

APPENDIX C

How the East Fork Fire Salvage EIS addresses the Beschta et al. (1995) Post Fire Principles and Recommendations

In March, 1995, Dr. Robert Beschta, Oregon State University, and other research scientists produced a commentary entitled: “Wildfire and Salvage Logging, Recommendations for Ecologically Sound Post-Fire Salvage Logging and Other Post-Fire Treatments on Federal Lands in the West.” This document was prefaced with a discussion of the interrelationships between the natural disturbance cycle and the impacts of past land management, and the need to examine and “focus on the pattern and consequences of current and proposed human manipulation and disturbances of all types at the landscape level.” Beschta et al. (1995) concluded with a summary of principles for fire management and salvage logging. Excerpts from a statement by Dale Bosworth, Chief, USDA Forest Service to the Subcommittee on Forests and Forest Health, Committee on Resources, U.S. House of Representatives, Washington, D.C., June 12, 2002, on NEPA process gridlock shows the controversy associated with this report.

I can’t think of a better example to illustrate this (gridlock) than the so-called “Beschta Report,” a commentary authored in 1995 by eight university and government scientists. Many members of the Subcommittee may not be familiar with this report. The authors prepared the paper at the request of the Pacific Rivers Council. It offers 21 “principles and recommendations” regarding a wide range of topics. The topics include: erosion, soil impacts, noxious weeds, sensitive areas, effects of road building, reseeding, and fire management policies. The paper generally recommends against any active management of post-fire areas other than removal of existing roads. The paper has never been published in any scientific or professional journal, nor has it been subject to any formal peer review. None-the-less, interest groups have filed numerous lawsuits challenging post-fire recovery projects in part on the grounds that the associated NEPA documents fail to adequately document the agency’s consideration of the “Beschta Report.” I have been told that information on how to use the report to write comments on proposed projects and appeals of project decision documents is available on more than 100 Web sites. To date, there have been judicial opinions on the “Beschta Report” in six cases. In four of these cases, the Courts have concluded that project decisions violated NEPA because the associated NEPA documents did not adequately document the agency’s consideration of Beschta. In two other recent cases, Federal District Courts have ruled in favor of the Forest Service. In one case, *Native Ecosystem Council v. U.S. Forest Service (D. Mont.) (Maudlow-Toston, Helena NF)*, the Court found that the EIS complied with NEPA even though the plaintiffs strenuously argued that failure to adequately consider the “Beschta Report” violated NEPA. In the other case, *Center for Biological Diversity v. Andre (D. N.M.) (Corner Mountain Fire Salvage, Gila NF)*, the Court found that EA adequately considered the issues in the “Beschta Report,” even though the EA did not reference the “Beschta Report.” Hitting .333 is very good in baseball. It’s not much of an average in natural resource case law. As a result of these 4 decisions, land managers wishing to reduce the risk that their decision will be reversed in Federal Court should feel compelled to thoroughly document their consideration of the “Beschta Report” even though the underlying land management issues are already addressed. This includes documenting why some elements of the “Beschta Report” are not relevant to the specific proposed project. The judicial opinions against the agency have inspired some interest groups to demand that the agency consider numerous other papers and articles that they assert are relevant to the some proposed actions. Sometimes the list of references exceeds 100 articles and papers. To minimize the risk of adverse judicial opinions, land managers are advised to fully document within the body of the NEPA document their detailed consideration of each and every paper or article.

So, when critics assert that the Forest Service is its own worst enemy by spending so much time preparing large NEPA documents, I ask that you remember the “Beschta Report” - an unpublished document of questionable science proposed for an advocacy group that has never been peer-reviewed – but whose consideration now must be documented in several if not all judicial districts in order to build a defensible NEPA document. It’s a powerful example of the incentive for land

managers to fill, or overstuff, NEPA documents with excessive amounts of information – even if the information is of questionable relevance and does not illuminate the reasons for the decision – all in an effort to protect their decisions from charges they failed to adequately consider some piece of information. As a result of these efforts to increase the legal defensibility of decisions, project analysis and documentation processes are very time consuming and costly, but the additional documentation contributes little to the quality of public involvement or land management.

Dr. Beschta presented the following response to Chief Bosworth’s speech to the Subcommittee on Forests and Forest Health in July, 2002.

Several years ago, we contributed to a report titled “Wildfire and Salvage Logging, Recommendations for Ecologically Sound Post-Fire Salvage Management and Other Post-Fire Treatments” (Beschta et al., 1995), commonly referred to as the “Beschta Report.” Our report was embraced by diverse groups inside and outside the US Forest Service (USFS), including a number of courts, because of its rigorous scientific foundations and the effort we made to translate the results of a rich history of scientific and technical research into specific management and policy guidelines. Oddly, recent testimony by the current Chief of the USFS before the Subcommittee on Forests & Forest Health on June 12, 2002 and a June 2002 USFS report titled “The Process Predicament: How Statutory, Regulatory, and Administrative Factors Affect National Forest Management” indicts the Beschta Report as “questionable.” Those challenges seem to hinge on the fact that the report has not been published in a peer-reviewed journal and the assertion by unspecified USFS staff that the report contains “unsubstantiated statements and assumptions.” We note that this claim of scientific errors committed in the Beschta Report has never been backed up with specific documentation by citation of specific USFS or other documents, peer-reviewed or not. There is a simple reason why the Beschta Report stands up to scrutiny in the courts. It is reasonable, concisely stated, and is a robust and accurate interpretation of science and management experience. Despite numerous attempts, its scientific integrity has not been successfully undermined in a court of law. We would welcome an opportunity to present testimony to the committee to provide our perspective on the Chief’s claims. To provide an early response for the record, we send this letter as a written response to the Chief’s testimony and the comments contained in the “Process Predicament Report.” We are compelled to do so, because in our view, Dale Bosworth, in his role as Chief of the USFS, misrepresented our work and its effect on USFS activities in his testimony before you on 12 June 2002.

#1. Contrary to the Chief’s wholly unsubstantiated statement that our report is “questionable,” our work is supported by a rich history of scholarly work by scientists inside and outside the USFS. We cited more than a dozen such publications in our report. Our goal in the report was to provide limited scientific citations so as not to overwhelm the people and institutions that we expected might use our report. We summarized briefly the wealth of scientific information and peer-reviewed publications on the effects of logging and other post-fire activities on forests, soils, watersheds, water quality, and fish. The intervening seven years has seen an explosion of additional work both inside the USFS and elsewhere, virtually all of it concordant with our conclusions and recommendations. Equally important, the members of the Beschta Panel were selected because of the breadth and depth of their scholarly experience, their expertise in diverse relevant fields including forest soils, watershed hydrology, water quality, forest management, landscape ecology, aquatic ecology, fish ecology, conservation biology, and ecological restoration. We are not aware of any papers published in the peer-reviewed scientific literature, before or after the 1995 publication of the report, that negate or substantially contradict our conclusions and recommendations. If the Chief knows of any peer-reviewed publications that he feels contradict our report, we would welcome the opportunity to review these and incorporate them in an updated revision of the report.

#2. Chief Bosworth should be aware that the USFS itself has repeatedly conceded that our March 1995 report had, and still has, scientific merit. In August 1995, Dr. Richard Everett of the USFS Pacific Northwest Research Station prepared a response to the Beschta Report titled “Review of Recommendations for Post-Fire Management” (“Everett Report”) in a letter to the Regional Forester of Region 6 (Oregon and Washington). The Everett Report concurred with key aspects of our report, including our conclusion that there were no data to indicate that post-fire salvage logging reduced the risk of reburn. To wit, the Everett

Report (p. 4) stated: “[t]here is no support in the scientific literature that the probability for reburn is greater in post-fire tree retention areas than in salvage logged sites.” The Everett Report (p. 4) also concludes that the Beschta Report was “... correct that the intense reburn concept is not reported in the literature.” The Everett Report (p. 5) also states that current research suggests that salvage logged areas may have elevated fire hazard over unlogged sites for the first twenty years after logging. The Everett Report (p. 6) concludes, “[t]he urgency to remove woody biomass is not based on reducing short-term fire hazard, but on the capture of economic values and reduction of long-term fire hazard.” In 2000, the USFS’s Pacific Northwest Research Station published a literature review of fire and salvage logging effects, titled “Environmental Effects of Postfire Logging: Literature Review and Annotated Bibliography” (McIver and Starr, 2000). Among other things, McIver and Starr (p. 19, 2000) “...found no studies documenting a reduction in fire intensity in a stand that had previously burned and then been logged.” This is precisely the conclusion we made in our 1995 report. Our 1995 report concluded that the effects of logging are typically more persistent and ecologically damaging than fire. This is corroborated in the conclusions in the USFS’s 1997 regional assessment of Columbia River basin conditions, “The Assessment of Ecosystem Components in the Interior Columbia Basin and Portions of the Klamath and Great Basins, Volumes I-IV.” (PNW-GTR-405, USFS, Walla Walla, Washington; USFS and USBLM, 1997a). This 1997 assessment also concluded that an effective way to restore damaged forest soils is to leave areas undisturbed until recovery has occurred (USFS and USBLM, p. 206, 1997a). It concludes (p. 206) that prevention of soil damage is far more effective than attempting restoration after damage has occurred. USFS and USBLM (p. 206, 1997a) also concluded that logging negatively affects soil and forest productivity, while burning these materials in place causes significantly less negative impacts. Notably, all of these conclusions are in our 1995 report. Although they are not peer-reviewed, USFS environmental impact statements (EIS) have also concurred with our conclusions. As just one example, the USFS’s 1997 Draft EIS for the Interior Columbia Basin Ecosystem Management Project states (Ch. 4, p. 13): “[b]ecause of the mosaic pattern that wildfire produces, and the residual wood that is left on site...wildfire usually has fewer implications for loss of soil productivity and function than disturbances which remove soil organic matter and decrease (*sic*) bulk density as well.” It also states that although fire can affect soil productivity and hydrologic properties, the effects of logging on these soil properties are usually more severe and more persistent than fire (USFS and USBLM, Chap. 4, pp. 12-13, 1997b). Again, these are the precise conclusions we communicated in our 1995 report. The USFS officially recognized the importance of our 1995 report for post-fire projects. In July 1995, in a Memo from Regional Forester J. Lowe to Forest Supervisors and Directors, titled “Analysis of Fire Recovery Projects,” the USFS Regional Forester for Region 6 (Oregon and Washington) directed Forest Supervisors to require that our report be considered with NEPA documentation for site-specific projects. The memo states (p. 1), “[c]learly this information needs to be considered in ongoing analysis . . . For each project or group of similar projects, review the Beschta paper (along with other information sources) to determine applicability given site-specific conditions and issues in the project area.” While emphasizing the need to assess the principles of the Beschta Report on a case-by-case basis, the Everett Report (p. 1) commended our 1995 report for identifying potential problems associated with post-fire salvage logging.

#3. The Chief’s testimony incorrectly asserts that our 1995 report was not peer-reviewed . Our 1995 report was peer-reviewed, prior to issuance, by other scientists with expertise in fire ecology, including Dr. J. B. Kauffman, a Professor of Riparian Ecology at Oregon State University in Corvallis, OR. Further, in March 1995, more than 50 scientists with expertise in biology, fisheries, wildlife, ecology, and geology endorsed our report in an open letter to President Clinton, with our report attached. It is worth noting that typically three or fewer peer-reviewers review most papers published in scholarly scientific journals. The Chief is correct in noting that our 1995 report has not been published in a peer-reviewed technical journal. At the time of our publication, we decided to forego presenting our conclusions and recommendations in a form suitable for a technical journal for two reasons. First, we felt that it was crucial to rapidly inject sound science into the discourse regarding post-fire salvage practices, which at the time were damaging a wide variety of natural resources. Sadly, this concern continues to be germane today. Second, we decided to issue a concise and policy relevant document in a form understandable to a wide audience, including citizens, agency personnel, and scientists, rather than issue a report full of the often ponderous language of technical papers published in peer-reviewed journals with their limited, but specialized audience. We stand by that decision given the management context at the time and that sadly persists today. Clearly, peer-

reviewed publication is still timely, as is underscored by Chief Bosworth's testimony; accordingly we are taking steps to pursue publication in a scholarly journal.

#4. The Chief's assertion that EISs must address work of "questionable" scientific merit that has not been peer-reviewed is amusing, and self-contradictory. USFS EISs are not normally subjected to peer-review by scientists outside of the agency. Further, USFS EISs often come to conclusions, or are used to support decisions, that directly contradict the vast body of scientific evidence and information. The USFS publishes reams of information annually that has not undergone any peer review by scientists external to the agency. So, if the Chief wishes to apply a single yardstick, he should point out that the bulk of his agency's assessments are scientifically questionable, using the standard he applies to external reports.

#5. Finally, we emphatically note that our report is not responsible for the USFS's avowed inability to address some of the very real and pressing issues affecting public lands, our natural resource heritage. Rather, the agency often strives to ignore or deny the vast body of knowledge that has accumulated in recent decades in favor of antiquated policies. For example, extensive and detailed studies (mostly conducted by the agency's own scientists) demonstrate that the smallest diameter fuels present the highest risk for fire while the largest diameter trees are critically important to retain crucial ecological functions in forested landscapes. Yet, the USFS continues to attempt to implement post-fire salvage logging that focuses on the removal of the largest diameter fuels. Similarly, it is indisputable that roads are one of the greatest threats to the ecological integrity of forested systems and associated river, wetland, lake, and coastal ecosystems. Yet, the USFS has failed to adopt a policy that mandates reversing the worst ecological effects of roads, or that precludes incursion of roads into roadless areas. Despite widespread recognition of these facts, the USFS diverts staff and money to extraordinarily costly salvage logging projects at the expense of reducing the extent of the road network or undertaking needed fine-fuels reductions in unburned forests. This is not just a recipe for controversy, it is also a recipe for the continued deterioration of forested landscapes, and of living systems that are sustained by and sustain those forests. Humans are a key part of those landscapes. Humans, too, suffer when these resources are degraded, as will often happen if the forest practices advocated by the Chief and "The Process Predicament" report are continued. Continued denial of the extensive body of technical and scientific evidence that formed the foundation of our report will guarantee continuation of the downward spiral of forest-associated resources. We appreciate the opportunity to provide these perspectives on our work and its relevance to pressing natural resource dilemmas. We stand ready to provide more information on these issues as needed. Since we write as co-authors and scientists, we include our current work affiliations for identification and communication purposes only.

The principles from the Beschta report were considered in the planning of the East Fork Salvage project. The following report shows each of the Beschta report's post-fire principles and recommendations in italics. The response of the ID team is shown below the comment.

Allow natural recovery and recognize the temporal scales involved with ecosystem evolution. Human intervention should not be permitted unless and until it is determined that natural recovery processes are not occurring.

Human intervention on the post-fire landscape may substantially or completely delay recovery, remove the elements of recovery, or accentuate the damage. These impacts include soil compaction and erosion, loss of habitat for cavity nesting species, loss of structurally and functionally important large woody debris.

Approximately 9,600 acres of National Forest lands burned in the East Fork fire. At the most, 860 acres will be salvaged, which means that just over 90 percent of the burned acres will recover without intervention. Planting would be limited to approximately 100 acres where post-fire site conditions would preclude natural regeneration for a long period of time (high elevation, lack of live seed source).

The ID team acknowledged the potential for adverse impacts and established design criteria at the very start of the project to address those issues. Design criteria are sideboards or constraints placed on activities in order to protect resources. Some proposed units were close to fish-bearing streams where the fire had removed the vegetation down to the stream channel. The team agreed that the minimum buffers given in

the design criteria would be met and those units were dropped from further consideration. Mitigation measures are additional guidelines and actions that are developed along with the project to reduce adverse impacts or improve conditions. In the East Fork DEIS, the design criteria and mitigation measures for soils, watershed and wildlife address Beschta's concerns about soil compaction, erosion, and loss of snags and down woody debris. The DEIS lists over 45 design criteria and mitigation measures for soils, watershed, snags and down woody debris. Those items are listed below.

Design Criteria for Soil and Water

Minimize salvage on severely burned or sensitive soils unless the effects of those activities could be mitigated with timing or other means.

Limit tractor logging to slopes of 40 percent or less.

Avoid developing major log landings on slopes greater than ten percent. Utilize existing roads and disturbed areas for landings where possible.

Minimize developing landings on areas with high soil burn severity unless the effects of those activities could be mitigated with timing or other means.

Avoid re-disturbing areas where East Fork Fire Salvage suppression and BAER rehabilitation activities have occurred unless those activities were not sufficient to restore or protect the soil resource. Re-rehabilitate disturbed areas that were previously rehabilitated as soon as possible.

In harvested stands provide for Coarse Woody Debris levels that protect soils from future high intensity fires and from loss of soil productivity.

Riparian Habitat Conservation Areas (RHCAs)

No Activities would occur within RHCAs except for activities intended to improve riparian conditions including but not limited to: road reconstruction and BMPs, road closures, road decommissioning, drainage improvement, soil stabilization, stream rehabilitation unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.

No Harvesting Activities would occur within 300 feet of fish bearing streams unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.

No Harvesting Activities would occur within 150 feet of Permanently Flowing Streams, Ponds, Lakes, or Wetlands > 1 Acre in Size unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.

No Harvesting Activities would occur within 50 feet of Seasonally Flowing Streams, Intermittent Streams, Landslide Prone Areas, or Wetlands < 1 Acre in Size unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.

No fuel storage or equipment refueling would occur within RHCAs.

New Road Development

Road development needed for vegetation management or watershed restoration will be limited to Temporary Roads or roads relocated out of RHCA's. No new Long-Term Specified Roads would be constructed.

New road development would be minimized and restricted to gentle side slopes, ridge tops and high elevation areas. Roads would not be constructed in RHCAs except for crossings.

All temporary roads would be obliterated, recontoured, seeded and covered within one season of use.

Road Decommissioning, Reconstruction, and Closures

Best Management Practices (BMPs) and Water and Soil Conservation Practices (WSCPs) would be applied to all roads used for accessing treatment areas in addition to roads identified for reconstruction or travel restrictions.

Harvesting Activities

All Harvest Activities would follow prescribed BMPs and Water and Soil Conservation Practices.

Design Criteria for TES Plant Species

Avoid management activities in areas where known populations of TES plant species exist unless those activities may be mitigated.

Design Criteria for Wildlife**Big Game**

Maintain intact unburned forest islands and corridors within the fire perimeter for travel and escape cover.

Lynx

Maintain foraging habitat, potential denning sites and open road density in compliance with lynx conservation strategy .

Sensitive Species

Inventory and protect goshawk nesting sites and adjacent habitat.

Maintain large areas of fire killed trees with connecting corridors along riparian areas for three-toed woodpeckers.

Old Growth Dependent Species

Maintain intact unburned forest islands and corridors within the fire perimeter for present or future old growth values.

Design Criteria for Native Fisheries**Riparian Habitat Conservation Areas (RHCAs)**

No Activities would occur within RHCAs except for activities intended to improve riparian conditions including but not limited to: road reconstruction and BMPs, road closures, road decommissioning, culvert removals, soil stabilization, stream rehabilitation, and riparian planting.

No Harvesting Activities would occur within 150 feet of ponds, lakes, or wetlands > 1 Acre in size unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.

No harvesting activities would occur within 50 feet of seasonally flowing streams, intermittent Streams, or Wetlands < 1 Acre size in unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.

No fuel storage or equipment refueling would occur within RHCAs or Streamside Management Zones (SMZs)

New Road Development

Road development needed for vegetation management or watershed restoration would be limited to temporary roads. No new Long-Term Specified Roads would be constructed.

New road development would be minimized and restricted to gentle side slopes, and ridge tops. Roads would not be constructed in RHCAs except where crossings are necessary.

All temporary roads would be obliterated, recontoured, seeded and covered within one season of use.

Road Decommissioning, Reconstruction, and Closures

Best Management Practices (BMPs) would be applied to all roads used for accessing treatment areas in addition to roads

identified for reconstruction or travel restrictions.
Harvesting Activities
All Harvest Activities would follow prescribed BMPs.

Mitigation Measure Description
Soil, Water, Fisheries and Aquatic Resources
All activities would comply with Soil and Water Conservation Practices identified in the Revised Wasatch-Cache Forest Plan, Appendix II.
Where activities occur on mosaic or high severity burned areas, a field review would be conducted by a qualified soils specialist prior to implementing activities to identify potential avoidance areas. Erosion control measures would be left in place for one growing season or until no evidence of pedestaling, rills, or surface soil movement was evident
Coarse Woody Debris would be kept on site to meet objectives for long term soil productivity as specified in the Wasatch-Cache National Forest Revised Forest Plan.
Ground based activities would be restricted to dry or frozen ground conditions generally between June 15 and December 30. Operations outside of the specified conditions may only occur on a case-by-case basis following consultation with a qualified soils specialist.
As soon as possible following the completion of harvest operations, not to exceed one year, landings would be recontoured to the original surface contour, ripped, and grass seeded with an approved Wasatch-Cache native seed mix. Coarse woody debris would be spread on site to provide for long-term soil productivity.
Tractor yarding would be limited to those areas with slopes less than 40 percent; this may include some areas with lengths less than 150 feet with slopes greater than 40 percent.
Skid trails would be water barred with slash scattered on their surfaces, and where appropriate, seeded.
Road decommissioning of temporary roads would require recontouring to match the natural slope gradient followed by seeding with Wasatch-Cache approved native grass species and spreading coarse woody debris on site to provide for long-term soil productivity.
All activities would comply with Soil and Water Conservation Practices identified in the Revised Wasatch-Cache Forest Plan.
U.S. Army Corps of Engineers 404/401 Permits would be obtained for any activities involving stream channels and wetlands that are not covered by silvicultural exemption.
Erosion control measures would be inspected and maintained on a recurrent basis until the site was stabilized to ensure their effectiveness. Additional inspections and maintenance would occur following high rainfall events and prior to fall and spring runoff to ensure their effectiveness.
If debris or slash were to enter a stream, it would be removed by hand immediately whenever there is a potential for blockage of the stream or crossing structure, or if the stream has the ability to transport such material.
On temporary roads, sediment-buffering devices would be installed below all fill slopes within 300 feet downhill distance of streams or drainage crossings.
All temporary roads would be re-contoured, seeded, and cover added within one season of completion of use.
Cross drain spacing (dips, grade sags, or water bars) on temporary roads would be approximately 300 feet for road grades between 0 and 5 percent, and approximately 200 feet or less for steeper grades.
Where culverts are removed, fill crossings would be recontoured to a stable slope angle approximating natural undisturbed stream banks adjacent to the site, and fills would be seeded with an approved Wasatch-Cache seed mix.
Temporary roads would avoid wetlands.
In Unit 24, any temporary road on the old slide area will be located to avoid large cut slopes.
Water bars would be installed every 50 feet on skid trails in Units 3, 4, 9, 15, and 16
In units 6, 8, 10, 12, and 13, harvest activities would be restricted to the normal dry season or winter.
Visual Resources
The Forest Landscape Architect would be involved with the planning of all units to insure that visual quality would be maintained during implementation of this project.
Cultural Resources
Previously recorded heritage resource sites within the salvage units shall be avoided and protected from logging impacts. Appropriate archaeological inventories and consultation under the supervision of the Forest Archaeologist shall occur prior to

Mitigation Measure Description
earth-disturbing activities and operations.
Any artifact or structure located during reconnaissance or project implementation would be left undisturbed and reported to the Forest Archeologist immediately.
Vegetation and Forest Resources
Salvage harvests will meet the snag and woody debris retention guides established for the Wasatch-Cache National Forest.
Application of standard timber sale contract clauses, particularly CT6.4 Conduct of Logging, which addresses resource and residual timber protection by requiring directional felling, pre-approved skid trails and landings, logs yarded with leading edge free of the ground, as well as the provisions under BT6.0 Operations. These provisions would be used to protect conifer and aspen seedlings during salvage harvests.
Surveys for sensitive plant species have been completed. If any additional populations are located, the Forest Botanist will be notified, and mitigation will occur as necessary. This could include unit boundary adjustments to exclude populations, alternative harvest methods to minimize ground disturbance, buffers around populations, adjustments in harvest to meet prescriptions for sensitive plant habitats.
All equipment that would be used off road would be washed prior to moving into the project area. All equipment would be inspected and approved before operations would begin.
Wasatch-Cache Native Grass Seed Mixes would be used in all areas except where it has been determined there is a high possibility that weeds may be more competitive. Other Wasatch-Cache Grass Seed mixes may be used in these locations.
Wildlife
The Wasatch-Cache National Forest Revised Plan Dead and Down Woody Debris guidelines would be followed where they are applicable.
Live trees in harvest units would be retained. The harvest prescription would provide detailed descriptions for each stand.
Timber salvage will not be allowed within active northern goshawk nest areas (approximately 30 acres) during the active nesting period.
Restrict harvest operations between December 31 and June 15 to minimize disturbance to wildlife.

Protect Soils. No management activity should be undertaken which does not protect soil integrity.

Post burn management activities that accelerate erosion or create soil compaction must be prohibited.

The East Fork Fire Salvage DEIS has extensive measures for soil protection. Proposed units were reviewed on the ground by the ID team to determine the need for mitigation and the appropriate mitigation methods employed.

Preserve capabilities of species to naturally regenerate.

From an ecological perspective, there is frequently no need for artificial regeneration.

Natural regeneration is occurring on most of the burned area. Aspen sprouting is common in areas that had an aspen component prior to the fire. The areas that will be planted were surveyed and found to have little or no natural regeneration and no nearby seed source. Artificial regeneration is quite limited. Only about 100 acres are proposed for planting with seedlings and these were high and moderate/high severity burns. All our planting stock is from local seed sources.

Do not take actions which impede natural recovery of disturbed systems.

Areas that have experienced the effects of a severe burn and are likely to exhibit high erosion should not be subjected to additional management activities likely to contribute to yet more sedimentation. Efforts should focus on reducing erosion and sedimentation from existing human-caused disturbance, e.g., roads, grazing, salvage logging.

We believe that management activities can reduce erosion in severely burned areas. Several studies (Burroughs, E.R. 1990, Burroughs, E.R., Jr. and J.G. King 1989, Forest and Harding 2001) have shown that human intervention can reduce erosion and the severity of impacts following fires.

As part of the burn area restoration, the existing roads within the burn perimeter were waterbarred and had drainage structures renovated to reduce sedimentation.

None of the alternatives propose any new system road construction. There are proposals for some short temporary roads. Overall, the project has a net reduction in road miles.

Grazing

Grazing will continue within the burn perimeter. Grazing occurs on the meadows and sagebrush types, which were not burned.

Salvage logging should be prohibited in sensitive areas.

Logging of sensitive areas is often associated with accelerated erosion and soil compaction (Marston and Haire 1990). Salvage logging by any method must be prohibited on sensitive sites including: severely burned areas, on erosive sites, on fragile soils, in roadless area, in riparian area, on steep slopes or any site where accelerated erosion is possible.

Marston and Haire (1990) used a rainfall simulator to measure runoff and soil loss in plots representing a range of soil, fire intensity and logging conditions. Water repellent soils were common, producing high rates of runoff and soil loss. Soil loss was highest on sites, which had been logged before the 1998 fires and then burned, and this was attributed to the higher fuel load on the forest floor. This study is not very applicable to the Post Burn EIS because water repellent soils are not common in these fires and logging activities avoid those areas. Marston and Haire (1990) state that soil loss was highest on sites logged before the fires. No harvest activities are planned in areas that were logged before the fires.

Logging methods

The impacts of logging vary greatly depending on the logging method, timing, weather conditions and duration. Klock (1975) found that skyline, helicopter and tractor skidding over snow caused less soil disturbance than tractor skidding over bare ground. The East Fork Salvage DEIS emphasizes using contract clauses that specify the timing and weather conditions required for operating in each unit. Alternative 2 proposes 856 acres of tractor logging. Only about 8 percent of the burn area would be harvested and most of that will be limited to operating on dry or frozen ground, which greatly reduces soil disturbance.

Severely burned areas

The DEIS states that in alternative 2 as mapped, about 344 acres in 21 proposed cutting units would include some soils that burned at high reflectance. No more than 40 percent of the high reflectance burn actually resulted in hydrophobic soil conditions. These areas will be avoided during layout. Design criteria and mitigation examples:

- Minimize ground based timber harvest and salvage on severely burned or sensitive soils unless the effects of those activities could be mitigated with timing or other means.

Erosive sites, fragile soils, steep slopes, accelerated erosion

The existing conditions of soils are discussed in the DEIS on pages 3-6 to 3-13 and impacts of the alternatives on soils are discussed in the DEIS on pages 4-1 to 4-11. Areas of sensitive soils were identified in chapter 3 and restrictions and recommendations were placed on various activities. Design criteria and mitigation examples:

- Limit tractor logging to slopes of 40 percent or less.
- Avoid developing major log landings on slopes greater than six percent. Utilize existing roads and disturbed areas for landings where possible.
- Minimize developing landings on areas with high soil burn severity unless the effects of those activities could be mitigated with timing or other means.

Roadless areas

There is no harvesting in any inventoried roadless area. About 63 percent of the project area is in inventoried roadless areas.

Riparian area

RHCA's (Riparian Habitat Conservation Areas) have been established for all proposed cutting units. Some RHCA's have been expanded beyond the required distances in INFISH in specific drainages of concern. Design criteria and mitigation examples:

- No Activities would occur within RHCAs except for activities intended to improve riparian conditions including but not limited to: road reconstruction and BMP's, road closures, road decommissioning, culvert removals, soil stabilization, stream rehabilitation, and riparian planting unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.
- No Harvesting Activities would occur within 300 feet of Perennial Fish Bearing Streams unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.
- No Harvesting Activities would occur within 150 of Perennial Non-Fish Bearing Streams Ponds, Lakes, or Wetlands > 1 Acre in Size.
- No Harvesting Activities would occur within 50 feet of Intermittent Streams.
- No Harvesting Activities would occur within 50 feet of Seasonally Flowing Streams, Intermittent Streams, Landslide Prone Areas, or Wetlands < 1 Acre in Size in Non-Priority Watersheds unless agreed to based on site visits by the Forest Fisheries Biologist and Hydrologist.
- No fuel storage or equipment refueling would occur within RHCAs.

On portions of the post-fire landscape determined to be suitable for salvage logging, limitations aimed at maintaining species and natural recovery processes should apply.

Leave at least 50 percent of standing dead trees in each diameter class. Leave all trees greater than 20 inches dbh or older than 150 years. Generally, leave all live trees. Because of soil compaction and erosion concerns, conventional types of ground-based yarding systems (tractors and skidders) should be generally prohibited.

In alternative #1, all of the standing dead trees in all diameter classes, all trees greater than 20 inches and all live trees will be left on over 9,000 National Forest acres within the fire perimeters because no harvest activities are proposed for those areas.

The Wasatch-Cache National Forest uses the snag and woody debris requirements as presented in the Revised Forest Plan, Guideline G16 (USDA Forest Service, 2003). These guidelines are much more specific to the habitat needs of snag dependent wildlife than a blanket recommendation of leaving 50 percent of the standing dead trees in each diameter class. For example, snag numbers and sizes and woody debris amounts and sizes vary between forest types, reflecting the average size of the trees in the type.

In this project, the harvest contract will specify at least 30 snags per 10 acres, identified in groups and as individual trees. All dead trees will remain within riparian areas and along streams. Snags will be left in all diameter classes. This will retain some of the largest diameter snags in the lower elevation stands. Some units will have snags marked according to the guidelines in the prescriptions. All material less than 8 inches

dbh will also be left on site. Though this smaller material does not provide large snag habitat, it does provide down woody debris.

This proposal does not include harvest of green trees. Removing trees that are vulnerable to insect attack, green but damaged by the fire, postfire logging can reduce the probability that insect pest populations will build up and infest adjacent green stands (Amman and Ryan 1991).

Because of the wide range of chronic ecological effects associated with road building, the building of new roads in the burned landscape should be prohibited.

No new system road construction is proposed. The DEIS shows 4.4 miles of temporary road proposed in alternative 2. These roads would be returned to contour, scarified and seeded and covered with slash and rocks to prevent their use in the future.

Active reseeding and replanting should be conducted only under limited conditions.

Introduction of non-native species or exotic genotypes of native species should be prohibited for all reseeding /replanting programs.

All seeding of landings and temporary roads will be done with native seed mixes. Tree seedlings are from local seed sources.

Design Criteria for Noxious and Invasive Plant Species

Manage known weed populations through treatments including herbicide, mechanical, and prevention.

Minimize management activities in areas where weed populations do not presently exist unless the risk for introducing noxious weeds could be mitigated.

Manage motorized vehicle access in areas where existing weed populations may be spread into adjacent areas free of weeds.

Require cleaning and inspection of all off road timber harvesting and road construction equipment prior to moving equipment into the project area.

Structural post-fire restoration is generally discouraged.

Frequently, post-fire restoration efforts involve the installation of hard structures including sediment traps, fish habitat alteration, bank stabilization, hay bales, weirs, check dam and gabions. Sediment management should focus on reducing or eliminating anthropogenic sources prior to their initiation (e.g. improve stream crossings to prevent culvert failure).

Check dams were installed on some streams as part of the burn rehabilitation efforts. The DEIS proposes no additional sediment prevention work, other than replacing some culverts and ensuring that culverts are not plugged and will continue to function.

Post-fire management will generally require reassessment of existing management.

For example, the condition of a transportation system (i.e. pre-existing roads and landings) should be reassessed after a fire. Additionally, post-fire livestock grazing should be altered or eliminated to allow natural recovery processes to occur.

The Burned Area Assessment team was formed during the later stages of the suppression effort in order to characterize the burned area, identify key issues, describe the current conditions, compare current and historic conditions and develop recommendation and priorities. The Burned Area Emergency

Rehabilitation Report was published in October 2002. The report covered the effects of the fire on soils, watershed, fisheries, transportation and vegetation. This was the starting point for the Post Burn EIS team that was formed to complete the analysis. Development of the Proposed Action for the East Fork Fire Salvage began following completion of the burned area assessment. On March 10, 2003, the Wasatch-Cache National Forest began the formal public involvement or “scoping” process by mailing general information packets containing a summary of the Proposed Action to individuals and organizations on the Forest’s established mailing list. As part of the scoping and alternative development process, the transportation system and existing management was reviewed to determine what changes might be necessary following the fire.

Continued research efforts are needed to help address ecological and operational issues.

We agree. Quite a bit of research has been done on postfire activities since the 1995 Beschta report. See McIver and Starr (2000) for Environmental Effects of Postfire Logging: Literature Review and Annotated Bibliography.

Additional information must be provided to the public regarding natural fires and post-burn landscapes to provide balance to the “Smokey Bear” perspective of fires and forests.

An interpretive trail is being developed to provide information to the public about the effects of the fire, and to serve as an area to view fire recovery over time and compare the developing vegetation with the conditions existing immediately after the burn.