmful to fish under stress, particularly if crowding occurs." Page 9 also provides two hypotheses for the cause. One includes "the Klamath main stem changed in 1997-1998 under the influence of high flows, which caused fish entering the river to be unable to proceed upstream under low-flow condition". The other is "that an unusual combination of temperature, flow, and migration conditions occurred in 2002, possibly in association with weather that prevented the river from showing nocturnal cooling to the extent that would usually be expected."

Comment 66: Adequate details of past and present activities within the North and South Fork Salmon River watershed were not properly linked to the direct and indirect effects of the proposed action on species. This leaves both the decision maker and the public without enough information to conclusively know that the project will have no significant effect to Threatened and Endangered fish species.

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Response 66: Environmental analyses for past projects included direct and indirect effects on species. The combination of all past and present analyses is the baseline for the Action Alternatives. The appropriate analysis for Meteor is the cumulative effects of the Meteor alternatives that includes past, present, and foreseeable future projects within each of the affected 7th-field and 5th-field watersheds. Pages 3-32 through 3-35 of the Draft EIS discuss the methodology for cumulative watershed effects, including how past, present, and foreseeable future actions are incorporated into the analysis. Tables 12, 13, and 14 in the Draft EIS list current risk ratio values for the three components of the CWE model that include past, present, and foreseeable future actions. This provides a baseline for evaluating the additional effects of the Action Alternatives. Pages 3-35 through 3-43 analyze the effects to water quality and pages 3-44 through 3-51 discuss the analysis methodology and effects analysis on fish species. All analyses include pertinent direct, indirect, and cumulative (and therefore past and present activities) effects.

Comment 67: Aquatic organisms would experience temperature increases and structural changes due to a decrease in large coarse woody material from logging in RRs.

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Response 67: Water temperature is analyzed on page 3-45 through 3-46 of the Draft EIS. Under direct effects it states, “The trees to be harvested in Units 123, 134, and 77 are suppressed understory trees and do not currently contribute to shading or affect water temperature. Therefore, harvesting these trees would have no direct effect on water temperature.”

The effects to large woody debris are analyzed on page 3-49 of the Draft EIS. Since “(n)o large woody debris would be removed from channels” during harvest of suppressed trees within the three units with Hydrologic RR treatments in Alternative 2, no structural changes and no affects to aquatic organisms would occur. Unit 77 would not have activities within one tree height of the stream. One tree height of the stream is where large woody debris recruitment occurs (Spence and others 1996). Harvesting suppressed trees would stimulate faster growth and better health for the remaining dominant and codominant trees, which would increase the potential size of future recruitment to the streams, an indirect effect.

Page 3-54 of the Draft EIS states, “The treatments in Hydrologic RRs were designed on a site-specific basis in order to achieve the long and short-term objectives for large woody material, shade, and channel conditions.”

Comment 68: The Draft EIS does not identify the recovery of the anadromous fisheries resource as part of the purpose nor is it identified as a desired future condition. This is inconsistent with direction found in the NW ROD and associated ACS, Klamath *Forest Plan*, Salmon River Subbasin Restoration Strategy, Klamath Basin Fisheries Restoration Plan, Draft Coho Recovery Strategy, a report titled “Endangered and Threatened Fishes in the Klamath River Basin – Causes of Decline and Strategies for Recovery” created by the National Research Council of the National Academies of Science.

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Response 68: Forest management direction comes from the *Forest Plan*, which incorporates the NW ROD as explained on page 1-4 of the Draft EIS. The Salmon River Restoration Strategy, Klamath Basin Fisheries Restoration Plan, Draft Coho Recovery Strategy, and the National Academies of Science report have strategies and recommendations of how recovery of aquatic habitat can occur. All should be commended on the efforts taken to put them together. Ultimately, however, they are not forest direction. The *Forest Plan* anticipates timber output from Matrix lands, consistent with the Multiple Use-Sustained Yield Act of 1960. The purpose and need for the Meteor project fits within this as discussed on pages 1-1 through 1-3 of the Draft EIS. Any activities proposed within Geologic or Hydrologic RRs had direct involvement from the Geologist, Hydrologist, and/or Fisheries Biologist to assure that they were for the benefit of the RR. If the Geologist, Hydrologist, and/or Fisheries Biologist foresaw no benefit, no activity was proposed in RRs.

Not all actions are designed to meet all components of the *Forest Plan* or NW ROD. Instead, it is better to look at many projects proposed on the Salmon River to understand the overall ecosystem management strategy. A number of projects on the District have been proposed for the purpose of improving aquatic conditions. Some of the more recent projects are Aquatic Organism (recently Fish) Passage, Summerville Roads, Yoakumville Roads, King Solomon Mine Dam Decommissioning, Crawford Road Stormproofing, Taylor Fuels Reduction, and Garden Gulch Fuels Reduction. These projects are consistent with the Salmon River Subbasin Restoration Strategy (Elder and others 2002). They are also examples of federal agency participation as discussed by the National Research Council of the National Academies of Science (2004) on page 294, “A small but growing stakeholder group is cooperating with state and federal agencies and tribal interests in the Salmon River basin. High priority has been placed on monitoring of salmon and steelhead runs, improvement in riparian habitat, management of fuels, and assessment and rehabilitation of logging roads (Elder et al. 2002). Given proper funding and agency participation, these efforts may be sufficient to improve conditions for coho and other salmon and steelhead in the watershed.”

Ecosystem management for the Forest includes an array of projects with a variety of purposes. The Meteor Project was designed to develop stands with growth levels that contribute to a sustainable yield for the Forest, to reduce the risk of catastrophic fire in these stands, to maintain unique wildlife habitats, and to improve the transportation system. Either of the Action Alternatives in conjunction with projects designed for habitat improvement, watershed restoration, fuel reduction, and other purposes would

provide for multiple uses on the Forest.

Comment 69: The Final EIS should incorporate information and direction from other best available science sources, such as the Salmon River Restoration Strategy, Salmon River Sediment Analysis (1994), the California Draft Coho Recovery Strategy and the final National Academies of Science Report (2003). We request all recommendations from various directions be included in the Draft EIS.

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Response 69: Refer to Response 68; the *Forest Plan* provides direction for the Forest and is consistent with all existing laws and regulations. Meteor is guided by the *Forest Plan* as are many other project types such as grazing, mining, recreation, fuels, and habitat restoration. Many projects falling under the Salmon River Restoration Strategy (and arguably the Draft Coho Recovery Strategy and National Academies of Science Report recommendations) have been analyzed and are in various forms of implementation. These include Yoakumville and Summerville Roads projects, and Taylor and Garden Gulch Fuels Reduction projects. Aquatic Organism Passage has recently become a national priority for the Forest Service and the Forest has taken the lead in the Region on planning and implementing these types of projects.

Comment 70: The Draft EIS claims that cumulative watershed effects are adequately analyzed at larger scales in the *Forest Plan* EIS and NW ROD EIS. The NW ROD EIS was focused on survival and recovery of a flying bird, while anadromous fish can't fly from their preferred habitat to other preferred habitat. There is currently a crisis on the Klamath River brought about by White House involvement to divert water from natural environs to politically connected and subsidized farmers on federal land. For these reasons and others, there is no up-to-date or adequate analysis about habitat conditions for anadromous fish.

67

Response 70: Refer to Responses 64 and 65. Also refer to pages B-9 through B-32 of the NW ROD regarding the ACS that was developed to restore and maintain the ecological health of watersheds and aquatic ecosystems contained within them on public lands. This strategy would protect salmon and steelhead habitat on federal lands managed by the Forest Service and Bureau of Land Management within the range of Pacific Ocean anadromous fish.

No significant water diversions affect flow in the Salmon River. Minor diversions for domestic and agricultural (home garden) use do occur. Water drafting for dust abatement with either Action Alternative would cause only short-term negligible effects on anadromous fish species (Fish BA).

Comment 71: The Draft EIS only refers to timber-related roads, so erosion and sedimentation from many roads and logging projects impacting anadromous fish habitat does not get a blip on the radar. Activities similar to those that have caused cumulative effects will obviously increase the cumulative effects to habitat for Coho salmon, steelhead trout, and Chinook salmon.

67

Response 71: Refer to Responses 65 and 66. All roads, including "ghost roads", have been inventoried on the Salmon River Ranger District and are accounted for in the CWE ERA model. This information was used in the Meteor effects analyses for water quality and fish species, as well as in the Fish BA, which NOAA Fish has agreed upon. All roads were rated during the Roads Analysis Process on a matrix of "need for the road" versus "environmental risk". Recommendations were made for each road within the supplement to the Forest Roads Analysis Process.

Riparian Reserves

Comment 72: The Draft EIS ties logging in RRs to meet the objectives of the ACS. In order to evaluate compliance with ACS, site-specific information such as species composition and structure is necessary, but is not presented in the Draft EIS.

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Response 72: Refer to Responses 64, 67, and 68. As stated on pages 3-45 and 3-53 through 3-54 of the Draft EIS, the trees that would be removed in Hydrologic RRs in Alternative 2 are suppressed

understory trees in the smaller size classes and some sick and dying. The tree species within the stand and those to be removed is not relevant to the effects on the RR as a whole.

Comment 73: The Draft EIS does not provide sufficient information to determine whether all RRs were identified and adequately protected. Specifically, it does not address all unstable or potentially unstable area, seeps, springs, and other area identified in the NW ROD (ROD C-30 to C-31).

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Response 73: Pages 2-1 and 3-52 of the Draft EIS provide a definition of RRs. Page 2-9 of the Draft EIS explains how they would be designated on the ground. An errata on page 2-9 of the Draft EIS under Riparian Reserves has been corrected in the Final EIS. The first sentence in the section now states, "RRs ...would be flagged on the ground and/or designated on sale area maps, and avoided with the exception of those identified above in the Design Feature section. The exceptions, RRs with the forest health prescription in Alternative 2, would be designated on the ground through tree marking." This replaces the language in the Draft EIS "... would be flagged on the ground, designated on the sale area maps, and avoided with the exception of those identified above in the Design Feature section."

The Geologist field inspected potentially unstable units (identified from geomorphic maps, consultation with other interdisciplinary team members, and air photos) to verify Geologic RRs (unstable land) and flagged a number of them (Geologic Report). The Geologist conveyed information on Geologic RRs to the marking crew in three ways: a) By flagging them in the field; b) By providing the crew with a map showing their locations; c) By working with them in the field, providing training in identifying boundaries of Geologic RRs.

The Hydrologist field checked units to verify Hydrologic RRs. The Hydrologist and Fisheries Biologist visited the three Hydrologic RRs proposed for treatment in Alternative 2. The Hydrologist has worked with the marking crew in applying appropriate marking prescriptions for Hydrologic RRs.

Comment 74: It is inappropriate to do group selection cutting, cable yarding, and gopher baiting in RRs (Units 88 and 255). The Draft EIS incorrectly identifies in Chapter 2 – page 9 that "In Alternative 2, all RRs would be helicopter logged, except the one in Unit 77 that would be cable yarded." In Table 3 of the Draft EIS, a number of units are mis-identified with an (*) as having "A forest health prescription of thinning from below would be applied to the RRs in these units in Alternative 2; RRs in all other stands in Alternative 2 and in all stands in Alternative 3 would not be entered for timber harvest." There are (*) next to Units 120, 132, and 256 which are Group Selection Units in RRs. Please correct this error in the Final EIS.

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Response 74: Alternative 2 does not propose group selection or gopher baiting in RRs. Cable yarding is proposed on Unit 77 within the RR, but only on the portion "between the Highway and County Road 1C02, away from the riparian area, as explained on page 3-54 of the Draft EIS. The statements and information presented in the Draft EIS are correct. You have misunderstood Table 3. Where RRs are proposed for the forest health prescription, indicated by the (*) in Table 3, the forest health prescription as described in detail on page 3-54 would be applied within the RR boundaries in those units; however, the prescription indicated in the third column of Table 3 would be applied to the Matrix portions of those units. The marking crew is trained to designate trees for more than a single prescription within a unit. Both Hydrologic and Geologic RRs would be designated on the ground in Alternative 2 by the difference in marking prescriptions. This is a standard practice used for Forest Service contracts and has been successful in the past. Refer to Response 73.

Wildlife

Comment 75: The impact on the "primary constituent elements" must necessarily result in a determination of adverse modification of critical habitat (50 CFR 402.02). Yet, the Draft EIS arbitrarily concludes on page 3-61 that "NSO Critical Habitat within large LSRs in the landscape would not be affected by either of the action alternatives" and that this reduction is a "minor reduction in habitat within the analysis area." This determination of "minor" as a percentage within the watershed is misleading as this project is spread out over an extensive acreage. According to the Final Rule designated NSO Critical Habitat, "Activities that disturb or remove the primary constituent elements within designated critical

habitat units might adversely modify the owl's critical habitat ..." (57 Federal Register 1796). The Draft EIS acknowledges that destruction of critical habitat will occur, but fails to evaluate the continuing role of that habitat and its constituent elements in the conservation of the owl and also deems that destruction inconsequential in terms of the percentage of critical habitat lost. The FWS Endangered Species Consultation Handbook explains that the adverse modification threshold is exceeded when the proposed action will adversely affect the critical habitat's constituent elements or their management in a manner likely to appreciably diminish or preclude the role of that habitat in both the survival and recovery of the species (FWS Handbook page 4-39).

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Response 75: The commenter claims that since there is a loss of "constituent elements" in Critical Habitat there must follow a determination of "adverse modification". Page 4-34 of the FWS Endangered Species Consultation Handbook described at 50 CFR 402.02 states "adverse modification is based on the effects of the action on the continued existence of the **entire** population of the listed species or on a listed population". Furthermore, "Adverse effects on individuals of a species or constituent elements or segments of critical habitat generally do not result in jeopardy or adverse modification determinations unless that loss, when added to the environmental baseline, is likely to result in significant adverse effects throughout the species' range, or appreciably diminish the capability of the critical habitat to satisfy essential requirements of the species."

The call of "adverse modification" is made by the FWS in their biological opinion for a project if the project has resulted in adverse effects (as determined by the action agency) and the adverse effects will appreciably diminish the value of Critical Habitat for both the survival and recovery of the species (50 CFR 402.02). The Endangered Species Act determination for Meteor is "not likely to adversely affect." The FWS concurred with the determination that the project is not likely to adversely affect the NSO and NSO Critical Habitat in their concurrence letter dated June 6, 2003. Because the call was "not likely to adversely affect", the FWS did not prepare a biological opinion. The FWS concluded in the concurrence letter that the "loss and degradation of habitat associated with the Meteor Project represents a minor reduction in the suitable habitat available within the analysis area (.1 percent)."

Because neither of the Action Alternatives would occur within LSRs, it was reasonably concluded that NSO Critical Habitat within LSRs would not be affected. It was also concluded that 26 acres of dispersal/foraging habitat within NSO Critical Habitat in the Matrix would be degraded and 5 acres of dispersal habitat lost. Overall the stands would continue to provide dispersal and foraging habitat post-project. Because this is a minor reduction in acres and the habitat would maintain its function, the Action Alternatives are not likely to adversely affect NSO Critical Habitat. As explained on pages 3-57 through 3-58 of the Draft EIS, the Klamath Level 1 Team conducted an analysis of Critical Habitat in the Matrix and rated the affected portion as not critical to the function of the associated LSRs, therefore, not critical to the survival or recovery of NSOs as outlined in the NW ROD. The CHU within the associated LSRs meets the intent of the original Critical Habitat designation due to high degree of overlap between Critical Habitat and LSRs, and due to close proximity of LSRs as explained on page 3-57 of the Draft EIS.

For cumulative effects relating to habitat loss, the effects of the five acres in Meteor would be added to Knob Timber Sale. On page 11 of the Revised Biological Opinion on the Proposed Knob Timber Sale (USDI FWS 2002), which is cited on page 3-58 of the Draft EIS, the environmental baseline is discussed: "the amount of suitable NSO habitat removed from CHUs within this province is <0.3 percent of the total suitable acres available. The provincial level analysis also indicates that these effects have been dispersed over the province and been buffered by adjacent and overlapping LSRs and adjacent wilderness areas." On pages 12 through 15 of the Revised Biological Opinion on the Proposed Knob Timber Sale, the FWS further discusses the environmental baseline, and demonstrates how the timber harvest proposed in Knob within CHU is insignificant to the CHU network. The Draft EIS includes this information on page 3-58. On page 3-62 of the Draft EIS, it points out that the "additional reduction of 5 acres of dispersal habitat due to either of the Meteor Action Alternatives would also be inconsequential to Critical Habitat."

Comment 76: The Draft EIS fails to assess impacts from the proposed logging on NSO from habitat fragmentation, incidental ingestion of prey poisoned by gopher baiting, and increased competition and

predation, particularly from barred owls and great horned owls. The Draft EIS argues that impact will be small because the logging units are scattered and widely dispersed, neglecting to mention that the “scattering” of clearcuts throughout a larger area is one of the primary factors leading to the listing of the NSO.

28, 29

Response 76: Habitat fragmentation can be defined as “the process of reducing size and connectivity of stands that compose a forest” (Rochell and others 1999). Connectivity and dispersal habitat for species such as the NSO are addressed on pages 3-58 and 3-63 of the Draft EIS and on pages 18 through 20 of the Biological Assessment/Evaluation For Wildlife Species for the Meteor Timber Sale (Wildlife BA). Effects on dispersal habitat were analyzed by 7th field watershed; changes in the amount of forest habitat are scattered over seven watersheds with the largest impact occurring in Rays-Gibson where 20 acres of dispersal habitat (in three units) is being removed. No habitat would be lost in the other six watersheds. This discussion relates to suitable habitat, which includes the critical habitat discussed in Response 75. Changes in the amount of dispersal habitat by 7th field watershed ranged from 0.03% to 0.19% with an average of 65% of the analysis area fitting the definition of suitable dispersal habitat before and after timber harvest. The Wildlife BA and the Draft EIS concluded that the loss of habitat (0.03% to 0.19%) is insignificant. Implementing standards and guidelines from the *Forest Plan*, applying the 50-11-40 principle (Thomas and others 1990), and maintaining dispersal habitat over at least 50% of the area (assessed by watershed) between large blocks of habitat in reserves (LSRs and Wilderness) is expected to provide adequate connectivity across the landscape for species such as NSOs.

The effects of gopher baiting are discussed on page 3-63 of the Draft EIS and pages 23 through 24 of the Wildlife BA. Gopher baiting on the Forest has been monitored since 1996 with no above ground carcasses located after baiting since 1996; monitoring results indicate that the likelihood of NSOs encountering above ground carcasses is very low (Cuenca 2003, Bulkin and others 1997, Nolte and Wagner 2001). The Wildlife BA concluded that gopher baiting is not likely to affect NSOs in the analysis area.

Either Action Alternative would result in a reduction in crown closure and small patch openings in forested habitat as discussed in the Wildlife BA (page 20), however, the change is minor (0.1%) and would be diluted across 14 watersheds. This minor change would not adversely affect the overall suitability of the area for NSOs. Great horned owls are a common species found in more open forest types throughout the Klamath Province, although they are not commonly found on the Salmon River District. It is expected that great horned owls occur in the project area but a 0.1% change in habitat would not give them a competitive advantage over NSOs in the analysis area.

While survey data indicates an increase in the barred owl range throughout the Pacific Northwest, no barred owls have been found in the Salmon River drainage. Although barred owls have been thought to be more habitat generalists than spotted owls, recent research has shown that barred owls use forests that are similar to those used by spotted owls (Pearson and Livezey 2003). Pearson and Livezey (2003) also found more spotted owl sites than barred owl sites in areas with timber harvest and fewer spotted owl sites than barred owl sites in areas without timber harvest. Based on this recent information, barred owl range expansion and competition with spotted owls may be independent of habitat suitability. A 0.1% reduction in habitat as a result of either Action Alternative is not expected to affect the suitability of the project area for barred owls or to give them a competitive advantage over spotted owls. This issue was not discussed in the Draft EIS, as the neither Action Alternative would change habitats to the degree that would encourage an increase in these two species.

The commenter states that scattered clearcuts were a primary factor leading to listing of the NSO due to fragmentation of habitat. No clearcuts are proposed. As shown in Table 3, relatively few units would have a regeneration type harvest. As shown in Table 3, 6 stands would have a Green Tree Retention harvest in Alternative 2 and 4 stands in Alternative 3. Thirteen stands would have small openings created by Group Selection harvest in Alternative 2 and 11 stands in Alternative 3. The largest Green Tree Retention opening would be 12 acres in size with trees left on 15% of the area, scattered and in groups; the other acres in Unit 141 would be thinned with either Action Alternative as explained on page 3-7 of the Draft EIS. There was an errata in the Draft EIS, that Unit 68 would regenerate 6 acres and Unit 141 regenerate

9 acres; this has been corrected in the Final EIS to be 5 and 12 acres, respectively, as shown in Table 4. Scattered trees would be left in the Seed Tree unit with Alternative 2. All other harvest prescriptions would retain canopy closure with only small or no openings as described on pages 3-6 through 3-7 of the Draft EIS. Franklin and others (1997) state that these structural retention prescriptions are not simply a modification or adaptation of the traditional harvest systems of clearcut, seed tree, and selection; rather they typically focus on ecological objectives, such as maintaining biological diversity.

Units are scattered throughout a number of watersheds. This pattern differs from the timber sales designed before the NSO was listed, which included predominately 30- to 40-acre clearcuts in a single watershed. The effects on habitat fragmentation were much greater from timber sales designed prior to the NSO listing than they would be with either Action Alternative. These types of prescriptions that include structural retention were expected with the NW ROD. The individual and cumulative effects on NSO habitat for the two Action Alternatives are described on pages 3-61 through 3-62 of the Draft EIS.

Comment 77: The Forest justifies logging in important Critical Habitat by saying the RRs and LSRs provide enough NSO habitat. However, large portions of the RRs and LSRs are heavily logged or were involved in stand-replacing fires. The NW ROD is not a recovery plan nor is the NSO recovering as predicted. An authentic analysis of suitability of LSRs, RRs, and critical habitat is warranted in the project before anymore NSO habitat is removed or degraded.

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Response 77: The four LSRs that overlap the analysis area provide 39,566 acres of nesting, roosting and foraging NSO habitat, which is a substantial amount. Taylor/Carter, Eddy Gulch, Bowerman, and Little North Fork LSRs currently provide suitable habitat on 72%, 74%, 82%, and 59% of their acreage, respectively. They have the long-term potential to provide higher percentages after the growth and development of existing conifer plantations. The LSR network from the NW ROD was designed with built in redundancy (higher density, greater total acreage, very large reserves) to account for large stand-replacing disturbances and to allow for natural recovery processes within impacted LSRs (Franklin 2004). It was understood that there were some LSRs where habitat had been impacted by wildfire and timber harvest. The large size of the LSR network would provide for NSOs while those areas recovered.

The four LSRs are functioning sufficiently, according to the LSR Network Assessment modeling, historic survey data (1980s through late 1990s), and the current amount and quality of habitat. They provide a connective network of habitat between LSRs along the Klamath River, the Marble Mountain Wilderness to the north and LSRs within the Trinity River basin and the Trinity Alps Wilderness (Wildlife BA pages 14 to 15). The LSR Network Assessment modeling is an authentic analysis, conducted by respected scientists Zabel, Dunk, Stauffer, Roberts, Mulder, and Wright (Zabel and others 2003) and published in Ecological Applications. The viability and continued existence of NSO has been addressed in the NWFP ROD and the *Forest Plan*. The FWS has found that the NW ROD "will accomplish or exceed the standards expected for the Federal contribution to recovery of the northern spotted owl and assurance of adequate habitat for its reproduction and dispersal." (USDA Forest Service and USDI Bureau of Land Management 1994a, Appendix G).

The NW ROD has only been in effect ten years. On the web site for the NW ROD, the Regional Ecosystem Office states, "Our hypothesis was that the owl population would decline in numbers during the initial decades of implementation of the NWFP, after which the population would eventually stabilize at a new equilibrium level as the habitat in owl conservation areas recovered. Spotted owls nest in mature forest conditions, which take many decades to develop. As additional acres of forest mature over time, we expect habitat conditions to improve and demographic rate should improve as well. The monitoring program is designed to examine this expectation." The web site is:

<http://www.reo.gov/monitoring/trends/questions-answers.htm>

Professional Wildlife Biologists from the Forest Service and FWS visited all proposed harvest units within Critical Habitat and "determined that there was little potential for effects to CH (Critical Habitat). The stands do not offer suitable nesting/roosting (N/R) habitat, but are considered suitable foraging and dispersal habitat. Timber harvest would not appreciably change the stands (they would remain suitable for foraging and dispersal post-harvest) and may improve at least one stand in the long term" (Wildlife BA

page 2).

Comment 78: The Draft EIS does not provide any substantive analysis of cumulative effects on wildlife associated with the Meteor timber sale and other past, present, and foreseeable future planned actions that have or will remove suitable or critical NSO habitat (e.g. Upper South Fork, Glassups, and Knob Timber Sales). Little substantive analysis is presented of the acreage or habitat affected by these other activities, whether there will likely be any direct or indirect impacts from these other activities, or much information on population viability. In summary, there is no evidence to support a Finding of No Significant Impact or compliance with the species viability requirements of the National Forest Management Act.

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Response 78: Refer to pages 3-62 through 3-65 of the Draft EIS for cumulative effects assessments, acreages affected, and viability discussions. Supporting information is provided in the Wildlife BA, Management Indicator Species Project Level Assessment, and Fauna Survey and Manage Specialist's Report as stated on page 3-60 of the Draft EIS. In summary, the cumulative effects analyses conclude that approximately 730 acres of forested habitat will be removed across 14 7th field watersheds as a result of the Upper South Fork, Glassups, and Knob Timber Sales. That acreage, combined with the effects of either of the Meteor Action Alternatives, would result in a 1% reduction in the amount of forested habitat in the analysis area. All four projects include mitigation measures to reduce or eliminate the potential for direct effects on NSOs and goshawks. The direct effects of habitat loss would be dispersed rather than concentrated and would have minimal effects on individual territories. Direct effects of logging, fuels projects and watershed restoration projects in occupied habitat may include disturbance, displacement, or injury of individual animals, and although individuals may be harmed, it is expected that populations would not be measurably affected.

The implementing regulations for NEPA at 40 CFR 1502.14 state that data and analysis in a NEPA document shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. 40 CFR 1502.21 states that "Agencies shall incorporate material ... by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The incorporated material shall be cited ... and its content briefly described." 40 CFR 1500.4 states that agencies shall reduce excessive paperwork by emphasizing the portions that are useful to decisionmakers and the public and reducing emphasis on background material. This EIS is consistent with this requirement. A Finding of No Significant Impact is not required with an EIS.

Comment 79: To say the *Forest Plan*, which merely mentions a species and says to ensure its viability, excuses the Forest from assessing site-specific and cumulative impacts does not assure viability maintenance.

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Response 79: The commentor misunderstands the statement. "This was decided in the *Forest Plan*" means the land allocations and standards and guidelines in the *Forest Plan* adequately provide habitat for the species of concern. The decision to implement the land allocations and standards and guidelines was made in the *Forest Plan*, which was approved in 1995 and went through extensive public involvement. Decisions made in the *Forest Plan* are not revisited on each project designed to implement the *Forest Plan*. The proposed project only needs to assure that the standards and guidelines are applied in the project and that they adequately provide for species needs. The NW ROD provided direction for the *Forest Plan*; the NW ROD viability assessments in Appendix J-2 are pertinent. Appendix I of the *Forest Plan* EIS displays the habitat capability models used to design the *Forest Plan* standards and guidelines for ensuring viability of species. The habitat capability models describe physical and biological habitat variables that, if maintained at moderate to high capability, are expected to maintain viable populations. The Action Alternatives were designed to maintain, at a minimum, moderate capability habitat for species addressed in the Wildlife BA and the Management Indicator Species Project Level Assessment.

Monitoring at the *Forest Plan* and NW ROD scales has occurred and is underway to test the effectiveness of the *Forest Plan* land allocations and standards and guidelines (USDA Forest Service 2001b, 2002c, 2003a; Regional Implementation Monitoring Team 1997 through 2002, Northern Spotted Owl Monitoring Team 2003, University of Minnesota 2003, LSOG Monitoring Team 2003, Gallo and others 2003). All

these monitoring documents are incorporated by reference and available on the web at the following sites:

<http://www.fs.fed.us/r5/klamath/projects/forestmanagement/index.shtml>

<http://www.reo.gov/monitoring/reports.htm#implementation>

An example of how *Forest Plan* standards and guidelines provide for species needs can be found on page C-4 of the Draft EIS. It relates to species that use snags and coarse woody debris, "Standards and Guidelines are designed to provide adequate snags and coarse woody debris for fish and wildlife habitat needs. Removal of large trees, snags, or large logs as a result of harvest or fuels treatment would be inconsequential to the overall availability of those habitat elements across the landscape. The 1% reduction in snags and green recruitment trees in the analysis area, mainly in small-scattered openings, is not expected to measurably affect local populations of sapsuckers, woodpeckers, or swifts. These findings are supported by the detailed discussions of effects on habitat elements in the Wildlife BA and the MIS Project Level Assessment. Refer to discussion in Chapter 3, Soils and Fisheries Sections."

Another example from page C-5 of the Draft EIS, "The *Forest Plan* land allocations and standards and guidelines are designed to provide a diversity of habitats. The scale of consideration for neo-tropical migrant birds is greater than the project area or even the Forest. At the Forest scale, land allocations in the *Forest Plan* are designed to maintain a variety of habitat types, which would provide habitat for neo-tropical birds that may use the project area at some point during the year. In particular the designation and standards and guidelines for the Wilderness, LSR and RR land allocations are designed to ensure the viability of species that use late-successional forest and aquatic habitats (USDA FS and USDI BLM 1994b, page 28). The *Forest Plan* also has many provisions that provide for biological diversity on the Forest (USDA FS 1995b, pages 4-38 through 4-91). Matrix/regulated land is intended to provide for early seral habitats that are also used by some migratory bird species. 'Land allocations and management direction are designed to maintain species, community and genetic diversity. Diversity will be provided through a mixture of vegetative types and seral stages. Early seral stages will be provided by management activities on regulated land and by wildfires' (USDA FS 1995c, page 2). Pages 3-29 through 3-40 and 4-38 through 4-56 of the *Forest Plan* EIS include an analysis of habitat types and provisions for biological diversity at the Forest scale. At the project scale, pertinent standards and guidelines would be implemented to maintain habitat diversity. Habitat modification would not cause a measurable negative effect to migratory bird populations due to the small amount of acreage where project activities would occur during the breeding season relative to the large amount of migratory bird habitat across the Forest."

Comment 80: "Cumulative impacts on listed threatened, endangered, and sensitive wildlife species. Through all the current Salmon River sales, much of the critical spotted owl habitat, outside of LSRs, would be removed on the two forks of the Salmon River. Sensitive species were not surveyed."

1, 2, 3, 6, 7, 8, 9, 10, 11, 12, 15, 19, 20, 21, 24, 29, 34, 35, 36, 38, 39, 42, 44, 45, 50, 55, 61, 64, 67

Response 80: A discussion of direct, indirect and cumulative effects of either of the Action Alternatives on threatened, endangered, and sensitive wildlife species can be found on pages 3-61 through 3-64 of the Draft EIS.

The following is from the Cumulative Effects Section under Critical Northern Spotted Owl Habitat in the Matrix on page 3-62 of the Draft EIS, "Knob Units 85, 86, and 252 combined with Units 82, 83, and 84 in either Alternative 2 or 3 of Meteor would reduce 14 acres of NSO nesting/roosting habitat to foraging/dispersal (Knob) and reduce 5 acres of dispersal habitat to non-habitat (Meteor). Affected acres are scattered throughout the stands in small 2 to 3 acre patches. All of the units would continue to provide NSO dispersal habitat upon project completion. Affected acres are located on the edge of the large CHU/LSR and represent less than 0.2% of the total CHU/LSR area. The effects of the Knob Timber Sale on Critical Habitat were determined to be "inconsequential" by the FWS in the Biological Opinion for that project (USDI FWS 2002). The additional reduction of 5 acres of dispersal habitat due to either of the Meteor alternatives would also be inconsequential to Critical Habitat." As shown in Table 18 on page 3-57 of the Draft EIS, there are 4,130 acres of critical NSO habitat in the Matrix within the analysis area, and 57,570 acres in all land allocations. The five acres removed are one-tenth of one percent of the critical habitat acres within Matrix and 8 thousandths of one percent of critical habitat within the analysis area.

The requirement for sensitive species from *Forest Plan* standard 6-8 is “Project areas should be surveyed for the presence of Sensitive species before project implementation. If surveys cannot be conducted, project areas should be assessed for the presence and conditions of Sensitive species habitat.” (USDA Forest Service 1995a, page 4-22). Project specific surveys were conducted for northern goshawks; other available survey information was used for willow flycatchers, marten and fisher as described in the Wildlife BA. Habitat assessments were conducted for all Sensitive species, in accordance with the *Forest Plan*, as described in the Wildlife BA, which is incorporated by reference on page 3-60 of the Draft EIS.

Comment 81: This area affords key migration routes between the Marble Mountain, Trinity Alps, Russian and Siskiyou wilderness. Loss of habitat connectivity will impact a number of old-growth dependent species, including the Pacific fisher, American marten, wolverine, NSO, Northern goshawk, Townsend’s big eared bat, and Pallid bat. Units are located in residual late-successional stands in highly fragmented areas and in RRs, both are very important for dispersal between LSRs and wilderness.

7, 9, 16, 29, 36, 44

Response 81: Refer to Response 77. Page 3-56 describes how the land allocations in the *Forest Plan* provide connectivity within the analysis area. Pages 13-15 of the Wildlife BA discuss connectivity and dispersal across the project area. Either Action Alternative would maintain dispersal habitat over at least 50% of the area (assessed by watershed) between large blocks of habitat in reserves (LSRs and Wilderness); the dispersal habitat is expected to provide adequate connectivity across the landscape to ensure a high likelihood of persistence for NSOs and other late-successional forest related species (50-11-40 principle from Thomas and others 1990). In addition to maintaining 50% of the area in dispersal habitat, other reserved land allocations provide dispersal habitat, such as Riparian Reserves, 100-acre LSRs, Sensitive Species reserves, and visual corridors. Dispersal habitat, as displayed in Table 5 of the Wildlife BA, occurs over 65% of the analysis area.

Page 3-58 provides the FWS conclusion from the Biological Opinion for the Knob Timber Sale (USDI FWS 2002) that the amount of suitable NSO habitat removed from CHUs in Knob “is not significant enough to alter the stability of the CHU network within the California Klamath Province. Therefore, the proposed action will not preclude the ability of CHUs to maintain connectivity between the physiographic provinces and thus will not compromise the function of critical habitat in the conservation and recovery of the NSO.” On page 3-62 of the Draft EIS, it points out that the “additional reduction of 5 acres of dispersal habitat due to either of the Meteor Action Alternatives would also be inconsequential to Critical Habitat.” Page 3-63 summarizes, “Due to the small amount of mature forest that would be converted to an early seral stage in either Action Alternative, the effects to connectivity would be negligible.” Page 3-57 points out that “LSRs on the Forest overlap with designated Critical Habitat by over 90%.” Although the analysis used NSO habitat data, the LSR network was designed to provide for all species that use late-successional habitat. The conclusions for connectivity for NSO apply to other late-successional species as well, including those identified in the comment. Page C-7 states that the functioning of RRs would be maintained and structural elements would be provided within regeneration stands.

Comment 82: “... because the Northwest Forest Plan was focused on survival and recovery of the Northern Spotted Owl, how can older plans focused on a bird who can fly be applicable to forest carnivores, anadromous (sic) fishes, and other species who cannot fly from preferred habitat to preferred habitat?”

67

Response 82: The NW ROD was designed to provide a functional and interconnected old-growth forest ecosystem; it focused on a suite of late-successional and old-growth forest-related species within the range of the NSO, including those species associated with aquatic ecosystems. The original Assessment Team reviewed and determined that 1,116 terrestrial species and 29 fish species are closely associated with late-successional and old-growth ecosystems. The species reviewed included bryophytes, fungi, lichens, vascular plants, mollusks, amphibians, reptiles, birds, mammals and fish. Alternatives in the NW ROD EIS were compared based on their ability to provide connectivity of late-successional forest ecosystems. The alternatives were designed to provide for biological and ecological flows that would sustain late-successional and old-growth associated animal and plant species across the range of the

NSO. Additional analysis of species was conducted prior to the signing of the NW ROD (NW ROD EIS Appendix J).

The *Forest Plan* was approved a year after and incorporates guidance from the NW ROD as stated on page 1-4 of the Draft EIS. Appendix I of the *Forest Plan* EIS includes habitat capability models that are used to ensure that viability is provided for a number of species during management activities. LSRs provide habitat for late-successional species, whether they walk or fly. The NW ROD and *Forest Plan* also include provisions for maintaining anadromous fish and aquatic health through the ACS; refer to Table 17 on pages 3-50 through 3-51 of the Draft EIS.

Comment 83: I worry about the effects of clearcutting on the local animals, including bald eagles, golden eagles, and rare owls. Pacific giant salamander, pine marten, wolverine, and elk will be impacted.

14, 25, 50

Response 83: The commenter refers to the effects of clearcutting on local animals. No clearcuts would be prescribed in either of the Action Alternatives. Refer to Response 76. The largest opening would be 12 acres in size with trees left on 15% of the area. Opening sizes would average about 2 to 3 acres in size. Large trees would be left within the units to provide structural elements for wildlife needs (Franklin and others 1997). These large trees would be left scattered and in groups as described on pages 3-6 through 3-7 of the Draft EIS.

The effects on bald eagles, NSOs, marten, and wolverine are discussed in the Wildlife BA and summarized in the Draft EIS on pages 3-56 through 3-65. The Action Alternatives would not affect marten or bald eagles and would have minor effects on NSOs and wolverines potentially in the area. Effects to forest habitat would be minor (0.1% reduction in habitat over 14 watersheds) and would not affect populations or viability of forest related species.

Elk are an early seral obligates (require the early seral condition) that thrive on “edge effect” and early seral vegetation. Although small 2 to 3-acre openings would be beneficial for early seral and edge species, the minor change in stand structure as proposed in either Action Alternative would have minimal beneficial effect on elk. Also benefiting from these early seral conditions would be small mammals, snakes and birds; all prey for the golden eagle. Golden eagle sightings are common on the Salmon River Ranger District and within the Meteor Project area. There are no known nest sites in the project area. Possessing eyesight four to eight times greater than humans, golden eagles can spot prey from great distances. Golden eagles prefer to hunt over open, mountainous terrain for small mammals, snakes, birds, and carrion. Pacific Giant Salamanders frequent damp forests in or near clear, cold streams or springs. Larvae frequent clear cold rivers, creeks and lakes. The Pacific Giant Salamander is a riparian obligate. Pages 3-44 through 3-55 disclose the effects on Hydrologic RRs, concluding on page 3-51, “Either Alternative 2 or 3 would have no to negligible effect on the current distribution of riparian dependent native plants, invertebrates, or vertebrates.”

Comment 84: Is Meteor at the eastern end of the marbled murrelet’s range? How would the Action Alternatives activities impact its range and its recovery?

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Response 84: The project is not within the range of the marbled murrelets, so there would be no impact on its range or recovery.

Comment 85: Mapping old units and historic events onto one map are essential in understanding not only the impact to NSO habitat (foraging, nesting, dispersing), but to many other species as well (fisher, and other furbearers, neotropical migrant birds species, mollusks, amphibians and reptiles). All historic projects that have changed habitat in significant ways must be analyzed to understand the effects of this project on NSOs, and other sensitive species (including but not limited to Hog Fire salvage, Specimen salvage, Glassups timber sale, Yellow fire, Knob timber sale, Upper South Fork timber sale and others that are relevant).

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Response 85: The Forest GIS allows this type of analysis; the results of the analysis are summarized in

the Wildlife Section of the Draft EIS and in the Wildlife BA. The GIS habitat layers include the effects of past management activities and wildfires. For the Action Alternatives, the projected effects are added to this background information. As stated on page 3-60 of the Draft EIS, the Wildlife BA “documents the effects of harvesting, road decommissioning, fuel treatment, habitat improvement, gopher baiting, and cultural treatments.

Comment 86: Very little is known about the Klamath shoulderband. How will the ridiculously small buffers of half a tree length maintain sufficient canopy cover and protect key habitat features when the large shading trees in many of the units are more than 200 feet apart and are marked? How will an 85-foot buffer protect the canopy, ground cover, and microclimate of formally late-successional well-spaced forest? Five units are Group Selection and one is Green Tree Retention and one of the units will be burned with no buffer. No information is provided on species numbers, trends, distribution, or stability leaving no way for the public or decision-maker to draw a conclusion on effects to species due to the project.

28, 29

Response 86: Since the Draft EIS was circulated to the public, the Record of Decision To Remove or Modify the Survey and Manage Mitigation Measure Standards and Guidelines was approved on March 22, 2004, and the decision became effective on April 21, 2004. This *Forest Plan* amendment removes the Survey and Manage Mitigation Measure Standards and Guidelines.

Although no longer a S&M species and management recommendations are not required, known sites within units would be managed in either Action Alternative by protecting key habitat features. The ½ tree height buffer mentioned in the Draft EIS was an errata. The Final EIS has been corrected to state, “would be protected by maintaining sufficient canopy cover, restricting heavy equipment use, and protecting key habitat features. Key habitat features include talus areas, hardwoods, dry/rocky aspects, overstory canopy and herbaceous ground cover.” This management prescription was developed by Forest Wildlife Biologists using survey information on the Klamath shoulderband (Dunc and others 2002). This survey information represents the best available science regarding the habitat association of Klamath shoulderband. Supporting information and rationale can be found in the Fauna Survey and Manage Specialist’s Report, which was incorporated by reference on page 3-60 of the Draft EIS.

Comment 87: The Draft EIS fails to acknowledge or survey for all the S&M species. It does not mention Siskiyou Mountain salamander, or red tree vole. The Draft EIS said that the S&M Issue was decided in the *Forest Plan*, but the *Forest Plan* was inadequate to protect species, thus the need for the S&M program.

29, 36, 45, 50, 55

Response 87: Surveys were conducted for species formerly known as S&M as described on page 3-59 of the Draft EIS. Surveys are not usually determined necessary for proposed management activities that occur outside the geographical area of known or suspected occupancy for a particular species (USDA Forest Service and USDI Bureau of Land Management 2001). The project is not within the known or suspected range of the Siskiyou Mountain salamander or red tree vole. All the requirements related to the S&M Program came from the *Forest Plan*; however, the *Forest Plan* has been amended (USDA Forest Service and USDI BLM 2004c), so there is no longer a S&M Program. The Siskiyou Mountain salamander has been added to the Region 5 sensitive species list, but the red tree vole was not. The Management Direction and Wildlife Sections in the Final EIS have been updated to include this new direction.

Comment 88: Hardwoods are a major vegetative component in many forest and rangeland types. Acorns provide an abundant and highly nutritious food source for many species. Therefore, 28 acres of hardwoods proposed for harvest would affect multiple species. Direction from the *Forest Plan* (for the General Forest MA 17) on page 4-177 states, “Provide for snags and hardwood habitat to help maintain viable populations of wildlife species that require these structural components.”

28, 29

Response 88: The Management Indicator Species Project Level Assessment, which is incorporated by reference on page 3-60 of the Draft EIS, includes the following discussion on pages 4 and 5: “There are

8,978 acres of hardwood habitat within the analysis area boundary ... (and) individual hardwoods scattered throughout the conifer stands in the area, usually in the understory...

"In nine timber harvest units, hardwood felling in mixed-conifer hardwood stands is proposed to reduce competition for conifers. Felling of large hardwoods may have negative effects on habitat by removal of existing cover and nest structures (cavities). Hardwood felling will be limited to the areas where group selection of conifers has occurred (2 - 2½ acre openings) and within GTR units. Not all hardwoods in any given stand would be felled, only trees within the group selection area or within the GTR unit where space is needed for seedling regeneration. Individual hardwoods associated with conifer and mixed hardwood-conifer stands are abundant and well distributed in the project area. Klamath LRMP Standards and Guidelines for hardwood retention would be met. Felling of hardwoods within harvest units would not result in a reduction in the overall amount of hardwood habitat. It would result in the removal of scattered individual trees on 41 acres in nine different timber harvest units. Mixed hardwood-conifer stands would continue to be suitable for squirrels and acorn woodpeckers post-project...

"Cumulative effects to habitat will be minimal in that no pure hardwood habitat is being lost to project activities. Individual hardwoods will be removed and some elements of habitat will be removed, such as associated large conifers and woody material on the forest floor...

"Overall, the amount of hardwood habitat in the project area would be the same pre- and post-project. Degradation of habitat components (e.g. individual trees) would occur with the removal of some hardwoods in mixed hardwood-conifer stands and plantations, and the removal of large conifers. Shifting or relocation of territories may result from proposed activities in the landscape, but it is not expected to cause a reduction in populations for western gray squirrels or acorn woodpeckers."

The detailed discussion in the Management Indicator Species Project Level Assessment provides the data for the conclusions on page 3-64 of the Draft EIS that effects would be minor, individual habitat elements would be reduced, but there would be negligible effects on the overall amount of habitat area and on local populations. By implementing hardwood retention standards and guidelines from the *Forest Plan*, either Action Alternative would maintain at least moderate capability habitat for gray squirrels and acorn woodpeckers, thereby maintaining local populations and long-term viability of the species (USDA Forest Service 1995b, Appendix I, page I-2).

Comment 89: We are concerned with the lack of surveys and good data on Management Indicator Species and with the timber planner's statement that the *Forest Plan* does not prohibit effects to those species. These species are greatly affected by habitat changes and if there is no data being collected, what is the point in having Management Indicator Species?

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Response 89: The land allocations and standards and guidelines associated with the *Forest Plan* were designed to provide for healthy, resilient, productive ecosystems that can support viable populations of diverse species (USDA Forest Service 1995c, page 3-5). The *Forest Plan* requires the use of species associations or other available information "to assess landscape and project-level impacts to habitat conditions" as stated in S&G 8-21. As part of the *Forest Plan* revision process, a Forest-level review will be conducted using data collected from the project level Management Indicator Species assessments as well as Forest scale vegetation data. The project management indicator species assessments will serve as a monitoring tool for the future Forest-level analysis.

For the Meteor project, Management Indicator Species were assessed as summarized on page 3-65 of the Draft EIS and discussed in detail in the Management Indicator Species Project Level Assessment, which is incorporated by reference on page 3-60 of the Draft EIS. If effects to those species were prohibited, there would not be any need to assess project-level effects; so the timber planner's statement is correct.

As stated on page 3-65 of the Draft EIS, "Either Action Alternative would result in minor effects to Management Indicator Species habitat in the Hardwood, River/Stream, and Snag species associations within the analysis area." Where effects were identified for terrestrial species, they were found to "have negligible effects on the overall amount of habitat in the analysis (area) and on local populations." The

habitat elements affected would be relatively minor in the context of the large amount of habitat available in the assessment area. At the Forest scale, habitat is not a limiting factor. Within the analysis area, there are 8,978 acres of pure hardwood habitat; 48,967 acres potentially suitable for sapsuckers; and 17,658 acres with the potential to be woodpecker habitat.

The land allocations in the *Forest Plan* are also designed to maintain a variety of habitat types, which would provide for diverse species. The *Forest Plan* also has many provisions that provide for biological diversity on the Forest. "Land allocations and management direction are designed to maintain species, community and genetic diversity. Diversity will be provided through a mixture of vegetative types and seral stages." (USDA Forest Service 1995c, page 2). In addition, by implementing hardwood and snag retention standards and guidelines from the *Forest Plan*, either Action Alternative would maintain at least moderate capability habitat for Management Indicator Species, thereby maintaining local populations and long-term viability of those species (USDA Forest Service 1995b, Appendix I, page I-2).

Page 3-65 of the Draft EIS summarizes the effects on aquatic Management Indicator Species, "Habitat elements, including instream woody debris, substrate, flows, channel condition, and streamside riparian vegetation would not be affected to any measurable degree by these activities. There would be no effect on the overall amount of suitable habitat or on the local population for any of these species. Overall there will be a negligible effect to the aquatic habitat and therefore to rainbow trout and steelhead. Spawning, adult holding, incubation, and juvenile rearing lifestages should have little to no effect as the habitat is negligibly affected." While the Forest Service does have population counts for summer steelhead for over 20 years (USDA Forest Service 2001c), the information was not needed in assessing effects to aquatic Management Indicator Species. The detailed analysis for these species can be found in the Management Indicator Species Project Level Assessment and the Fisheries Specialist Report, which were incorporated by reference on pages 3-44 through 3-45 of the Draft EIS, and in the Biological Assessment/Evaluation For Threatened, Endangered, Proposed, Petitioned and Sensitive Species That may be affected by the Meteor Timber Sale, which includes a discussion of direct, indirect, and cumulative effects for listed fish species, is incorporated by this reference, and is available in the project file.

Comment 90: Mistletoe, fire, insect infestation, and disease are all important ecosystem processes that contribute to future snag recruitment. The Draft EIS does not discuss future snag recruitment.

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Response 90: Either Action Alternative would be consistent with all applicable *Forest Plan* standards and guidelines, including standards and guidelines 8-22 through 8-26 and 8-28 through 8-30 that relate specifically to snags. The processes identified in the comment among other processes would create snags in the future from trees left in the stands. Snags and replacement snags would be provided in Green Tree Retention units in the 10% of the area left intact and the scattered trees left on 5% of the area as described on page 3-6 of the Draft EIS. Seed trees would provide future snags in the Seed Tree units. Future snags would be provided from among the large number of trees left on site in the Thinning, Thinning/Sanitation, Salvage, and Group Selection units. Refer to page 3-7 of the Draft EIS for descriptions of these prescriptions. Refer to Response 89 for information on snags currently available in the analysis area and other land allocations that would provide future snags. Refer to discussion of Snag and Coarse Woody debris Issue on page C-4. The effects on snags and green recruitment trees are discussed on pages 19 through 26 of the MIS Project Level Assessment and summarized on page 3-65 of the Draft EIS. Refer to Response 11 for information on the abundance of mistletoe.

Comment 91: Removal of mistletoe may impact some neotropical bird species, which often use brooms as foraging or rest sites (from a Six Rivers EA). RRs are also an important place for bird species. Birds flee thinned areas as readily as clearcut areas. Effects to these birds must be considered in site-specific documents.

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Response 91: With the abundance of habitat for neotropical bird species in the mixture of land allocations available from the *Forest Plan*, explained on page C-5 of the Draft EIS, these highly mobile birds would have sufficient habitat for displacement. As disclosed on page 3-11 of the Draft EIS, only ½ of one percent or less of the 45,731 acres that can support late-successional vegetation in the North Fork

Salmon would be converted to an early seral stage by all the sales in the area with either Action Alternative and less than one percent of the 125,957 acres in the South Fork. The areas where mistletoe would be removed are small compared to the areas left untreated within the 14 7th field watersheds, so there would be abundant mistletoe brooms left within the assessment area. The effects on vegetation within Hydrologic RRs in Alternative 2, described on page 3-54, including small, scattered openings where trees are removed would only affect a few acres. There would be no direct effects on vegetation within Hydrologic RRs in Alternative 3. The effect on neotropical birds would be negligible with either alternative. Refer to Response 11 for information on the abundance of mistletoe.

Comment 92: The use of strychnine can affect other native animals, local pets, migrating bird populations, and local salmon spawning grounds. One commenter felt this was intensive ecological engineering and the use of strychnine and other toxic chemicals was inappropriate on a multiple use area of public land. Another commenter felt gopher baiting was a very dangerous and little documented practice as shown by effects to at least six non-target species.

9, 14, 23, 29, 55

Response 92: Based on past monitoring and studies, there is little risk of secondary poisoning of non-target species from underground gopher baiting as discussed on pages 2-13 and 3-63 of the Draft EIS and in Response 17. Public exposure levels for gopher baiting with strychnine are very low due to the bait formulation, underground application, remote treatment locations, and the laws and safety procedures for protection of humans, non-target species, and resources. A discussion on public health has been added to the Social Section of the Final EIS.

Gopher baiting is not intensive ecological engineering, since only a small proportion of the gopher population in limited areas is removed during critical tree regeneration periods and gophers rapidly recolonize with their high birth rate as discussed on page 2-13. Gopher baiting using strychnine bait has been conducted on the Forest for many years and studied much longer. A Bibliography of Pocket Gophers Family Geomyidae by Anderson, Barnes, and Bruce published 28 years ago included 8 pages of publications related to gopher damage control (Anderson and others 1976). Forest Service analyses such as Granite Gopher Baiting EA, mentioned on page 2-13 of the Draft EIS, cite over 2 pages of more recent publications.

Wild and Scenic Rivers

Comment 93: The Draft EIS fails to demonstrate that the project will protect and enhance outstandingly remarkable values in the WSR Salmon River watershed. The project will contribute to existing significant cumulative watershed effects and adverse impacts to “outstandingly remarkable” anadromous fish values. All of the proposed units in the Knob Timber Sale have the potential and are likely to adversely affect anadromous fish in the Salmon River Watershed. The Forest Service has an obligation to ensure that all Forest Service actions are consistent with protecting and enhancing the river, which is substantially different than merely finding that the sale won’t adversely affect the “outstandingly remarkable values” for which is was designated, in this case anadromous fish.

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Response 93: The Action Alternatives are fully consistent with requirements in the *Forest Plan*, including the Aquatic Conservation Strategy. The *Forest Plan* establishes the degree of WSR value protection and enhancement, as specified by the WSR Act Section 10(a). Refer to the Fisheries Section for specific effects information on the outstandingly remarkable fisheries values.

Comment 94: The Draft EIS states “neither of the action alternatives would affect the free-flowing conditions of the WSR, since no activities are proposed within any WSR bed or bank” (page 3-67). The bed or bank is only one very small part of the river system, and activities such as road building, RR logging, and upslope timber harvesting do directly affect the bed and banks of rivers. Upslope management activities have significantly affects WSR conditions in the mainstem (such as *increased turbidity, temperature, and the resultant impact to wildlife species such as anadromous fish*).

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Response 94 The WSR Act Section 16 (b) defines “free-flowing” as “existing or flowing in natural condition without impoundment, diversion, straightening, rip-rapping, or other modification of the waterway.” The Action Alternatives would not affect these free-flowing conditions of the Salmon River system. The area “within any WSR bed or bank” is indeed one very small part of a river system. Effects on WSR values other than “free-flowing” conditions are summarized in the WSR Section on pages 3-67 through 3-69 of the Draft EIS, and described specifically in each resource section such as Water Quality, Fisheries, and Wildlife. The Fisheries Section discusses temperature, turbidity/sediment, large woody debris, and changes in peak/base flow. Effects on the outstandingly remarkable fisheries values with either Action Alternative were found to be negligible. Minor terminology changes relating to the effects on anadromous fish were made in the Fisheries and Wild and Scenic Rivers Sections in the Final EIS to be consistent with the Fish BA, which was finalized between the Draft and Final EIS. Refer to Responses 65 and 68 for more information about fisheries effects.

Comment 95: The Meteor Timber Sale will be visible from the Salmon WSR and Unit 77 would be in the East Fork Salmon River WSR corridor. RR logging and logging of unstable ground some of which is directly above the East Fork Salmon River in conjunction with the Knob Sale will be cumulatively impactful to fisheries and to scenic value of the WSR corridor. Due to extremely high fragmentation, the loss of some of the last low elevation older forest could hurt local tourism, which brings in more money than the timber industry. Recreation and restoration provide local jobs.

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Response 95: The Fisheries and Scenery Sections include past and present project effects within their cumulative effects analyses, including the Knob Sale whose closest activity area is 4 miles west of Unit 77. The Fisheries Section summary on page 3-61 of the Draft EIS concludes, “either Action Alternative would have a negligible effect on fisheries habitat, based on the effects identified for the habitat indicators and ACSOs.” Refer to Response 66 for additional fisheries information about cumulative analyses, and Response 67 for additional fisheries information about Unit 77.

Unit 77 is readily visible from the South Fork Salmon River Road within the WSR corridor; however, it is designed to achieve the Visual Quality Objective of “Partial Retention” within 3 years. It would retain a dominantly natural appearance with only minor, slightly noticeable alterations visible. Thinning this crowded, small to intermediate size stand of conifers would allow the remaining larger, healthier trees to become larger, and live longer. The stand scenic character would be enhanced by the resulting increase in tree size, and slightly greater depth of view. Scenery mitigations such as thinning in irregular clump patterns, low cutting of stumps, and hand removal of slash and debris would minimize noticeable alterations within this low intensity activity area. The cumulative WSR effects analysis associated with Unit 77 does not indicate any fisheries, scenic, or tourism-related inconsistency with the WSR Act, Aquatic Conservation Strategy, or other requirements of the *Forest Plan*.

Comment 96: Loss of recreational values. Logging would occur within the WSR corridors of the North and South Fork Salmon River. The North Fork is renowned for its world-class, whitewater recreation.

1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 19, 20, 21, 23, 25, 34, 36, 37, 38, 39, 40, 44, 49, 50, 51, 56, 57, 58, 59, 60, 61, 62, 63, 65, 66, 68, 70

Response 96: The activities proposed within WSR corridors and their viewsheds were designed with fisheries resources, scenic quality, and whitewater recreation as primary values. The dominantly natural-appearing recreational river setting would be retained during the light intensity logging prescriptions and methods. The resulting increase in large tree character and overall forest canopy health would enhance and prolong attractive scenery within the project’s WSR recreation settings.

The WSR Act describes three categories of rivers based on the degree of alteration; they are Wild, Scenic, and Recreational as described on page 3-66 of the Draft EIS. The timber harvesting in either Action Alternative is only proposed in Recreational segments, which permit the most alteration. The proposed action are consistent with the WSR Act.

Comment 97: Better consideration of the effects of the proposed activity on WSR values is appropriate, especially in light of the increased recreational activity in the river area (rafting, kayaking, horseback

riding, hiking, snorkeling, etc.).

69

Response 97: The WSR's free-flowing conditions, outstandingly remarkable anadromous fisheries values, recreation, scenery, wildlife and cultural resources have all been fully considered and integrated in the Action Alternatives. Specific considerations and descriptions of project effects for these WSR values are presented within the individual resource sections of Chapter 3, and are then summarized in the WSR section on pages 3-67 through 3-69 of the Draft EIS.

Comment 98: I object that the WSR Evaluation is incorporated by reference and hiding out in an office in Yreka, California. Since fish is the outstandingly remarkable value that got the Salmon River included as a WSR; what is a landscape architect's expertise in habitat conditions?

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Response 98: With the exception of a few paragraphs of minor technical importance, the WSR Evaluation is the same as the text of the WSR Section presented in the Draft EIS. As stated on page 3-1 of the Draft EIS, the planning record, including the WSR Evaluation, is available for review and information from the record is available on request. Incorporating information by reference is a common technique suggested by the Council on Environmental Quality in the NEPA Implementing Regulations to "cut down on bulk" (40 CFR 1502.21).

Landscape Architecture expertise is applied in the Forest Service to integrate people's needs and values within natural/biophysical settings such as the Salmon WSR corridors. The Meteor WSR analysis was a collaborative effort of a number of professionals, to address WSR archaeology, aquatic and terrestrial biology, forestry, fire/fuels, hydrology, landscape architecture, recreation and silviculture. Refer to page 4-1 of the Draft EIS for qualifications of interdisciplinary team members.

Comment 99: The WSR analysis does not demonstrate that there will be sufficient habitat protection for bald eagle, Pacific fisher, Northern goshawk, peregrine falcon, pileated woodpecker and northwestern pond turtle. Mere retention of certain large trees and snags within certain river activity areas is insufficient assurance that habitat will be viable for these species.

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Response: Page 3-68 of the Draft EIS states "Conservation requirements for wildlife are contained within the *Forest Plan*, the Pacific Bald Eagle Recovery Plan, and the Recovery Plan for the Peregrine Falcon." Either of the Action Alternatives would be consistent with these requirements. The land allocations in the *Forest Plan* provide sufficient habitat for the species of concern; they are not intended to be supported solely by the WSR corridors. Retention of large trees and snags and seasonal restrictions on timber harvesting within TES wildlife habitat locations are given as design features that would help prevent adverse effects on the species of concern, but are not the only management provisions related to wildlife; there are a large number of other standards and guidelines in the *Forest Plan*. The effects of the Action Alternatives on WSR-associated wildlife are summarized as "no adverse effects are expected or likely, and while some unknown individual animals or habitats may be affected, no loss of species viability or downward trend is predicted." The "Refer to Wildlife Section" statement on page 3-68 of the Draft EIS indicates that supporting discussions for the conclusion can be found there.

The effects of the Action Alternatives on bald eagle, Pacific fisher, Northern goshawk, peregrine falcon, pileated woodpecker and northwestern pond turtle are analyzed in the Wildlife BA and the Management Indicator Species Assessment and are summarized in the WSR analysis (all of which are incorporated by reference into the Draft EIS). The Action Alternatives will have no effect on bald eagles, peregrine falcons and northwestern pond turtles. They may have minor effects on individual goshawks or fisher but mitigation measures are incorporated to minimize effects and it is expected that project activities will have no effect on local populations. The Action Alternatives may affect individual pileated woodpecker territories in the area, however, the relatively minor reduction in the amount of habitat in the analysis area (1%) combined with small scattered openings and maintenance of snag habitat through implementation of

standards and guidelines, it is expected that the local population of woodpeckers would not be affected.

Scenery and Recreation

Comment 100: The Draft EIS does not consider viewshed impacts from the perspective of the rivers below the project areas. River users choose the Salmon River and its forks largely for their scenic beauty and integrity.

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Response 100: The Draft EIS considers viewshed impacts from the perspective of the rivers, banks, beaches, trails, roads and recreational use areas below the project areas. These locations are included within the “Salmon River Canyons” and “WSR corridors” that were identified as “inventoried sensitive viewpoints” on page 3-70 of the Scenery and Recreation Section. Protection of the scenic beauty and integrity of these views was fully integrated into the Action Alternatives.

Comment 101: I contend that a high percentage of “attractive large trees” would be logged. I disagree that forest canopy maturity would increase. I disagree that removing portions of the forest canopy would reduce risk of future scenery impairment from disturbance events like wildfire, drought, wind, and biological infection.

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Response: The Action Alternatives are largely focused on thinning smaller and intermediate trees within excessively dense conifer stands that are highly susceptible to wildfire destruction (over 310 acres within 20 units include thinning). Thinning would result in a larger average tree size, and increase the resilience of the remaining trees to severe disturbance events and future scenery impairment. “Maturity” has been replaced with “large tree character” in the Final EIS to more accurately communicate scenery effects of the alternatives. The Action Alternatives also include relatively small areas with greater visual contrast, where the larger trees remaining would not be as numerous due to health problems. These include 331 acres of small Group Selections within 14 units in Alternative 2 or 275 acres within 12 units in Alternative 3; one 50-acre salvage unit in either Alternative 2 or 3; and 50 acres of seed tree, sanitation and green tree retention openings within 6 units in Alternative 2 or 12 acres within 3 units in Alternative 3. These proposed stand renewal activities have been designed through their size, shape and edge characteristics, to blend with, and remain subordinate to, the natural appearance and desired scenic character, as viewed from the project’s numerous “inventoried sensitive viewpoints;” refer to Scenery and Recreation Section. Strategic removal of less healthy conifer and fuel concentrations using these more intensive prescriptions would increase the resilience of the forest canopy in their immediate vicinity and at the broader landscape level. This resilience increases the likelihood that the project area’s valued scenery, including its “prominence of large trees” and “vigorous, largely continuous forest stands” remain “consistent with naturally established patterns.” It reduces the risk of high intensity impacts to scenery during inevitable future disturbance events.

Economics

Comment 102: The only projects that are truly sustainable are those that benefit the local communities, and develop sustainable employment. How much of the total receipts (estimated at \$684,060 for Alternative 2) will benefit the local economy?

28, 38

Response 102: As explained on page 3-73 of the Draft EIS, “The economic area of influence for the Forest includes the seven surrounding counties: Siskiyou, Shasta, Humboldt, and Del Norte in California as well as Jackson, Josephine and Klamath in Oregon.” Most of the receipts generated from a timber sale would go to the area of influence, which is the local economy for the Forest. A small amount of the money would return to the United States Treasury. There are several types of collections made from the timber receipts. Road collections pay for road work on local forest roads. Knutsen Vandeburg collections pay for tree planting, thinning, release, and other resource work within the timber sale area. Brush Disposal collections pay for the fuels clean-up work within the sale area. Much of this money goes to salaries for people who live within the local area. As they spend their earnings in the community, the

monies change hands many times benefiting business owners and their employees; this is called a multiplier effect. Some of the money is spent on supplies and equipment such as trucks, fuel, saws, and seedlings. Many items would be purchased locally. The seedlings, for example, would come from either JH Stone nursery in Medford or Cal Forest Nursery in Etna. There are other economic benefits above the estimated receipts of \$684,060 collected by the Forest Service. The receipts from the secondary sale of wood products pay for the processing of the wood at the mills, the transportation of the products, and local taxes.

Comment 103: The statement on page 3-73 that “the reduction in timber offered from National Forest System lands in the last decade has had a considerable impact on the county” appears to be the validating point for offering this timber sale. What analysis was conducted to determine the reduced level of timber offered to be a considerable impact? The Draft EIS does not discuss the complete impact of historic logging and management to the devastation of the local economy in Siskiyou County. In contrast to the claim that a reduction in timber offered has caused a considerable impact, a socio-economic assessment of Siskiyou County demonstrates the connection to trends on a state-wide level in California between poverty and employment shift (Norgaard 1996).

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Response 103: The quote from page 3-73 was not intended to justify the proposed project. The purpose and need for the project comes from the *Forest Plan* as discussed in Chapter 1. The quote is supported by analyses in the *Forest Plan* and FEMAT as stated on page 3-73 of the Draft EIS. In discussions of economics, timber and other resource jobs receive emphasis because they are the areas where the Forest has the greatest influence on job creation. A discussion of the impact of historic logging is not relevant to the effects of this proposal and its alternatives; the information presented is to provide background information.

The Norgaard paper using Siskiyou County data through 1994 found no one-to-one correspondence between volume of timber cut and total employment, personal income, or unemployment. Forest economic monitoring similarly found that personal income, taxable sales, and retail permits are not sensitive to harvest levels, but are good indicators for detecting diversification in the economy. Further exploration of the Siskiyou County economic structure revealed the importance of income not earned locally. In 1993, 48% of personal income came from transfer payments (retirement, disability, medical payments, etc.) and property income (dividends, interest, rent). The relationships for most aspects of the economy are highly complex and unclear; however, Forest actions do strongly affect the lumber and woods products industry. (Dillingham 1996).

Norgaard makes the points that the “economic base of the county has changed greatly... The volume of timber cut has had no measurable impact on total employment in the county... Although timber employees have constituted a high percentage of total employees to the county in the past, their significance has decreased steadily over the study period.” There is no dispute that the importance of the timber industry to the economy within the 7-county area of influence has decreased as the economy adjusts to the changes and diversifies; however, the process of change has caused a considerable impact on the counties affected and more specifically on individual communities. This has been clarified in the Final EIS. The statement on page 3-73 is referring to the impacts of the economic change, which are primarily indirect and cumulative effects. The effects on individual communities are not reflected by county averages. Norgaard touches on these impacts in a discussion of effects on Weed and Happy Camp where the cumulative effects of mill closings plus other economic factors are described.

Timber and other wood products also help contribute to a diverse economy that all seem to agree is important to the economy.

Information on the economic effects of Forest programs since the *Forest Plan* and NW ROD took effect can be found in the 1999 Klamath National Forest Economic Monitoring Report, including actions to encourage diversification (Dillingham 1999).

Comment 104: How much will the sale cost the taxpayer? It costs 1.2 billion a year to manage all the logging roads. You should look more into recreation, hunting, and fishing; it raises \$111 billion a year and makes 2.9 million jobs.

64

Response 104: The costs to the taxpayer and benefits of a sale in either Alternative 2 or 3 are presented on pages 3-74 through 3-75 of the Draft EIS. These alternatives do not address the costs of road maintenance across the entire Forest Service road system; that is beyond the scope of this analysis. The use of these forest roads by recreationists for hunting, fishing or other activities should not be significantly altered by implementation of either Action Alternative; however, the Action Alternatives would improve and maintain some roads. Roads provide the access that allows recreationists to use the Forest. Perpetuating the forest canopy and sustainability is the most important value for those who use the forest. Maintaining the undeveloped, natural-appearing recreational setting at the landscape scale would encourage recreational use. Refer to discussions on pages 3-71 through 3-72 of the Draft EIS and Response 101.

Social

Comment 105: I urge your agency to work with the community and to consider our concerns about the damaged watershed as foremost in your decision.

15

Response 105: The Forest has been working with the communities and will continue to do so. The Forest worked with the Klamath River Basin Task Force Branch of the FWS and the Salmon River Restoration Council to develop the Salmon River Restoration Strategy. The Forest Watershed Improvement Program has focused on the Salmon River, as it is a key watershed; many road improvement and decommissioning projects have been conducted and others are approved. Habitat improvement projects in two Late-Successional Reserves, with fuel reduction a major objective, are also underway. The District is working closely with the Sawyer's Bar Fire Safe Council to develop a Community Fuel Reduction Strategy.

Comment 106: Although the adverse effects (landslides, degradation of the water, floods, and loss of habitat) are predicted to be "minimal" and "insignificant" it would mark the beginning of the devastation of one of the few really wild places that we know.

17

Response 106: Considerable amounts of mining and logging occurred in this area; the logging at much higher levels than today as described in the WAs. Since the area was able to absorb these impacts and still be perceived by the commenter as a "wild place," the minimal and insignificant effects associated with the Action Alternatives would not likely alter that characterization. Restoration is a priority for the Salmon River key watershed; refer to Responses 68 and 105 and the discussion on the long-term improving trend on page 3-43 of the Draft EIS.

Comment 107: The sales are serving the current political wants. They do not provide for the health of the forest, the people who live in it, and those who use it. Please preserve our natural resources.

1, 3, 5, 7, 11, 13, 14, 15, 16, 18, 19, 20, 21, 22, 61

Response 107: The Action Alternatives are consistent with the *Forest Plan*, which was approved in 1995 and incorporated the provisions of the NW ROD, which was developed during the Clinton Administration. They are also consistent with the Multiple Use/Sustained Yield Act passed in 1960 and the Forest Service Mission. Either Action Alternative would improve the long-term health of the forest with only minor short-term adverse effects. Refer to discussions in Chapter 3 of the EIS.

Comment 108: The increase in log truck traffic makes local one-lane roads extremely dangerous.

50

Response 108: The timber sale contract for either Action Alternative would include standard clauses designed to protect public health and safety. Included are dust abatement, signing the active timber sale area, safely securing truckloads, and maintaining the haul route are standard precautionary measures that will be used. Additional information on public health and safety has been added to the Social Section in the Final EIS.

Wilderness/ Roadless

Comment 109: The Final EIS should include a discussion of the duration and severity of visibility and odor impacts in nearby wilderness from prescribed burning under the proposed action.

26

Response 109: As explained on page 3-20 of the Draft EIS, “The emissions and impacts of prescribed burning on air quality are difficult to precisely quantify because of the many site-specific factors involved. The prescribed fire fuel treatments would result in emissions of particulates suspended in the atmosphere for a short time from one to several days.” As explained on page 3-21, “burning during favorable weather conditions when smoke is carried away from Class I and II airsheds... would minimize visibility impairments. Wilderness visitors and residents of local communities may detect unpleasant odors and experience impairment of visibility during the short periods when prescribed burning is occurring.” Even though the units are two or more miles from wilderness, “(s)moke from prescribed fires can be transported over large distances and can contribute to regional haze and visibility impairment.” The severity of the impacts would be much less during the prescribed burning under controlled conditions than if a wildfire burned the area as it would likely occur during the most severe fire weather conditions.

Comment 110: I am opposed to the project because some logging units are within proposed Wilderness.

2, 6, 8, 10, 11, 12, 20, 34, 36, 44, 45, 61

Response 110: The Wilderness Act of 1964 and California Wilderness Act of 1984 designated areas for wilderness. These acts did not require that other eligible areas be protected. In fact, the California Wilderness Act contains language that releases all other areas to multiple use management. The project is not within any designated wilderness; all proposed units are two or more miles away from wilderness boundaries. Numerous proposals for additional wilderness have been made over the years; Congress seldom designates new wilderness. There are no wilderness study areas within the Forest boundaries.

Comment 111: The Meteor Timber Sale would be visible from the Marble Mountain and Trinity Alps Wildernesses. Visitors to the Trinity Alps would have to drive by logging units. This could greatly affect recreational values.

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Response 111: These effects are disclosed on pages 3-71 through 3-72 of the Draft EIS. There would be minor, short-term effects to individual users, but the recreation value of the area would not change substantially. Logging is part of the culture of this area; most of the roads are there because they were built to facilitate logging.

Comment 112: “Some units also appear to be a first-time entry into unroaded, unentered forest adjacent to wilderness.”

56, 57, 58, 60, 65, 68, 70

Response 112: None of the units are adjacent to wilderness. The closest units are about two miles from wilderness boundaries. There is an errata on page 3-79 of the Draft EIS where it states “Helicopter units near or adjacent to wilderness boundaries...” This has been corrected in the Final EIS to read “near wilderness boundaries.” As explained on page C-6 of the Draft EIS, none of the units are within inventoried roadless areas. All other areas without roads were released for multiple use management by the 1984 California Wilderness Act, and allocated to various land allocations in the 1995 *Forest Plan*; these areas are not scheduled for review until the *Forest Plan* is revised. The project is consistent with the Interim Directive for the Management of Inventoried Roadless Areas that went into effect July 16, 2004.

Procedural Comments

Comment 113: The document lacks consideration of reasonably foreseeable actions included in the schedule of proposed actions including Fork Hazard Tree, Garden Gulch Fuels, Harry Hull Access, Salmon Plantation, Lame Duck Hardrock Minerals Extraction, Yellow Cat Mineral Extraction, and Boulder Bar Claim Minerals Extraction in the cumulative impacts analysis. In addition, the activities of other agencies or individuals are not included.

26

Response 113: The schedule of proposed actions mentioned in the comment was published on January 7, 2004, after the Draft EIS was circulated to the public for review in November, 2003. Two more schedules of proposed actions have been published since the comment period closed, one on April 2, 2004, and one in July, 2004. Projects that were developed enough to be analyzed were included in the Draft EIS. Other projects that took form after the Draft EIS have been included in the analyses in the Final EIS. The status of some projects has been updated in the Final EIS. Not all projects affect all resources.

There are no current or future foreseeable actions on state or private lands within the 7th field watersheds related to the project. No timber harvest plans have been submitted to the California Department of Forestry for future harvest actions on private lands within the 5th or 7th fields related to the proposal. The Water Quality Section of the Final EIS has been updated to include applicable information.

Air Quality: Cumulative air quality effects for Garden Gulch and Sawyers Bar Fuels Reduction Projects are discussed on page 3-22 of the Draft EIS. The status of these projects has been updated in the Final EIS.

Water quality and Fisheries: The effects of Fork Hazard Tree are discussed on page 3-34 of the Draft EIS and on page 39 of the Fish BA. Salmon Plantation is also addressed on this page in the discussion of precommercial thinning and release as on-going actions. Precommercial thinning activity results in increased ground cover and such little ground disturbance that it would not be reflected in the CWE modeling. Considered qualitatively, precommercial thinning has a beneficial effect on the watershed increasing ground cover, increasing tree vigor and growth, inhibiting pests and mistletoe infestations, increasing root support and stabilizing sensitive areas.

Garden Gulch Fuels Reduction was approved on April 19, 2004. The Garden Gulch Fuels Project Hydrology Report provides the following information: Meteor is included in the cumulative effects analysis for Garden Gulch as a reasonably foreseeable action. The majority of Garden Gulch is in the Sur Cree-Garden 7th field watershed (which is not within the Meteor assessment area). Garden Gulch activities within the Kanaka-Olsen 7th field watershed include thinning, precommercial thinning, release, hand piling, and a small portion of a shaded fuel break. The small amount of project area within Kanaka-Olsen does not increase cumulative effects to any level of concern. The Surface Erosion model risk ratio is 0.37 before and with worse case changes to 0.38. The Mass Wasting model risk ratio has no change. The ERA disturbance model risk ratio moves from 0.62 to 0.63. Due to the small amount of acreage within this watershed and the low impact nature of the actions, no adverse impacts to water quality are expected. With the addition of Garden Gulch, the models display little to no effect at the 5th field watershed level. Only the Surface Erosion model shows a 0.01 increase, raising the risk ratio for the North Fork to 0.24, which is well below the inference point range of 0.8 to 1.2. The models show no effect in the current condition at the 4th field watershed level with the addition of Garden Gulch. Supporting information can be found in the Garden Gulch Fuels Project Hydrology Report by Sharon Koorda, which is incorporated by reference and available in the project file. The report includes a cumulative effects analysis for Garden Gulch that includes the effects of the Meteor Project.

Sawyers Bar Fuels Reduction Project was initiated during winter 2004. The proposed fuel reduction activities are not of the magnitude of scope and intensity that quantitative analyses and model runs can be done; the project would not increase or decrease the risk ratios. The addition of this action to cumulative watershed effects is negligible in the short term at the 7th and 5th field watersheds. Overall the cumulative watershed effects are beneficial in the long term as fuels and the risk of moderate to high intensity wildfires would be reduced.

Liberty Mine Sampling, Westside and Yankee Dump Sites was planned during winter 2004 and approved on April 19, 2004. None of the proposed actions are of the design, scale, or duration that they can be quantified in the CWE models for Surface Erosion, Mass Wasting, or Equivalent Roaded Acres for tracking of long-term individual disturbances that are scaled to road-building impacts. The activities proposed, sampling of existing piles being the major activity, have a low risk of resulting in adverse water quality conditions due to the low impact of all proposed treatments and the application of the project design standards.

Liberty Mine Sampling, Eastside Apex is in the very early stages of analysis. Resource protection measures will be developed as necessary to assure that mineral operations comply with all Federal and State laws related to the Clean Water Act; the Comprehensive Environmental Response, Compensation, and Liability Act; the Resource Conservation and Recovery Act; and the California Porter Cologne Water Quality Control Act. Until these measures are developed, effects cannot be assessed.

Harry Hull Access, Lame Duck Hardrock, and Boulder Bar have been deferred indefinitely, so are not foreseeable future actions. Projects are entered on the schedule of proposed actions when they are likely to be worked on in that quarter, but due to funding or scheduling conflicts may later be deferred. The Yellow Cat Minerals Extraction proposal listed on the schedule of proposed actions was an administrative action to change owners on an existing claim; there was no change in the ongoing work. Ongoing actions including mining are briefly discussed on page 3-34 of the Draft EIS.

Page 11 of the Meteor Biological Assessment for Fisheries states, "... the Garden Gulch project was qualitatively analyzed for cumulative effects. The only portions of the Garden Gulch project that overlap with MTS [Meteor Timber Sale] (Kanaka-Olsen 7th-field and North Fork Salmon River 5th-field) were determined to be No Effect on anadromous fish or their habitat (pg 26, Garden Gulch BA) and would therefore not add to cumulative effects when considered with MTS."

Wildlife: A cumulative effects analysis was completed for each species or group of species analyzed in the Wildlife BA and the Management Indicator Species Project Level Assessment. The cumulative effects analysis included consideration of any activities that would generate effects that are similar in nature, and are additive to, effects occurring as a result of the Action Alternatives. The cumulative effects analysis included consideration of activities occurring on State, Tribal, local, private and Federal lands (refer to the Wildlife BA and the Management Indicator Species Project Level Assessment).

Salmon Plantation thinning and other plantation thinning projects are implemented using seasonal restrictions to avoid noise disturbance to species of concern. Habitat for species of concern does not occur in plantations and the effects of plantation thinning are not the same as the effects of the Action Alternatives, therefore the effects do not combine with the effects of the Action Alternatives to produce any adverse effects.

The Garden Gulch Fuels Reduction Project may affect, but it not likely to adversely affect NSO or its Critical Habitat and will have no effect on bald eagles (refer to Garden Gulch Wildlife BA). Fork Hazard Tree Removal consists of the removal of individual hazard trees over 13 miles of existing roads. The Fork Project will not result in a measurable alteration of suitable habitat for species of concern such as NSOs (refer to Fork Hazard Tree Abatement Wildlife Tiering Form dated 04/16/04), therefore the effects would not combine with the effects of the Action Alternatives to produce any adverse effects. The Wildlife Section of the Final EIS has been updated to include information on the approved Garden Gulch Project and the Fork Hazard Tree Project, which is in the planning stage.

Comment 114: The range of alternatives is not adequate. Please create a true "Restoration Only" alternative. Some suggestions for this alternative from various commenters include dealing with small diameter overstocking without removing the overstory trees, an upper diameter limit of 11 inches, an upper diameter limit of 18 inches, retaining all dominant and pre-dominant overstory trees, avoiding unstable and sensitive areas, reducing small fuels for community protection. One comment letter states that removal of older, canopy trees provides minimal economic gain to the Salmon River watershed.

28, 29, 45, 52, 56, 57, 58, 59, 60, 64, 68, 70

Response 114: All these alternatives were considered in the EIS planning process and are part of the range of alternatives. As they did not achieve the purpose and need as explained on pages 2-13 through 2-14 of the Draft EIS, they were not studied in detail. Purpose and need statements are developed from the opportunities identified in the WAs, which are developed by comparing existing conditions with the desired conditions identified in the *Forest Plan*. Refer to Response 68.

No reasons for establishing an upper diameter limit were provided by any of the commenters; the *Forest Plan* permits the removal of trees of all sizes as necessary to achieve desired conditions in Matrix and provides for late-successional and old-growth habitat through other land allocations; refer to Response 7.

There does not seem to be any agreement on what an upper limit might be; 12 and 17 inches in diameter were suggested during scoping; 11 and 18 in the comments. The desire for a diameter limit appears to be based on a social value, rather than on biological effects. Social values are discussed in the Social Section of the Draft EIS. Scientifically, diameter limits are one approach for providing for structural components when multiple cohorts are desired on the same acre of land (Franklin and others 1997). This approach would be redundant and unnecessary with the *Forest Plan* strategy, where late-successional habitat is provided in large reserves over the majority of the land base and structural components are retained on the relatively small amount of Matrix as described on pages 4-52 through 4-54 of the *Forest Plan* EIS (USDA Forest Service 1995b).

Thinning prescriptions in the Action Alternatives retain the larger, more vigorous crown classes as explained on page 3-7 of the Draft EIS. Alternative 3 avoids unstable land and Hydrologic RRs. Protecting communities from fire is not one of the main purposes of this proposal; reducing the risk of catastrophic fire is along with providing a sustained yield of wood products, maintaining unique wildlife habitats, and providing an economical transportation system. Refer to page 2-14 of the Draft EIS for a discussion of other programs that focus on community protection and to Response 31.

Comment 115: The WAs are used to justify the project, but the recommendation that all remaining late-successional forest be maintained is ignored, as is the finding that the plantations are not growing at predicted rates and are not moving towards late-successional forest.

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Response 115: Opportunity 5 on page 108 of the Upper South Fork WA states, "Maintain and improve late-successional habitat and dispersal habitat for late successional wildlife species." The majority of the area in the units in Upper South Fork would be thinned, which would improve the habitat by concentrating future growth on the larger, more vigorous crown classes. One unit would be regenerated using a seed tree prescription. Parts of two other units would be regenerated using a green tree retention prescription with the remainder of the units being thinned. In three units, small patches of trees would be regenerated with about 80% of the units being thinned. The areas proposed for regeneration are unlikely to survive any length of time if left untreated, so would not provide habitat in the long-term. Opportunity 17 on page 6-5 of the Lower South Fork WA states, "Maintain existing late/mature and old-growth stands and enhance the growth of mid/mature stands to develop old-growth characteristics" with the consideration to "(r)emove dead and dying trees where appropriate to increase resiliency from fire, insects, and disease". The majority of the area in units in Lower South Fork would be thinned, which would enhance the growth of the remaining trees to develop old-growth characteristics. One 5-acre stand and small groups in four stands would be regenerated in areas where the trees are dying out.

Opportunity 23 on page 6-6 of the North Fork WA, associated with the existing condition that "plantations are not growing to large tree character," states, "Thin and release plantations, treat fuels." The proposal to use the masticator on 131 acres in Alternative 2 and on 27 acres in Alternative 3 would thin plantations, increasing growth and abating the fuels buildup, as explained on pages 3-9 and 3-17 of the Draft EIS. The District also has a program to precommercial thin plantations. Past Decision Memos authorizing precommercial thinning and fuel treatment include Salmon Plantation Treatment 2003-2004, Precommercial Thinning/Release and Manual Release 2002, and Salmon River Precommercial Thinning & Release.

There are two errata in the Draft EIS relating to prescriptions that have been corrected in the Final EIS. Unit 139 should be a seed tree prescription, rather than Green Tree Retention. Unit 82 should be a Group Selection, rather than Sanitation/Thinning. The prescriptions for these units were refined based on additional fieldwork after the scoping letter and notice of intent.

Comment 116: The document doesn't reflect any of the public's concerns, offers poor maps, ignores controversy, and does not provide site-specific information. There has been no public meetings or field trips. The public has not had adequate time to review the sale. The comment period is during the snowiest and busiest time of year. The Forest has not made available documents tied to the Draft EIS.

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Response 116: Public concerns are addressed in the significant issues identified on page 1-8 and in Appendix C of the Draft EIS. Issues are points of discussion, dispute, or debate, also known as controversy. Issues are discussed in Chapter 3 and in Appendix C of the EIS. Site specific information is presented in the tables in Chapter 2 and in each section of Chapter 3. Chapter 3 includes the number of acres, direction and intensity of effect for each treatment type (such as thinning, underburning, helicopter logging) for each resource. It also includes the results of models using site-specific data. The implementing regulations for NEPA discourage encyclopedic documents and encourage brevity and the use of incorporation by reference; so much of the supporting data was incorporated by reference. The EIS provides a summary of the information and findings from each supporting document.

No interest was expressed in a field trip or public meeting during the scoping or analysis periods. This is not a hazardous fuels reduction project under the Healthy Forests Restoration Act, so the requirements under 104(e) of that Act to conduct a public meeting do not apply. Information on the proposed action, including maps, was mailed to interested parties, including the commenter, on January 16, 2003. There was almost an entire year to visit the project area. The comment period began on November 6, 2003, when the Draft EIS was mailed to interested parties and posted on the Forest web page. The comment period ended on January 5, 2004. The comment period was one day short of two months, well beyond the minimum 45-days required in the implementing regulations for NEPA. Documents requested by the commenter under the Freedom of Information Act, whose request was received December 19, 2003 (43 days into the comment period), were mailed on January 14, 2004, well within the 20-working days allowed by the Freedom of Information Act. It is difficult to determine the tradeoff point for maps between unit detail and how many geographical features to display so the unit can be located. The maps were GIS-generated, so are a much higher quality than hand-drawn maps.

Controversy supported by scientific data is discussed in the responses in this appendix as well as throughout the EIS.

Comment 117: The Draft EIS has blown off every suggested alternative and most issues from the public with little to no explanation as to why the Forest continually refused to study alternatives that are less controversial, because the goal is to log larger commercial trees and establish conifer plantations.

29, 67

Response 117: Refer to Responses 114 and 116. The goals are taken from the management areas and identified in the *Forest Plan*.

Comment 118: The second and third sentences under the No New Road Construction Alternative on page 2-14 of the Draft EIS contradict each other. "No new road construction is proposed in either of the action alternatives. Avoiding adding roads to the system would not meet the need for an economical transportation system." Either Alternatives 2 and 3 do not meet the need for an economical transportation system or else the Draft EIS is admitting that roads are being added under both Action Alternatives.

67

Response 118: The second sentence is in relation to the first sentence about the alternative being duplicative with the Action Alternatives. The Action Alternatives do not propose any new road construction. As explained in the fourth sentence, the desired condition is for an efficient and environmentally sensitive transportation system. An alternative of not adding new roads under any circumstances might not meet this, as there may be some areas on the Forest where new roads would be more efficient and sensitive than the roads currently in place; however, this situation was not identified within the project area. Either Alternative 2 or 3 would lead to a more economical and sensitive transportation system by decommissioning six road segments, placing a road in a self-maintaining condition, and making other administrative adjustments as described on page 3-82 of the Draft EIS.

Comment 119: The Draft EIS on page 2-14 seems to be admitting that the Focus on Protecting Communities From Fire Alternative would actually meet the purpose to reduce the risk of catastrophic fire, but complains that it wouldn't provide a yield of wood products or other goals.

67

Response 119: This is correct. The alternative would only meet one of the multiple purposes of the project, so was not considered in more detail. Other alternatives that were considered in detail achieve all of the purposes of the project. As explained on page 2-14 of the Draft EIS, other Forest Service programs are focused on protecting communities from fire.

Comment 120: The Draft EIS states in some places that stands have had little management and in other places that it has had a lot. The Draft EIS presents very different information depending on whether or not the information supports its argument. The information is often conflicting and is definitely a lot of assumptions and justification. There is absolutely no science, scientific evidence, little discussion of current stand conditions, and little discussion of results.

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Response 120: As explained on page 3-3 of the Draft EIS, the “stands have had varying degrees of disturbance.” Varying means some stands have had no disturbance, some have had a little, and others a considerable amount. Some management actions or natural events that constitute a disturbance for one resource may not constitute a disturbance for other resources and could actually be beneficial. The information presented is consistent; the interpretation of the effects of actions on various resources of necessity varies based on ecological principles. This is why an interdisciplinary team with education, training, and experience in a wide variety of resources was used to analyze the effects; refer to page 4-1 of the Draft EIS for team qualifications. The unbiased, scientific presentation of projected effects in the Draft EIS speaks for itself.

Comment 121: I call for a Supplemental Draft EIR that addresses additional alternatives and considers a number of important issues declared “not significant” by lawyers and those obsessed with conversion of older forests to a degraded plantation condition.

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Response 121: The implementing regulations for NEPA state that supplements to EISs shall be prepared if the agency “ makes substantial changes in the proposed action” or there “are significant new circumstances or information relevant to environmental concerns” (40 CFR 1502.9c). Neither of these conditions are present. The document name used in NEPA for actions proposed on federal land is an Environmental Impact Statement (EIS); an EIR is a document associated with the California Environmental Quality Act. None of the alternatives suggested by commenters were new and none of them met the purpose and need for action as explained on pages 2-3 through 2-15 of the Draft EIS; refer to Response 114 for more information on alternatives. The process for identifying significant issues is described on pages 1-7 through 1-8 of the Draft EIS. No lawyers were involved in the planning process. A highly qualified and experienced interdisciplinary team was used; refer to page 4-1 of the Draft EIS. As explained on page 3-11 of the Draft EIS, very little area would be converted to younger stands, less than one percent. Refer to Response 28 for information on plantations.

Comment Letter Commenter

- 1 James Adam Maurer, Milwaukee, WI
- 2 Dane J. Durham, Missoula, MT
- 3 Joel Weiss Avila Beach, CA
- 4 Charles Minton, Bayside, CA
- 5 Candy Anderson, Sacramento, CA
- 6 Jon Spitz, Laytonville, CA
- 7 Susan Farrar, Berkeley, CA
- 8 Richard Bloom, Cotati, CA
- 9 Jim Steitz, Las Cruces, NM

- 10 Mike Seeber, Eureka, CA
- 11 Mary Sherman, Mill Valley, CA
- 12 Frost Saufley, Boulder Creek, CA
- 13 Bob Madgic, Anderson, CA
- 14 Dan R. Laks, Forks of Salmon, CA
- 15 Ray S. Vonn, Forks of Salmon, CA
- 16 George & Frances Alderson, Baltimore, MD
- 17 Louise Prange, Fortuna, CA
- 18 Steve Hodge, Spokane, WA
- 19 Michael L. Rilla, Eureka, CA
- 20 Mark Cosgriff, Lakewood, OH
- 21 Mitch Clearfield, Walla Walla, WA
- 22 William C. Crolius, San Francisco, CA
- 23 Christina Lisac, Los Gatos, CA
- 24 Amey Miller, Chapel Hill, NC
- 25 Timothy Roan, Helotes, TX
- 26 United States Environmental Protection Agency, Region IX
- 27 California Regional Water Quality Control Board, North Coast Region
- 28 Salm Stroich, Klamath Forest Alliance, Somes Bar, CA
- 29 Regina Chichizola, Klamath Siskiyou Wildlands Center, Ashland, OR
- 30 William Thorpe, Vallejo, CA
- 31 Nancy French, Hydesville, CA
- 32 Christine A. Ryolin, Pacifica, CA
- 33 J. Thomas, Pacifica, CA
- 34 Barbara and Rob Goodell, Boonville, CA
- 35 David Nesmith, Oakland, CA
- 36 Brook Smith, Mattole Restoration Council, Petrolia, CA
- 37 Marc Robbi and Corrina Cohen, Orleans, CA
- 38 Will Harling, Somes Bar, CA
- 39 Erick Conklin, Bayside, CA
- 40 Anna Harlowe, Ecology Center of Southern California, Los Angeles, CA
- 41 Josh Wittmer, Pittsburgh, PA
- 42 David Hicks, Ashland, KY
- 43 Harriet Rauenzahn, Reading, PA
- 44 Laurie Solomon, Portland, OR
- 45 Lisa Shelton, National Forest Protection Alliance, Bayside, CA

46	Robert Dreyer, San Francisco, CA
47	Judith, Anne, and Tim Girard, San Carlos, CA
48	Jared Peace, Saskatoon, Canada
49	Richard Spotts, St. George, UT
50	Moses S. Beaver, Salmon River, CA
51	Billie Prosser, Arcata, CA
52	Andrew Getz, Berkeley, CA
53	Louise and Randall Lieb, Sebastopol, CA
54	Jim Steitz (Combined with 9)
55	Sandra Richardson, Redding, CA
56	David S. Rose, South Fork Trinity River Land Conservancy, Mad River, CA
57	William L. Denneen, Nipomo, CA
58	Norbert Mallik, Konstanz, Freitag, Germany
59	P. Ishan Goswami, Wayne, PA
60	Vince Meleski, Cullman, AL
61	Colleen Haggerty, Arcata, CA
62	Cara Saunders, Ashland, OR
63	Ilina Walker, Seattle, WA
64	Robert Alexander Goddard, Seattle, WA
65	Sarah Hugdell, Forks of Salmon, CA
66	Sue Ellen Berson, San Francisco, CA
67	Bruce Campbell, Los Angeles, CA
68	Christine Ambrose, American Lands Alliance; and other petitioners
69	Scott Harding, Ashland, OR
70	Yeslii Neumann, Somes Bar, CA
71	Joseph Schultz and Family, Catherine M. Boyd, Redway, CA
72	Charles and Cleo Picard, Redding, CA
73	Rosada Martin, Arcata, CA
74	Noah Triplett, Arcata, CA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

December 23, 2003

Margaret J. Boland, Forest Supervisor
Klamath National Forest
1312 Fairlane Road Yreka, CA 96097

Subject: Meteor Draft Environmental Impact Statement (DEIS) [CEQ # 030519]

Dear Ms. Boland:

The U.S. Environmental Protection Agency (EPA) has reviewed the above-referenced document pursuant to the National Environmental Policy Act (NEPA), Council on Environmental Quality (CEQ) regulations (40 CFR Parts 1500-1508) and Section 309 of the Clean Air Act. Our detailed comments are enclosed.

EPA is concerned about the lack of information in the DEIS regarding impacts to air and water quality, and cumulative impacts. For these reasons, we have rated the DEIS as Environmental Concerns, Insufficient Information (EC-2). Please see the enclosed Summary of EPA Rating Definitions for a description of EPA's rating system.

We appreciate the opportunity to review this DEIS. When the Final EIS is released for public review, please send two copies to the address above (mail code: CMD-2). If you have any questions, please contact me or Shanna Draheim, the lead reviewer for this project. Shanna can be reached at 415-972-3851 or draheim.shanna@epa.gov.

Sincerely,

/s/ Lisa B. Hanf

Lisa B. Hanf, Manager
Federal Activities Office

Enclosures:
Summary of EPA Rating Definitions
EPA's Detailed Comments

Printed on Recycled Paper

EPA DETAILED COMMENTS ON THE METEOR DRAFT ENVIRONMENTAL IMPACT STATEMENT
DECEMBER 23, 2003

Air Quality Impacts

The Draft Environmental Impact Statement (DEIS) states that the proposed project is in an attainment area for federal clean air standards, and non-attainment for State of California standards for particulate matter less than 10 microns in diameter (PM₁₀). Estimated annual emissions from the proposed project are provided, and the document states that the proposed action is unlikely to exceed the federal or state air quality standards. However, the DEIS does not identify what the state and federal standards are for comparison, or identify measures the Forest Service would implement if the project were to approach an exceedance of the National Ambient Air Quality Standard (NAAQS) for PM₁₀.

Recommendation:

The Final EIS (FEIS) should identify the state and federal air quality standards and significance thresholds, and provide a comparison with anticipated PM₁₀ levels associated with prescribed burns. The FEIS should also discuss how the Forest Service will monitor PM₁₀ levels during prescribed burns, and respond if PM₁₀ levels approach a NAAQS exceedance.

In addition, the proposed project is located 5 miles from the Marble Mountains Wilderness Area, a Class I airshed, and within 5 to 35 miles of three other Wilderness Areas designated as Class II airsheds. The DEIS states that there will be some visibility and odor impacts in these Wilderness areas during prescribed burns, but that impacts will be minimized to the extent possible. The document does not indicate how long or how severe those impacts will be, or whether there are special air quality standards for these areas. It is therefore difficult to determine the magnitude of natural resource and recreation impacts in those Class I and Class II areas.

Recommendation:

The FEIS should include a discussion of the duration and severity of visibility and odor impacts in nearby Wilderness Areas from prescribed burning under the proposed action.

Water Resource Impacts

The DEIS states that as part of the proposed road improvements and road decommissioning, there may be some construction-related deposition of sediments to streams within the watershed. In order to minimize those impacts, any activities proposed in perennial streams would include de-watering of the stream. The document states that de-watering methods

EPA DETAILED COMMENTS ON THE METEOR DRAFT ENVIRONMENTAL IMPACT STATEMENT
DECEMBER 23, 2003

will be determined site-by-site by the District or Forest Engineer.

De-watering of streams can have significant impacts on aquatic resources depending on the duration and method used. The document does not discuss the potential impacts of stream de-watering, or provide examples of the types of methods which might be employed as part of the proposed action. In addition, the DEIS does not discuss any of the regulatory requirements for working in a stream channel, including requirements under Section 404 of the federal Clean Water Act.

Recommendation:

The FEIS should include a discussion of what types of stream de-watering methods might be employed during proposed roadwork, and the associated impacts on aquatic resources. In addition, the document should include a discussion of the regulatory requirements for work which impacts waters of the U.S.

Cumulative Impacts

The DEIS discusses the potential direct, indirect, and cumulative impacts of the proposed forest treatment activities. When assessing the potential cumulative impacts from the project, the DEIS states that past, present and future activities were considered. However, throughout the document, the cumulative impacts analysis lacks consideration of reasonably foreseeable Forest Service activities (e.g., fuel treatment, harvest, road work) in the surrounding Klamath National Forest. The schedule of proposed actions listed on the Forest Service's web page includes several project in the same district as the Meteor project including, the Fork Hazard Tree, Garden Gulch Fuels, Harry Hull Road Access, Salmon Plantation, Lame Duck Hardrock Minerals Extraction, Yellow Cat Minerals Extraction, and Boulder Bar Claim Minerals Extraction projects. The cumulative impacts of these planned projects are not discussed in the DEIS.

In addition, the analysis of cumulative impacts does not include any discussion of activities of other agencies or individuals which might, in conjunction with the proposed forest treatment activities, have cumulative impacts on resources in this area of the Klamath National Forest. The Council on Environmental Quality (CEQ) regulations implementing the National Environmental Policy Act (NEPA) define a cumulative impact as "...the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions *regardless of what agency (Federal or non-Federal) or person undertakes such other actions.*" [emphasis added]. (40 CFR Part 1508.7).

EPA DETAILED COMMENTS ON THE METEOR DRAFT ENVIRONMENTAL IMPACT STATEMENT
DECEMBER 23, 2003

Recommendation:

The FEIS should expand the discussion of cumulative impacts to include past, present, and reasonably foreseeable actions, including those outside of Forest Service's jurisdiction, which might cumulatively impact the same resources as the proposed Meteor treatment activities.

California Regional Water Quality Control Board

North Coast Region
William R. Massey, Chairman

<http://www.swrcb.ca.gov/rwacbl/>

5550 Skylane Boulevard, Suite A, Santa Rosa, California 95403
Phone 1-877-721-9203(toll free) Office (707) 576-2220 Fax (707) 576-2557

January 2, 2004

Ms. Margaret J. Boland
ATTN: Lynda Karns
Klamath National Forest
1312 Fairlane Road
Yreka, CA 96097

Dear Ms. Boland:

Subject: Meteor Draft Environmental Impact Statement

File: USDA-USFS-Klamath National Forest

Staff of the North Coast Regional Water Quality Control Board (Regional Water Board) have reviewed the Meteor Draft Environmental Impact Statement (DEIS). Pursuant to the Management Agency Agreement (MAA) between the U.S. Forest Service and the California State Water Resources Control Board, your agency will facilitate early State involvement in the project planning process for all projects that have a potential to impact water quality. We therefore appreciate receiving the opportunity to review and comment on the Meteor DEIS and wish to remain on the project's mailing list.

The Meteor DEIS discusses three alternatives including No Action (Alternative 1), the Proposed Action (Alternative 2), and a slightly modified version of the Proposed Action (Alternative 3). The Proposed Action involves timber harvesting and associated activities on approximately 744 acres, fuels treatment on an additional 131 acres, habitat improvement activities, and implementing road actions. The Meteor project area is located approximately 55 miles southwest of Yreka, California, within the Salmon River watershed.

The Meteor DEIS appears to accurately discuss the project's potential impacts to water quality. The Cumulative Watershed Effects (CWE) analysis conducted for Meteor project activities indicate that the Proposed Action will result in very slight increases in disturbance levels for Surface Erosion, Mass Wasting, and Equivalent Road Acres (ERA) in some of the affected 7th Field Watersheds. When viewed at a larger watershed scale (i.e. Salmon River 4th Field Scale) the CWE models for Meteor project activities predict a net decrease in sediment from Surface Erosion and Mass Wasting, and a relatively small net increase in ERA.

Overall, Regional Water Board staff considers the risk of water quality degradation presented by the Meteor Proposed Action to be relatively low. We perceive that the most significant risks to water quality result from improper or incomplete application of Best Management Practices (BMPs) during road work activities in the vicinity of watercourse crossings, and the cumulative

California Environmental Protection Agency

Ms. Margaret J. Boland

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January 2, 2004

short term impact of administering several road related projects within an individual sub-watershed (5th Field). The Meteor DEIS discusses Resource Protection Measures that are designed to minimize the potential impacts of project activities at the site specific (project) scale and cumulative (watershed) scale.

Regional Water Board staff anticipate that with proper implementation of Resource Protection Measures, with special emphasis on strict adherence to the BMPs listed in the DEIS, the potential for the degradation of water quality resulting from the Meteor Proposed Action should be minimized. However, it is our understanding that in order for BMPs to be *enforceable* they must be included in writing within each project-specific contract. Therefore, Regional Water Board staff recommend that all BMPs listed in Appendix B of the Meteor DEIS, and/or any otherwise applicable BMPs, shall be listed and included in the various contracts for Meteor project activities.

On a related note, it is an ongoing concern of Regional Water Board staff that soil disturbing activities in the vicinity of watercourses cease and erosion control be kept current *at any time of year* when saturated soil conditions exist or when precipitation may result in sediment transport to watercourses. This concern is addressed by several BMPs listed in Appendix B of the Meteor DEIS. Proper implementation of these BMPs is critical for the protection of water quality during summer thunderstorms that might occur when yarding, hauling, and road work activities are underway.

Finally, the Meteor Project will be required to comply with the Regional Water Boards current Waiver for discharges related to timber operations. On November 5, 2003, the Regional Water Board adopted Order No. RI-2003-0116, Interim Categorical Waiver for Discharges Related to Timber Operations in the North Coast Region. This waiver exempts silvicultural activities on National Forest System Lands from the waste discharge requirements of Article 4 (commencing with Section 13260) of Chapter 4, Division 7 of the California Water Code, except as provided within the waiver. To be covered by this waiver, a USFS NOI/Certification Form will need to be submitted to the Regional Water Board prior to project implementation. Further information pertaining to the Regional Water Boards Timber Waiver, including updates to the policy, a guidance document, and a NOI/Certification form can be viewed and downloaded at the following web address: <http://www.swrcb.ca.gov/rwqcb1/geninfo/timber/timberwg.html>.

Thank you for the opportunity to provide comments on the Meteor DEIS. Regional Water Board staff look forward to working with the Forest Service during future phases of this project. If you have any questions, please feel free to contact me at (707) 576-6724 or Fred Blatt at (707) 576-2800.

Sincerely,

/s/ Will J. Arcand

Will J. Arcand
Engineering Geologist
Klamath/Trinity Unit, Timber Harvest Division

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California Environmental Protection Agency

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