



United States  
Department of  
Agriculture

Forest  
Service

Pacific  
Northwest  
Region

333 SW First Avenue  
PO Box 3623  
Portland, OR 97208-3623  
503-808-2468

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**File Code:** 1570  
**Date:** August 28, 2012

Mr. Tom Buchele  
Pacific Environmental Advocacy Center  
Lewis and Clark Law School  
10015 SW Terwilliger Blvd  
Portland, OR 97219

**CERTIFIED MAIL – RETURN  
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Dear Mr. Buchele:

This constitutes my decision, pursuant to 36 CFR 215.18(b)(1), on your appeal (#12-06-00-499-215) of Deschutes and Ochoco National Forest Supervisors John Allen and Kate Klein's Record of Decision (ROD) for the Invasive Plant Treatment, Deschutes and Ochoco National Forests, Crooked River Grassland Final Supplemental Environmental Impact Statement (FSEIS).

### **Background**

On May 2, 2012, John Allen and Kate Klein, Forest Supervisors for the Deschutes and Ochoco National Forest respectively, signed a record of decision (ROD) for the Invasive Plant Treatment Project Final Supplemental Environmental Impact Statement (FSEIS). Their decision to implement Alternative 2 includes:

- Invasive plant treatment of 1,892 inventoried sites across 14,547 acres with 289 project area units. Herbicides will be used alone or in combination with non-herbicide methods (manual, mechanical, cultural, burning) on a total of 13,814 acres. Buffers to protect species of concern and aquatic resources are prescribed. Extensive project design features (PDFs) are incorporated to reduce the risk to non-target organisms and to protect ecosystem and human health.
- Authorization of Early Detection-Rapid Response (EDRR) to treat new and/or previously unanalyzed sites.
- Treatment caps of 16,000 acres per year, including acreage assessed through EDRR.
- Site restoration, including both active and passive restoration of sites that have been rehabilitated.
- Monitoring of at least 50% of the treatment areas.
- Amending the Ochoco National Forest and Crooked River National Grasslands Land and Resource Management Plans (LRMP) to remove standards that were replaced by the 2005 R6 Invasive Plant Treatment ROD.

Pursuant to 36 CFR 215.17, an attempt was made to seek informal resolution of the appeal. The record indicates that informal resolution was not reached.

My review of this appeal has been conducted in accordance with 36 CFR 215.18, *Formal review and disposition procedures*. I have reviewed the appeal record, including the recommendations of the Appeal Reviewing Officer. A copy of her recommendation is enclosed. The Appeal Reviewing Officer focused her review on the appeal record and the issues that were raised in your appeal.



**Appeal Decision**

After a detailed review of the record and the Appeal Reviewing Officer's recommendation, I affirm the Responsible Officials' decision for the Invasive Plant Treatment Project and deny your requested relief. This decision constitutes the final administrative determination of the Department of Agriculture [36 CFR 215.18(c)].

A copy of this letter will be posted on the national appeals web page at <http://www.fs.fed.us/appeals>.

Sincerely,

*/s/ Nora B Rasure (for):*

KENT P. CONNAUGHTON  
Regional Forester

Enclosures: 2

cc: Debbie Anderson  
Amanda McAdams  
Susan Skakel  
Gery Ferguson  
Debra J Mafera  
John P Allen  
Kathleen Klein  
Marcelle Anderson  
Rochelle Desser  
Shawna Bautista



Forest  
Service

Olympic  
National  
Forest

1835 Black Lake Blvd. Suite A  
Olympia, WA 98512  
360-956-2300 FAX 360-956-2330

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**File Code:** 1570  
**Route To:**

**Date:** August 23, 2012

**Subject:** Appeal Recommendation, Invasive Plant Treatment Project, Deschutes and Ochoco National Forests, Crooked River National Grasslands

**To:** Regional Forester

On May 2, 2012, John Allen and Kate Klein, Forest Supervisors for the Deschutes and Ochoco National Forest respectively, signed a record of decision (ROD) for the Invasive Plant Treatment Project Final Supplemental Environmental Impact Statement (FSEIS). Their decision to implement Alternative 2 includes:

- Invasive plant treatment of 1,892 inventoried sites across 14,547 acres with 289 project area units. Herbicides will be used alone or in combination with non-herbicide methods (manual, mechanical, cultural, burning) on a total of 13,814 acres. Buffers to protect species of concern and aquatic resources are prescribed. Extensive project design features (PDFs) are incorporated to reduce the risk to non-target organisms and to protect ecosystem and human health.
- Authorization of Early Detection-Rapid Response (EDRR) to treat new and/or previously unanalyzed sites.
- Treatment caps of 16,000 acres per year, including acreage assessed through EDRR.
- Site restoration, including both active and passive restoration of sites that have been rehabilitated.
- Monitoring of at least 50% of the treatment areas.
- Amending the Ochoco National Forest and Crooked River National Grasslands Land and Resource Management Plans (LRMP) to remove standards that were replaced by the 2005 R6 Invasive Plant Treatment ROD.

One appeal was received from the Blue Mountain Biodiversity Project/League of Wilderness Defenders (#12-06-00-499-215). They requested that the ROD be withdrawn and an adequate EIS be prepared that adequately states the purpose and need, analyzes a reasonable range of alternatives, and effectively details the impacts from any proposed herbicide application, including site-specific study and an evaluation of cumulative effects. Appellant urges the Forests to consider their comprehensive list of suggestions from their previous comments and taking a “far more precautionary approach to the use of toxic chemicals on National Forest lands.” Pursuant to 36 CFR 215.17, an attempt was made to seek informal resolution of the appeals. The record indicates that informal resolution was not reached with appellants.

### **Review and Findings**

My review was conducted in accordance with 36 CFR 215.19 to ensure that the analysis and decision are in compliance with applicable laws, regulations, policies, and orders. The appeal record, including the appellant’s issues, has been thoroughly reviewed. Having reviewed the FEIS, FSEIS, ROD, and the project record as required by 36 CFR 215.19(b), I conclude the following:

1. The decision clearly describes the actions to be taken in sufficient detail that the reader can easily understand what will occur as a result of the decision.



2. The selected alternative as modified will accomplish the purpose and need established. The purpose and need stated in the FSEIS reflects consistency with direction to implement the Forest Plans, as amended.
3. The decision is consistent with policy, direction, and supporting evidence. The record contains documentation regarding resource conditions and the Responsible Officials' decision document is based on the record and reflects a reasonable conclusion.
4. The record reflects that the Responsible Officials provided adequate opportunity for public participation during the analysis and decision making process. The Responsible Officials' efforts allowed interested publics the opportunity to comment and be involved in the proposal.

After considering the claims made by the appellant and reviewing the record, I found that the Responsible Officials conducted a proper and public NEPA process that resulted in a decision that is consistent with the Deschutes and Ochoco National Forest and Crooked River National Grassland LRMPs, as amended. I found no violations of law, regulations, or Forest Service policy.

### **Recommendation**

After reviewing the appeal record, I recommend affirming the decision. I believe that the project documentation adequately supports the Forest Supervisors' decision with regards to all appeal points raised by the appellant. Enclosed with this memo are my responses to each appeal issue.

*/s/Amanda G, McAdams*  
AMANDA G. MCADAMS  
Acting Forest Supervisor  
Olympic National Forest

cc: Debbie Anderson

**Deschutes and Ochoco Invasive Plant Treatment Project  
Final Supplemental Environmental Impact Statement (FSEIS)  
Appeal Statements and Responses**

**Appellant**

League of Wilderness Defenders/Blue Mountain Biodiversity Project

**Appeal Number**

12-06-00-499-215

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***Changes/Time Delay Between FEIS and FSEIS***

**Appellant Statement #1:** Appellant states that the Forest Service failed to “cogently explain the need for a supplemental Final Environmental Impact Statement (FEIS) and failed to explain the differences between the 2007 FEIS and 2012 FSEIS.” Appeal at 6, 7 and 8.

**Response:** I find that the Responsible Officials did explain the need for a supplemental FEIS and did explain the differences between the documents. The Code of Federal Regulations (CFR) at 40 CFR 1502.9(c) directs the agency to supplemental an environmental analysis if:

1. The agency makes substantial changes in the proposed action that are relevant to environmental concerns; or
2. There are significant new circumstances or information relevant to environmental concerns and bearing on the proposed action.

While the regulation does not direct the agency to explain why a supplement was prepared, the FSEIS at 14 states that “[f]ollowing an administrative appeal, the ROD was withdrawn and the Forests began work on a Supplemental EIS. A Notice of Intent to prepare a Supplemental EIS was published in the Federal Register on October 21, 2008 (Vol. 73, No. 204, p. 62461).”

The differences between the previous EISs and these EISs were also explained. The Draft Supplement EIS (DSEIS) that was prepared after the original record of decision (ROD) was withdrawn explains the changes between the 2007 FEIS and the 2009 DSEIS at 12, 29, 84, and 446. The changes between the 2009 DSEIS and the 2012 FSEIS are documented in the FSEIS at 1, 19, 77, and 499. Thus, the agency complied with the regulation by documenting that they were preparing a supplement and included the rationale behind the supplement and changes between draft and final.

**Appellant Statement #2:** Appellant states that the “five year time span between DEIS and FSEIS is evidence that the invasive weed problem is not an emergency requiring heavy chemical use and the Forest Service should have used that time to finish an adequate and complete EIS.” Appeal at 8.

**Response:** I find that the Responsible Officials allowed adequate time for the FSEIS to be analyzed as required by the regulation at 40 CFR 1502.5 which states that, “[a]n agency shall commence preparation of an environmental impact statement as close as possible to the time the agency is developing or is presented with a proposal so that preparation can be completed in time for the final statement to be included in any recommendation or report on the proposal. The statement shall be prepared early enough so that it can serve practically as an important contribution to the decision making process and will not be used to rationalize or justify decisions already made.”

There is no indication in the regulations that timing alone indicates an ‘emergency’, nor does the FSEIS or ROD state that there is an emergency. The five year span allowed time for the following items: the environmental review, 45-day comment period, consultation with regulatory agencies, conduct site specific demonstration projects, other monitoring and to finalize documentation, consultation with US

Fish and Wildlife Service (USFWS), consultation with National Marine Fisheries Service, and the writing of and analysis of resources for the FSEIS. All of these items are needed to ensure that the FSEIS can 'serve practically as an important contribution to the decision making process', as per the regulation at 40 CFR 1502.5. I have also noted that consultation with the regulatory agencies was initiated in May of 2010; however, a biological opinion was not received until February of 2012. Appeal Record, Consultation, NMFS Biological Opinion. As per agency policy, a decision cannot be signed until consultation was completed.

I have reviewed the FSEIS and find that it is a complete and adequate document, and that it meets the regulatory requirements (40 CFR 1502) for preparation of an EIS.

**Appellant Statement #3:** Appellant states that the Forest Service inadequately responded to appellant's concerns regarding the lack of site-specific monitoring that would have displayed the difference between the efficacy of manual treatment versus herbicides, and that the five years between the EISs gave the Forest Service adequate time to conduct this type of monitoring to substantiate claims that manual treatments were only 50 percent effective, while chemicals are 80 percent effective. Appeal at 8 and 9.

**Response:** I find that the Responsible Officials adequately assessed the efficacy of manual treatments versus herbicides and disclosed the results in the FSEIS.

The regulation at 40 CFR 1503.4 requires the agency to respond to comments submitted on a draft statement. Possible responses are to: modify alternatives including the proposed action; develop and evaluate alternatives not previously given serious consideration by the agency; supplement, improve, or modify its analyses; or make factual corrections.

The FSEIS at 102 points out that monitoring of past projects showed the effectiveness of hand-pulling varied depending on population size and as an example, between 1994 and 1998 the known sites of invasive plants had grown from 44 to 235. In addition, the FSEIS at 109 it states that in 1998 there were approximately 2,024 acres occupied by invasive species and today there are over 14,000 occupied acres. The FSEIS goes on to discuss the lack of effectiveness of manual treatments in the last 9 years on houndstongue, a biennial species, in the Roba Creek area of the Paulina Ranger District. Records indicate that approximately 17,842 hours of manual control has been expended while the population continues to expand. FSEIS at 109.

Additionally, the FSEIS at 112 summarizes the results of a demonstration project initiated in 2006 on private land on the Metolius River to treat ribbongrass with two different herbicides including Habitat (imazapyr) and Rodeo (glyphosate) that were mixed in different solutions of 1.5% and 2%. Manual treatments of shovel removal and black mat placements were also completed. A report on these results was produced in 2011 (Sussmann, 2011 – Doc ID #473) which documented the results of that past monitoring that showed that herbicide use resulted in 74% ribbongrass reduction and that control was best when target plant density was high and spot spraying was used. FSEIS at 112.

The FSEIS at 113 also discusses the results of a hand-pulling demonstration area (2008) to determine the time and person hours it took to manually remove a 60 square foot area of ribbongrass on the Metolius River and is documented in a report (Pajutee, 2008 – Doc ID #378).

Based on the information found in the FSEIS, I find that adequate site-specific monitoring occurred, and that the FSEIS documented the efficacy of manual versus herbicide treatments in the FSEIS. See also response to Appellant Statement #12.

**Appellant Statement #4:** Appellant states that the FSEIS does not indicate that there are any new sites (the problem is not getting worse) and that it is illegal for the Forest Service to intentionally avoid monitoring and including a site-specific analysis for areas infested between 2007 and 2012. Appeal at 9.

**Response:** I find that the Responsible Officials document the presence of new sites, that monitoring did occur, and that a site-specific analysis for areas infested since 2007 has been conducted.

According to the Forest Service Handbook (FSH) at 1909.15, 54 'monitoring' may be provided for after a decision is carried out. In essence, 'monitoring' in this case is not applicable because this decision has yet to be implemented. Despite that technicality, the following information regarding new sites was described in the FSEIS.

The FSEIS at 6 states that the design of the proposed action included the concept of Project Area Units (PAU) that took into consideration existing expansion of known sites or the potential future spread of invasive plants in known sites. The acres of invasive plant sites (14,547 acres) is greater than the actual area infested because the mapping takes in areas of sites that could be sparsely populated with invasive plants or are patchy because the agency was aware that sites would expand during the environmental analysis. FSEIS at 6.

The FSEIS documents that since the scoping process for this project started in 2005, an additional 844 new sites outside of the PAUs covering 4,453 acres have been mapped, representing an increase of invasive plants across the two forests and grassland. FSEIS at 38. Most of the new sites have been mapped on the Sisters Ranger District as a result of wildfire, or on the Crooked River National Grassland as a result of medusahead, houndstongue, and knapweed, primarily found along roadsides. FSEIS at 38. The reason why there has been an increase in invasive plant spread has been documented and the problem is "getting worse." The agency chose not to revise the proposed action (which would have required re-initiating scoping), and instead chose to use the Early Detection-Rapid Response (EDRR) form of adaptive management, which allows for the treatment of new or unanalyzed detections. FSEIS at 38-40; ROD at 6. EDRR responds to the need to treat sites not specifically included in this analysis. ROD at 6. In the discussion of EDRR, there is acknowledgement that there will be sites detected during the years of analysis. FSEIS at 38. The ROD at 6 and FSEIS Appendix F at 162, footnote 6 describes the process to follow to determine if newly detected or unanalyzed sites are within the scope of the analysis in the FSEIS and if not, new analysis under the National Environmental Policy Act (NEPA) would be initiated and completed, including conducting the public involvement process.

Appendix F of the FSEIS outlines in detail a step-by-step process an interdisciplinary team must go through before proposing treatment to the line officer for approval. FSEIS Appendix F at 162-163. The FSEIS Appendix F at 162 states that "[t]his step will involve the consideration of whether or not herbicides are required for treatment effectiveness and/or whether or not the use of herbicides increases cost-effectiveness of treatments. The team will also consider the availability of volunteers to reduce the cost of manual treatments. The decision to use herbicides must consider the ability to comply with R6 Standards #15 – 23 as well as all of the project design features listed in Section 2.4 of the FSEIS. The appropriate prescription will consider all site conditions identified during step #2 above."

Additionally, the FSEIS at 21-22 describes that monitoring of 50% of the treated sites would be accomplished each year.

***Risk Analysis/Assessment, Spills, Human Health and Safety***

**Appellant Statement #5:** Appellant states that the Forest Service failed to explain that in 2007, the risk of chemical drip from some wicks or plants overhanging water was “possible and could occur” but that in 2012, this risk was determined to be low. Appeal at 8.

**Response:** I find that the Responsible Officials did explain how the risk from chemical drip was both possible and that this risk was low.

The Forest Service Handbook (FSH) 1909.15, 12.3 states that the environmental analysis may include the use of a model or qualitative discussions based on professional judgment. For this project, the Forest Service chose to use qualitative discussions when describing the risk of chemical drip. According to Webster’s Dictionary, “low” is less than an average quantity, while “possible” means that something is capable of happening. Thus, the agency recognized that the risk was low in the 2012 FSEIS, meaning that the drip could occur, but that this risk would be less than what would be considered average.

The FSEIS at 227 describes how wicks are designed to be dripless, but that drips may still occur, resulting in risk of water contamination. As a result, as described in the ROD and FSEIS, a National Pollutant Discharge Elimination System (NPDES) permit will be obtained prior to applications within three feet of water. The need for an NPDES permit acknowledges the risk of inadvertent drips from this method of application. ROD at 27; FSEIS at 209.

**Appellant Statement #6:** Appellant states that the Forest Service must explain what risks remain to the environment and human health from the proposed project (in comparison to no action) and that the public must be adequately informed of the trade-offs of increased herbicide use. Appeal at 11 and 12.

**Response:** I find that the Responsible Officials adequately described the potential risks associated with the project and that the FSEIS fully described the trade-offs of herbicide use.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS fully documents the potential risk of herbicide application. The FSEIS at 91-96 documents the risks associated with each herbicide and incorporates by reference the risk assessment of each herbicide proposed for use. The FSEIS also notes where there is incomplete or unavailable information. FSEIS at 93. The entire effects analysis documented in Chapter 3 of the FSEIS describes the risk and trade-offs of using herbicides versus not using herbicides. Every resource discussed in the document discusses the effects of no action versus taking action. FSEIS at 77-497. Thus, based on the information contained in the FSEIS and record, I find that risk to both the environment and to human health have been adequately addressed.

**Appellant Statement #7:** Appellant states that the Forest Service failed to analyze the potential environmental impacts from an accidental herbicide spill from a backpack or vehicle, in violation of NEPA. Appeal at 12. Appellant states that the FSEIS fails to adopt any plans for remediating spills that can and will happen and that the FSEIS fails to provide any real data to substantiate its claims of minimizing or mitigating risk from herbicide spills. Appeal at 12, 13 and 49.

**Response:** I find that the Responsible Officials adequately considered the effects of a possible spill.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. In addition, when agencies prepare an environmental impact statement they should reduce repetitive discussions of the same issues through the use of tiering from statements of broad scope to those of narrower scope. 40 CFR 1502.20. This FSEIS tiers to the 2005 R6 FEIS in order to not repeat certain discussions that were adequately disclosed in that document. FSEIS at 5.

The FSEIS identified several PDFs, or Project Design Features (18-21, 25, and 52) to reduce the chances of a spill occurring and to reduce the effects of a spill if one were to occur. FSEIS at 47, 48, and 51. The 2005 R6 FEIS included numerous discussions of the potential effects of a spill, including potential effects to human health, aquatic and terrestrial wildlife species, and non-target plant species.

While this FSEIS correctly tiers to the R6 FEIS concerning the impacts of spills, the FSEIS also describes the potential effects of a spill to the environment throughout the analysis: "...the addition of glyphosate at 100-times the field rate concentration (reflecting an undiluted chemical spill) produced a significant enrichment of bacteria and minimal change to the fungal community." FSEIS at 147; "The only herbicide scenarios of concern would involve a person drinking from a pond contaminated by a spill of a large tank of herbicide solution." FSEIS at 339; "...accidental spills could produce concentrations of NPE that could adversely affect amphibians particularly in small stagnant ponds ..." FSEIS at 398; "...even if [bald eagles] fed for a lifetime, upon fresh-water fish that had been contaminated by an accidental spill of herbicide, they would not receive a dose that exceeds any known NOAEL." FSEIS at 409; "Risk [to horned grebes] from herbicide exposure was evaluated using a "fish-eating bird" scenario. A quantitative estimate of dose was calculated for a bird eating contaminated fish for one day (acute) and for a lifetime (chronic). The fish are from a pond... that has been contaminated by a spill of 200 gallons of herbicide. No herbicide or NPE exceeded a dose of concern for any exposure (acute or chronic) at any application rate (typical or highest)." FSEIS at 414; and, "The only drinking water scenario, for chemicals proposed for use in Alternatives 2 or 3 that resulted in levels of concern was from a small child drinking directly from a quarter acre pond shortly after a 200 gallon spill into the pond..." FSEIS Appendix J at 273.

The FSEIS includes the effect of a spill, if it occurred, as an adverse effect that cannot be avoided, stating that herbicide toxicity exceeding thresholds of concern are unlikely but possible given an herbicide spill. FSEIS at 496. In addition to project-level analysis, the FSEIS incorporated by reference the analysis of the environmental impacts of a spill from the 2005 R6 FEIS for the Pacific Northwest Region Invasive Plant Program – Preventing and Managing Invasive Plants, which also fully disclosed the potential for effects to occur as a result of an accidental spill. Thus, given the information found in the 2005 R6 FEIS and in this FSEIS and Appendices, the effects from accidental spills were adequately analyzed.

**Appellant Statement #8:** Appellant states that the FSEIS contains no discussion of the effectiveness of the spill prevention plans or the likelihood that the plans will reduce the potential for adverse effects from accidental spills. Appeal at 13.

**Response:** I find that the Responsible Officials adequately considered the effectiveness of PDFs designed to prevent spills. In addition to project-level analysis, the FSEIS tiers to and references the analysis of the environmental impacts of a spill from the 2005 R6 FEIS for the Pacific Northwest Region Invasive Plant Program – Preventing and Managing Invasive Plants. FSEIS at 5.

The regulation at 40 CFR 1505.2 and 40 CFR 1505.3 state that the agency shall implement any mitigation deemed necessary and provide for monitoring of that mitigation; mitigation measures are designed to

reduce the potential for impacts to occur (40 CFR 1508.20) and may also be described as project design features if they are designed as part of the proposed action. 40 CFR 1502.14(f). The FSEIS identified several Project Design Features (18-21, 25, and 52) to reduce the chances of a spill occurring and to reduce the effects of a spill if one were to occur. FSEIS at 47, 48, and 51. In addition, the FSEIS states that given the accidental nature of a spill, toxicity to non-target organisms may still result even with implementation of PDFs. FSEIS at 496.

The FSEIS includes discussion that is in accordance with the analysis found in the 2005 R6 FEIS. Regardless of PDFs put in place, as stated in the 2005 R6 FEIS: “Despite careful design of the management direction for the action alternatives, a risk of adverse effects remains. Some potential effects cannot be fully mitigated. An accidental herbicide spill, for instance, may kill non-target species even though a spill plan is in place. Mitigation measures will be applied at the project scale to avoid these effects to the extent possible.” 2005 R6 FEIS at Summary 11-12 and 4-165.

**Appellant Statement #9:** Appellant states that the FSEIS failed to qualitatively evaluate the risks associated with herbicide use because the FSEIS focused “solely on the dangers of invasive plants and the effectiveness of treatments for eradicating or controlling said plants.” Appeal at 35.

**Response:** I find that the FSEIS did not focus solely on the dangers of invasive plants and that the Responsible Officials did evaluate the risk of herbicide use.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The agency complies with this requirement by disclosing throughout Chapter 3 the potential risk of herbicide use to all potentially effected resources, as documented in the FSEIS at 15, 16, 27, 35, 43, 44, 80, 85, 87, 90, 91, 92, 93, 94, 95, 96, 144, 146, 147, 152, 153, 154, 156, 157, 159, 160, 161, 163, 164, 165, 166, 171, 173, 176, 177, 185, 186, 187, 188, 191, 192, 193, 194, 195, 196, 197, 199, 200, 201, 203, 204, 206, 207, 208, 209, 220, 223, 225, 227, 228, 132, 232, 236, 237, 238, 239, 240, 241, 244, 246, 249, 251, 252, 253, 255, 256, 276, 278, 279, 282, 284, 285, 286, 287, 288, 289, 292, 294, 295, 297, 298, 299, 300, 301, 302, 306, 311, 312, 313, 321, 323, 324, 325, 326, 327, 336, 337, 339, 340, 341, 342, 344, 345, 346, 348, 372, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 405, 406, 408, 411, 412, 413, 414, 415, 416, 417, 420, 421, 422, 423, 425, 428, 429, 431, 434, 435, 438, 459, 468, 495, 496, and 497.

**Appellant Statement #10:** Appellant states that the FSEIS fails to account for the difference between the unknown risks from herbicides and the known risks from mechanical or manual hand treatments. Appeal at 41.

**Response:** I find that the FSEIS does account for the risks of all treatments, both unknown and known.

The regulation at 40 CFR 1502.22 requires the agency to make clear any information that is either incomplete or unavailable. The FSEIS clearly displayed where data were incomplete or unknown, particularly with regards to the risks associated with herbicide use. FSEIS at 93, 390, 496 and 497.

Throughout the FSEIS, there is analysis that compares the effects between herbicide and manual methods and clearly outlines the known risks associated with manual treatments. The FSEIS recognizes that under Alternative 3, within the riparian areas, there is a risk of water quality effects from hand-pulling riparian invasive plants. “Even with active restoration there would be a period of time (less than 6 months) where the sites could be susceptible to erosion and subject to violation of State water quality and RMO standards pertaining to sediment and turbidity.” FSEIS at 242. “Manual control of emergent

vegetation, such as reed canarygrass and ribbongrass, which occur on the edges of, or in water, would have an effect on fish and habitat. The hand removal of these grasses would cause more physical disturbance and potential trampling to fish than chemical methods due to digging and removal of soil. The Water Resources section concludes that if widespread pulling from banks of ribbon/reed canarygrass is attempted because most of this population could not be treated with herbicides, there is a chance that state water quality standards for turbidity and sediment could be violated." FSEIS at 318.

In the ROD, the Forest Supervisors weighed the tradeoff between less herbicide use in Alternatives 1 and 3 against the cost efficiency and effectiveness of the increased use of herbicides in Alternative 2, and selected Alternative 2. ROD at 10-11.

Therefore, I find that the Responsible Officials considered adequate analysis with site-specific data that included evaluation of direct, indirect and cumulative effects of the proposed activities prior to making their decision, as documented in the ROD.

**Appellant Statement #11:** Appellant states that the Forest Service neglected to analyze the synergistic or additive impacts to workers, the public and non-target wildlife of applying different herbicides to the same watershed or treatment area, and that the FSEIS makes conclusions with no analysis to support their determination that additive doses of a chemical would unlikely exceed a "threshold of concern." Appeal at 46. Appellant states that some of the chemical are new and untried and that the effects of using them by themselves are unknown, much less in combination with other chemicals. Appeal at 46 and 47.

**Response:** I find that the Responsible Officials adequately considered the effects of possible multiple applications of the same herbicide and the effects of applying different herbicides. In addition to project-level analysis, the FSEIS incorporated by reference the analysis of these environmental impacts from the 2005 R6 FEIS.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. When agencies prepare an environmental impact statement they should reduce repetitive discussions of the same issues through the use of tiering from statements of broad scope to those of narrower scope. 40 CFR 1502.20.

The FSEIS, in PDFs #10 and #51, refers to the standard developed in the 2005 R6 FEIS (which amended both forests LRMPs) for the consideration of herbicide mixtures. FSEIS at 46 and 51. The FSEIS quotes the relevant standard as "mixtures of herbicide formulations containing 3 or less of these active ingredients may be applied where the sum of all individual Hazard Quotients for the relevant application scenario is less than 1.0." FSEIS at 10. The FSEIS references the conclusions from the 2005 R6 FEIS which states that "combinations of chemicals in low doses (less than one tenth of the RfD) have rarely demonstrated synergistic effects. Review of the scientific literature on toxicological effects and toxicological interactions of agricultural chemicals indicate that exposure to a mixture of pesticides is more likely to lead to additive rather than synergistic effects.... Based on the limited data available on chemical combinations involving the twelve herbicides considered in this EIS, it is possible, but unlikely, that synergistic effects could occur as a result of exposure to the herbicides considered in this analysis. Synergistic or additive effects, if any, are expected to be insignificant." FSEIS at 346. The 2005 R6 FEIS describes the possible interactive effects of possible combinations of the ten herbicide active ingredients and the NPE-based surfactants. R6 FEIS at 4-3. If the Forest proposes to use mixtures of these herbicides, the analysis of Hazard Quotients will be completed as per Standard 16. FSEIS at 51.

The FSEIS, in discussing repeated exposures, while acknowledging that they could occur, refers to the national risk assessments and the 2005 R6 FEIS and states that repeated exposures would not result in cumulative effects because herbicides are rapidly eliminated from bodies of people and animals, do not appreciably bioaccumulate, and such repeated exposures, to result in additive effects, would have to be simultaneous or nearly so. FSEIS at 90, 345, 407, 410, and 438. The analysis of human health effects in the FSEIS describes the potential impacts of multiple exposures from a person involved in several activities, using the herbicide glyphosate as an example, stating that the cumulative impact of such cases may be quantitatively characterized by adding the Hazard Quotients for each exposure scenario. With glyphosate as the example, multiple scenarios would not result in human health effects. FSEIS at 346.

Specifically for this project, the FSEIS fully disclosed the possibility for synergistic effects: “It is possible, but unlikely, that synergistic effects could occur as a result of exposure to the herbicides considered in this analysis. Synergistic or additive effects, if any, are expected to be insignificant (R6 2005 FEIS pages 4-1 to 4-3)”. FSEIS at 346. The FSEIS also states that “[t]he R6 2005 FEIS considered the potential for synergistic effects of exposure to two or more herbicides: “Combinations of chemicals in low doses (less than one tenth of RfD) have rarely demonstrated synergistic effects. Review of the scientific literature on toxicological effects and toxicological interactions of agricultural chemicals indicate that exposure to a mixture of pesticides is more likely to lead to additive rather than synergistic effects (ATSDR, 2004; U.S.EPA/ORD, 2000). Based on the limited data available on chemical combinations involving the twelve herbicides considered in this FSEIS, it is possible, but unlikely, that synergistic effects could occur as a result of exposure to the herbicides considered in this analysis. Synergistic or additive effects, if any, are expected to be insignificant” (USDA Forest Service 2005a, p. 4-3).” FSEIS at 346. In addition, “[s]ome of the herbicides analyzed for the FSEIS (e.g. picloram) have been investigated for possible synergistic effects but the study designs were insufficient for the assessment of toxicologic interactions (SERA, Picloram, p. 3-35). Some studies of some chemicals (not necessarily herbicides) have noted statistically significant interactions (both synergistic and antagonistic) (Durkin, pers. com.). Even with excellent data, the complexity of the experimental designs necessary to properly assess interactions, and the uncertainties regarding the dose-response relationship for interactions, make the quantitative use of interaction data in risk assessments infeasible (ATSDR 2004, USEPA 2000b).” FSEIS at 346.

The FSEIS at 399 goes on to cite the U.S. EPAs (2000b) conclusions regarding the possibility for synergistic effects; the US EPA found the likelihood for these type of effects usually to be low, but recognized that “the study of synergist effects is extremely complicated, and there can be substantial uncertainty in the risk characterization for chemical mixtures (ATSDR 2004; USEPA 2000).” FSEIS at 399.

The FSEIS at Appendix J, Response to Comments, also describes the possibility for synergistic effects to occur. These responses fully document how the agency considered appellants comments and concerns regarding the potential for synergistic effects to occur. FSEIS Appendix J at 266, 289, and 307.

### ***Efficacy/Cost Effectiveness***

**Appellant Statement #12:** Appellant states that a “site-specific analysis is conspicuously missing from the DSEIS and FSEIS, as to both the anticipated effects of the ten different active herbicide ingredients approved for use, and the relative efficacy of manual treatments.” Appeal at 8 and 9.

**Response:** I find that the FSEIS contains a site-specific analysis regarding the potential direct, indirect, and cumulative effects of herbicide use and that the FSEIS also documents efficacy of the proposed treatments. See responses to Appellant Statement #6, #9, and #10 for a discussion of the risk of

herbicide use; in addition, the FSEIS at Chapter 3 in its entirety discusses the anticipated effects of using herbicides approved for use. FSEIS at 77-497.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The regulation at 40 CFR 1502.9(b), 1502.22, and 1502.24 gives direction regarding use of best available science. In addition, Forest Service guidance (June 20, 2007) regarding use of the best available science was followed during project planning. What constitutes best available science might vary over time and across scientific disciplines. As a general matter, the Forest Service shows consideration of the best available science when it insures the scientific integrity of the discussions and analyses in the project NEPA document.

The efficacy of manual treatments is documented anecdotally and through local monitoring several times in the FSEIS at 108, 109, 112, 113, and FSEIS Appendix J at 328 and 329. In general, the examples used show a trend of ineffectiveness when it comes to treating certain species in certain environmental settings, yet it is acknowledged that some species and sites are better suited for manual treatments.

Concerning treatment effectiveness of manual methods, some invasive species, such as biennials can be controlled at higher than 50% effectiveness levels by manual methods with diligent twice per year treatments. DSEIS at 108; FSEIS at 103. However, the most aggressive species such as Russian knapweed, Canada thistle, ribbongrass, and reed canarygrass cannot successfully be treated by manual methods alone (see FSEIS Appendix B). Manual control methods have been used for many years on large, dense weed sites with little change in weed density or perimeter. For example, Forest Service personnel, youth crews and volunteers for the past 9 years have manually treated houndstongue, a biennial species, in the Roba area of the Paulina Ranger District. For the Roba area alone, more than 17,842 person hours have been expended on manual control, at an approximate cost of \$322,860 and the houndstongue population continues to expand. FSEIS at 109.

Another example is the demonstration plot of reed canary/ribbongrass that was hand pulled on the Metolius River. Based on that day of pulling 60 ft<sup>2</sup> with 12 person hours it would take several years and cost \$108,900 for an inmate crew or \$114,824 for GS-4 laborers to pull the acre of reed canary/ribbongrass that is now present (Pajutee 2008). Resprouting of rhizomes after the initial pulling would require additional pulling for an unknown number of years, further increasing these costs. FSEIS at 112.

A third example is the hand pulling of houndstongue and spotted knapweed on five sites within and adjacent to the Ochoco Divide Research Natural Area (RNA) that has been done for four years, without full control. Approximately 1,524 hours of labor, by YCC and Northwest Youth Corps crews and Forest Service personnel has occurred with little reduction in weed density, and no containment in the size of the sites. FSEIS Appendix J at 291.

With the limited effectiveness of manual treatment for many weed species; and the high cost of manual treatment (FSEIS Chapter 3.10) and likely future budgets that may limit total annual treatment acres to 20% of what is actually needed (FSEIS Chapter 3.3), relying solely on manual treatment would result in existing weed populations that continue to expand and new populations would establish and expand. FSEIS Appendix J at 329.

The FEIS relies on long standing professional judgment from qualitative monitoring assessments of past treatments conducted on the forest (i.e. the ribbongrass/reed canary grass demonstration plot on the Metolius, as documented above. FSEIS Appendix J at 328 and 329.

Based on the disclosure in the FSEIS and appendices, I find that the analysis is site-specific and addresses herbicide use and the relative efficacy of manual treatments.

**Appellant Statement #13:** Appellant states that the FSEIS puts cost-efficiency before environmental safety, using unsubstantiated and biased effectiveness calculations and treatment costs per acres. Appeal at 9. Appellant states that the calculations are based on the effectiveness rates, which have not been substantiated and is not hard, scientific evidence in violation of NEPA and the APA. Appeal at 9 and 10.

**Response:** I find the FSEIS appropriately documented the rationale and methodology for establishing treatment effectiveness, including developing quantitative estimates of probable efficacy levels. FSEIS at 105, 106 and 107. As stated in the FSEIS at 106 “the 80% estimate is based on professional judgments of County Weed Agents, and the Forest Service Weed Coordinators, and local efficacy monitoring.”

The regulation at 40 CFR 1502.9(b), 1502.22, and 1502.24 gives direction regarding use of best available science. In addition, Forest Service guidance (June 20, 2007) regarding use of the best available science was followed during project planning. What constitutes best available science might vary over time and across scientific disciplines. As a general matter, the Forest Service shows consideration of the best available science when it insures the scientific integrity of the discussions and analyses in the project NEPA document.

As stated in response to Appellant Statement #12, effectiveness estimates rely on the field practitioner’s professional judgment in the absence of an established protocol for determining these estimates. The assumptions outlined in the FSEIS at 105 and 106 account for several dynamic variables such as seedbank longevity, future budgets and three year averages of past treatments. It recognizes that “none of the treatments would be 100 percent effective immediately after the initial entry” therefore a maintenance regime is required.” FSEIS at 105. The FSEIS references the industry standard for herbicide effectiveness and state that it is 90-95%, but the agency chose to lower that number to 80% for this analysis to account for the plethora of variables encountered in a natural system as opposed to an agricultural system. FSEIS at 106. I have consulted with regional staff and I am not aware of any specific, substantiated scientific method for estimating the potential rates of effectiveness in relation to different treatment options.

I find that the FSEIS adequately outlines the assumptions made and attempts to quantify effectiveness by alternative in a proactive manner that is based on professional judgment. This effort allows the public to see succinctly by alternative the potential differences in outcomes depending on the methods of treatment. Based on these estimates of effectiveness, the forests weighed the benefits and environmental costs in a manner that was fair and unbiased. The analysis shows the reality of the situation as assessed through past monitoring and professional judgment. As documented in the FSEIS, it appears that only conducting manual treatment has not been successful enough to stem the tide of colonization by invasive plant species.

**Appellant Statement #14:** Appellant states that the FSEIS fails to substantiate its claim that the action alternatives are more cost-effective than alternatives that “rely less on toxic chemicals.” Appeal at 10.

**Response:** I find that the FSEIS did substantiate the costs used in the analysis. See also response to Appellant Statements #12 and #13 for the discussion regarding effectiveness.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS includes an analysis of costs and financial efficiency. Costs per acre by treatment method are documented in the FSEIS at 440. Variables that affect costs are also documented in the FSEIS at 441. The FSEIS clearly shows that alternatives that rely more on manual methods would be more expensive, and as such, less cost-effective than alternatives that employ herbicides first in order to reduce the population that would need to be treated by manual methods, once they reach a size where manual methods would be effective.

**Appellant Statement #15:** Appellant objects to the overall emphasis on cost efficiency implicit in the FSEIS, rather than an emphasis on treatments with minimal adverse impacts to non-target species, which is a goal from the 2005 R6 FEIS and ROD, to which this FSEIS is tiered. Appeal at 10.

**Response:** I find that the FSEIS includes the stated goal to minimize adverse impacts to non-target species.

The regulation at 40 CFR 1502.13 states that “[t]he statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.” While the overall purpose of the project is to control invasive plants in a cost-effective manner that complies with environmental standards, the goal statements included in the FSEIS do not emphasize cost-effectiveness. FSEIS at 5, 9, 10 and 11. In addition, the three need statements described in the FSEIS do not emphasize cost efficiency. FSEIS at 5.

Specifically, the FSEIS incorporates the goals set forth in the 2005 R6 FEIS, which include protection of ecosystems from invasive plants, and implementing invasive plant treatment strategies that protect sensitive ecosystem components while minimizing adverse effects from treatment projects. FSEIS at 9, 10, and 11. As cited by appellant, one of the objectives of those goals includes protecting non-target plants and animals from negative effects of both invasive plants and applied herbicides. FSEIS at 10.

Specific standards and guidelines that amended the Deschutes, Ochoco, and Crooked River Grasslands Land and Resource Management Plans (LRMPs) include standard and guideline #19, which requires the agency to minimize or eliminate direct or indirect negative effects to non-target plants, terrestrial animals, water quality and aquatic biota. FSEIS at 11.

An alternative that maximized cost efficiency was considered but was eliminated from further detail due to inconsistency with the forests LRMP. The Social/Economic section in the FSEIS at 16 and 17 briefly discusses cost as an issue, while costs are analyzed in depth in the FSEIS at 339-344. The cost of treating an acre becomes important when considering how many acres can be treated in a given year, which leads to whether or not the project is effective at meeting the goals and objectives in the long term. Thus, I find that the FSEIS does not emphasize cost efficiency, but instead focuses on the needs to eradicate, control, contain, or suppress invasive plants at identified and future sites, as well as protect from future establishment and spread from existing sites. FSEIS at 5.

**Appellant Statement #16:** Appellant states that the Forest Service’s conclusions regarding the effectiveness of Alternative 3 is “equally unsupported” and that the FSEIS does not provide the total overall effectiveness of Alternative 3, like it does for Alternative 2 and that the public has no way to verify the figures that were based on personal communications. Appeal at 10.

**Response:** I find that the FSEIS adequately addresses the effectiveness of Alternative 3 based on the methodology used to estimate treatment effectiveness.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. Analysis can include a model or qualitative discussion of key characteristics based on professional expertise. FSH 1909.15 12.3(2). The regulation at 40 CFR 1502.9(b), 1502.22, and 1502.24 gives direction regarding use of best available science. In addition, Forest Service guidance (June 20, 2007) regarding use of the best available science was followed during project planning. While appellant references the citation of personal communication, the agency is allowed to rely on the professional judgment of agency personnel and other experts in documenting the potential effects to resources.

Treatment effectiveness for Alternative 3 is documented in the FSEIS at 106, which categorizes the effectiveness based on the designed activities rather than assigning an alternative an overall effectiveness percentage. The analysis accounts for effectiveness based on treatments in the upland versus treatments in the riparian areas, which are estimated to be less effective due to more limited use of herbicides. The estimated reduced effectiveness in riparian areas is documented in the FSEIS at 106, which states that the effectiveness of spot spraying versus broadcast spraying is reduced by 10% (from 80% to 70%). The effectiveness is further reduced for manual/cultural treatment of rhizomatous vegetation (ribongrass and reed canarygrass) to 40% on 260 acres because of the known tenacity of rhizomatous vegetation. FSEIS at 117.

Additional disclosure regarding effectiveness of Alternative 3 is also documented regarding the anticipated effects on 105 acres of riparian area where the less effective herbicide would be used in order to reduce the potential for impacts to riparian species. FSEIS at 106. As cited in the FSEIS, the agency solicited the expertise of Kev Alexanian, who estimated the effectiveness difference between triclopyr and glyphosate. As cited in the references section, Kev Alexanian is the Crook County Weed Specialist with decades of experience in weed management, thus qualifying him to use his professional expertise in predicting the effectiveness of managing weed species.

**Appellant Statement #17:** Appellant states that because the Forest Service appears to be prioritizing cost-efficiency to treat the largest number of acres on a limited budget, a more thorough cost/benefit analysis of alternatives that rely less on herbicides is required for full disclosure. Appeal at 23.

**Response:** See responses to Appellant Statements #12, #13, #14 and #15 for discussion on costs and benefits by alternative and treatment type.

**Appellant Statement #18:** Appellant states that the FSEIS did not justify their assumptions regarding the statement that manual treatments are only 40% effective, and that the potential for success with manual/mechanical methods was inadequately analyzed. Appeal at 26. Appellant also questions why there was a difference in the effectiveness predictions between the Deschutes/Ochoco and the Umatilla and Wallowa-Whitman, and that the Forest Service failed to explain these contrary assumptions, which disregard the varying levels of effectiveness of different methods for different plant species, sites, and the importance of timing and repetition for achieving effective control of invasive plants. Appeal at 26 and 27.

**Response:** See responses to Appellant Statements #12, #13, #15, and #16 for rationale behind the effectiveness ratings.

I find that this FSEIS outlined the methodology and rationale for determining efficacy rates, which means that the efficacy rates would not necessarily be the same as that estimated for other forests. FSEIS at

105-107. There is no scientific standard for determining these rates, and it is logical to conclude that other forests may have different efficacy rates based on using a separate methodology for determining them, which may incorporate local conditions and results of implementing past projects.

**Appellant Statement #19:** Appellant states that the Forest Service failed to explain why it did not choose the safer, more environmentally benign of the alternatives, despite their similarities. Appeal at 33, 34, and 35. Appellant states that the Forest Service failed to explain why “efficiency” and “effectiveness” outweighed the decreased protections and detrimental impacts of the chosen alternatives. Appeal at 34 and 35.

**Response:** I find that the Responsible Officials chose the alternative that they believed best met the purpose and need.

According to the Forest Service Manual (FSM) at 1950.41, “[t]he responsible official for NEPA compliance is the Agency employee who has the delegated authority to make and implement a decision on a proposed action (36 CFR 220.3).” Section 12 of the FSM at 1950.41 further states that the Responsible Official has the responsibility to “[m]ake a decision encompassed within the range of alternatives analyzed in the environmental documents (36 CFR 220.4(c)).”

The Responsible Officials made a decision within the range of alternatives, and considered the impacts of those alternatives prior to making their decision. The ROD at 7-13 clearly articulates the rationale behind the decision. Treatment effectiveness is specifically addressed (ROD at 8 and 9) and the trade-off between effectiveness and the potential for adverse effects are clearly described. ROD at 9-13.

### ***Purpose and Need/Alternatives***

**Appellant Statement #20:** Appellant states that the purpose and need is narrow and biased toward action alternatives that prioritize herbicide use over environmental safety. Appeal at 13 and 20. Appellants state that by narrowing the purpose and need the only reasonable alternatives rely heavily on herbicides as the first resort to control and eradicate invasive plants. Appeal at 13, 14, 17, and 28.

**Response:** I find that the Responsible Officials appropriately defined the purpose and need for this project in sufficient detail to provide the framework for developing a reasonable range of alternatives addressing the issues raised during scoping.

The regulation at 40 CFR 1502.13 states that “[t]he statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.” The FSH at 1909.15, 11.21 states that narrowing the purpose and need is important, because a well-defined “need” or “purpose and need” statement narrows the range of alternatives that may need to be considered. The Responsible Official proposing to take an action has the authority for and responsibility to define the “purpose and need” for purposes of NEPA analysis (42 USC 4332(D), 40 CFR 1502.13, and FSH 1909.15, 11.21). In this case the Responsible Officials defined the purpose and need for this project. FSEIS at 5. The FSEIS at 1-5 describes the difference between the existing and desired conditions, which outlines the logic behind the purpose and need. The FSEIS describes the underlying need to control invasive plant species and explains that the 2005 R6 ROD amended the Deschutes, Ochoco, and Crooked River National Grassland Land and Resource Management Plan’s direction for invasive plant management, making it necessary to bring the Forests and Grassland’s current treatment program, which includes non-herbicide and limited herbicide use, in line with those standards. FSEIS at 1-5.

Based on issues raised during scoping, alternative courses of action were considered. For an alternative to be considered “reasonable” it must meet the stated purpose and need of the project and address one or more issues brought up during project scoping. 40 CFR 1501.2(c). The proposed action, one alternative to the proposed action and the no action alternative were brought forward for detailed analysis. FSEIS at 19-75. Eight alternatives were dismissed from detailed analysis in the FSEIS because they would not meet the purpose and need of the project to “...to control invasive plants in a cost-effective manner that complies with environmental standards.” FSEIS at 61-66. The range of alternatives that were fully analyzed in the FSEIS was broad enough to address issues brought up during scoping (FSEIS at 14-18) and to illustrate differences in project effects (FSEIS Chapter 3) from which the Responsible Officials made a reasoned choice. FSEIS Chapter 2; ROD at 7-13.

**Appellant Statement #21:** Appellant states that the Forest Service’s failure to include the need to minimize adverse impacts to the environment from treatments of invasive plants violates many of the Forest Service’s own policies and guiding legislation, including Forest Service Manual 2080. Appeal at 14.

**Response:** I find that the Responsible Officials appropriately defined the purpose and need for this project in sufficient terms to provide the framework for developing a reasonable range of alternatives addressing the issues raised during scoping.

The purpose and need statement in the FSEIS at 5 states that “the purpose...is to control invasive plants in a cost-effective manner that complies with environmental standards,” thus minimizing environmental impacts by following law, regulation, and policy for invasive species treatments. FSEIS at 2. Appellant cited FSM 2080, which has been replaced by FSM 2900, which addresses integrated weed management. In FSM 2900, there is no mention of the need to minimize adverse impacts to the environment from treatments of invasive species. The FSM 2900 states that invasive species treatment will be based on an integrated pest management approach. Furthermore, PDFs were designed to minimize or eliminate potential adverse effects of proposed treatments. FSEIS at 15 and 43. With regards to the purpose and need, see response to Appellant Statement #20.

**Appellant Statement #22:** Appellant states that the Forest Service’s bias towards herbicides also colors the Forest Service’s opinion of other effective methods of treating invasive species that could fulfill the purpose and need. Appeal at 15, 21.

**Response:** I find that the Forest Service’s analysis was not biased and that other methods of controlling invasive plants were considered. See response to Appellant Statement # 20 regarding defining the purpose and need for the project.

The FSEIS defines the need to “to control invasive plants in a cost-effective manner that complies with environmental standards.” The regulation at 40 CFR 1502.13 states that “[t]he statement shall briefly specify the underlying purpose and need to which the agency is responding in proposing the alternatives including the proposed action.” Furthermore, the regulation at 40 CFR 1502.14 states that the EIS “should present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisionmaker and the public.” All alternatives, including those alternatives not considered in detail, were analyzed based on their ability to meet the project’s purpose and need. The decision rationale presented in the ROD at 7-13 adequately discussed the differences between how the action alternatives met the purpose and need and therefore the rationale for the decision to choose Alternative 2.

The FSEIS adequately documents how past treatments, which limited herbicide use, has not been successful at eliminating the spread of invasive plants. The FSEIS at 2 discusses how past treatments including manual methods used to control the spread of existing invasive weed sites in the past has limited the Forests ability to curtail invasive plant spread, and has also limited the ability to respond to new sites.

**Appellant Statement #23:** Appellant states that the FSEIS has an insufficient range of alternatives to adequately inform the deciding officer or the public, failed to adequately consider environmental impacts, and adequately analyze or inform the public of the bases for their assertions, which is a violation of NEPA. As such, appellant states that the FSEIS and ROD are arbitrary and capricious, an abuse of discretion, and are not in accordance with the law, in violation of the Administrative Procedures Act (APA). Appeal at 20 and 21. Appellant states that the FSEIS failed to include a reasonable range of alternatives, Appellant further states that the two action alternatives that were considered were very similar to each other, which only offers the public a choice between action alternatives that increase the application of herbicides and no action. Appeal at 20, 21 and 23. Appellants state that a reasonable range of alternatives would have included alternatives that:

- do not propose total implementation of all herbicides and treatments approved by the R6 2005 ROD. Appeal at 14.
- relied on a more balanced combination of treatment alternatives, such as favoring in equal parts herbicide, manual and mechanical treatment controls. Appeal at 23 and 24.
- either did not use herbicides, did not use herbicides and included the PDFs and expanded acreage, included PDFs and the expanded acreage, or an alternative that used chemicals as a last resort (which the public requested). Appeal at 22, 23, 24, 25, 26, and 28.
- had a graduated plan for treatment, using the least harmful manual methods first, and only moving to more harmful treatments if necessary, which would ensure that the safest effective treatment is utilized and that less herbicide is used. Appeal at 30.

**Response:** I find that the Responsible Officials, acting under their authority as defined by Forest Service Manual 1950.41, appropriately defined the scope of the analysis and analyzed the impacts of a range of reasonable alternatives within that scope. 40 CFR 1508.25. The scope of the document was defined in part by decisions that were made in the 2005 R6 ROD which amended the Ochoco, Deschutes, and Crooked River National Grassland LRMPs. FSEIS at 5. See response to Appellant Statement #20 for details as to how the purpose and need was defined.

During scoping of the proposed action, issues raised by the public and other agencies centered on effectiveness of treatment methods, effects to non-target vegetation, soils, water quality and aquatic species, human health, wildlife, rangeland resources, cultural resources, recreation and scenery, and social and economic considerations. FSEIS at 14-18.

The regulation at 40 CFR 1501.2(c) states that the formulation of alternatives is driven by significant issues that are identified during the scoping process. When developing alternatives to the proposed action, the aim is to "[s]tudy, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources as provided by 42 USC section 102(2)(E) of the Act." The FSEIS complies with 40 CFR 1501.2(c) direction by considering a total of eleven alternatives, including the proposed action to address the significant issues raised by the public and other agencies. FSEIS Chapter 2; ROD at 13-15. For an alternative to be considered "reasonable" it must meet the stated purpose and need of the project and address one or more issues brought up during project scoping. 40 CFR 1501.2(c). The proposed action,

one action alternatives and the no action alternative were brought forward for detailed analysis. FSEIS at 19-76. Eight of the alternatives that were considered were dismissed from detailed analysis in the FSEIS because they did not effectively meet the purpose and need. FSEIS at 61-66; ROD at 5, 7-13, 15-18.

The appellants suggested that several alternatives be studied in detail because they deemed them to be “reasonable.” The FSEIS considered those alternatives but dismissed them from detailed analysis because they did not meet the purpose and need or they were already incorporated into the design of the existing alternatives. FSEIS at 61-66. FSEIS Appendix J at 320-324. In addition, the no action alternative or current management condition is an alternative considered and analyzed in detail that does not propose total implementation of all herbicides and treatments approved by the 2005 R6 ROD. FSEIS at 20-21. The effects of implementing the no action alternative are addressed throughout Chapter 3 of the FSEIS.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS fully documents the potential impacts of implementing the project throughout Chapter 3. FSEIS at 77-497. See responses elsewhere in this document for details regarding the effects analysis.

According to FSM 1950.41, “[t]he responsible official for NEPA compliance is the Agency employee who has the delegated authority to make and implement a decision on a proposed action (36 CFR 220.3).” Section 12 further states that the Responsible Official has the responsibility to “[m]ake a decision encompassed within the range of alternatives analyzed in the environmental documents (36 CFR 220.4(c)).” Thus, because the Responsible Officials made a decision within the range of alternatives, and considered the impacts of those alternatives prior to making their decision, I find that the decision is in compliance with law, regulation, and policy.

**Appellant Statement #24:** Appellant states that the Forest Service “touts Alternative 3 as its more environmentally friendly alternative,” but that because it is so similar to Alternative 2, it is “really just a green-washed “straw man” for the Forest Service, and does not represent a significant increase in non-chemical control options.” Appeal at 21 and 24.

**Response:** I find that the Responsible Officials appropriately identified the overall reduced potential for impacts from herbicides under Alternative 3.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. In addition, the regulation at 40 CFR 1502.14(a) requires the agency to “rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.”

The effects of implementing Alternative 3 are disclosed throughout Chapter 3. FSEIS at 77-497. The FSEIS clearly articulates the reduced risk of Alternative 3 with regards to herbicide impacts to riparian vegetation and aquatic species. While the appellant may believe the differences between the alternatives are not significant, Alternative 3 was developed to respond to the issue of potential impacts to riparian vegetation and aquatic species and clearly represents less risk from herbicides to the environment. Thus, the statement made by appellant represents their opinion regarding the alternatives.

Non-chemical options were also considered. The FSEIS at 61-66 adequately discusses the range of alternatives not considered in detail that include alternatives that represent options for non-chemical control options. Each alternative was evaluated for its ability to meet the purpose and need and to address the issues brought up during the public scoping process. The reason for eliminating each alternative from detailed study was fully explained. FSEIS at 61-66.

**Appellant Statement #25:** Appellant states that the Forest Service failed to provide evidence or analysis of the inefficacy of a broader range of alternatives that would have used manual and other non-chemical methods, which does not support their claim that the no action alternative is ineffective. Appellant states that the Forest Service failed to provide a side-by-side comparison of alternatives regarding the trade-off between possible eradication of weeds and potential adverse effects to the environment and human health. Appeal at 22, 23, 24, and 25.

**Response:** I find that the Forest Service adequately described the efficacy of manual and other non-chemical methods and demonstrated why additional action was needed based on the inability of current management practices to control invasive species. See response to Appellant Statement #23 for a discussion on the reasonable range of alternatives.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. A side by side comparison of the alternatives which displays the effects and efficacy is documented in the FSEIS at 67-74. These tables summarize the conclusions and findings documented throughout Chapter 3 of the FSEIS and compare the effects of taking action versus maintaining the current management program, including documenting the overall effectiveness of the various alternatives. A review of these tables clearly provides the “side-by-side” comparison requested by appellant. The “trade-offs” between the alternatives are also easily recognized. FSEIS at 67-74.

**Appellant Statement #26:** Appellant states that the FSEIS failed to include an alternative that did not authorize the use of the most toxic herbicides (or an alternative that didn’t authorize all ten chemicals), or ones with the highest potential for adverse effects to wildlife and non-target plants. Appeal at 31. Specifically, appellant objects to the use of picloram, triclopyr, and sulfonyleurea which they state have the highest toxicity to non-target plants, soils, aquatic species and wildlife. Appeal at 32 and 33. Appellant states that at the very least, the Forest Service should have incorporated into an alternative a plan that dropped the most harmful active ingredients and adjuvants from use. Appellant states that the failure to do so caused the Forest Service to inadequately address the direct, indirect, and cumulative effects from the most toxic herbicides. Appeal at 33.

**Response:** I find that the Responsible Officials considered a reasonable range of alternatives. See response to Appellant Statement #23.

The regulation at 40 CFR 1501.2(c) and 40 CFR 1502.14 guide the agency in the development of alternatives. The FSEIS at 64 documents how the Responsible Officials considered an alternative that would “Prohibit Certain Herbicides and Add Others” which proposed chemical restrictions including all of the chemical compounds listed in the appellant’s statement. This alternative was eliminated from detailed study because it would eliminate the potential to treat certain invasive species near water, which is the same as what is analyzed under Alternative 3. Thus this type of alternative would be duplicative to an existing alternative that was analyzed in detail, and as such, was dismissed from detailed study. FSEIS at 64.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. Detailed analysis of the herbicides listed in the appellant's statement can be found for non-target plants (FSEIS at 143-176), soils (FSEIS at 185-208), aquatic species (FSEIS at 282-325) and wildlife (FSEIS at 387-439). Project design features #46 and #47 restrict higher risk herbicides that can impact soil microbes on high absorption soils, including fine textured and heavy clay soils. FSEIS 188-189. In addition, FSEIS Appendix D at 129-131 discloses herbicide characteristics on the soil resource. See response to Appellant Statement #46 for a thorough discussion of how the FSEIS documented the potential for cumulative effects to occur.

**Appellant Statement #27:** Appellant states that the EDRR program violates NEPA because it authorizes an additional 240,000 acres of herbicide treatment without additional public analysis. Appeal at 20 and 41. Appellant states that the FSEIS failed to analyze an alternative that would require site-specific analysis of new infestations or use of manual methods first for new infestations, rather than automatically authorize herbicide for new sites under EDRR, which is what will occur under the action alternatives. Appeal at 33.

**Response:** I find that the EDRR program does not violate NEPA and that 240,000 acres is an unlikely maximum amount of acres that would potentially be treated under EDRR.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The potential additional acreage that could be treated under EDRR is disclosed in the FSEIS. While it is assumed that up to 16,000 acres would be treated each year for the next 15 years, it is not likely to result in 240,000 of "additional" treatment, although mathematically, 16,000 acres multiplied by 15 years does equate to 240,000. In reality, invasive plants do not and will not likely occupy 240,000 acres across the two Forests and Grassland.

In addition, while the ROD at 5 states that "[i]nvasive plant treatments will be capped at 16,000 acres annually and 240,000 acres for the life of the project. These caps include the sum of EDRR sites as well as known sites," this does not mean that all 240,000 acres would be treated, nor does it mean that these acres represent new infestations. Currently, invasive plants occupy just under 14,000 acres, with an additional 4,000 acres that have been mapped since the inception of this project. As described throughout the FSEIS, many of these sites will require repeated treatments or follow-up treatments in order to curtail the spread of the plant. The maximum cap of 16,000 acres ensures that effects of the project stay within what has been disclosed. The FSEIS states that "[t]reatments using herbicides on the Deschutes/Ochoco/Grassland shall not exceed 16,000 acres per year during the expected 15 years that the Record of Decision will be in effect" which equals 240,000 acres, but does not state that 240,000 acres will be treated. FSEIS at 36. The project analyzed 52,000 acres of Project Area Units (PAUs), thus also confining the scope of the project. FSEIS at 22-26.

For sites outside PAUs, the process to treat future invasive plant infestations is described in the FSEIS Appendix F at 160-161. An interdisciplinary team will determine whether the preferred treatment method and proposed prescription are within the scope of those analyzed in the FSEIS. For new sites (not inventoried and listed in this FSEIS) the EDRR process is described in the FSEIS and includes a process for site-specific analysis on new sites before herbicides can be used. ROD at 6, FSEIS at 38-40, FSEIS Appendix F at 160-161. The EDRR process clearly states that sites outside the parameters analyzed in the FSEIS would have new NEPA analysis. ROD at 3. The point that EDRR sites must be within the bounds of this analysis is made throughout the FSEIS at 39, 40, 44, 68, 78, 09, 97, 122, 173, 176, 202, 225, 278, and 279. The interdisciplinary implementation process for EDRR is also thoroughly discussed in

the Project Implementation and Monitoring Appendix F at 160-161. Further limitations on treatments in riparian areas per year also confine the scope and scale of treatments that may occur. ROD at 10.

***No Action Alternative/Current Management***

**Appellant Statement #28:** Appellant states that manual treatments under the no action alternative only occur on sites with less than 10 invasive plants (herbicide is used on more than 10 plants per site), but no evidence is provided to explain why any infestation larger than 10 plants could not effectively be treated with manual methods, and no alternative was analyzed that used manual methods on sites with more than 10 plants. Appeal at 25.

**Response:** I find that the Responsible Officials addressed this appeal point in their response to comments.

The regulation at 40 CFR 1503.4 requires the agency to respond to comments submitted on a draft statement. Possible responses are to: modify alternatives including the proposed action; develop and evaluate alternatives not previously given serious consideration by the agency; supplement, improve, or modify its analyses; or make factual corrections.

The FSEIS Appendix J at 287 responded to the question about why only 10 plants and fewer were proposed to be manually treated. Specifically, the response states that “The description of using herbicide on more than 10 plants is from the Ochoco NF/Crooked River NG 1998 Noxious Weed Treatment EA that is currently in use. Ten plants was a number used in an attempt to limit the amount of herbicides used; the strategy at the time was that manual control of very small populations would be effective. The effectiveness of this strategy is species specific. It works well on some biennial species such as scotch thistle and bull thistle (see page 100-101). It does not often work well on annual and perennial species.” FSEIS Appendix J at 287. Thus, the restriction cited by appellant is for the current management regime.

In addition, two alternatives were considered in detail that analyzes manual control on sites with more than 10 plants. The description of Alternative 2 in the FSEIS at 22-26 proposes to treat 706 acres across 3,635 PAU acres with manual only treatments. The description of this action does not limit manual only treatments to 10 plants or less. In addition, the description of Alternative 3 in the FSEIS at 27-28 indicates that because of the riparian buffer in place to restrict herbicide use, even more acres of manual only treatments would be used, not limited to 10 plants or less. FSEIS at 29-32.

**Appellant Statement #29:** Appellant states that the FSEIS lacks a clear description of the current management program, including a lack of discussion of current standards and treatment measures in place that govern the use of herbicides or non-chemical treatment methods, and fails to provide a site-specific analysis of the current program. Appellant states that the FSEIS did not provide a detailed analysis of which sites were effectively controlled, which sites were not and the probable reasons for this. Appeal at 25 and 26.

**Response:** I find that the FSEIS clearly describes the current management practices and describes current standards and guidelines, prevention measures, and project design features that are in place to guide the current program.

The regulation at 40 CFR 1502.14(d) describes what shall in be included in an EIS analysis and states that an EIS shall “[i]nclude the alternative of no action.” Further, the FSH 1909.15, 14.2 directs that an

interpretation of “the no-action alternative means no change from current management direction. Consequently, the responsible official would compare the projected impacts of alternative management schemes to those impacts projected for the existing plans or actions.” A summary of effectiveness of the no action or current management strategies is described in the FSEIS at 106-110, including specific examples or sites where current methods were effective or ineffective. The site specific analysis of the no action alternative is described in Chapter 3 for each resource (FSEIS at 77-497); see response to Appellant Statement #30.

**Appellant Statement #30:** Appellant states that the FSEIS failed to consider an alternative that emphasized manual techniques (especially near species of local interest and on smaller infestations), thus depriving the public of a comparison of costs and effectiveness. Appeal at 26. Appellant states that the Forest Service also overlooked the benefits of relying more on manual removal, such as increased employment. Appeal at 26 and 27.

**Response:** I find that the FSEIS considered an alternative that emphasized manual techniques and also considered the increased employment of relying more on manual treatments. See response to Appellant Statement #23 for a discussion on the range of alternatives considered and see response to Appellant Statement #29 for a discussion on manual methods.

The regulation at 40 CFR 1501.2(c) and 40 CFR 1502.14 guide the agency in the development of alternatives. The effectiveness of methods used in the current program is described in the FSEIS at 107-110 and includes specific examples. The effectiveness of the current program on the two Forests and Grassland where non-herbicide methods are used is not fully curtailing the spread of invasive plants. Manual methods are usually not effective on perennial plants or annual grasses, as documented in the ROD at 4-5 and FSEIS at ES-10, 1- 3, 5, 21, 61, 73, 102, 103, 108, 111, 115, 117, 149, 167, and 299.

In addition, Alternative 1 which emphasizes manual and other non-chemical treatment techniques, and includes the effects on all resources was analyzed in detail. Disclosure on Alternative 1 includes information on treatment effectiveness (FSEIS at 108-110 and 118-121); non-target vegetation (FSEIS at 148-153 and 173-176); soils (FSEIS at 182-185); water resources (FSEIS at 223-249); fish and aquatic organisms (FSEIS at 280-299); human health (FSEIS at 340-341 and 345-346); wildlife (FSEIS at 402-403 and 436-439); economics, including a comparison of costs (FSEIS at 440-444); range (FSEIS at 451-452); cultural resources (FSEIS at 456-457 and 459-460) and other resources (FSEIS at 464-490).

Species of local concern and culturally important plants were also considered. Project design features (PDFs) #36-41 were developed to protect cultural resource plants (FSEIS at 49-50) and sensitive and other rare plants, including no-treatment buffers which will further protect species of concern. FSEIS at 52-53, including PDFs #63-71. Specifically, PDF #64 requires a Forest Service Botanist to identify steps needed to protect sensitive and survey and manage plants, such as altering treatments by switching from herbicide to manual treatments within and adjacent to a sensitive or survey and manage plant population. FSEIS at 52.

The FSEIS also discloses that Alternative 3, which emphasizes manual treatment in certain riparian areas, shows increased employment numbers over Alternative 2. FSEIS at 443-444. There were 3 total comments (2 commenters) on the DSEIS regarding community impacts. These comments and responses are documented in the FSEIS Appendix J at 328, 330, and 331. All benefits and impacts of the proposal and alternative was presented, which define the issues and provide a clear basis for choice among options by the Responsible Officials and the public. 40 CFR 1502.14; FSH 1909.15, 16.

## ***Prevention of Invasive Species Introduction and Spread***

**Appellant Statement #31:** Appellant states that the FSEIS failed to address the causes and spread of invasive species (logging, OHVs, road use, or livestock grazing) and failed to adequately consider alternatives involving site-specific prevention of weed spread (both with and without subsequent treatment) with regards to these causes of invasive plant introduction. Appeal at 27, 28, 29, and 30.

**Response:** I find that the FSEIS identified the cause and spread of invasive species and considered and selected an alternative that incorporates prevention standards to reduce weed spread.

The regulation at 40 CFR 1501.2(c) and 40 CFR 1502.14 guide the agency in the development of alternatives. The FSEIS identified the causes and spread of invasive species throughout the document and also considered measures to reduce these potential vectors of invasive plants. The analysis in the FSEIS at 81 sets the stage for disclosing the potential for invasive plant spread to occur. The FSEIS at 86 through 90 identifies current and reasonably foreseeable future actions that have the potential to introduce invasive plants onto the Forests and Grassland. Current and future activities that may act as a vector for spreading invasive plants include vegetation and fuels management projects as well as OHV trail use and travel management. FSEIS at 88 and 89. Vegetation and fuels management activities can introduce invasive plants by reducing canopy closure and creating bare ground, which stimulates spread of existing invasive plants and provides a seed bed for others. FSEIS at 89. Prevention measures are built into timber sale and fuels reduction contracts, thus showing adequate consideration of preventing spread of invasive plants through these potential vectors. FSEIS at 89. Off highway vehicle (OHV) use influences the spread of invasive plants by disturbing the soil and carrying the seeds for longer distances than conventional dispersal methods. FSEIS at 89. Prevention measures include implementation of the Forests travel management program, which closed National Forest System lands to motorized travel, except where designated and incorporation of prevention standards into other travel management plans. FSEIS at 89.

Prevention measures were addressed in the 2005 R6 FEIS and ROD, to which this document was tiered, in accordance with 40 CFR 1502.20. FSEIS at 5. According to the FSEIS, “[p]revention standards have been in place since the R6 2005 ROD amended the Forest Plans; these standards were put in place to reduce the rate of spread and introduction of invasive plants while still maintaining the Forest Service’s ability to provide for existing uses and management activities on National Forest System lands. In addition the Deschutes and Ochoco National Forests adopted specific local prevention measures (see Appendix G). Prevention measures target several vectors of invasive plant spread and introduction including: heavy equipment, mineral materials, infested straw and feed, and forest activities that cause disturbance.” FSEIS at 2.

FSEIS Appendix G thoroughly spells out prevention measures that were adopted by the Forests and Grassland. These prevention measures amended the Forest Plans and as such, are enforceable and incorporated as requirements during project planning. FSEIS Appendix G.

The FSEIS also included an alternative considered, but eliminated in detailed study that would focus on education and prevention. FSEIS at 66. The analysis documents that prevention is an “important component of invasive plant management and is an ongoing consideration in managing National Forests, regardless of the decision resulting from this FSEIS. Executive Order 13112 (1999) requires federal agencies to prevent the introduction of invasive species as well as promote education on invasive species.” FSEIS at 66. The Executive Order also requires agencies to “detect and respond rapidly to and control populations of such species in a cost-effective and environmentally sound

manner.” EO 13112, Section 2(a)(2). Thus, focusing on prevention alone would not be in compliance with the executive order and would not meet the purpose and need.

**Appellant Statement #32:** Appellant states that “the inclusion of Appendix G as an apparent attempt to maintain the appearance that they are implementing prevention is disconcerting, as the “prevention Practices” set forth in Appendix G are woefully inadequate, with no timelines or benchmarks to monitor prevention practices, and a host of “goals” and “standards” and “objectives” but practically no real requirements that would actually enable prevention to occur.” Appeal at 28 and 29.

**Response:** I find that the FSEIS at Appendix G more than adequately addresses all the currently known methods for prevention. Appendix G contains all the language from the amended LRMPs (i.e. R6 2005 ROD) along with additional local practices developed by the forests. FSEIS Appendix G at 191-210. I find that Appendix G does in fact maintain requirements through “goals” and “standards” and “objectives” as well as outlining a monitoring regime to follow. FSEIS Appendix G at 208 and 209. Within each standard, goal and objective table there is a litany of narrative describing the requirements of practices to be followed in order to prevent spread of invasive plants. A good example is in Table G-7, Pre-project activities #5.1 which states “Pre-project inventories should be completed and used during the project planning process. Develop site specific plans for treatment of existing invasive plant populations. Maintain an invasive plant inventory and monitoring system.” FSEIS Appendix G at 199-201. This example clearly articulates a requirement of project planning that will lead to prevention of invasive plant spread.

**Appellant Statement #33:** Appellant states that the FSEIS should have analyzed an alternative that “put more emphasis on prevention, non-chemical control and passive restoration (e.g. revegetation of native plants, decommissioning roads) and public education for campgrounds and highly disturbed sites otherwise subject to repeated (and futile) toxic herbicide dumping.” Appeal at 29 and 30.

**Response:** I find that the Responsible Officials did consider alternatives that did consider prevention, non-chemical control and passive restoration. See response to Appellant Statement #23, #29, #30, and #31 for more details.

**Appellant Statement #34:** Appellant states that the Forest Service says that an objective of this proposed action is to “[r]educe reliance on herbicide use over time in Region Six,” but that such reduction would “only be possible if effective, site-specific prevention measures were in place and that referencing a regional analysis and attaching non-specific measures is insufficient under NEPA.” Appeal at 30. Appellant also states that the FSEIS and ROD do not provide clear, realistic timelines for reducing herbicide use and that the analysis presented in the FSEIS are misleading because it fails to account for new infestations and the data used to calculate the reductions is unsupported. Appeal at 30 and 31. Appellant states that the FSEIS should have included mandatory reduction timelines as part of the reasonable range of alternatives. Appeal at 31.

**Response:** I find that the FSEIS documented how herbicide use would be reduced and also documented site-specific prevention measures. See response to Appellant Statement #32 for the rationale regarding sufficiency of the outlined prevention measures in Appendix G.

The estimates and assumptions documented in the FSEIS show a substantial decreased need for herbicide use over time because of the increase in effectiveness when incorporating multiple treatment options into the program. Depending on the alternative and whether the site is in an upland area versus a riparian area, Tables 25 and 26 give estimated reductions based on the assumption of a rate of spread

at 10% and 40-80% effectiveness of treatment. FSEIS at 114 and 116. In upland areas, Alternative 1 estimates there would still be 12,274 acres of invasive plant areas after 5 years because of the low effectiveness rating (i.e. 50%). Alternatives 2 and 3 would be the same for uplands and estimate a total of 7,529 acres of invasive plant areas remaining after 5 years. The difference between the action alternatives and Alternative 1 is based on the 80% estimated effectiveness when herbicides are used. In riparian areas, Table 26 shows Alternative 1 would result in still having 1,366 acres to treat for invasive plants after 5 years, while Alternative 2 would only have 238 acres left, and Alternative 3 would have 990 acres of invasive plants remaining. FSEIS at 116.

The EDRR approach allows the Forests to treat infestations when they are small and first detected, thus limiting the amount of herbicide that will need to be used. FSEIS at 39 and 80. Because treatments are based on budgets, which fluctuate over time, I do not believe that setting a mandatory reduction timeline for the use of herbicides would be reasonable under any action alternative because an arbitrary timeline would limit the ability of the agency to control the spread of invasive species, and as such, would not meet the need for action.

**Appellant Statement #35:** Appellant states that the FSEIS failed to consider prevention measures as connected actions or reasonable alternatives, but then considered prevention measures when analyzing the environmental consequences of the proposed action, “ignoring prior case law that underscores the need to consider alternatives that eliminate or substantially mitigate the practices that cause or contribute to invasive plant infestations.” Appeal at 15, 16 and 17. Appellant also states that the Forest Service failed to discuss the efficacy of the current prevention measures. Appeal at 16.

**Response:** I find that the FSEIS correctly considered prevention measures are part of the current management strategy and that they are integrated into the alternatives, and that they were considered as part of the environmental consequences because they are an ongoing action. I also find that the Forests did discuss the efficacy of prevention measures. See response to Appellant Statement #36 for a discussion on why prevention measures are not a connected action.

The regulation at 40 CFR 1502.15 requires the agency to describe the affected environment in an environmental impact statement. The Deschutes, Ochoco and Crooked River National Grassland LRMPs were amended to include required standards for weed prevention (ROD at 4, 9, 15, 17-18). Prevention is addressed programmatically in the R6 2005 FEIS and ROD, and prevention of invasive plants is required for all land uses. The analysis tiers to the R6 2005 FEIS and this FSEIS incorporates those standards; they are currently in place and will be followed regardless of the decision and implementation of this FSEIS (FSEIS at 10-11, 21, 40-41, and 95). Thus, the decision to include prevention standards into project planning has already been made.

In addition to the LRMPs required prevention standards, the Forests developed guidelines for prevention, and examples of project activities that implement prevention practices can be found in Appendix G. The FSEIS includes an alternative not considered in detail, titled “Focus on Education and Prevention” (FSEIS at 66, ROD at 17), which documents that prevention is not a connected action because measures to prevent invasive plant introduction and spread are occurring regardless of the treatment proposed in the FSEIS.

The selected alternative (and all other alternatives) emphasizes stringent and comprehensive required prevention measures for activities that spread invasive plants. The purpose and need is focused on treatment of invasive plants regardless of the rate or vector of spread and prevention of invasive plants is built into current and future management activities.

The efficacy of prevention measures is addressed in the FSEIS Appendix J, response to comments, which documents examples of prevention efforts include setting up vehicle washing station for the B&B wildfire in 2003; requiring timber sale contractors to clean logging equipment before leaving roads, and requiring weed-free hay in wilderness areas. FSEIS Appendix J at 283. An additional example described in the FSEIS includes the use of prevention standards that have required the use of certified weed free feed since 2007. Since this standard has been in place and because of education efforts (which is also part of prevention), there has been little or no evidence of invasive plant spread into the Wilderness areas of the Forests, as documented in the FSEIS at 474-476.

**Appellant Statement #36:** Appellant states that the Forest Service acted arbitrarily in finding restoration projects to be “connected” to the project and prevention practices not “connected” to the project and that the agency failed to provide adequate rationale behind their determination. Appeal at 17. Appellant states that the determination that prevention practices are not connected actions limited the scope of the FSEIS and as such, the Forest Service did not adequately address the causes of invasive species or incorporate an alternative that included adequate prevention measures. Appeal at 17 and 18.

**Response:** I find that the FSEIS adequately addressed the issue of prevention practices and the fact that these practices are not a “connected action” under NEPA.

The regulation at 40 CFR 1508.25(a)(1) defines what constitutes a connected action under NEPA. According to the regulation, a connected action is an action that (i) automatically trigger other actions which may require environmental impact statements; (ii) cannot or will not proceed unless other actions are taken previously or simultaneously; (iii) are interdependent parts of a larger action and depend on the larger action for their justification.

The FSEIS at 8, 9, 40 and 41 addresses the reasons and rationale for why prevention measures are not considered as connected actions under the existing LRMPs, as amended by the R6 2005 ROD as well as local project planning prevention measures. Prevention practices are already being implemented and were analyzed in depth in the R6 2005 ROD, which amended the LRMPs and is incorporated by reference several times in the document. Thus, these actions have already gone through NEPA analysis (the decision has already been made) and they are part of the existing condition and management framework for the Forests and Grassland. The effects of these prevention measures have been accounted for throughout Chapter 3. FSEIS at 77-497. Prevention does not automatically trigger another action, it will proceed regardless of other actions, and is not interdependent on a larger action to take place, thus by definition alone, prevention is not a connected action.

In addition, each project on a unit analyzes the required prevention practices based on site specific conditions within the area proposed for disturbance. In essence, prevention practices are not a connected action to this project because they have been implemented for several years, will continue to be implemented regardless of this FSEIS, and are already being analyzed on a project by project basis.

**Appellant Statement #37:** Appellant states that prevention practices are also cumulative actions and similar actions under 40 CFR 1508.25 and must be addressed in the FSEIS. Appeal at 18.

**Response:** I find that the prevention practices do not constitute cumulative or similar actions under NEPA.

The regulation at 40 CFR 1508.25(a)(2) defines a cumulative action as an action “which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.” The regulation at 40 CFR 1508.25(a)(3) defines a similar action as “actions, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. An agency may wish to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.” As described in response to Appellant Statement #36, prevention practices do not meet either definition, as they are not a proposed action that has cumulatively significant impacts, nor do they have similarities that provide a basis for evaluating their environmental consequences together. As stated previously, the prevention practices amended the Forests and Grassland LRMPs and are part of the current management strategy; the effects of these prevention practices have been accounted for throughout Chapter 3. FSEIS at 77-497. The NEPA decision on these practices has already been made and does not need to be considered again in this FSEIS.

### ***Incomplete/Unavailable Information/Science***

**Appellant Statement #38:** Appellant states that the vague and undefined language used throughout the FSEIS fails to inform the public and is a violation of NEPA. Appeal at 11. Appellant states that the FSEIS uses words such as “minimal”, “low”, or “minimized” or “very low” that are not defined or differentiated and that these conclusions are not justified based on the Forest Service’s reliance on incomplete and unavailable information. Appeal at 11, 19 and 48.

**Response:** I find that the qualitative terms used in the FSEIS are allowed under NEPA and are also adequate to categorize the magnitude of environmental consequences predicted to occur as a result of the proposed action and alternatives considered.

By comparing relative effects between alternatives or by comparing effects against a threshold value (either qualitatively or quantitatively), adequate information can be conveyed to both inform the public and enable the decision maker to make a reasoned choice among alternatives. 42 USC 4432 Section 102 (B); 40 CFR 1502.8; and FSH 1909.15, 12.3(2). According to 42 USC 4432 Section 102 (B), “all agencies of the federal government shall...identify and develop methods and procedures, in consultation with the CEQ [Council on Environmental Quality], which will ensure that presently unquantified environmental amenities and values may be given appropriate consideration in decision-making along with economic and technical considerations.” 40 CFR 1502.8 states that “Environmental impact statements shall be written in plain language...” Further, FSH 1909.15 12.3 (2), states that “the analysis may include the use of a model or qualitative discussion of key characteristics based on professional expertise.”

The terms identified by the appellant as vague and undefined language are defined in the FSEIS. For example in the introduction to Chapter 3 on page 81, the term very low is defined in context as follows: “... the potential adverse impacts of non-herbicide invasive plant treatments are minor, small scale, and of short duration. The potential for non-herbicide treatments to result in effects of concern to the public is very low.” The terms are often used in conjunction with the effect, as illustrated on page 287 of the response to comments on the Draft SEIS (Appendix J): “While there is a slight risk of herbicide movement to water in these 724 acres of invasive plant areas within 100 feet of perennial water, the risk is very low. Herbicides may enter the water but in such low concentrations that effects to fish and aquatic biota would be negligible.” In addition, the words minimal and threshold are defined in the

glossary on pages 514 and 519 of the FSEIS; threshold of concern is defined on pages 94 and 327 of the FSEIS.

These terms also represent qualitative values to characterize the magnitude of effects as described above. A prediction of environmental consequences that could occur as a result of a proposed action is an important part of the EIS process. Generally analytical approaches are used to predict impacts and subsequent comparisons of alternatives for achieving the identified purpose and need for the proposed action. 42 USC 4432 Section 102 (B); 40 CFR 1502.24. According the CEQ guidance on cumulative effects (CEQ 1997), if “cause-and-effect relationships cannot be quantified, or if quantification is not needed to adequately characterize the consequences of each alternative, qualitative evaluation procedures can be used. The analyst may categorize the magnitude of effects into a set number of classes (e.g., high, medium, or low) or provide a descriptive narrative of the types of effects that may occur. Often, the analyst will be limited to qualitative evaluations of effects because cause and-effect relationships are poorly understood or because few site-specific data are available. Even when the analyst cannot quantify cumulative effects, a useful comparison of relative effects can enable a decision-maker to choose among alternatives.” Based on CEQ guidance, I find that the Forest Service adequately defined the terms used in the FSEIS.

**Appellant Statement #39:** Appellant states that the Forest Service’s reliance on incomplete or unavailable information, failure to adequately explain why the information is incomplete or unavailable, failure to cite adequate science in support of its numerous unsupported assertions and conclusions regarding the safety of the herbicide applications and efficacy of the PDFs, and failure to explain the relevance of the information and why the information cannot be obtained, violates NEPA. Appeal at 18, 19, 20, 47 and 53. Appellant further states that the Forest Service has not considered the benefits that complete information would have on the environmental impact analysis of the project. Appeal at 19.

**Response:** I find that the FSEIS adequately discloses incomplete and unavailable information, as well as scientific uncertainty and risk, as required by CEQ regulations. 40 CFR 1502.22. Incomplete and unavailable information in terms of the herbicides proposed for use are discussed in the FSEIS at 93, 147-148, 390, 496, and Appendix J at 264 and 307. See also response to Appellant Statement #10 regarding the discussion of incomplete or unavailable information.

**Appellant Statement #40:** Appellant states that the Forest Service claims that an accurate accounting of the amount of acres of invasive plant treatments within the affected watersheds is not essential because the agency is complying with relevant laws, regulations, and policy. However, appellant asserts that this information is necessary because the agency has not sufficiently analyzed the proposed project’s compliance with PACFISH/INFISH or the ACS. Appeal at 18.

**Response:** I find that the FSEIS disclosed where information was incomplete or unavailable and also disclosed the context of why that information was not essential to making a reasoned choice among the alternatives. See also the response to Appellant Statement #10 for a discussion on incomplete or unavailable information.

The regulation at 40 CFR 1502.22 requires the agency to make clear any information that is either incomplete or unavailable. The FSEIS clearly displayed where data were incomplete or unknown, particularly with regards to the risks associated with herbicide use. FSEIS at 93, 390, 496 and 497. In the context of appellant’s assertion, the information that was disclosed as incomplete is based on the accounting of all acres of invasive plant treatment within the watersheds where the project is proposed to occur. FSEIS at 497. This statement appears to have been made in the context of having a valid

estimate of treatments conducted by other landowners. The FSEIS clearly states that the reporting program for the State of Oregon only provides some information and is voluntary, and as such, is not a reliable source of data. FSEIS at 497. I concur that with the Forests determination that we have enough information regarding herbicide use in the project area (FSEIS at 85-89); additional information is not needed to make an informed decision, because the activities proposed with this project were designed to comply with all relevant laws, regulations, and policies, and restrictions on acreages treated near any water bodies further ensures that the Clean Water Act and State standards will be met. See response to Appellant Statement #58 for project compliance with PACFISH and INFISH.

**Appellant Statement #41:** Appellant states that the FSEIS relies heavily on the SERA risk assessments for herbicides to explain why information regarding the effects of herbicides on native, non-target species is irrelevant, but that these assessments have a “high degree of uncertainty,” “may not be complete,” have “missing information” and are not specific to the conditions or species found on the Deschutes and Ochoco National Forests and Crooked River National Grassland. Appeal at 18 and 47. Appellant concludes that without site-specific assessments, fully informed decision-making is not possible and safety to humans, other species, water quality and soil fertility cannot be guaranteed or estimated. Appeal at 47.

**Response:** I find that the FSEIS clearly identified where information was incomplete or unavailable and that the SERA risk assessments were appropriately used.

See response to Appellant Statement #10, #39, and #40 for information as to how incomplete or unavailable information was addressed in this FSEIS. The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives, while the Forest Service Handbook at 1909.15, 15 describes the process used to consider the effects of each alternative considered in detail. For this project, modeling was used to provide site specific quantitative information about potential direct and indirect effects from herbicide application to water quality. FSEIS at 227, 239, 286-288, 292, 308, 312-314, and 423; 2005 R6 FEIS 4-113 to 125; and SERA Risk Assessments in project file. The SERA Risk Assessments were developed utilizing EPA standardized risk assessment methodology while the GLEAMS model “has been tested extensively for modeling pesticides ...and is generally comparable to PRZM (Pesticide Root Zone Model)” which was developed and used by the EPA (SERA 2004 as referenced in 2005 R6 FEIS References-23).

According to the FSEIS, “[t]he additional analysis using the GLEAMS Driver model (SERA 2008) takes into account much more detailed site specific variables and herbicide application variables and is therefore much more accurate and sensitive to change. Results from the GLEAMS Driver model (SERA 2008) indicate that levels of herbicide reaching waterbodies would be well below levels of concern in the Metolius site and in the Rimrock Springs site which are considered the most sensitive sites for herbicide application due to their proximity to water and species of concern (see Appendix F). As a result, sites in other sub-watersheds that are all in less sensitive areas will have even less of a potential for effects to species and habitats. As an added layer of caution where herbicide hazard quotients of 1.0 were exceeded for a certain herbicide in a subwatershed using the GLEAMS model (SERA 2005). PDF 54 was established which restricts herbicide application to the typical application rate within 100 feet of all waterbodies and prohibits or restricts the use of certain herbicides in certain subwatersheds.” FSEIS at 286.

The FSEIS further states that “[t]he Gleams Driver model was run on treatment area 75-20 at Rimrock Springs where a small spring fed pond is the headwater of a small stream that contains redband trout. Rimrock Springs Dam and some of the adjacent pond margins contain dense infestations of Russian

knapweed that are proposed to be treated with clopyralid up to 15 feet from the water, and glyphosate from 15 feet to the water's edge. In order to assess the possible exposure of redband trout to herbicides from treatments of this infestation, we ran the GLEAMS-Driver model. Local soil textures, weather data, pond volume and other variables were input into the model for a foliar spray of clopyralid at 0.49 lbs/acre and glyphosate at 1.5 lbs/acre. Model results indicate that redband trout could be exposed to a maximum concentration of 0.0032 mg/L clopyralid in the pond water from treatments on the dam plus adjoining upland areas. The acute NOEC for rainbow trout is 5 mg/L so no adverse effect redband trout is likely from the use of clopyralid at this site. For glyphosate, the model results indicate that no measurable amount is expected to reach the pond, so no effect to redband trout is likely." FSEIS at 308.

Therefore, I find that the Responsible Officials considered adequate analysis with site-specific data that included evaluation of direct, indirect and cumulative effects of the proposed activities prior to making their decision, which they documented in the ROD.

**Appellant Statement #42:** Appellant states that the FSEIS has a "disturbing lack of scientific data for broadcast drift to agricultural crops and bees" and that without specific data, all such sensitive and federally listed plants, edible mushrooms, and mycorrhizae, and known lichen and bryophyte habitat should be buffered from herbicide use and any herbicide that concentrates in the soil should be eliminated. Appeal at 48.

**Response:** I find that the FSEIS appropriately addresses this issue by incorporating PDFs (FSEIS at 52 and 53), along with a risk reduction framework (FSEIS at 95) resulting in a substantial effort made to reduce the potential for effects to bees, sensitive plants, edible mushrooms, mycorrhizae, lichens and bryophytes.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS cites specific peer reviewed studies to determine buffer widths for threatened, endangered and sensitive plants, as well as survey and manage plant species (Marrs et. al.). FSEIS at 53. The FSEIS incorporates buffers of 35-100 feet as a no broadcast spray zone around species of concern. FSEIS at 53. Several buffer options are outlined in PDFs# 63-71 depending on the type of herbicide used and type of application.

The FSEIS describes the phenomenon known as colony collapse disorder. FSEIS at 386-387. The potential for this project to affect honey bees and result in colony collapse disorder is low because none of the herbicides proposed for use exceed toxicity values for honey bees. FSEIS at 435-436. The FSEIS at 186-192 discloses the potential impacts to soils, including impacts to soil microbes. PDFs #46 and #47 are incorporated to restrict higher risk herbicides that can impact soil microbes on high absorption soils, including fine textured and heavy clay soils. FSEIS at 188-189. The FSEIS Appendix D at 129-131 discloses herbicide characteristics that influence their potential effects on the soil resource. Thus, I find that the FSEIS analyzed the soil resource and known populations of sensitive plants and other species of concern and adequately protected and buffered these species to reduce the potential for adverse impacts to occur.

**Appellant Statement #43:** Appellant states that the FSEIS provides a "laundry list" of PDFs, but provides "no evidence that the efficacy if [sic] these PDFs has been tested or evaluated for the actual degraded habitat conditions in these forests." Appeal at 49. Appellant further states that the Forest Service cannot just say that PDFs will minimize harm, but that they must explain how mitigation will occur, how they will eliminate the possibility of harmful human exposure to herbicides, and how the measures will mitigate adverse impacts of chemical use on the environment. Appeal at 49 and 50. Appellant states

that the Forest Service must explain and ensure that the PDFs will be enforced or efficient. Appeal at 50.

**Response:** I find that the FSEIS does describe how PDFs were developed and that the ROD describes how PDFs will be enforced.

The Forest Service Handbook at 1909.15, 15 describes the process used to consider the effects of each alternative considered in detail, including analysis of the “effectiveness of the mitigation measures that would result from implementing each alternative, including the no-action alternative.” As documented in the ROD, the “PDFs will be implemented through project design and layout, contract specifications, contract administration and monitoring by Forest Service officers.” ROD at 5. The Forest Supervisors found that “the PDFs adequately minimize or eliminate adverse effects.” ROD at 5.

According to the FSEIS, “[t]he effectiveness of the PDFs is addressed throughout Chapter 3. In some cases, the PDFs eliminate an herbicide exposure of concern, for instance, by limiting the rate or method of herbicide application. In other cases, the PDFs reduce the potential for herbicide exposure to have an effect. The source of PDFs is provided in the list [FSEIS pages 45-56]. Appendix D, which describes basic characteristics of each herbicide, including hazard and risk characterization, also provides a cross-reference to this list of PDFs.” FSEIS at 44.

In addition, the Forest Service responded to the appellant’s comment on the DSEIS that the proposed PDFs are untested as to effectiveness (FSEIS Appendix J at 292) by stating: “[t]he PDFs ...include a variety of measures that limit the extent and/or type of treatment so that risks of adverse effects are reduced. Most of the PDFs are common “best management” practices that have a scientific or practical basis. The IDT adopted some measures from NEPA documents for current invasive plant treatment projects on neighboring federal lands. PDFs include limitations on rate and application method to keep the potential exposure below the threshold of concern indicated in scientific SERA Risk Assessments. The buffers are based on field monitoring (Desser 2008). Many PDFs are reiterations of herbicide label requirements and material safety data sheets, both of which are subject to rigorous scrutiny and testing by the EPA. The PDFs make explicit those label requirements that minimize the potential for specific effects to occur.

The PDFs and buffers add redundant layers of caution to make sure that the potential adverse effects of using herbicides are minimized as per Ochoco/Deschutes/CRNG Forest Plans invasive plant treatment standards 19 and 20. The PDFs and buffers are based on practical experience, published studies, field monitoring, scientific testing, and predictive modeling. For example the Marrs et al. (1998) study discussed on pages 139-140 determined overspray from broadcast application of most herbicides did not cause lethal effects beyond 7 feet. The PDFs proposed in this document are more conservative, adding the described layer of caution.”

For further site specificity, the buffers used in the PDFs and Tables 15 and 16 were determined by consulting published and agency literature (Berg 2004, Norris et al. 1991, SERA 2003, SERA 2005) and using professional judgment of the interdisciplinary team, with knowledge of local conditions and weed treatment methods. In addition, the FSEIS utilized water monitoring results from these studies and others in the effects discussion for water quality, indirectly supporting the effectiveness of buffer widths (FSEIS at 236-237). These studies along with modeling results were used as a basis to develop buffer widths for herbicide application PDFs in the FSEIS.

**Appellant Statement #44:** Appellant states that the “agency relies on science and data supplied by the corporate herbicide manufacturer to justify conclusions that these herbicides will be safe, as long as

PDFs are implemented” and that this reliance on often un-peer reviewed data “is akin to letting the fox guard the henhouse.” Appeal at 49 and 50.

**Response:** I find that the agency relied on appropriate information to make an informed decision. The regulation at 40 CFR 1502.24 requires that the agency ensure the methodologies used during analysis have scientific integrity.

The FSEIS fully describes the information used by the agency: “Because herbicides have the potential to adversely affect the environment, the U.S. Environmental Protection Agency (EPA) must register all herbicides prior to their sale, distribution, or use in the United States. In order to register herbicides for outdoor use, the EPA requires the manufacturers to conduct a safety evaluation on wildlife including toxicity testing on representative species of birds, mammals, freshwater fish, aquatic invertebrates, and terrestrial and aquatic plants. An ecological risk assessment uses the data collected to evaluate the likelihood that adverse ecological effects may occur as a result of herbicide use.” FSEIS at 388.

Further, the FSEIS fully acknowledges that the “[r]isk assessments were done by Syracuse Environmental Research Associates, Inc (SERA) using peer-reviewed articles from the open scientific literature and current Environmental Protection Agency (EPA) documents, including Confidential Business Information to which SERA had clearance. Information from laboratory and field studies of herbicide toxicity, exposure, and environmental fate was used to characterize the risk of adverse effects to non-target organisms.

The risk assessments considered worst-case scenarios including accidental exposures and application at maximum label rates. Although the risk assessments have limitations (see R6 2005 FEIS pages 3-95 through 3-97), they represent the best science available.” FSEIS at 92.

In responding to appellants concerns that were raised in the DSEIS, the agency stated that “[t]he FS (SERA) risk assessments do utilize data generated from manufacturers for the registration of the herbicides, along with data from independent peer-reviewed literature.” FSEIS Appendix J at 271. Furthermore, the agency states that “[t]he SERA risk assessments were prepared by an independent, nationally and internationally known Ph.D. risk assessor and adjunct professor at SUNY College of Environmental Science and Forestry who does not work directly for the Forest Service. Appendix Q of the R6 2005 FEIS also described the Human Health Risk Assessment scenarios and assumptions in detail. Risk Assessment assumptions are detailed, supported by numerous peer-reviewed literature citations, and are typical of methodology used by EPA and other agencies. Forest Service Risk Assessments use lower thresholds of concern than generally accepted methodologies in part due to the presence of fish and wildlife species of concern on national forests in the region (DSEIS pages 88—93).” FSEIS Appendix J at 271.

Project design features, herbicide use restrictions for watersheds, and stream buffers (FSEIS at 43-56, Tables 14, 15 and 16) further provide a layer of caution to reduce herbicide effects (FSEIS at 95-96). The FSEIS at 43-44 and FSEIS Appendix J at 264 states that “...the PDFs further reduce the risks associated with herbicide treatments by eliminating or minimizing as much as possible the impacts to the environment.”

**Appellant Statement #45:** Appellant states that there is even less information on impurities, adjuvants, and inert ingredients found in the chemicals, which adds to the uncertainty of the application of the chemicals to forest lands. Appeal at 45.

**Response:** I find that the agency fully described in uncertainty associated with the information presented in the FSEIS.

See response to Appellant Statement #10 regarding incomplete or unavailable information. According to the FSEIS, “[i]n addition to the analysis of potential hazards to human health from every herbicide active ingredient, Bakke (2002, 2003) and SERA Risk Assessments evaluated available scientific studies of potential hazards of other substances associated with herbicide applications: impurities, metabolites, inert ingredients, and adjuvants. There is usually less toxicity data available for these substances (compared to the herbicide active ingredient) because they are not subject to the extensive testing that is required for the herbicide active ingredients under the FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act)”. FSEIS at 92. The FSEIS also states that “[i]nformation on adjuvants and surfactants is tiered to the R6 2005 FEIS and incorporates updated information from Analysis of Issues Surrounding the Use of Spray Adjuvants with Herbicides (Bakke 2007), Human and Ecological Risk Assessment of Nonylphenol Polyethoxylate-based (NPE) Surfactants in Forest Service Herbicide Applications (Bakke 2003, Bakke 2007) and the Summary of Aquatic Acute Toxicity Data for Spray Adjuvants Allowed for Use on Aquatic Sites in Washington (WSDA 2009).” FSEIS at 92. Further, “[f]or an adult drinking from a pond contaminated by leaching from an adjacent treated area over a lifetime, none of the estimated exposures, for any of the application rates (see Table 12), for any of the herbicides, NPE, or the impurity HCB was above the threshold of concern. In addition, the cancer risk from HCB in picloram or clopyralid would be at least 5 orders of magnitude less than the risk standard of 1 chance in 1 million for all chronic contamination drinking water scenarios.” FSEIS at 346. In addition, the FSEIS at 271 and 282, and 393-398 extensively describes these compounds and their relationship to fish and wildlife species.

Finally, the agency also responded to comments regarding this topic by stating that “[t]he impact of impurities, contaminants and adjuvants on the toxicity of the herbicides in question is discussed in detail in the DSEIS on pages 368-373. There are no known synergistic effects at the exposure levels predicted for this project. The type of herbicides approved for use in Region Six do not bioaccumulate so chronic synergistic effects are very unlikely. The DSEIS discussed uncertainties related to risk assessments. No data exists for specific tests on synergistic potential for the herbicides proposed to all of the species present in the project area. These sources of incomplete and unavailable information are disclosed in the R6 2005 FEIS, as well as in the DSEIS on pages 90, 294-300, 373 and 391. The DSEIS concluded that with the herbicide use proposed, synergistic impacts are not likely, because the potential for two different exposures over a level of concern to overlap in time and space is very small, and synergistic effects are unlikely for chemicals with low toxicity (ATSDR 2004).” FSEIS Appendix J at 266.

### ***Cumulative Effects***

**Appellant Statement #46:** Appellant states that the FSEIS violates NEPA because it failed to take a site-specific “hard look” at the direct, indirect, and cumulative impacts of the proposed project, when combined with the past, present, and reasonably foreseeable future actions on Federal and private lands. Appeal at 35, 36, 37, 38, and 51.

**Response:** I find that the FSEIS clearly documented the direct, indirect, and potential cumulative effects of this project when combined with past, present and reasonably foreseeable future actions on Federal and private lands.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. Chapter 3 of the FSEIS in its entirety is focused on describing the direct, indirect, and cumulative effects of the proposed project. FSEIS at 77-497. In the

sections below I have selected specific portions of the analysis in the FSEIS to demonstrate how the analysis complies with regulation; the sections below roughly corresponding to the issues that were documented in Chapter 1 of the FSEIS at 14-17 in order to focus this discussion on the effects that were deemed most relevant.

*Treatment Effectiveness and Human Health* - Cumulative herbicide risks to workers and the public were adequately considered via the SERA risk assessments, especially the chronic scenarios (FSEIS at 346), and the discussion of possible combined exposures to herbicides from other sources (off-forest) or by multiple exposures on forest (this project as well as other existing or foreseeable forest projects). PDFs are designed to reduce application rates so that no resultant hazard quotient exceeds acceptably low thresholds (HQ < 1). FSEIS at 327. The FSEIS, in discussing repeated exposures, acknowledges that they could occur, but refers to the national risk assessments and the 2005 R6 FEIS and states that repeated exposures would not result in cumulative effects because herbicides are rapidly eliminated from bodies of people, do not appreciably bioaccumulate, and such in order to result in additive effects, repeated exposures would have to be simultaneous or nearly so; this is highly unlikely to occur. FSEIS at 90-91 and 345-346. The analysis of human health effects in the FSEIS describes the potential impacts of multiple exposures from a person involved in several activities, using the herbicide glyphosate as an example, stating that the cumulative impact of such cases may be quantitatively characterized by adding the Hazard Quotients for each exposure scenario. With glyphosate as the example, multiple scenarios would not result in human health effects. FSEIS at 346.

Description of off-forest herbicide use is documented in several locations, including section 3.1.3 Basis for Cumulative Effects Analysis (FSEIS at 82-91), and in the Hydrologist's Report (Appeal Record, Specialists Reports). In addition, there is consideration of the potential for synergistic effects (FSEIS at 346) and multiple chemical sensitivities (FSEIS at 327).

The agency also responded to comments on the DSEIS by stating that "[f]or acute exposures, the risk assessment calculation assumed no metabolism between berries, but rather assumes that all the berries are eaten immediately after spraying, which is a worst case scenario that is unlikely to actually occur. The analysis in the DSEIS includes worst case scenario – real situations would result in less potential exposure. Even given simultaneous additive exposure, no adverse health effects were predicted from this project (Human Health section of Chapter 3)." FSEIS Appendix J at 302.

For non-herbicide control methods, the FSEIS at 325 references the analysis contained in the 2005 R6 FEIS (at 4-89 and 4-90) that describes cumulative health risks to workers from non-herbicide control methods as significant, while cumulative risks to the public are insignificant because of likely lack of proximity to treatments. The FSEIS states that hazards to workers when using non-herbicide methods are mitigated through compliance with work safety standards. FSEIS at 325.

*Wildlife* - The FSEIS complies with regulation by documenting the direct, indirect and cumulative impacts of herbicide treatment to wildlife, including the incorporation of PDFs designed to further protect wildlife species. FSEIS at 54-56. The individual species evaluated in this analysis (Threatened, Endangered, and sensitive (TES); management indicator species (MIS), and survey and manage species, and other species of concern) are documented in the FSEIS at 347-387.

In the FSEIS, cumulative effects analysis related to proposed herbicide treatments specific to the Deschutes and Ochoco National Forests and Crooked River National Grassland are discussed for wildlife in the FSEIS at 436-439 and in the combined wildlife biological assessment (BA) for the Forests' Invasive Plant Program.

Specifically, the existing amount of habitat on the Deschutes and Ochoco National Forests and Crooked River National Grassland for the various species was determined by the Viable Ecosystems Model (VIABLE). FSEIS at 347. VIABLE stratifies the environment along a gradient of size, structure, species composition, and relative tree density. The 2004 satellite imagery layer was used to develop the VIABLE map. Data is mapped and assigned a value that relates to a stratum of size, structure, tree species composition, and relative tree density. The various classifications are then linked to wildlife habitat requirements. Criteria used to determine habitat for each species, including vegetation, seral stage, structure and density, is described in the existing condition of each species. FSEIS at 347.

Further species-specific survey information and habitat analysis is disclosed in the “Project Area Information” subheading by species in the Federally Listed Species section and by species in the management indicator species section. FSEIS at 348-387. The science regarding the use of herbicides and potential effects to wildlife are thoroughly discussed in the FSEIS at 387-391 and in the wildlife specialist report, located in the appeal record.

The potential for cumulative effects to wildlife from relevant vegetation management, grazing, off-road vehicles, and other activities are addressed in the FSEIS at 436-439. The analysis concludes that there would be no cumulative effects or that the potential for cumulative effects is very low. The basis for these conclusions includes the fact that: treatment areas are very small; less than 1 acre and often less than 0.1 acre; treatment areas are widely scattered across the vast, 2.5 million acre landscape of the two Forests and Grassland; no more than 1.0 acres per year in the stream channel per 6th field watershed and no more than 10 acres of riparian area treatments for every 1.5 miles of stream would be treated with herbicides; treatments are primarily along roadsides of other disturbed sites that do not provide habitat for wildlife species; the PDFs minimize the potential for adverse exposure; and possible repeated treatments within the same season do not overlap in time, thus reducing the potential for cumulative effects. In addition, the herbicides proposed for use would have no potential to bio-accumulate in any individual animals and the potential for acute exposure is very small. FSEIS at 436-439.

*Non-Target Vegetation* – The FSEIS complies with regulation by documenting the impacts to non-target vegetation. The botanical resources/non-target vegetation sections of the document adequately address direct, indirect, and cumulative effects, especially for herbicide treatments. FSEIS at 122-175. This is due to the limited scope of direct and indirect effects through reduction of potential impacts by implementing PDFs throughout the project. The analysis relies on limiting contact with non-target vegetation through the PDFs, therefore decreasing the spatial and temporal scope of the effects when considered with past, present and future actions within the planning area. Cumulative effects are not expected to occur because the treatment in a given season would not overlap spatially or temporally.

*Cultural Resources* – The FSEIS complies with regulation by documenting the potential for effects to occur to cultural resources. Effects to cultural resources and culturally important plants are adequately discussed, including effects of on-going projects. FSEIS at 459-460. Effects of non-herbicide treatments on historic and potential historic properties are discussed in the FSEIS at 457. Effects of non-herbicide treatments on culturally important plants can be found in the environmental consequences section for non-target vegetation. FSEIS at 141 for manual and mechanical methods; FSEIS at 174 for biological control agents. The potential for cumulative effects would also be low.

*Water Quality and Aquatic Species* – The FSEIS complies with regulation by documenting an exhaustive and thorough disclosure regarding the potential for effects to occur to water quality and aquatic species.

The FSEIS at 209-223 sets the stage for understanding the potential for impacts to occur to water resources. The FSEIS documents that an NPDES permit would be required for herbicide use adjacent to water. FSEIS at 209. The FSEIS fully discloses which streams are 303(d) listed and for which parameter. FSEIS at 212 and 215-219. The analysis documents where the invasive plant sites occur by subbasin and by drainage. The analysis includes documentation that shows the acres of invasive plant sites that are located within riparian buffers. FSEIS at 221-223.

After describing the affected environment, the FSEIS clearly articulates the potential for direct, indirect, and cumulative effects to occur. The analysis documents the general effects by treatment methods and addresses EDRR, accidental spills, and streams and lakes on the 303(d) list. FSEIS at 223-228. The direct and indirect effects specific to each alternative are then discussed. FSEIS at 228-244. Cumulative effects are discussed by water quality parameter in the FSEIS at 244-249; the risk of cumulative effects occurring is unlikely. The water quality analysis concludes by documenting compliance with the Aquatic Conservation Strategy (ACS). FSEIS at 249-255.

As with water resources, the FSEIS clearly describes the affected environment for fisheries and aquatic organisms. Each species that has the potential to reside in the project area is discussed, along with their status and distribution. FSEIS at 256-274. Fish habitat conditions, conservation measures prescribed by the regulatory agencies, and EDRR are also discussed. FSEIS at 274-280.

The environmental consequences of implementing the alternatives are clearly articulated for aquatic species. The analysis describes general effects to aquatic species first by treatment method, and then details the potential for herbicides to impact these species. FSEIS at 280-298. Specific effects by alternative are in the FSEIS at 298-319. The potential for cumulative effects are then clearly articulated for non-herbicide and herbicide methods. FSEIS at 320-325. The analysis concludes that there is a very low potential for cumulative effects to occur.

*Soils* – Soils are also thoroughly described in the FSEIS. The scope of the analysis, the analysis assumptions, and the affected environment are documented by Forest in the FSEIS at 176-181. The direct and indirect effects are disclosed for Alternative 1 (FSEIS at 182-184), Alternative 2 (FSEIS at 185-202), and Alternative 3 (FSEIS at 204-206). Cumulative effects are also documented in the FSEIS at 185 for Alternative 1, FSEIS at 202-204 for Alternative 2, and FSEIS at 207-208 for Alternative 3. Overall, the potential for cumulative effects to occur was found to be limited.

*Rangeland Resources* – The FSEIS fully documents the affected environment and environmental consequences of the project to rangeland resources. FSEIS at 444-454. This analysis in particular documents that domestic and wild animal grazing contribute to invasive plant establishment and spread. FSEIS at 445. The direct and indirect effects of the project are thoroughly disclosed and the cumulative effects analysis documents the cause and effect relationship that cattle have to invasive plant establishment and spread. FSEIS at 451-454.

*Recreation and Scenic Values*- The disclosure on recreation and scenic resources focuses on the importance of providing high quality recreation and scenery to an expanding recreating public. The FSEIS documents the resources that would potentially be affected (FSEIS at 460-464), then discloses the potential for direct and indirect effects to occur. FSEIS at 464-468. Impacts to potential wilderness areas, other roadless areas, and undeveloped areas are also disclosed. FSEIS at 469-473. Cumulative effects are documented in the FSEIS at 473; this analysis also discloses how recreation related activities, primarily vehicle use, has the potential to be a vector for invasive plant spread. The potential for cumulative effects is low.

*Congressionally Designated Areas and Other Areas of Special Interest* – The analysis in this section of the FSEIS focuses on Wilderness areas, the Oregon Cascades Recreation Area (OCRA), Wild and Scenic Rivers, Research Natural Areas, the Newberry National Volcanic Monument, Inventoried Roadless Areas, and Experimental Forests. The existing condition and the potential direct, indirect, and cumulative effects to each of these areas are disclosed. FSEIS at 474-490. As with recreation and scenery, the potential for cumulative effects was found to be low. Appellant has a footnote that states that EDRR may violate the Wilderness Act. The FSEIS at 474 states that only manual methods would be used in Wilderness, even with EDRR. FSEIS at 476. Further analysis would be necessary if the treatment prescription is not similar to what has been disclosed here. FSEIS at 476.

After analyzing each of these sections of the FSEIS, along with the rest of the document, the appendices, and the appeal record, I find that the Responsible Officials conducted a thorough analysis that does constitute taking a site-specific “hard look” at the potentially affected resources, including an analysis of the potential cumulative effects that may occur as a result of implementing this project.

**Appellant Statement #47:** Appellant states that the foreseeable impacts from logging, grazing, OHV use, etc., coupled with the “background presence of herbicide in waters, and herbicide use on adjacent private lands were not properly analyzed,” and that the FSEIS dismissed the potential cumulative effects as unlikely to be adverse, “despite the substantial lack of information” regarding herbicide testing outside of laboratories or data on surfactants, impurities, metabolites, inert ingredients, or adjuvants. Appeal at 36.

**Response:** See responses to Appellant Statement #10 and #45 for discussion on the appellant’s assertion of the lack of information on herbicides and incomplete and unavailable information.

**Appellant Statement #48:** Appellant states that the FSEIS does not contain a valid and complete cumulative effects analysis and fails to meet NEPAs requirement for high quality scientific analysis because the FSEIS failed to analyze the herbicide use by other agencies and private landowners, as well as ground disturbing activities such as logging, livestock grazing, prescribed burning, OHV and other recreational use, and existing impairments of resources, such as already temperature-impaired streams. Appeal at 36, 37 and 51.

**Response:** I find that the FSEIS does contain a valid cumulative effects analysis and that the FSEIS did analyze herbicide use by other agencies and private landowners to the extent practical and known. I also find that other ground disturbing activities were analyzed under cumulative effects and that existing conditions were taken into account in the effects analysis. See the response to Appellant Statement #46 for details regarding the cumulative effects analysis.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. Section 3.1.3 of the FSEIS analyzes the cumulative effects from proposed herbicide use combined with herbicide use elsewhere. FSEIS at 80-91. The FSEIS provides information and data on herbicide use in Oregon (FSEIS at 82); herbicide use within the Deschutes and John Day River Basins (FSEIS at 82-83); the National Water Quality Assessment Program (FSEIS at 83-84); the Clackamas River Pesticide Study (FSEIS at 84-85); and herbicide use adjacent to the Project Area on State and Private, Tribal, and Bureau of Land Management lands (FSEIS at 85-87 and 90).

Cumulative effects of herbicide use with past and on-going invasive plant treatments are documented in the FSEIS at 86-87, 91 and 174-176. Cumulative effects of herbicide use when combined with other land

management activities (logging, grazing, OHV use, etc.) and foreseeable impacts from continued invasive plant spread due to these activities are analyzed in each resource section. FSEIS at 88-91, 118-121, 175-176, 202-204, 207, 244-249, 320-325, 436-439, 453-454, 459-460, 473, 481, 483, 485, and 487-488.

Appellants focus on streams in their assertion; cumulative impacts of herbicides use were discussed in detail on pages 321-325 of the FSEIS as they relate to fish, waterbodies and private lands. The FSEIS clearly displays which streams are water quality limited for temperature, sediment, turbidity, pH, dissolved oxygen, and chlorophyll a. FSEIS at 215-218. The analysis also documents that invasive plants have a limited or no contribution to shade, and as such, their removal would not measurably affect water temperature. FSEIS at 214, 226, 229, 230, 235, 236, and 243. The FSEIS specifies that the removal of reed canarygrass at Bull Bend and ribbongrass on the Metolius River could result in a very small decrease in shade, but would not produce a measurable difference in stream temperature. The analysis states that if the Metolius River were 50 feet wide and all vegetation was 2 feet tall and completely removed, had no overlapping shade, and the 2 foot tall vegetation provided shade throughout the day, the removal of the ribbongrass would result in less than one half percent reduction in shade on the river. This is an overestimate of the impact to shade and water temperature because the analysis also states that there is overlapping shade. FSEIS at 235. In addition, the majority (70%) of solar input to streams occurs at noon; it is not possible for two foot tall plants to provide effective shade at noon on a 50 foot wide stream, thus removal of the ribbongrass would not measurably affect stream temperatures. Scientific literature was used to determine why cumulative effects would be unlikely from herbicides used on private land or from herbicides sprayed multiple years in a row on the same invasive plant population. Many of the cited studies on pages 321-325 of the FSEIS were field studies that dealt with movement and persistence of herbicides in a field setting, not in a laboratory, thus they are applicable to this project. Although the Forest Service cannot control what herbicides are applied on private lands, PDF #6 requires coordination with adjacent landowners when treating Forest Service lands adjacent to private lands. FSEIS at 45.

The modeling done with the SERA Worksheets (FSEIS at 287-290), GLEAMS driver model (FSEIS at 292 and 308), the emergent vegetation analysis (FSEIS at 290-292), and the roadside treatment analysis (FSEIS at 294-298) all indicate there is little chance that herbicides will enter waterbodies in large enough concentrations to cause detrimental effects to fish or aquatic organisms; therefore, these types of cumulative stressors from different parameters are highly unlikely, cannot be quantified or measured in a field setting. In addition, monitoring done by the US Geological Survey (USGS) on private land along Lake Creek after applying aquatic imazapyr and glyphosate to reed canary/riboongrass and yellow flag iris in the stream margins found herbicide levels following treatment at levels well below thresholds that would cause effects to fish or aquatic organisms. FSEIS at 292 and 293.

Additional factors that limit the potential for cumulative effects from herbicide use proposed in the action alternatives are listed in the FSEIS at 81-82, and 91. Lastly, the potential for cumulative effects from such treatments were discussed in the R6 2005 FEIS (see Chapter 4 of the R6 2005 ROD and FEIS at 4-1 to 4-23, 4-39, 4-61 to 4-62, and 4-89 to 4-90) and are incorporated by reference. FSEIS at 81.

**Appellant Statement #49:** Appellant states that the deficiencies in the cumulative impacts analysis in the FSEIS are “identical to the deficiencies that the court noted in *League of Wilderness Defenders/Blue Mountains Biodiversity Project v. U.S. Forest Serv.*, No 3:10-CV-01397-SI, 2012 WL 2522878.” Appeal at 38. Specifically, appellant states that the FSEIS did not analyze the cumulative impact of applying herbicides “to control invasive species while at the same time continuing to allow many of the activities that introduce and spread the invasive species” into the Forests and Grassland. This cyclical use of

herbicides to control new infestations could further impact forestlands that are already impacted by the activities that are spreading invasive plants in the first place. Appeal at 38 and 40.

**Response:** I find that the FSEIS did analyze the potential cumulative impacts of applying herbicides while allowing for continued use of the National Forest System Lands and Crooked River National Grasslands.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. See responses to Appellant Statements #46 and #48 for additional information.

The June 29, 2012 court decision noted by appellant is specific to the EIS prepared by the Wallowa-Whitman National Forest. I find that the FSEIS for this project, which was published in May of 2012, does discuss the potential cumulative impacts of applying herbicides while uses of the National Forests and Grassland are ongoing. In particular, under the Treatment Effectiveness section, the FSEIS documents that the Deschutes Ochoco Travel Management EIS recently closed 99% of the National Forest System Lands to vehicle travel off of designated routes, and also closed 74% of the Deschutes and 83% of the Ochoco/Grassland to dispersed camping. Implementation of this plan effectively reduces the vectors of invasive plant establishment and spread. FSEIS at 88-90 and 118. The FSEIS also fully recognizes that routes that are open to off road use and dispersed camping would continue to introduce and spread invasive plants. The FSEIS documents that regular vehicle traffic would continue to be a primary vector for invasive plant spread.

The FSEIS also documents that timber harvest, prescribed burning, grazing and other activities including recreation would also continue to occur, and that these activities have the potential to introduce and spread invasive plants. The FSEIS discloses that prevention measures that are already required as part of timber sale and prescribed burning contracts would help reduce the potential introduction and spread of invasive plants. FSEIS at 88-90 and 118-121. Grazing practices such as holding cattle until seeds shed off of their coats or temporarily prohibiting grazing in areas where invasive plants occur, such as those practices used on the Roba Allotment on the Ochoco National Forest would also reduce invasive plant spread. FSEIS at 41, 88-90 and 119. In addition to the excerpts noted above, each resource area details the potential for repeated applications of herbicide, for the use of EDRR, and the potential for cumulative effects to occur in the FSEIS at 80-91, 173-176, 185, 202, 203, 204, 207, 208, 244-249, 320-325, 345, 346, 436-439, 442, 443, 444, 453, 454, 459, 460, 473, 476, 477, 479-481, 483, 485, 487, and 488.

**Appellant Statement #50:** Appellant quotes the abovementioned court case and states that the FSEIS “does not consider how the presence of herbicides in streams, even if fleeting and localized, might nonetheless exacerbate stream quality impaired by other activities like logging, grazing, road maintenance, fire management, or recreation.” Appeal at 38. Appellant states that there is no analysis of how adding even minimal amounts of herbicide would combine with effects of other activities to have a potential cumulative effect on already impaired streams, and that it was essential for the FSEIS to analyze the impacts of adding small levels of herbicide directly to streams with the synergistic effects of other actions, such as indirectly affecting streams by adding sediment to streams caused by denuding the banks with herbicide or by degradation caused by grazing. Appeal at 38, 39 and 40.

**Response:** I find that the FSEIS does address how herbicide that may reach the stream would interact synergistically with other actions to impair water quality parameters. See also response to Appellant Statement #48.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS contains a thorough discussion of how herbicide use may impact water quality parameters including temperature, sediment, turbidity, pH, dissolved oxygen, and chlorophyll a. FSEIS at 224-249. Specifically, cumulative effects are addressed for each of these parameters in the FSEIS at 244-249. Examples of specific discussions of the interactions of herbicides with other activities are listed throughout this section, including a discussion of livestock and road use as a potential source of sediment (FSEIS at 245-246) along with potential sediment from invasive plant treatment. Also included is a discussion of the potential for timber harvest and invasive plant treatment to overlap, but with no resultant impacts to stream temperature due to the limited or minor amount of shade that very few invasive plants provide (FSEIS at 246-247). Finally, the FSEIS also includes a section titled "Herbicides in Water" that discusses how PDFs make it very unlikely that herbicides would reach streams in measureable concentrations, as well as a discussion on the potential for accumulation to occur because of herbicide use on private and other lands.

Thus, based on the analysis found in the FSEIS, I believe that the FSEIS does consider how herbicide presence in streams may contribute to cumulative effects, when combined with the effects of other forest uses.

**Appellant Statement #51:** Appellant states that the FSEIS also erred in its cumulative effects analysis by "dismissing the cumulative effects that non-herbicide treatments may have on the environment without any analysis whatsoever" because the agency concluded that the potential for non-herbicide treatments to result in any effects of concern to the public would be very low. Appeal at 11, 39 and 40.

**Response:** I find that the Responsible Officials considered the direct, indirect, and cumulative effects of non-herbicide treatments at a scope and scale that was appropriate in order to inform both them and the public prior to making a decision.

The regulation at 40 CFR 1500.1 compels the agency to "concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail." In order to identify those issues, the agency uses the scoping process described at 40 CFR 1500.4(g) to identify significant environmental issues deserving of study and to deemphasize insignificant issues, thus narrowing the scope of the process. In addition, the regulation at 40 CFR 1503.3 requires the agency to invite interested and affected persons, organizations, and agencies to submit specific comments on the draft EIS in order to address the adequacy of the statement and/or the merits of the alternatives.

I have reviewed the scoping comments and comments submitted on the DSEIS by appellant and find that neither the appellant nor other members of the public indicated that they were concerned about the impacts of non-herbicide treatments. Thus, if a concern has not been raised, the agency does not have the opportunity to address the concern in the FSEIS or response to comments.

Nevertheless, I have reviewed the FSEIS and find that direct, indirect, and cumulative effects from non-herbicide treatments have been discussed where relevant in order for an informed decision to be made. Specifically with regards to cumulative effects, impacts from non-herbicide treatments are discussed in the FSEIS at 121 (solarization, seed clipping and digging by private landowners); 107 and 174 (biocontrol spread); 175 (OHVs as a vector and manual treatments); 207 (manual treatments and soil disturbance); 208 (manual pulling and erosion risk); 245 (mechanical scarification and sediment delivery); 246 (manual pulling of emergent vegetation and sediment delivery); 246 and 247 (manual and solarization use at Trout Creek Swamp and increased water temperatures, including logging activities); 320 and 321

(manual, mechanical, cultural methods and cumulative effects to aquatic organisms) 438 and 439 (trampling of sensitive wildlife species while conducting manual treatment); 476 (manual treatments and the wilderness experience); 477 (manual and cultural methods and recreation in the Oregon Cascades Recreation Area); and 485 (manual and mechanical treatments and recreation at Paulina Lake).

Clearly in this FSEIS, the agency focused on the non-herbicide treatments that had the potential to actually contribute to a cumulative impact. In general, activities such as weed whacking and hand-pulling are benign and target only the specific invasive plants of concern. FSEIS at 81. The addition of project design feature #65 also reduces the potential for adverse effects to non-target species by educating workers on the proper identification of sensitive and survey and manage plants prior to undertaking manual treatments. FSEIS at 52. In order for a cumulative impact to occur, the direct or indirect effect of the proposed action must combine with an effect of some other past, present or future activities and must overlap in time and space to cause a resultant cumulative effect. In the case of this project, those non-herbicide treatments that are proposed to occur with this project causes little to no measurable disturbance, with the exception of the specific actions noted above. These specific non-herbicide treatments were addressed in the FSEIS, thus complying with NEPAs direction to focus on issues truly significant to the action in question.

**Appellant Statement #52:** Appellant states that the FSEIS relies heavily on the R6 2005 FEIS for herbicide toxicity and risk to non-target organisms, but that this FSEIS did not include any analysis of the vulnerability of site-specific species to herbicide use and as such, the cumulative effects analysis is inadequate. Appeal at 41.

**Response:** I find that the FSEIS did analyze site-specific species with respect to their vulnerability to herbicides, and that an adequate cumulative effects analysis was completed. See response to Appellant Statement #46 for a thorough discussion of cumulative effects to relevant resources.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The affected environment section of the FSEIS for non-target vegetation and wildlife species clearly articulates which species may be affected by herbicide use. Only species that have the potential to occur in the project area are analyzed, thus providing the site-specificity over the disclosure that was provided in the 2005 R6 FEIS. The FSEIS at 123-141 describes the known sensitive plants and survey and manage species that occur in the PAUs. The environmental consequences section clearly articulates the effects of herbicides to non-target vegetation both by family of species or by a particular species where applicable. FSEIS at 143-176. Cumulative effects to non-target vegetation are specified in the FSEIS at 173-176.

As in the non-target vegetation section, the FSEIS fully describes the threatened, candidate, and sensitive wildlife species, as well as survey and manage species that may be affected by the project. Each species that has the potential to be affected by the project is described, including habitat type and known populations based on survey and monitoring data. FSEIS at 350-387. The environmental consequences section clearly articulates the effects of herbicides to each species (FSEIS at 387-439), and also breaks out the effect of herbicides, impurities, inerts, and adjuvants, impurities and metabolites, inert ingredients and surfactants. FSEIS at 393-399. Cumulative effects to wildlife species are specified in the FSEIS at 436-439.

**Appellant Statement #53:** Appellant states that the FSEIS failed to take the “hard look” at the cumulative impacts of repeated herbicide application over time, both by the Forests and by private

landowners. Appeal at 45. Appellant states that the FSEIS failed to quantify the amounts of herbicide applied to the maximum number of acres that would be treated in a given year, and that the FSEIS does not disclose the number of pounds to be used for six of the ten chemicals proposed, thus failing to disclose the total cumulative impact that would result increased chemical use on the forests. Appeal at 45.

**Response:** I find that the FSEIS discusses the potential cumulative impacts of repeated herbicide application over time, both by the Forest Service and by private landowners.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS at 24 describes the potential for repeated application of herbicides to occur. The FSEIS at 87 further states that herbicide treatments are expected to occur more than once over the course of several years, particularly with regards to larger infestations. The FSEIS at 90-91, 118, 139, 156, and 175 also discloses the potential for repeated herbicide application to affect resources of concern. See also response to Appellant Statement #46 for a discussion of cumulative effects.

With regards to herbicide impacts from other landowners, the FSEIS used the best available information to disclose what was known about herbicide use in the project area. FSEIS at 85-87. The FSEIS at 83 also discloses the amounts of herbicides that are known to be used in the state of Oregon as of 2007. The section titled "Herbicide Use in Water" also discusses the potential for cumulative effects related to other entities use of herbicides. FSEIS at 248-249. Lastly, the FSEIS fully recognizes that while all efforts were made to quantify the amounts of herbicides used by other landowners, the State of Oregon's system for pesticide reporting only provided limited information, and as such, was considered incomplete or unavailable information. FSEIS at 496. Given that the State's reporting system is no longer operational (FSEIS at 82), I find that it would not be possible to quantify the amounts of other chemicals used in recent years (since 2009). I do note that regardless of other users, the Forest Service's use of all herbicides is quite limited when compared to agriculture use. The lesser used herbicides that did not make the top 100 reported herbicides are proposed to be used in limited amounts and would not contribute to a measureable cumulative effect, given that those herbicides were not widely used across the State of Oregon. FSEIS at 83.

### ***Fisheries/Aquatic Species***

**Appellant Statement #54:** Appellant states that the Forest Service failed to explain why the 2012 FSEIS combined the analysis for fish when the 2007 analysis was split between listed and not listed fish. Appeal at 7.

**Response:** I find that the Responsible Officials did not need to explain why a different strategy was used to analyze fisheries resources between the 2007 FEIS and the 2012 FSEIS. The 2012 FSEIS does not tier to the 2007 analysis and is considered a stand-alone document.

There are no requirements under the regulation at 40 CFR 1502.9(c) for federal agencies to explain differences between analyses when releasing a Supplemental Environmental Impact Statement, except for the requirement to note the differences between a draft and final statement. 40 CFR 1503.4(c).

The 2012 FSEIS clearly explains the rationale of how the fisheries resources were analyzed. FSEIS at 257-259. The 2012 FSEIS defines the listing status of each species and their habitat, as well as the appropriate consulting agencies and consultation that occurred. The analysis is well-organized,

thorough, and discusses potential effects to the appropriate species and their habitat, and as such, complies with regulation. See response to Appellant Statement #1 for differences between the documents.

**Appellant Statement #55:** Appellant states that consultation with the US Fish and Wildlife Service regarding the impacts to Columbia spotted frogs was not completed prior to the FSEIS completion and issuance of the ROD. Appeal at 42.

**Response:** I find the Responsible Officials appropriately consulted in a timely manner with US Fish and Wildlife Service with regards to the potential for adversely impacting the Oregon spotted frogs, which is a candidate species. Consultation was not required for the Columbia spotted frog because that species is not a candidate species under the ESA. FSEIS at 366 and 367.

Agency policy requires consultation to be completed prior to signing a decision document. Region 6 March 14, 2000 memo to Forest Supervisors. The FSEIS identifies methods used for analysis, references reliable scientific sources, discusses responsible opposing views, and discloses incomplete and unavailable information, scientific uncertainty and risk, as required by regulation. 40 CFR 1502.9(b), 40 CFR 1502.22, and 40 CFR 1502.24.

The purpose of the August 2010 biological assessment (BA) was to programmatically consult with the U.S. Fish and Wildlife Service (USFWS) and the US Department of Commerce (USDC) National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries or NMFS) on proposed and ongoing programs on Federally listed species and conference on candidate species (Appeal Record, Aquatic and Terrestrial Programmatic Biological Assessment, August 2010 – August 2013, pp. 7 of 198). The Forest Service established Project Design Criteria (PDCs) that projects must meet in order to be consistent with this BA, thus eliminating further consultation on those projects.

The Programmatic BA contains a project design criteria (equivalent to a PDF) that prohibits the use of herbicides in and adjacent to spotted frog habitat (Appeal Record, Aquatic and Terrestrial Programmatic Biological Assessment, August 2010 – August 2013, pp. 174-175). The project design criteria for the Programmatic BA set implementation requirements that, if followed, would result in no impact, or no adverse impact, on these species. The herbicide use proposed with this project has the potential to adversely impact Oregon spotted frogs (a candidate species), so additional communication with the USFWS was initiated and new project design features were developed specific for this project. The Deschutes and Ochoco National Forests and Crooked River National Grassland received biological concurrence with the effects determination for Oregon spotted frogs via a letter of concurrence (LOC) from the USFWS on September 17, 2010; concurrence was based on the adherence to the project design criteria set forth in the BA. FSEIS at 424.

As documented in the FSEIS, there is a low likelihood of disturbance to spotted frog eggs, larvae or adults during invasive plant treatments, although some disturbance could occur to adults as they move over land. Some individual spotted frogs could possibly be harmed during the prescribed burn, but these sites do not provide suitable frog habitat, so the probability of a measurable affect occurring is very low. Due to the relatively low toxicity of most herbicides proposed, the low concentrations in water that would occur under normal operations (i.e. low exposures), and the Forest Plan standards and PDFs that restrict herbicide and NPE use in or near spotted frog habitat, adverse effects from herbicide exposure are unlikely. The FSEIS does document that treatment of reed canarygrass in spotted frog habitat would provide beneficial effects to frog breeding and habitat maintenance. Therefore, the FSEIS documents

that the invasive plant treatments “may impact, but are not likely to lead to a trend toward federal listing” for Oregon and Columbia spotted frogs. FSEIS at 424.

Thus, I find that consultation with the USFWS occurred in a timely manner and that the LOC was received prior to the decision that was made, in compliance with agency policy.

**Appellant Statement #56:** Appellant states that they are very concerned about the effects from herbicide spraying in riparian areas, especially regarding the “possible effects to Snake River Sockeye Salmon (given population trends).” Appeal at 44.

**Response:** I find that the Responsible Officials considered and analyzed the appropriate fish species and their habitat in the FSEIS.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS analyzed the potential direct, indirect, and cumulative effects to species and habitat that are federally listed under the Endangered Species Act and Essential Fish Habitat defined under the Magnuson-Stevens Fishery Conservation and Management Act, as well as species included in the 2008 Forest Service Region 6 Sensitive Species List and management indicator species as defined in the Ochoco National Forest Plan. FSEIS at 257-325. Based on the disclosure in the FSEIS, I find that the distribution of Snake River sockeye salmon does not occur within the project area analyzed in the FSEIS. Therefore, analyzing the species and their critical habitat for potential effects from this project is unnecessary because it is not possible for effects from the proposed activities to be realized where sockeye salmon actually occur.

**Appellant Statement #57:** Appellant states that the Forest Service’s analysis of the effects of herbicide application to bull trout species and habitat is fatally flawed, because both the FSEIS and the biological opinion failed to take into account the already degraded conditions of the receiving streams. Appeal at 51 and 52. Appellant further states that the agency failed to conduct its independent obligation to conduct its own analysis on bull trout and simply parroted the US Fish and Wildlife Service and National Marine Fisheries Service’s findings. Appeal at 52.

**Response:** I find that the Responsible Officials conducted an appropriate independent analysis of potential effects from the proposed activities on fisheries resources and their habitat.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. Potential impacts to bull trout are disclosed in the FSEIS at 257-264, 274-277 and 280-325. The Forest Service prepared independent biological assessments to analyze for potential effects to bull trout and their critical habitat; Middle Columbia steelhead and their critical habitat; and Essential Fish Habitat for Chinook and coho salmon. Appeal Record, Consultation, Biological Assessments. These BA are prepared by the Forest, not the regulatory agency; they are sent to the regulatory agency to begin the consultation process.

The fisheries analysis considers potential effects to fisheries resources as compared to current conditions. The current conditions are considered “baseline” habitat conditions and potential effects are analyzed in addition to the baseline. By design, the analysis must consider what appellant believes are the “already degraded conditions” because they are defined as the baseline. FSEIS at 259-260 and 274-277.

## ***PACFISH/INFISH***

**Appellant Statement #58:** Appellant states that this site-specific forest decision failed to address compliance with PACFISH/INFISH standards in any meaningful or specific way, violated NFMA by authorizing the use of herbicides as a first resort without adequately having sufficient data to evaluate the project's compliance with PACFISH/INFISH (in particular with standard RA-3), and did not disclose exactly how the project complies with PACFISH/INFISH, the ACS, or the ESA, and as such, is in violation of NFMA and NEPA. Appeal at 54, 56, and 57.

**Response:** I find that the Responsible Officials adequately addressed compliance with PACFISH/INFISH standards, the ACS, and the ESA. Standards are defined and discussed in the ROD, FSEIS, the fisheries biological evaluation, and the water resources report.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. PACFISH/INFISH and Northwest Forest Plan riparian management objectives, standards, and guidelines and ACS objectives were fully analyzed in the FSEIS and the Responsible Officials concluded that all standards and guidelines will be met under the proposed activities. ROD at 10; FSEIS at 210-211, 233-236, 249-256, 280-281, and 304-310; and Appeal Record, Fisheries Report at 12-16.

Compliance with the ESA requires consultation with regulatory agencies (the USFWS and NOAA Fisheries) for projects that may affect listed resources. The regulatory agencies issued a letter of concurrence and a biological opinion (BO) for fisheries related resources. The Deschutes and Ochoco National Forests and Crooked River National Grassland are in compliance with the ESA, given that the ROD states that they will follow the Conservation Measures and Terms and Conditions in the BO. ROD at 23-26.

**Appellant Statement #59:** Appellant states that the FSEIS does not contain data or analysis regarding whether the proposed project will result in banks less than 80 percent stable, which is needed to meet the RMO for bank stability. Appeal at 55.

**Response:** I find that bank stability will be met as a result of this project. See also response to Appellant Statement #48 and #58.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS clearly states that sediment will be used as a surrogate for the bank stability RMO. FSEIS at 210. The analysis in the FSEIS at 229, 223-235, and 243 fully documents the potential for project activities to contribute sediment to the stream. The FSEIS at 229 and 235 clearly indicate that the RMO for bank stability (and all other RMOs including temperature) would be met. The activity that has the potential to contribute sediment that would possibly result in not meeting bank stability was identified in the FSEIS at 243, for manual pulling reed canarygrass under Alternative 3. The analysis indicates that active restoration would be needed to stabilize that bank, but that there would be a potential to exceed turbidity standards (and as such, not meet the bank stability RMO) as a result of this action under Alternative 3 only. The FEIS at 243 and 244 summarizes the potential for adverse effects to bank stability and notes that all other RMOs including temperature would be met under Alternative 3.

**Appellant Statement #60:** Appellant states that the “Forest Service did not make a determination that the project will not “retard or prevent attainment of” the bank stability and water temperature RMOs as is required by PACFISH/INFISH standard RA-3.” Appeal at 55.

**Response:** I find that the Responsible Officials did determine that the project will not prevent attainment of banks stability and water temperature RMOs. See response to Appellant Statement #48, #58 and #59.

**Appellant Statement #61:** Appellant states that the proposed project “also violates NFMA, the Deschutes and Ochoco National Forest LRMPs, and PACFISH/INFISH because, as the FSEIS discusses, the project will adversely affect protected fish.” Appeal at 55. Appellant states that the effects determinations of “may effect, likely to adversely affect” for listed bull trout and steelhead species will have an adverse effect on essential fish habitat in watersheds with Chinook and Coho salmon, and that the determination of “may effect, is likely to adversely affect” for Middle Columbia River steelhead critical habitat and Columbia River bull trout critical habitat is in direct contravention of PACFISH/INFISH standard RA-3.” Appeal at 55. Appellant reiterates that “these “effects” determinations were based on exposure levels tested in perfect laboratory conditions” and that exposures at much lower levels will likely affect fish in the actual degraded conditions of these forests.” Appeal at 55.

**Response:** I find that the Responsible Officials adequately considered the effects to fisheries resources and their habitat.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The determination of effect for certain ESA-listed resources was “may effect, likely to adversely affect.” This determination of effect in itself does not violate any PACFISH/INFISH standards or the LRMPs. Standard RA-3 is one part of a larger riparian management strategy that is used to attain Riparian Management Objectives. See the Environmental Assessment for the Implementation of Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho, and Portions of California at C-16.

Riparian management objectives are discussed, at length, in the ROD, FSEIS, and the Hydrology Report and Fisheries Report in the appeal record. See responses to Appellant Statement #48, #58, #59, and #60.

**Appellant Statement #62:** Appellant states that the “Forest Service improperly relied on project PDFs to conclude that the project will not violate PACFISH, INFISH, or relevant National Forest Plan Standards for seven subwatersheds where intermittent streams or listed fish species occur.” Appeal at 55. Appellant states that the FSEIS documents that “79 of the 180 subwatersheds covered by the FSEIS are “Areas of No Effect to Threatened, Sensitive, or MIS Fish Species,” but then states that 7 of these 79 subwatersheds contain either “listed fish species, have sites that cross intermittent class 4 streams, or have large infested areas proposed for herbicide treatment” and must be investigated further,” yet concludes “that “PACFISH, INFISH and Deschutes and Ochoco National Forest Plan Standards will be met for redband trout and steelhead trout when the project design criteria described in the FSEIS are met.... The PDFs and buffers eliminate adverse effect to the degree possible, and minimize risks that cannot be avoided.” Appeal at 55 and 56. Appellant states that “[t]his is the extent of the analysis- there is no list of what project design criteria the agency is relying on to satisfy the PACFISH, INFISH, and National Forest Plan Standards, nor is there any indication when these criteria will be met, or if they will be met at all.” Appeal at 56.

**Response:** I find that the Responsible Officials did not violate PACFISH/INFISH or relevant National Forest Plan Standards. See also responses to Appellant Statements #58, #59, and #60. Using PDFs to reduce the potential for impacts is appropriate in project planning. Appeal Record, Fisheries Report at 12-18 and 36-44. The Responsible Officials listed the project design features that the agency uses to satisfy PACFISH/INFISH and National Forest Plan Standards and clear direction is provided as to how and when these criteria will be met. FSEIS at 43-44, 50-52, and Appendix F – Implementation Monitoring.

**Appellant Statement #63:** Appellant states that the Forest Service has “violated NFMA because the agency has failed to comply with the standards and guidelines of the Forest Plans as amended by PACFISH/INFISH management direction the Invasive Plant Treatment Project” because the agency “failed to assess whether the Invasive Plant Treatment Project will retard attainment of the Riparian Management Objectives for project activities to be conducted within Riparian Habitat Conservation Areas” and that this same analysis indicates violations of the ACS. Appeal at 56.

**Response:** I find that the Responsible Officials complied with PACFISH/INFISH management direction and also complied with the ACS. See also response to Appellant Statements #58, #59, #60, and #61 for specific discussion regarding PACFISH/INFISH.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. With regards to the ACS, the FSEIS contains a thorough analysis of all nine ACS objectives and how they may or may not be affected by this project. FSEIS 249-256. The analysis includes a description of the watersheds that are entirely or partially within the range of the Northwest Forest Plan, and as such, are subject to complying with the ACS. FSEIS at 250. Each objective is discussed and compliance with the objectives is documented. The analysis notes that with the exception of manual pulling/digging rhizomatous invasive plants along waterbodies as prescribed under Alternative 3, the invasive plant treatment are not likely to retard achievement of ACS objectives. FSEIS at 255.

### ***Water Quality/Soils***

**Appellant Statement #64:** Appellant states that they are concerned about the adequacy of the Groundwater Loading Effects of Agricultural Management Systems (GLEAMS) model for predicting herbicide runoff because these models were developed for agricultural, not forest use and that broadcast spraying should not be permitted within buffer zones, should be at least 300 feet from riparian areas, and should only be used as a last resort. Appeal at 47.

**Response:** I find the Responsible Officials adequately considered the potential impacts of herbicide runoff using knowledge of herbicide fate in the environment, given the anticipated application rates, along with predicted herbicide fate using the Groundwater Loading Effects of Agricultural Management Systems (GLEAMS) model that factor in local environmental conditions. These predictions were compared against published findings and monitoring.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The predicted herbicide fate that would result from the project is detailed in the FSEIS in the soils, watershed and fisheries analysis sections. FSEIS at 182-208, 224-255, 286-287, 294, 298, 300-309, 311-325, and FSEIS Appendix D at 96-135. The SERA risk assessments provide general information on herbicide fate that is incorporated by reference in the project. FSEIS at 176 and 286-288. The SERA Risk Assessments were developed utilizing EPA standardized risk assessment methodology while the GLEAMS model “has been tested extensively for

modeling pesticides ...and is generally comparable to PRZM (Pesticide Root Zone Model)" was developed and used by the EPA. SERA 2004 as referenced in the 2005 R6 FEIS References-23. SERA risk assessments use the GLEAMS model to predict herbicide fate from worst case scenarios of herbicide application near a small stream and pond. FSEIS at 286. GLEAMS is a highly parameterized model that includes slope, vegetation cover, soil texture, local rainfall amounts and patterns, characteristics of the receiving water body, herbicide, application rate, and other variables. SERA 2011 at 96, FSEIS at 286, Appendix F at 169. The GLEAMS-Driver version accounts for site specificity by incorporating local weather files from Cligen. SERA 2011 at 96.

The FSEIS uses the GLEAMS-Driver version to evaluate levels of contamination for sites with plausible herbicide exposures (FSEIS 287-288; FSEIS Appendix F at 169-171) and to evaluate adequate stream buffer width for the proposed herbicide applications. FSEIS at 294 and 286. Herbicide application along the Metolius River and at Rimrock Springs, considered two of the most sensitive sites for herbicide application due to their proximity to water and species of concern, were modeled using the GLEAMS-Driver. FSEIS at 286. These site parameters along with limitations are available in FSEIS Appendix F at 169 (also see FSEIS at 239, 287, and 312 for model discussion). Sites in other sub-watersheds that are all in less sensitive areas were considered to have less potential for effects to species and habitats. FSEIS at 286. The project analysis weighed the specific predictions of the GLEAMS models against general knowledge of herbicides fate in the environment. FSEIS at 289 and 312. The analysis found the GLEAMS model was conservative and over predicted runoff when compared to published literature, limited monitoring, and professional judgment. FSEIS at 292-298. The higher values were explained by the model output to a single point source instead of distributed along a stream (FSEIS at 286) since the model uses levels of broadcast spray to imitate the distributed spot spraying across an area. FSEIS at 240. The GLEAMS model outputs were used to construct project design features to fall below levels of concern for fish and aquatic species groups. FSEIS at 289.

**Appellant Statement #65:** Appellant states that the Forest Service failed to explain why it proposed use of the herbicide chlorsulfuron in 2007, but omitted it in 2012 at Odell Lake, but not near other waterbodies. Appeal at 8. Appellant further states that the Forest Service failed to explain why picloram will be used now in 2012 near Odell Lake, when in 2007, it was not allowed because of the greater risk for direct effects to fish. Appeal at 32 and 33.

**Response:** I find that the Responsible Officials adequately considered the potential effects of applying picloram and chlorsulfuron, and addressed the risk for potential adverse effects to species of concern at Odell Lake. The selected alternative included special protection measures to ensure herbicide levels would not exceed levels of concern for species of concern in the Odell Lake watershed. The predicted effects represent the most current assessment from the FSEIS released in 2012. It is important to note that treatments are not occurring along the shoreline of Odell Lake proper; instead, they occur adjacent to Highway 58, along the railroad tracks south of the lake, and along access roads to the resort. Map 7, Project website.

The FSEIS describes the environmental consequences of the herbicide application as required by 40 CFR 1502.16. The regulation at 40 CFR 1508.8 requires consideration of direct and indirect effects of the proposed action. Additionally, 40 CFR 1508.7 documents the CEQ requirement to consider cumulative impacts of the proposed activities, 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. For the sensitive fish species, pertinent analysis for the project's effects at the treatment sites within the Odell watershed are found in the hydrology and fish sections. FSEIS at 212-249 and 282-290.

The project uses project design features to reduce contamination risk and keep herbicide application below a Hazard Quotient of 1 for species of concern. FSEIS at 286-289; Appeal Record, Fisheries Biological Evaluation at 81-86. For the Odell Watershed, initial analysis found chlorsulfuron applications at typical levels could lead to HQ 4 following an average rainfall event and HQ 5 if a storm were to occur for aquatic macrophytes. FSEIS at 290. Similarly, applying picloram at the Odell sites using the highest rates could lead to HQ of 1.7 during average rainfall or 1.9 if a storm were to occur directly following treatment. FSEIS at 290. In response, project design features were developed to limit these herbicides (FSEIS 289). Within the Odell Lake watershed, the use of chlorsulfuron is not allowed and picloram use is only allowed up to the typical application rate. FSEIS at 57.

**Appellant Statement #66:** Appellant states that the FSEIS failed to fully analyze effects to biological soil crusts and instead claimed that adverse effects will be limited by project design features, without substantiating that claim. Appellant goes on to state that the Forest Service cannot claim that “cumulative impacts are impossible, especially after admitting that the impacts are not fully known, and that adverse impacts are unavoidable.” Appeal at 43.

**Response:** I find that the Responsible Officials adequately considered the effects to biological soil crusts based on the analysis in the FSEIS.

The FSEIS describes the environmental consequences of the project on biological crusts as required by 40 CFR 1502.16. 40 CFR 1508.8 requires consideration of direct and indirect effects of the proposed action. Additionally, 40 CFR 1508.7 documents the CEQ requirement to consider cumulative impacts of the proposed activities, 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. Within the 40 CFR 1502.16 regulations, direction is given for "scientific and analytic basis for the comparisons" [of alternatives]. Referring to the Forest Service's guidance on implementing the National Environmental Policy Act, the FSH 1909.15 suggests that to reach conclusions about the significance of an effect, the analysis must consider environmental effects in terms of their context and intensity. Context infers the projects effect as a whole, the affected region, and the locality. Both short- and long-term are relevant. Intensity refers to the severity of the impact.

The FSEIS responded to concern about the impacts of the project on soil microbes, including specific inquiry as to the impacts on soil biological crusts. FSEIS Appendix J at 314. The Forest Service tracked the concern as an indicator for effects to soil; the indicator is "toxicity potential to soil microbes and resulting effects to soil productivity." FSEIS at 15. The effects to specific elements of soil crusts which include, but not limited to, fungus, lichen and bryophytes are detailed in the analysis of the project's effects to non-target plants (FSEIS at 148, 157-158, 169) and soils (FSEIS at 181-208, also see FSEIS Appendix D at 129-135 and FSEIS Appendix J at 314).

The FSEIS provides information on the relative presence and distribution of these crusts within the analysis area (FSEIS at 157; FSEIS Appendix J at 314) and their ecologic value (FSEIS at 143 and 148) to set the analysis context. The FSEIS describes the spatial extent and the potential overlap with planned invasive plant treatments. FSEIS at 157; FSEIS Appendix J at 314. To detail the intensity of potential effects, which include effects from herbicide and invasive plant invasion, the FSEIS provides a literature review of potential impacts (FSEIS at 148) that incorporates by reference information from the R6 Invasive Plant FEIS (2005 R6 FEIS at 4-130) along with providing analysis for the project alternatives. FSEIS at 151, 157-158, and 169. The FSEIS acknowledges the slightly higher toxicity of chlorsulfuron, picloram, and/or sulfometuron methyl on microbes (FSEIS at 188-189, FSEIS Appendix D at 129-135) and excludes use of these herbicides on shallow, scabland and/or fine textured soils where biological crusts

are most likely present. FSEIS at 50, PDF #47. The FSEIS also acknowledges the variability of soil biological crusts. FSEIS at 157. For areas outside of these thin soils, potential adverse effects to soil biological crusts are addressed by limiting repeat application of picloram and sulfometuron methyl within project analysis units on other soil types, as prescribed by PDF #46. FSEIS at 50.

**Appellant Statement #67:** Appellant states that the Forest Service failed to provide an adequate analysis of the direct, indirect, and cumulative effects of the proposed project on water quality because they failed to address the impacts of all stresses to water quality, such as logging and other uses on private lands, including the potential for increased use of herbicides as other landowners follow the example set by the Forest Service. Appeal at 43 and 44. Appellant states that the FSEIS assumes that private landowners will apply herbicides only according to label directions, resulting in a low potential for adverse cumulative impacts. Appeal at 44.

**Response:** I find that the Responsible Officials adequately considered cumulative effects to water quality from other management activities, including timber harvest, grazing and recreational use, in addition to stresses to water quality from private lands. See responses to Appellant Statements #48, #58, and #59 for additional analysis of impaired streams.

The FSEIS describes the environmental consequences of the project on water quality as required by 40 CFR 1502.16. The regulation at 40 CFR 1508.8 requires consideration of direct and indirect effects of the proposed action. Additionally, 40 CFR 1508.7 documents the CEQ requirement to consider cumulative impacts of the proposed activities, 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. As documented in the ROD, the Responsible Officials considered the direct, indirect, and cumulative effects of the project on water quality (ROD at 10), along with compliance to the Clean Water Act (ROD at 18). The decision was based on analysis contained in the project overview that sets the context (FEIS at 82 and 90) and in the water resources section (FSEIS at 209-254), fisheries and aquatic organisms section (FSEIS at 256-324), human health section (FSEIS at 328-336 and 338-345), and FSEIS Appendices H and I.

The Forest Service has responsibilities under the Clean Water Act as the management agency for National Forest System Lands. FSEIS at 209. The aim of the Clean Water Act is to restore and maintain the chemical, physical and biological integrity of all waters to protect the beneficial uses as documented according the Oregon Department of Environmental Quality. FSEIS at 209. Beneficial uses are determined by the State of Oregon on a basin scale in the Oregon Administrative Rules for water quality and cover large areas of land (FSEIS at 210), across all ownerships. For impaired waters (listed under 303(d) in the Clean Water Act), the State works with the EPA to develop total maximum daily load that set maximum values of pollutants, while still meeting water quality standards. FSEIS at 210. The FSEIS discloses 303(d) streams which could be affected by the project (FSEIS at 218-219) and discusses the potential project impacts on water quality parameters: temperature, sediment and turbidity, water chemistry, and water chemistry.

The FSEIS reduces the impact of herbicide contaminating waters with project design features that restrict the type of herbicide used, the manner of application and frequency within defined buffers depending on the type of water way. FSEIS at 48-51 and 247. Further, the project buffers are prescribed to protect against leaching into domestic water supplies by limiting herbicide use proximate within 100 feet of known wells or 200 feet of domestic spring boxes. The cumulative effects are defined by the additive effect of the agencies activities in regard to other activities; in this case what portion of the

Forest Service activities could add to the current level of water impairments and what impact would this result in for beneficial uses.

The Forest Service's analysis evaluates cumulative effects at the basin scale, 6th level hydrologic unit code, or HUC (Appeal Record, Watershed Resource Report at 39) which range from 5,000 acres on up to 45,000 acres. The watershed report finds that the potential for cumulative effects from the invasive treatments whereby herbicide could be delivered downstream is very low to non-existent (Ibid). This is because of the scattered nature of treatments, treatment caps, and relatively quick dilution over time. Many of the herbicides are photosensitive, highly soluble, and degrade quickly in water with light. FSEIS Appendix D at 129-135.

The water quality analysis points out the majority of the plant treatments (70%) would occur next to roads. FSEIS at 224. To reduce confounding effects of roads and delivery of herbicide treatments, the project reduces the herbicide load on roads near streams. The PDF #60 states that no broadcast spraying is allowed on roads within 300 feet of all perennial water sources or on road segments within 300 feet of perennial waterbodies. FSEIS at 52. Additionally, PDF #62 extends that to mechanical treatments that occur along roads within 300 feet of waterbodies. FSEIS at 52. Additive effects from prescribed fire, road grading, timber harvest, livestock grazing and OHV use are discussed. FSEIS at 203-204.

The watershed report states that most of the effects of other project invasive plant treatments are spatially away from timber harvest, especially in regards to the aquatic influence zones that are most sensitive to changes in vegetation changes that can alter shade or disturbance that can contribute sediment. FSEIS at 246-247. For temperature, the FSEIS reasons that background reductions from timber harvest are offset by forest regrowth. The impact of streamside treatments within these temperature limited streams, using a case scenario in Trout Creek Fen, would lead to temporary effects as a result of manually removing reed canary grass which would be recolonized within the next year by native vegetation. FSEIS at 247.

Cumulative effects from sediment and turbidity from livestock grazing, OHV and roads are discussed where most probable for the project analysis unit; an example is given within the Dry Paulina subwatershed. FSEIS at 245. The main risk is from planned localized chemically and mechanically treating houndstongue outside a 50 foot buffer of no treatment near the stream. The FSEIS discloses that livestock could extend the time of revegetation. FSEIS at 245. The FSEIS then goes on to discuss the ongoing effects of travel management in regards to sediment source and control, the sources and levels of uncertainty related to livestock managements contribution to sediment. FSEIS at 246.

The cumulative effects of the invasive plant treatments and ongoing agricultural use is discussed. Appeal Record, Watershed Report at 42-43. The Forest Service relies on a combination of spatial analysis of private lands and Forest Service lands, published studies and professional judgment for analysis. The cumulative effects from adjacent landowners are considered by the FSEIS by coordinating treatment and protecting irrigation ditches with buffers (PDF #6, FSEIS at 45). The FSEIS at 203 considers the effect of adjacent landowners herbicide use onto Forest Service lands.

**Appellant Statement #68:** Appellant states that the FSEIS lists 303(d) impaired streams, but dismisses direct or cumulative effects to these streams because they are listed as temperature impaired, and are not impaired for chemical contamination. Appellant further states that the FSEIS documents areas where soil erosion hazard is high and that use of chemicals such as the aquatic version of glyphosate without surfactant, triclopyr, TEA, and imazapyr may not be less toxic to aquatic organisms than other

herbicides not approved for use near water. Appellant states that the Forest Service “cannot at once acknowledge adverse effects, use vague language to dismiss them, and still conclude that the proposed action would comply with State water quality standards for toxic substances.” Appellant includes a footnote stating that it is “disingenuous for the Forest Service to state that the proposed project will comply with State water quality standards for toxic substances, since earlier in the FSEIS the Forest Service acknowledges that “[t]here is no numeric State water quality standards for any of the herbicides or adjuvants that may be used in either of the action alternatives...”” Appeal at 44.

**Response:** I find that the FSEIS adequately assessed the potential for cumulative effects on 303(d) listed streams. See also response to Appellant Statement #48, #58, #59, and #67 for additional information.

The FSEIS and watershed resource report in the appeal record discloses that there is no numeric State water quality standard for any of the herbicides or adjuvants that is proposed in the project. FSEIS at 213; Appeal Record, Watershed Resource Report at 6. The FSEIS discloses the relevant standards associated with beneficial uses agreed upon by the State and EPA (these standards are not generally for herbicides). FSEIS at 209-210. To address herbicide effects, the FSEIS relies on reducing risk for transport to drinking water, municipal watersheds, springs and well heads with protection measures. FSEIS at 15, 192, 193, 195-197; Appeal Record, Watershed Resource Report at 26-35, 42-43, 57-65, and Table 11 at 59. Potential impacts from herbicide use are fully disclosed. FSEIS at 223-256. The risk for runoff and leaching is detailed for specific soils and environmental conditions in the soils section (FSEIS 187-196, 199-201). In addition, use of a particular herbicide is based on the length of time the herbicide may stay in the environment (FSEIS at 50) against the level of concern in the human health and environment section. FSEIS at 47-50.

The FSEIS discusses where main inputs to waterways that could impact water quality and refers to the levels of protection, largely through buffers and adjustments in type and amount of herbicide application allowed. FSEIS at 48-51 and 223-248. Watershed scale impacts are not anticipated. FSEIS at 247-249. Possible point sources from the treatments are disclosed in the soils section (FSEIS at 195-201) including discussion of roadside ditches. FSEIS at 201.

**Appellant Statement #69:** Appellant states that the FSEIS states that the risk from herbicide treatment would be lower to riparian areas under Alternative 3, but then claims the cumulative effects are the same for both action alternatives and are negligible. Appellant states that the FSEIS failed to substantiate the claim that no cumulative effects would occur. Appeal at 46.

**Response:** I find that the FSEIS fully disclosed the potential for cumulative impacts to occur under Alternative 3. The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. Appellant cites the FSEIS at 436-439, 459, and 207 as evidence that the cumulative effects were not distinguished between the action alternatives or that the agency failed to substantiate its claim that no cumulative effects would occur. However, appellant’s point is with regards to riparian areas. I have examined the riparian disclosure in the FSEIS and find that the analysis did differentiate between the two action alternatives with the regards to the potential for cumulative effects.

As stated in response to Appellant Statement #59, the analysis clearly indicates that there is a difference between Alternatives 2 and 3 with regards to sediment and turbidity, as well as other water quality parameters. The FSEIS at 243 and 244 points out the specific differences for Alternative 3 in the direct and indirect effects disclosure, particularly when compared with Alternative 2. The cumulative effects

section in the FSEIS at 245 and 246 again points out that manual treatments that include intensive pulling and digging in areas “within 10 feet of fish bearing streams, non-fish bearing perennial streams, or perennial lakes, ponds, and reservoirs (like in the case of 2000 lineal feet along the Metolius River) have the potential to exceed State water quality standards (and associated rules and regulations from PACFISH, INFISH and NWFP) in regards to sediment and turbidity.” Thus, I find that the cumulative effects were differentiated and substantiated with regards to riparian areas.

### ***Wildlife/Management Indicator Species***

**Appellant Statement #70:** Appellant states that the Forest Service failed to quantify viability thresholds, failed to cite studies or reports regarding viability of sensitive species, and used outdated population data for sensitive species including sage grouse, pygmy rabbit, Oregon and Columbia spotted frogs, and Crater Lake tightcoil. Appeal at 36.

**Response:** I find the Responsible Officials appropriately disclosed the impacts of herbicide use on wildlife species and their habitats.

The FSEIS identifies methods used for analysis, references reliable scientific sources, discusses responsible opposing views, and discloses incomplete and unavailable information, scientific uncertainty and risk, as required by regulation. 40 CFR 1502.9(b), 40 CFR 1502.22, and 40 CFR 1502.24. Forest Service Directives regarding Regional Forester’s Sensitive Species state that a project should “avoid or minimize impacts to species whose viability has been identified as a concern” (FSM 2670.32).

The Forest Service specifically responded to the appellant’s comment about population surveys and viability thresholds for sensitive wildlife species, including the sage grouse, pygmy rabbit, spotted frogs, and Crater Lake tightcoil snail in the FSEIS Appendix J, Response to Comments at 309. The response states “[t]he results of the analysis indicated that negative effects to wildlife are unlikely (DSEIS table 18 and p. 376-402). There would be no measurable adverse impacts to individuals or populations, thus population surveys and viability thresholds are unnecessary. The vulnerability of birds due to their small body size and diet is accounted for in the analysis. Page 92 of the DSEIS noted that “The R6 2005 FEIS included an additional margin of safety by reducing the level of herbicide exposure considered to be of concern to Threatened and Endangered fish and wildlife” and “Project Design Features ensure herbicide exposures under the Proposed Action will not exceed conservative levels of concern for people and botanical, wildlife, and aquatic species of local interest.”

The Forest Service analyzed and disclosed the presence or absence of various wildlife species, the analysis of habitat, and the surveys conducted and survey results throughout section 3.9.1, Affected Environment of Invasive Plants and Wildlife Resources. FSEIS at 350-385. The existing amount of habitat for the species analyzed on the Deschutes and Ochoco National Forests and Crooked River National Grassland was determined by using the Viable Ecosystems Model (VIABLE). This model stratifies the environment along a gradient of size, structure, species composition, and relative tree density. The 2004 satellite imagery layer was used to develop the VIABLE map. Data was mapped on a 25 meter pixel grid, meaning the map was divided up on a 25 meter grid and that every 25 meter square (pixel) was assigned a value that relates to a stratum of size, structure, tree species composition, and relative tree density. The various classifications were then linked to wildlife habitat requirements. Criteria used (vegetation, seral stage, structure, and density) to determine habitat for each species was described in the existing condition section for each species. FSEIS at 347.

Discussions of species or species groups are included in the FSEIS for: Threatened and Endangered species (FSEIS at 350-352); Candidate species (FSEIS 352-370); Region 6 Regional Forester sensitive species (FSEIS at 352-370); survey and manage species (FSEIS at 370-374); management indicator species (FSEIS at 374-383); USFWS Birds of Conservation Concern (FSEIS at 383-385); and landbirds (FSEIS at 385). Within these sections, the Forest Service quantified the amount and distribution of habitat, the potential for the species to be present and evaluated the potential effects of invasive plant treatments, including herbicides, based on numerous factors, including habitat affected by the treatments.

For the Federally listed wildlife species known or suspected to occur within the project area, it was concluded that conducting invasive plant treatments “may affect, but are not likely to adversely affect” the northern spotted owl. FSEIS at 406. For the Regional Forester’s sensitive species it was determined that the project would have “no impact” or “may impact, but not likely to lead to a trend toward federal listing” depending on the species. FSEIS at 408-426. For the management indicator species (MIS), it was concluded that invasive plant treatments will not contribute to a negative trend in viability (negatively impact the ability to meet target population levels or habitat goals). FSEIS at 433. A summary of acres of invasive plant treatments by method in relationship to MIS habitat on the Deschutes and Ochoco National Forests (FSEIS at 433) is displayed by the amount of habitat treated by habitat type. All effects determinations were based on species and project area information, the amount of habitat affected and the habitat analysis that was presented in section 3.9.1, Affected Environment, as well as the potential effects of the invasive plant treatment methods that are prescribed.

**Appellant Statement #71:** Appellant states that the potential for adverse effects to wildlife is largely unknown, given the lack of data on toxicity, chronic exposure, and the fact that most of the data has been extrapolated from laboratory animals (surrogate species) on tests that occurred in labs versus in real world environments that are impaired such as in temperature-impaired streams. Appeal at 42, 48, 51 and 52. Appellant is particularly concerned about effects to the northern spotted owl, pygmy rabbit, horned and red-necked grebes, bufflehead and Harlequin ducks, yellow rail, greater sage grouse, American peregrine falcon, tricolored blackbird, Oregon and Columbia spotted frog, Crater lake tightcoil snail, steelhead trout, bull trout, and Chinook salmon. Appeal at 42.

**Response:** I find the Responsible Officials appropriately disclosed the impacts of herbicide use on wildlife species and their habitats. See response to Appellant Statement #48, #58, #59, and #70 for additional information.

The FSEIS identifies methods used for analysis, references reliable scientific sources, discusses responsible opposing views, and discloses incomplete and unavailable information, scientific uncertainty and risk, as required by regulation. 40 CFR 1502.9(b), 40 CFR 1502.22, and 40 CFR 1502.24. Forest Service Directives regarding Regional Forester’s sensitive species state that a project should “avoid or minimize impacts to species whose viability has been identified as a concern.” FSM 2670.32.

In several sections of the FSEIS and in the wildlife biological assessment (BA), it is acknowledged that toxicity effects to wildlife are derived from numerous studies conducted to meet registration requirements, primarily on laboratory animals that serve as surrogates. The SERA Risk Assessments (2005 R6 FEIS) modeled exposure for each herbicide considered under all of the alternatives. The FSEIS documents how the Forests took a precautionary approach for the use of herbicides; this precautionary approach is detailed in the risk reduction framework (FSEIS at 43-44, 95-96) and includes project design features (PDF). All PDFs that are applicable to the project are listed in the FSEIS at 45-56. The PDFs define a set of conditions or requirements that an activity must meet to avoid or minimize potential

effects on a particular resource. PDFs that involve the use of herbicides represent additional restrictions that the Forest has elected to include; the restrictions add to the directions for the approved use of these herbicides. The PDFs that are required for Alternative 2 are PDFs #1-56, and #63-97, while Alternative 3 requires PDFs #1-55 and #57-97. Many of the PDFs also apply to implementation of the current invasive plant treatment program, which is represented by the no action alternative. PDFs are not optional and are incorporated in the effects analysis. FSEIS at 43-44.

The effectiveness of the PDFs is addressed throughout Chapter 3 of the FSEIS. As previously stated, these PDFs reduce the risk to wildlife species by limiting the rate or method of herbicide application, thus reducing the potential for herbicide exposure to have an effect. FSEIS at 44.

Information on toxicity, chronic exposure, and extrapolation from laboratory animals is provided in FSEIS at 387-391. Specifically, the Herbicide Risk Assessment (FSEIS at 388), Herbicide Analysis (FSEIS at 388), Herbicide Mixtures (FSEIS at 389), Uncertainty and Data Gaps (FSEIS at 390), and the Use of Surrogate Species (FSEIS at 390) is addressed.

The potential effects of herbicide are disclosed to wildlife species or species groups, including those specifically identified by the appellant, in the following sections: Federally listed species, including Threatened, Endangered, candidate and Regional Forester's sensitive species (FSEIS at 403-426), management indicator species (FSEIS at 426-433), survey and manage species (FSEIS at 370-374), U.S. Fish and Wildlife Service Birds of Conservation Concern (FSEIS at 433-434), and landbirds (FSEIS at 434-435). See responses to Appellant Statements #54-57 for discussion regarding the potential for herbicides to impact aquatic species.

Of particular concern for wildlife and aquatic species is the sublethal effect that can occur at the lowest dose of an herbicide. This lowest dose was used to determine the "toxicity indices" for each herbicide. Examples in the FSEIS include calculating the most sensitive response to picloram in mammals, which is weight loss in rabbits. Once calculated, the Forest used the dose of picloram that did not cause weight loss in rabbits as the toxicity index. FSEIS at 388. The Forest specifically chose to keep hazard quotients (HQ) less than 1.0 to stay below the toxicity indices. FSEIS at 389. The hazard index is then calculated by adding all of the HQs for the herbicides that would be used on a particular plant. By staying below a hazard index of 1.0, the hazard to wildlife and aquatic species is substantially reduced. FSEIS at 288, 388, and 389. For fish species, the Forests again defined an HQ of less than 1.0 to keep exposures below the toxicity indices for each herbicide. FSEIS at 282 and 288.

While the SERA risk assessments did reference laboratory studies, the SERA risk assessments and FSEIS also document field studies more applicable to the forest environment. Field research studies dealing with herbicide movement and resulting concentrations in water bodies and effects to fish and wildlife were used in the SERA risk assessments (SERA 2001, 2003, 2004, 2011), roadside treatment discussion (FSEIS at 294-298), and fisheries cumulative effects analysis (FSEIS at 321-325).

**Appellant Statement #72:** Appellant states that the Forest Service's responses to appellant's specific concerns regarding the impacts of herbicide use on wildlife and their habitat were inadequate because the responses were biased towards the benefits from treating invasive plants and cite the analysis of spotted frogs as an example of this bias. Appeal at 42.

**Response:** I find that the FSEIS fully documents the potential beneficial and adverse impacts to wildlife species and their habitat. See response to Appellant Statement #55 for details regarding the analysis of the impacts to spotted frogs, which I find to be not biased.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS fully documents the potential for adverse impacts to occur to wildlife species. Specifically, the FSEIS notes that all treatments have the potential to disturb, temporarily displace, or directly harm various wildlife species. FSEIS at 391. The FSEIS goes on to detail how adverse impacts may occur and how large tracts of bare ground can alter migration and dispersal of some species. FSEIS at 391. The analysis also states that the majority of the treatments that occur along already disturbed roadsides would not likely provide essential habitat for native wildlife species. FSEIS at 391. The effects of herbicides, specifically from impurities, inerts, adjuvants, metabolites, surfactants and active ingredients are explicitly discussed. FSEIS at 393-399. The potential for endocrine disruption is detailed in the FSEIS at 398-399. Lastly, the potential for synergistic effects to occur is discussed in the FSEIS at 399.

**Appellant Statement #73:** Appellant states that the Forest Service lacks survey data, particularly for sensitive species such as the Canada lynx and that the agency “declined to analyze the effect of the proposed project on lynx” based on their conclusion that lynx have not been documented and that there is insufficient habitat to support the species. Appellant countered the agency data with assertions that volunteers of their organization had positively identified a lynx in the Ochoco National Forest in 2005 or 2006 and that the agency failed to respond to this specific comment regarding lynx. Appeal at 42.

**Response:** I find that the Responsible Officials considered the appropriate data regarding effects of herbicide use on sensitive wildlife species, including the Canada lynx.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. FSM direction is provided regarding requirements for species specific surveys and using habitat as the basis for species occurrence (FSM 2621.3). The wildlife report that was prepared for the FSEIS provides information on historic and known occurrences of wildlife species for which surveys or observations were made. FSEIS at 350.

The Forest Service responded to the Blue Mountains Biodiversity Project comment regarding lynx in the FSEIS Appendix J, response to comments at 307. The response states that potential for the project to affect Canada lynx is negligible based on the fact that the best available science from the Lynx Conservation Assessment and Strategy (Reudiger et al. 2000), as well as more current reviews of available habitat on the Deschutes National Forest indicate that there is insufficient habitat to support a lynx population on the forest. In addition, “on May 29, 2001 the Forests received concurrence from the U.S. Fish and Wildlife Service that implementation of any activities contained within the Deschutes and Ochoco National Forests is not likely to adversely affect the Canada lynx outside of an existing Lynx Analysis Unit. There are no Lynx Analysis Units on the Deschutes or Ochoco National Forests.” FSEIS at 350.

In addition, Forest Service wildlife biologists wrote a summary on occurrence of lynx on the Forests. Appeal Record, Wildlife Specialist Reports. This 2003 document indicates that an additional review of the best available science occurred, and that the science indicates that neither self-sustaining populations of Canada lynx nor its habitat are present on the Deschutes or Ochoco National Forests or the Crooked River National Grassland; therefore, no effects to the continued existence of the species or its habitat are expected as a result of land management activities on these administrative units. The record also indicates that if lynx are confirmed on either Forest or the Grassland they will receive full protection under the Endangered Species Act and consultation with the U.S. Fish and Wildlife Service

will commence immediately if necessary. Also, if new information becomes available on vegetation that constitutes lynx habitat, analyses will occur to identify any lynx habitat on the Forests and Grassland.

It is unclear exactly what information was submitted to the Forest regarding appellant's statement that members of their organization had positively identified a lynx. Appellant's comment that was submitted during the 45-day comment period is a statement that "Blue Mountain Biodiversity Project volunteers positively identified a lynx in the Deep sale are of the Ochoco NF in 2005 or 2006." Appeal Record, 45 Day Public Comment Period, Appellants Comments, Coulter Comments at 12. This statement did not provide enough information for the Forest to adequately respond to it in the FSEIS. As such, this appeal statement also does not provide enough information to warrant a response. Thus, based on the information contained in the FSEIS and appeal record, I find that lynx were adequately considered.

**Appellant Statement #74:** Appellant states that the FSEIS failed to consider the negative impacts of herbicides on wildlife, such as the alteration of food webs and contamination of food sources. Appeal at 42.

**Response:** I find the Responsible Officials appropriately disclosed the impacts of herbicide use on wildlife species and their habitats, including the potential for disruptions to the food web or food sources.

The FSEIS identifies methods used for analysis, references reliable scientific sources, discusses responsible opposing views, and discloses incomplete and unavailable information, scientific uncertainty and risk, as required by regulation. 40 CFR 1502.9(b), 40 CFR 1502.22, and 40 CFR 1502.24. Forest Service Directives regarding Regional Forester's Sensitive Species state that a project should "avoid or minimize impacts to species whose viability has been identified as a concern." FSM 2670.32. In several sections of the FSEIS and in the Wildlife Biological Assessment (BA), it is acknowledged that toxicity effects to wildlife are derived from numerous studies conducted to meet registration requirements, primarily on laboratory animals that serve as surrogates.

The FSEIS considered the impacts of the use of herbicides in the project area for wildlife species. FSEIS at 387-439. Specific examples are given in the FSEIS with regards to the potential for impacts to prey. The FSEIS states that "[t]he potential for the herbicides to adversely affect bald eagles was determined using quantitative estimates of exposure from worst-case scenarios. The dose estimates for fish-eating birds were calculated using herbicide or NPE concentrations in fish that have been contaminated by an accidental spill of 200 gallons into a small pond. Assumptions used include no dissipation of herbicide, bioconcentration is in equilibrium with water, contaminant level in whole fish is used, and upper estimate assumes 15 percent of body weight eaten/day. For chronic exposures, we used a scenario where the bird consumes fish from water contaminated by an accidental spill over a lifetime. All estimated doses used in effects analysis were the upper levels reported in the Forest Service/SERA risk assessments." FSEIS at 408. Potential impacts to food sources for other species are also documented in the FSEIS at 184, 282, 284, 298, 315, 349, 348, 349, 357, 401, 405, 406, 407, 410, 413, 415, 417, 427, 428, and 435.

**Appellant Statement #75:** Appellant states that nonylphenol polyethoxylate (NPE) surfactants and the contaminant hexachlorobenzene are known to harm wildlife and should not be used. Appeal at 42.

**Response:** I find that the Responsible Officials addressed the potential impacts from NPE surfactants and hexachlorobenzene.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The purpose of assessing risk is to compare likely exposures against expected hazards to determine risks. Without exposure, hazard is meaningless. The FSEIS demonstrates that even though NPE-based surfactants and the impurity hexachlorobenzene may be harmful to wildlife at certain levels, those levels are not expected to be realized as a result of this project. The analysis found in the FSEIS adequately considered the potential effects of using NPE-based surfactants and herbicides with the contaminant hexachlorobenzene.

Numerous PDFs are designed to limit exposure to NPE-based surfactants, including PDFs #12, 36, 44, 58, 80, 83, 89, 91, and 93. FSEIS at 45-56. These are intended to reduce rates applied, or to separate sensitive species or populations from application areas. Specifically, PDF #88 is designed to reduce exposure to hexachlorobenzene by peregrine falcons. FSEIS at 55.

Additionally, the disclosure in the FSEIS states that “[t]able 57 lists the toxicity indices [for herbicides and NPE] for fish used for this project and the R6 2005 FEIS BA (USDA Forest Service 2005d). Indices represent the most sensitive endpoint from the most sensitive species for which adequate data are available. Generally, the lowest toxicity index available for the species most sensitive to effects was used.” FSEIS at 282. Additionally, the FSEIS states that “[r]esults of the R6 2005 FEIS analysis using SERA (2001, 2003, 2004, 2011) risk assessments indicates that chronic exposures to fish [including NPE] are not plausible or mathematically possible.” FSEIS at 284. More evidence is cited in the FSEIS, which states that “[n]onyphenol polyethoxylate (NPE) based surfactants were also analyzed under the R6 2005 FEIS (USDA 2005a) and did not exceed any LOC for fish, invertebrates, algae, or aquatic macrophytes.” Appeal Record, Biological Evaluation for Aquatic Species at 67.

The biological evaluation (BE) for aquatic species also described that “[d]uring operational use of NPE surfactant, ambient levels of NP9E (including a small percentage of NP, NP1EC, and NP2EC) could average 12.5 ppb (range 3.1 to 31.2 ppb). The duration of these exposures from Forest Service use would generally be much shorter than those used in laboratory experiments, due to transport by flowing streams, dilution, and environmental degradation. These levels are not likely to adversely affect amphibians found in the Pacific Northwest for normal operations. However, overspray or accidental spills could produce concentrations of NP9E that could adversely affect amphibians, particularly in small stagnant ponds.” Appeal Record, Biological Evaluation for Aquatic Species at 80.

The FSEIS goes on to state that “[a]t typical application rates, the estimated acute doses from the exposure scenarios are all less than the reported NOAELs (no-observable adverse effect level) for all herbicides and NPE. The estimated dose from an NPE-based surfactant applied at the highest rate, an application rate that is four times the typical application rate, did exceed the NOAEL. To eliminate the potential for exceeding the NOAEL, project design feature #12 requires the lowest effective rates of NPE surfactant to be used and limits the application rate to less than 0.5 lb a.i./acre (FSEIS pp 53). For evaluation and comparison, the typical application rate of NPE is 1.67 lb a.i./acre, more than three times the amount specified in PDF 12. The high application rate is 6.68 lb a.i./acre. Exposures exceeding the NOAEL will not occur. Chronic doses in this scenario are highly unlikely to occur because it is very unlikely that even one prey item could be directly sprayed and then immediately consumed, let alone a long-term diet of contaminated prey. Therefore, there is no basis for asserting or predicting that adverse effects to spotted owls from NPE or the herbicides considered in this FSEIS are plausible.” FSEIS at 405.

Furthermore, the FSEIS states that “[t]he results of these exposure scenarios indicate that no herbicide or NPE surfactant poses any plausible risk to birds from eating contaminated fish. For bald eagles, which feed upon fish, adverse effects from herbicide or NPE surfactant exposure are not plausible because

even if they fed on contaminated fish for a lifetime, the estimated dose for herbicide or NPE does not exceed a threshold of concern for potential effects (i.e. the toxicity index) (project file worksheets). All expected doses to fish-eating birds for all herbicides and NPE are well below any known no-observable-adverse-effect-level (NOAEL) (see USFS 2005d, Appendix B).” The FSEIS at 408, 409 and 416 also describe that “the weight of evidence suggests that adverse effects to bald eagles from NPE or the herbicides included in the action alternatives are not plausible” and that levels of concern for carnivores or insectivorous birds would be low.

Risks of causing cancer to either fish or mammals was also documented to be low in the aquatic BE at 75-76 and in the FSEIS at 394. Thus, based on the application rates and PDFs, I find that the risk from NPE surfactants and hexachlorobenzene are low and that the effects were adequately considered.

**Appellant Statement #76:** Appellant states that despite stating that project design features will minimize effects to wildlife and aquatic species, the FSEIS failed to show that herbicide use will not contribute to the uplisting of several species. Appeal at 42 and 43.

**Response:** I find the Responsible Officials appropriately disclosed the impacts of herbicide use on wildlife species and their habitats.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS thoroughly disclosed the potential impacts from herbicide use on wildlife species and their habitat. FSEIS at 387-439 and as stated elsewhere in this response document. In reviewing the FSEIS, I also find that the Responsible Officials responded to this comment by appellants. Specifically, the FSEIS Appendix J at 279 and 280 responded to appellants concern regarding uplisting of aquatic species. The Forests stated that “[t]here is no indication based on the scientific literature (SERA 2001, SERA 2003a-d, SERA 2004a-e,h) that these types of treatments, with these herbicides would reduce insect prey for fish to such a degree that it would lead to an uplisting of steelhead trout, bull trout, and Chinook salmon and coho salmon (SERA 2001, SERA 2003a-d, SERA 2004a-e,h; DSEIS p. 318).” FSEIS at 279 and 280. Furthermore, appellant stated that uplisting could occur because of NPE surfactant use. The Responsible Officials responded by stating that “[t]he types of NPE compounds used in surfactants do not bioconcentrate (USDA FS 2003). They do not bioaccumulate in organisms because it is highly water soluble and is not stored in fatty tissues. More information on the chemistry of NP9E is in R6 2005 FEIS and Bakke 2004.” FSEIS at 312.

In addition to the information found in the FSEIS, the Forests completed consultation with the regulatory agencies. Both the USFWS and NOAA Fisheries gave letters of concurrence or issued biological opinions for this project, thus confirming that this project would not affect a species such that uplisting occurred. ROD at 23.

Thus, based on the disclosure found in the FSEIS and Appendices, I find that the Responsible Officials appropriately concluded that the project was in compliance with the ESA and that uplisting of a species would not occur.

**Appellant Statement #77:** Appellant states that “not only must the FSEIS analyze the effects of non-herbicide activities on the environment, the effects of additive and cumulative doses of herbicides to the public, workers, non-target plant species, wildlife species, water quality and ambient air quality must also be assessed.” Appeal at 44.

**Response:** I find that the Responsible Officials adequately considered the effects of possible multiple applications of the same herbicide and the effects of applying different herbicides. See response to Appellant Statement #61 for an analysis of non-herbicide impacts. See responses to Appellant Statements #11, #34, #45, #46, #48, #50, #53, #67, #72 and #78 regarding the potential effects of synergistic, added or cumulative exposure to herbicides.

**Appellant Statement #78:** Appellant states that the FSEIS failed to substantiate its claim that repeated use or exposure of the proposed herbicides would not bioaccumulate in wildlife, particularly in the American peregrine falcon, northern spotted owl, bald eagle, or in humans. Appeal at 45. Appellant further states that the FSEIS documented that NPE surfactants may potentially have estrogenic effects and thus may be endocrine disrupting contaminants which appellant states do bioaccumulate, and notes that picloram and clopyralid both contain hexachlorobenzene which is a persistent carcinogen that bioaccumulates, both of which makes the analysis in the FSEIS clearly incorrect. Appellant concludes that the agency failed to analyze the effects that bioaccumulation of NPE surfactants and hexachlorobenzene may have on wildlife.

**Response:** I find that the FSEIS adequately considered the potential for cumulative effects due to the potential for bioaccumulation from the herbicides and surfactants proposed for use.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The FSEIS states that "...risk assessments and the R6 2005 FEIS (pages 4-1 to 4-3) found that repeated exposures would not result in cumulative effects because the herbicides proposed for use are rapidly eliminated from the bodies of people and animals." FSEIS at 90. The R6 2005 FEIS (Appendix P, Appendix Q, Chapter 4) and SERA Risk Assessments discussed effects of chronic exposure to low levels of herbicides used to treat invasives on National Forest System land. According to the 2005 R6 FEIS, chronic exposures do not result in cumulative effects because the herbicides are more rapidly excreted from organisms (people, animals and fish) than would be absorbed from predicted levels of exposure. As documented in the FSEIS, "an animal could encounter herbicide in more than one location over time; however there would be no possibility for this project to result in exposures that could cause a cumulative effect." FSEIS at 91.

The FSEIS further documents that "[t]he herbicides available for use in the proposed action, or in Alternative 3 do not bioaccumulate nor biomagnify up the food chain. These herbicides do not store in body fat and are rapidly excreted in urine from mammals, often within hours of consumption (see Appendix B of USDA Forest Service 2005d). No additive doses are likely because herbicide is excreted before another exposure is likely to occur." FSEIS at 410.

Furthermore, the FSEIS fully documents the potential estrogenic effects of NPE surfactants. The FSEIS states that "NPE-based surfactants are known to cause adverse effects, including estrogenic effects, to aquatic organisms. A quantitative risk assessment for NPE was conducted by Bakke (2003), which included risks to aquatic organisms. Estimated concentrations from the operational scenario analyzed (10 acres of broadcast spray immediately adjacent to water) produced exposures 15-30 times lower than the level of concern from all NPE related compounds. Bakke also analyzed a scenario in which a small pond or stagnant stream reach is over-sprayed directly, with no foliar interception. In this case, levels of NPE related compounds could reach those that pose a risk of toxic effect. To mitigate the potential risk of NPE-based surfactants to aquatic organisms, including spotted frogs, PDFs 44, 58 and 83 would be implemented." FSEIS at 423. Overall, the FSEIS at 436 states that cumulative effects from herbicide treatments are not expected because they are separated in time or space sufficiently to preclude additive doses.

In addition, PDF #46 was developed to reduce potential for herbicide accumulation in soil. It specifies no more than one application of sulfometuron methyl would occur on a given area in a calendar year, except to treat areas missed during the initial application. No more than one application of picloram would occur on a given area every two years, except to treat areas missed during the initial application. FSEIS at 50.

**Appellant Statement #79:** Appellant states that the “ROD and FSEIS violate the NFMA, 16 U.S.C. § 1604(i) and 1604(g)(3)(B), applicable planning regulations, 36 C.F.R. §§ 219(a)(1) and (7), 219.27(3), (4), and (6).” Appellant explains that these “statutes, regulations and plan provisions require the Forest Service to make site-specific decisions consistent with the applicable land management plan, to maintain diversity of plant and animal communities, to maintain viable populations of native species, to evaluate impacts to and to protect endangered, threatened and sensitive species, to protect and monitor streams using field surveys, to monitor, using field surveys, certain MIS species, to determine whether pesticide use is “ecologically acceptable” and to evaluate all aspects of the pest-host system, which would include an evaluation of how invasive plant species are introduced and how such future introductions can be prevented.” Appeal at 52. Appellant asserts that the FSEIS “does not mention any field monitoring data regarding streams, MIS species, or sensitive species. Moreover, its evaluation of the proposed action’s impacts on MIS sensitive species and all wildlife, FSEIS at 387-436, does not include a valid cumulative impacts analysis” and that the agency “cannot make viability determinations or properly evaluate impacts on any species or any stream or determine if pesticide use is “ecologically acceptable” absent a valid cumulative impacts analysis and the required monitoring data.” Appeal at 52.

**Response:** I find that the FSEIS adequately considered the potential for the proposed activities to adversely affect management indicator species.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The 1983 USDA Departmental Regulation 9500-4 provides direction to the Forest Service regarding viability requirements including plant species: “Habitats for all existing native and desired non-native plants, fish, and wildlife species will be managed to maintain at least viable populations of such species. In achieving this objective, habitat must be provided for the number and distribution of reproductive individuals to ensure the continued existence of a species throughout its geographic range . . . Monitoring activities will be conducted to determine results in meeting population and habitat goals.”

Wildlife field monitoring data was incorporated from historical records and recent sightings from inventory surveys or research conducted on the Forest to determine species status or occurrence. Surveys were conducted to determine habitat suitability, species occurrence, reproductive status or other key elements. Recent surveys were conducted for the upland sandpiper and are documented in the FSEIS at 178. Impacts to other species were analyzed based on analysis of available and potential habitat. The FSEIS also documented that over 91% of the known infestations and proposed invasive plant treatment are within 100 feet of a road, which is not considered desirable or critical habitat for a vast majority of MIS species. FSEIS at 128. Viability determinations were made for all management indicator species; none of the actions proposed would lead to a loss of viable populations. FSEIS at 151, 152, 153, 158, 159, 160-166, 169, 170-172, 250, 294, 301, 310, 352, 419, 426, 428, 430, 431, and 432. See also responses to Appellant Statements #46, #56, #62, #70 and #71 for analysis of how management indicator species were disclosed in the FSEIS.

**Appellant Statement #80:** Appellant states that for the “Northwest Forest Plan’s survey and manage requirements, the Forest Service’s strategy seems to be to avoid any actual surveys, replacing them with various cursory explanations.” Appeal at 56. Appellant states that the analysis for survey and manage plant species is fatally flawed because the FSEIS “fails to discuss the likelihood of significant negative impacts on the acreage affected by EDRR treatments (up to the 240,000-acre cap)” and “the Forest Service misrepresents the significance of its activities by continually insisting that only “small portions” of overall habitat would be affected relative to the total area covered by the NWFP.” Appeal at 56. Appellant states that the “public is left to speculate as to what those impacts could be, deprived of the scientific and accurate analysis intended by NEPA” and that the analysis fails to acknowledge the potential for significant habitat-disturbing activity within those small portions of habitat. Appeal at 55.

**Response:** I find that the FSEIS adequately considered survey and manage species.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The analysis set forth in the FSEIS for survey and manage species indicates that the majority of the invasive plant sites that will be treated are not habitat for survey and manage species, which by definition, are those closely associated with late-successional and old growth forests. FSEIS at 137 and 370. Regardless, the FSEIS contains an adequate analysis of the potential for direct, indirect, and cumulative effects that may occur to these species. ROD at 19-21; FSEIS at 137-140, 148, 152, 153, 155, 159-161, 163-166, 169, 171-173, 176, 370-374, 377, 425 and 428. With regards to EDRR, annual implementation planning would require a review and evaluation of new information to determine if proposed treatments are within the scope of those analyzed in the FSEIS. See FSEIS Appendix F at 161-162. If new survey and manage sites are discovered, or if they are suspected to occur in an area proposed for treatment, PDFs would be applied, treatments would be modified to protect the sites, or additional analysis would be needed. FSEIS Appendix F at 161-162.

### ***Native and Cultural Uses***

**Appellant Statement #81:** Appellant states that even though the Tribes have not expressed disagreement with the project, it does not relieve the agency from fully disclosing and exploring the cumulative impacts to human health or cultural uses. Appeal at 52. Appellant states that the Forest Service’s responses to appellant’s concerns are inadequate and that the agency ignored the concerns of the tribes themselves and gave only a cursory explanation as to how tribal concerns would be protected through PDFs. Appeal at 52.

**Response:** I find that the Responsible Officials adequately addressed cumulative effects to human health and cultural issues.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. Potential cumulative effects to human health are addressed in the FSEIS at 345 to 346. Potential cumulative effects to cultural uses are addressed in the FSEIS at 459 to 460.

Tribes were included in public involvement on the proposed action. FSEIS at ES-2, 14, 454-455, 494, 500, 503, and 504. The annual implementation plan requires consultation with the tribes to identify overlaps between proposed treatments and cultural gathering areas. FSEIS at 40, 457, 458 and FSEIS Appendix F at 163. Any added treatment locations or changes in treatment methods will require Section 106 (NHPA) compliance measures including consultation with the State Historic Preservation Office. FSEIS at 457.

Project Design Feature #41 was developed specifically to ensure continued coordination with the tribes to protect cultural use plants and protect tribal members from inadvertent contact with herbicides. FSEIS at 49-50. Whenever herbicide treatment is scheduled to occur, the Forests will notify tribes (FSEIS at 339) as part of required Project Design Features #26, #40, and #41. FSEIS at 48-50. In addition, all PDFs that protect non-target vegetation apply to cultural plants (e.g., PDFs #5, #12, #13, #15, #16, #17, #47, #61, #62, and #64-69) as well as PDFs #36-41, which aim to ensure there is no inadvertent public contact with herbicide in known areas of wild food collection. FSEIS at 43-53 and 457.

### ***Wild and Scenic Rivers Act***

**Appellant Statement #82:** Appellant states that the plan to treat invasive plant species violates the Wild and Scenic River (WSR) Act. Appellant states that while the FSEIS does state that 10 of the 13 corridors will be treated, it does not state how many total acres within WSR designated or eligible corridors will be treated, nor does it state the designation for the WSR corridors that will be treated. Appeal at 57 and 58.

**Response:** I find that the proposed project does not violate the Wild and Scenic Rivers Act.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The Wild and Scenic Rivers Act, section 10(a) states that: "Each component of the national wild and scenic rivers system shall be administered in such manner as to protect and enhance the values which caused it to be included in said system without, insofar as is consistent therewith, limiting other uses that do not substantially interfere with public use and enjoyment of these values. In such administration primary emphasis shall be given to protecting its esthetic, scenic, historic, archaeological, and scientific features. Management plans for any such component may establish varying degrees of intensity for its protection and development, based on the special attributes of the area."

The FSEIS at 478-479 lists each river corridor that contains or partially contains a PAU. The FSEIS at 480 indicates the acres to be treated within the corridors that are greater than one acre and may affect outstandingly remarkable values (ORVs). The FSEIS at 218 indicates the watersheds and affected waterbody with treatment acres.

The Forests' website contains a table of the Wild and Scenic Rivers on the Forests and their designation: (<http://www.fs.usda.gov/detail/centraloregon/specialplaces/?cid=stelprdb5246806>). Of the listed rivers, the majority are designated as recreation (Big Marsh Creek, Crescent Creek, Crooked River and the Little Deschutes River), while the Metolius River, the North Fork Crooked River, and the Deschutes River have both scenic and recreation designations. Only Wychus Creek has designated segments that are both wild and scenic. Regardless of the designation, the important information that is needed to make an informed decision is whether or not the proposed activities comply with the management plans for these rivers. The FSEIS Appendix C at 86-93 references segments of Wild and Scenic River Corridors within the project area and their corresponding standard and guidelines that affect the project implementation. The FSEIS also references the completed management plans for the Wild and Scenic River corridors, where they exist. FSEIS at 478. All actions proposed are compliant with the management plans. FSEIS at 481 and FSEIS Appendix C. The FSEIS at 479-481 and 489 summarizes effects to Wild and Scenic Rivers.

**Appellant Statement #83:** Appellant further states that FSEIS only considers how the alternatives will affect the scenic value, but then relies on PDFs for the remaining values without explaining how the

PDFs will protect the Outstanding Remarkable Values (ORVs). Appeal at 58. Appellant further contends that the analysis focuses only on the benefits the project will have for native vegetation and does not disclose the negative impacts. Appeal at 58.

**Response:** I find that the FSEIS indicates how the PDFs will protect ORVs and that the analysis describes both beneficial and adverse impacts.

The regulation at 40 CFR 1502.16 directs the agency to disclose the direct, indirect, and cumulative effects of the proposed action and any alternatives. The Wild and Scenic Rivers Act requires the Forest Service to protect and enhance the ORVs, water quality, and free flow of designated rivers. The Forest Plan direction and river management plans are focused on protecting a river's free-flowing condition and water quality, in addition to ORVs. Wild and Scenic Rivers Act at Section 1(b).

Forest Service Manual 2354.42 provides direction for resource protection and management activities in Wild and Scenic River corridors. The FSM 2354.42(l), Forest Pest Management states "[c]ontrol forests pests in a manner compatible with the intent of the Act and management objectives of contiguous National Forest System lands." Invasive plants can alter the ecology and recreation setting within wild and scenic river corridors, impacting the outstandingly remarkable values for which it was designated. FSEIS at 477-481.

The FSEIS at 477-481 describes the Wild and Scenic Rivers found in the project area and the total acreage of invasive plants found in each river. The ORVs are identified for each Wild and Scenic River. FSEIS at 478. Project Area Units for each river segment are defined in Table 116 (FSEIS at 478) and in the FSEIS at 480. Impacts to Wild and Scenic Rivers, including the ORV for which they were designated, are fully documented in the FSEIS at 378-481, and throughout Chapter 3 in various sections of the FSEIS, including non-target vegetation (FSEIS at 122-175); water resources (FSEIS at 209-255); and fisheries and aquatic organisms (FSEIS at 256-324). The PDFs will protect ORVs for the Wild and Scenic River Corridors because they will be implemented as a part of the project. ROD at 5, 6 and 13; FSEIS at 44.

Effects to ORVs are also discussed in the response to comments, FSEIS Appendix J at 301. The response indicates that the FSEIS at 129-136 identifies PAUs where sensitive plants are present and that the FSEIS at 478-479 identifies PAUs within the Wild and Scenic River corridors. The potential for cumulative effects is also analyzed. FSEIS at 481.