Environmental Assessment for Foehn It In Blowdown Salvage Project

Eldorado National Forest
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Chapter 1: Purpose of and Need for Action

1.1 Background

In late November and early December, 2011, a series of strong wind events resulted in numerous large trees blown down in the mid-elevation areas (5,000 to 7,500 feet in elevation) of the Pacific Ranger District and Placerville Ranger District in the Eldorado National Forest. Based on field reconnaissance, the blow down event was scattered in nature and affected site specific locations and isolated pockets in areas across the Pacific Ranger District and in the Atherton Flat area of the Placerville Ranger District. The Pacific Ranger District and Placerville Ranger District are proposing to salvage some of these blowdown trees within previously harvested areas (i.e. past fuels reduction/forest health project units) and where large blowdown trees are blocking National Forest System roads.

The USDA Forest Service has prepared this Environmental Assessment (EA) in compliance with the National Environmental Policy Act (NEPA). This Environmental Assessment discloses the direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives to the proposed action.

1.2 Location

The approximately 6,700 acre analysis area is located across the Pacific Ranger District and in the Atherton Flat area of the Placerville Ranger District of the Eldorado National Forest, in the central Sierra Nevada mountain range in California. The project analysis area ranges from approximately 5,000 feet in elevation on the western portion of Peavine Ridge to approximately 7,500 feet in elevation in the Bunker Hill area, and is composed primarily of the lower elevation mixed conifer and the higher elevation true red fir forest vegetation types.

The analysis area is located in El Dorado County, approximately 5-25 air miles northeast of Pollock Pines, CA and north of Highway 50. The legal description of the analysis area is: T11N R13E, sections 1-3 and 12; T11N R14E; sections 2, 3, 6 and 7; T11N R15E, sections 2-4, 9-11, 14 and 15; T11N R16E, sections 6, 7 and 17-19; T12N R13E, sections 34 and 35; T12N R14E, sections 2-4, 9-20, 22-25, 27-31, 34 and 35; T12N R15E, sections 6, 18, 22, 23, 26-29 and 31-33; T13N R14E, sections 3-5, 8, 9, 13, 14, 17, 18, 21-28, 33 and 34; T13N R15E, sections 18-20, 29 and 31; T14N R14E, sections 12-15, 23, 24, 33 and 34; T14N R15E, sections 9, 29 and 30, MDB&M.

A map of the analysis area is provided in Figure 1. The Blowdown Units represent the analysis area.
Figure 1. Foehn It In Blowdown Salvage Analysis Area
1.3 Existing Condition Prior to Blowdown Event

Down log inventories were conducted in December, 2011 and January, 2012 within a portion of the project analysis area. Existing numbers and sizes of down logs greater than 12” small end diameter and greater than 10 feet in length were sampled by means of 50 foot-wide transects (34 transects) of varying lengths at 4 general locations within the analysis area (Atherton Flat/Wilson Ranch, East Ice House, Bosworth Meadow, and Picket Pen). The sampling transects totaled nearly 14 miles in over-all length.

The following table displays the results of the inventory in terms of existing numbers and tonnage of down logs. The data does not include any down logs associated with the recent blowdown that would be subject to salvage operations.

Table 1. Down log inventories: Average down logs/acre and tons/acre

<table>
<thead>
<tr>
<th>Total Transects</th>
<th>Total Transect Acres</th>
<th>Total Miles of Transects Run</th>
<th>Average Number of Existing Down Logs/Acre &gt;12 inches dib.</th>
<th>Average Fuel Loading in Tons/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>34</td>
<td>83</td>
<td>13.6</td>
<td>14</td>
<td>11.3</td>
</tr>
</tbody>
</table>

More detailed information about the down log inventories can be found in the Fire and Fuels Analysis for the Foehn It In Blowdown Salvage Project (Goodwin 2012) and in the project file.

1.4 Purpose and Need

The purpose of this project is to salvage trees that were blown down by a series of strong wind events that occurred in late November and early December, 2011 to:

1) Recover the economic value of the material, and

2) Open specific National Forest System roads (Maintenance Level 2-3) that were blocked by fallen trees.

In addition to the blowdown trees that fell in the general forest areas, there are several National Forest System roads (Maintenance Level 2-3) that are blocked by large, blowdown timber. The blocked roads are in need of opening to eliminate safety problems, maintain administrative and public access; and to reduce the likelihood that collateral damage will develop if users of the roads attempt to bypass the blocked segments of these roads by driving around the downed trees.
1.5 Forest Plan Direction

Management direction for the Eldorado National Forest is described in the Eldorado National Forest Land and Resource Management Plan (USDA Forest Service, 1989), as amended by the 2004 Sierra Nevada Forest Plan Amendment (USDA Forest Service, 2004). The 2004 Sierra Nevada Forest Plan Amendment Record of Decision (ROD) contains a number of management standards and guidelines that carry out management direction affecting the design and implementation of individual projects. In the case of the November/December blowdown event, standard and guideline #13 (relevant excerpts below), provides the most salient direction.

- Determine the need for ecosystem restoration projects following large, catastrophic disturbance events (wildfire, drought, insect and disease infestation, windstorm, and other unforeseen events). Objectives for restoration projects may include limiting fuel loads over the long term, restoring habitat, and recovering economic value from dead and dying trees. In accomplishing restoration goals, long-term objectives are balanced with the objective of reducing hazardous fuel loads in the short-term.

- Salvage harvest of dead and dying trees may be conducted to recover the economic value of this material and to support objectives for reducing hazardous fuels, improving forest health, re-introducing fire, and/or re-establishing forested conditions.

- Design projects to recover the value of timber killed or severely injured by the disturbance. Examples are activities that would: (1) conduct timber salvage harvest in a timely manner to minimize value loss; (2) minimize harvest costs within site-specific resource constraints; and (3) remove material that local managers determine is not needed for long-term resource recovery needs.

1.6 Public Involvement

The proposal has been listed in the Eldorado National Forest Schedule of Proposed Actions (SOPA) since April, 2012. The scoping notice was sent to 15 interested parties in a letter dated February 24, 2012. A legal notice for scoping was published in the Forest’s paper of record, the Mountain Democrat, on February 24, 2012. Two letters were received in response to scoping, both of which expressed general support of the proposed action.

A Preliminary EA (May 2012) was mailed to interested parties and a legal notice requesting comment on the Preliminary EA was published in the Mountain Democrat on May 14, 2012. One comment was received from the California Forestry Association supporting the proposed action.
1.6.1 Issues

An issue is a point of debate, dispute, or disagreement regarding anticipated effects of the proposed action. Issues may be important or unimportant. Important issues are defined as those directly or indirectly caused by implementing the proposed action. Important issues are used to develop reasonable alternatives to the proposed action that respond to the argument or controversy presented in the issue and substantially accomplish the purpose and need. Unimportant issues are identified as those: 1) outside the scope of the proposed action; 2) already decided by law, regulation, Forest Plan, or other higher level decision; 3) not clearly relevant to the decision to be made; or 4) conjectural and not supported by good scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations require this delineation in Sec. 1501.7, “identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3).”

Comments on the proposed action expressed general support for the project. There were no important issues identified.
Chapter 2: Alternatives

2.1 Introduction

This section describes the proposed action and alternatives to the proposed action, including a no action alternative. The Eldorado National Forest Land and Resource Management Plan (USDA Forest Service 1989), as amended by the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004) provide direction through standards and guidelines. Management practices or resource protection measures designed to minimize or eliminate environmental effects have been incorporated into the proposed action.

Two alternatives were analyzed in detail, and they include: Alternative 1 (proposed action) and Alternative 2 (no action).

2.2 Alternatives Considered in Detail

2.2.1 Alternative 1 – Proposed Action

The proposed action involves the commercial harvesting of blowdown trees within previously harvested areas and National Forest System Roads (Maintenance Level 2 and 3) that are blocked by large blowdown trees. An estimated 1.0 million board-feet of merchantable timber is associated with this proposal. The area of potential salvage is approximately 6,700 acres; however there are numerous acres that would not be affected by the salvage operation because of the scattered nature of the blowdown trees. It is estimated that approximately 10% of the 6,700 acre potential salvage area (analysis area) would actually be directly affected by harvest operations. In addition to the blowdown, a nominal number of additional trees may be removed as a result of damage caused by operations.

Because most of the blowdown trees that would be removed are within previously harvested areas or adjacent to existing roads where harvest operations have occurred in the past, the proposed blowdown tree removal project would primarily use existing skid roads and landings. No new landings are anticipated and much of the loading may take place in turn-outs or directly on the roads. Trees proposed for removal will be identified with marking paint by the Forest Service prior to harvest.

Project implementation would begin in the summer/fall of 2012 with project completion occurring in 2013.

Salvage Operations:

- The logging operation will consist of conventional hand bucking and skidding. Whole tree logging would not be a requirement. All logs would be limbed prior to skidding. Trees that cannot be skidded without damage to riparian areas, archaeological sites, sensitive plant populations, or other sensitive areas would be retained in place.
• The project administrator would designate skid trail systems. Existing skid trails and landings would be used where feasible to limit the extent of new areas of compacted ground within the project area. Operations would generally be limited to slopes having a gradient of 35%, or less.

• Erosion control measures would be constructed after completing operations in each unit. Existing waterbars that are removed or damaged by project operations would be reconstructed by logging operation. If insufficient ground cover is present to meet soil ground cover objectives, slash, weed free straw, or other mulch-type material would be imported as necessary to meet objectives.

• Logging equipment will remain within road prism to the extent practicable when engaged in project operations intended to open roads, except where roads are within blowdown areas that are otherwise proposed for salvage activities. Currently, National Forest System roads 12N21, 12NY05, 12NY06, 12NY06A, 12NY06B, 12N29A, 13N31A, 13N31AN, 12N43, 13N77, and 13N86 are known to be blocked by blowdown trees and have been identified on the analysis area map. Additional roads may be identified based upon further field reconnaissance.

• Safety signing and traffic control flaggers will be used during active operations to assure that appropriate traffic control and warning devices are established and maintained. Operations within or adjacent to recreation sites would be limited to periods of low public use.

**Slash Treatment and Air Quality:**

• Slash generated by this project will be treated by a combination of hand-piling and burning, lop and scattering (18 inch maximum height), and the felling of small diameter (<10” dbh) damaged trees. Within 50 feet of all roads, small (equal to or less than 1” dia. and 3 ft. in length) slash will be hand piled. Outside of the 50 foot zone, the slash would be lopped and scattered to the 18 inch specification and small, damaged trees felled.

• Hand piles would have 3 foot-wide handline constructed around them by the timber purchaser.

• All burning activities would adhere to pertinent air quality regulations. Smoke emissions would be minimized by following Best Available Control Measures (BACM)

• A smoke permit administered by the local County Air Resource Agency would accompany burn plans. For this project the El Dorado and Placer County Air Pollution Control Districts would issue the permit(s). To reduce effects of prescribed burns on air quality, smoke control and monitoring measures would be identified in the Smoke Management Plan that would be prepared prior to burning. Avoidance, dilution, and emission-reduction strategies would be utilized. Desirable meteorological conditions such as favorable winds and an unstable or neutral atmosphere would be required in the project’s smoke management plan to facilitate venting and dispersion of smoke from the project area.
Road Construction and Maintenance

- There is no proposed new road construction, reconstruction, or de-commissioning of existing roads.

- Though not yet specifically identified, existing skid roads or temporary roads in the vicinity of operations being conducted on this project that are being used by the public in non-compliance with the Public Wheeled Motor Vehicle Travel Management EIS decision (03/2008) would be barricaded with unutilized logs, large rocks or earthen berms. When identified, the manner of closure and cost of the work would be negotiated with the eventual purchaser of the timber sale on a case by case basis.

- All roads used for timber haul would be subject to road maintenance, deferred maintenance deposits, and/or surface replacement deposits. Most actual maintenance work would be commensurate with use and be confined to cutting or trimming of trees and brush for sight distance improvement, road watering for dust abatement, blading of roads to smooth road surface and opening ditches and culverts to maintain road drainage. Slash generated by the road maintenance work would be disposed by chipping or scattering.

- Water would be used on roads as necessary to maintain the running surface, minimize dusting during use, and maintain surface compaction.

Hydrology, Soils, Aquatics, and Wildlife

- Best Management Practices (BMPs) as defined by the State of California for water quality protection (Water Quality Management Handbook, Pacific Southwest Region, Vallejo, California, 2011) identified in section 12.11 Timber Management, 12.21 Road Building, 12.51 Vegetation Management, and 12.71 Watershed Management would apply to all aspects of this project.

- A Forest Service approved screen covered drafting box or some other device approved by the fisheries biologist would be used while drafting to minimize removal of aquatic species, including juvenile fish, amphibian egg masses and tadpoles, from aquatic habitats. The fisheries biologist would be notified if any type of water additive would be applied to roads.

- All cull logs generated by the blowdown event will be retained on-site (outside of road prisms) for wildlife and soil benefits. Large woody debris quantities retained on-site would be sufficient to meet soil and wildlife objectives. The project soils specialist and wildlife biologist would be consulted during project implementation and would monitor as needed. If insufficient quantities of large woody debris are present within or adjacent to treatment areas to meet wildlife and soil objectives, additional large woody debris would be recruited from blowdown trees.

- No blowdown salvage operations would be conducted within any California spotted owl or northern goshawk protected activity centers (PACs), other than the work directly associated with the opening of specific identified Maintenance Level 2-3 roads and the removal of the blowdown trees that affect the road prism of these specific Level 2-3 roads within the PACs.
To protect sensitive wildlife species the following requirements would apply:

1. Maintain a limited operating period (LOP), prohibiting activities (except road use, maintenance, and removal of blowdown trees blocking NFS roads) within ¼ mile of known spotted owl nest sites and goshawk nest sites during the breeding season, March 1 to August 31 (spotted owls) and February 15 to September 15 (goshawks), unless surveys confirm that birds are not nesting.

   • Units 43, 79, 138, and 139 would have a LOP for spotted owls.

   • Units 89, 133, and 168 would have a LOP for northern goshawk.

2. Maintain a limited operating period (LOP), prohibiting activities in the units near Granlees Point (south side of Union Valley Reservoir) to eliminate potential effects to the bald eagle nest site during the breeding season (February 1-August 15), unless surveys confirm that the birds are not nesting or the young have fledged.

   • Units 92, 93, 94, 95, 96, 97, and 98 would have a LOP for nesting bald eagles.

3. No salvage operations are proposed within riparian conservation areas, unless if during project operations and prior to removal of blowdown trees, specialists from hydrology and aquatics, in consultation with soils and botany, make the joint determination that in certain specific instances, an overall benefit or neutral effect to aquatic species and riparian habitat would occur if blowdown trees were removed. Slash would be lopped and scattered; no burn piles would be placed in riparian conservation areas.

Table 2. Riparian Conservation Area Specifications

<table>
<thead>
<tr>
<th>Stream Type</th>
<th>Width of RCA and Equipment/Salvage Limitations Within RCA&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perennial streams</td>
<td>RCA width = 300 ft. each side.</td>
</tr>
<tr>
<td>Seasonally flowing streams</td>
<td>RCA width = 150 ft. each side.</td>
</tr>
<tr>
<td>Special aquatic features</td>
<td>RCA width = 300 ft. each side.</td>
</tr>
</tbody>
</table>

<sup>1</sup>Within RCAs, the type and level of management are determined by assessing how proposed activities measure against the Riparian Conservation Objectives (RCOs) and their associated standards and guidelines (refer to FSEIS ROD).

Cultural Resources

This project complies with Section 106 of the National Historic Preservation Act of 1966, as amended in accordance with provisions of the Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region, the California State Historic Preservation Officer, the Advisory Council on Historic Preservation regarding the identification, evaluation, and treatment of historic properties managed by the National Forests of the Sierra Nevada, California (Sierra PA), including the interim protocols outlined in Stipulation XIV of the Sierra PA, which is incorporated here by reference.
To protect cultural resources the following design criteria would apply:

1. Protection for cultural resources (archaeological sites) will follow the stipulations in the Sierra PA. Standard procedures for protecting cultural resources at risk will be followed when activities are located immediately adjacent to cultural resources (Sierra PA, Attachment 7, II E), including flagging and avoiding, directional felling, use of specialized equipment and techniques for tree removal such as rubber tired skidders with full suspension. The specific protection measures for cultural resources highlighted in the heritage resource report for this project (R2012-05-03-50007, with any supplements) will be followed during all phases of the project.

2. Any trees felled in close proximity to archaeological sites that are a hazard to woodworker safety or that pose a hazard to the public using Forest Service system roads, will be directionally felled away from the archaeological site whenever possible. If trees are inadvertently felled so that they intrude into the boundaries of an archaeological site, all portions of the tree within the boundaries will be left in-place until the site is visited by an archaeologist, and the procedures for inadvertent effects (Stipulation VII.E of the Sierra PA) followed. Where visual integrity is an issue, stumps will be flush cut and all slash piled out of view.

3. If slash is to be burned, it will be hand piled outside of archaeological site boundaries.

4. Any equipment moving from one road system to another by driving across country from one unit to another will not be driven across unsurveyed areas or across any archaeological sites.

5. Skid roads and landings will not be ripped or subsoiled in unsurveyed portions of the project area, nor within the boundaries of historic properties.

6. Sale Administrators will notify the District Archaeologist when the project is implemented and in a timely manner when on-site monitoring is required during tree/blowdown removal.

7. Should any previously undocumented cultural resources be encountered during project operations, all work cease immediately in that area until the District Archaeologist can inspect the area, document the resource, and provide for appropriate protective measures.

**Sensitive Plants and Noxious Weeds**

- Equipment would be excluded from lava caps; no piling/burning would occur on lava caps.

- Equipment would be excluded from meadows, fens, and springs; no piling/burning would occur within meadows/fens or springs.

- Except as provided in the next paragraph, equipment would be excluded from sensitive or “watch list” plant taxa occurrences. No piling and burning would occur within or adjacent to sensitive plant occurrences and no material would be lopped and scattered over sensitive plant occurrences.
• For occurrences of Stebbins’ phacelia (Phacelia stebbinsii) and yellow bur navarretia (Navarretia proliferα ssp. lutea), activities except piling and burning may be permitted within occurrences if at least half the population would remain undisturbed to serve as a seed source. The project botanist would be consulted to ensure that actions are consistent with the Species Management Guide for Navarretia proliferα ssp. lutea.

• Habitat at known sensitive plant occurrences or for those discovered during project implementation would be flagged for avoidance during project activities. Newly discovered locations would be reported to the project botanist. The project botanist would monitor sensitive plant occurrences after completion of the project to ensure that protection measures were effective.

• To prevent the introduction of invasive plant species, equipment would be cleaned prior to entering the project area. Operators will certify that equipment is weed free prior to starting operations. Weed free straw will be utilized for erosion control as needed where slash is not available.

• Post-treatment monitoring of project area would occur by project botanist to detect any new or spreading of existing invasive plant species populations. If invasive plant species treatment, other than hand grubbing or pulling, becomes necessary, the method, intensity and timing of such treatment would be analyzed, disclosed and documented in a subsequent environmental analysis.

### 2.2.2 Alternative 2 – No Action

Under the No Action Alternative, no project activities would occur, and the blowdown trees would not be removed. National Forest System roads that are blocked by large blowdown trees will remain blocked in the short-term, until Forest Service crews and equipment can reopen the roads or the public reopens the road or drives around the blowdown trees.
Chapter 3: Environmental Consequences

3.1 Introduction

This section summarizes the physical, biological, and economic environments of the affected analysis area and the potential changes to those environments due to implementation of the alternatives. It describes the environmental impacts of the proposal in relation to whether there may be significant environmental effects as described at 40 CFR 1508.27. Further analysis and conclusions about the potential effects are available in resource specialist reports and other supporting documentation located in the project record. These reports contain more detailed data, methodologies, analyses, conclusions, maps, references, and technical documentation that the resource specialist relied upon to reach the conclusions in this EA. The following documents are incorporated by reference and each of the documents, except the Heritage Resource Report are available upon request:

- Aquatic Species Biological Assessment and Evaluation for the Foehn It In Blowdown Salvage Project. Jann Williams, Forest Fisheries Biologist. April 9, 2012.

The direct, indirect, and cumulative environmental impacts that would result from the proposed action and alternatives to the proposed action are summarized below. Definitions of direct, indirect, and cumulative effects are found in the National Environmental Policy Act Handbook, FSH 1909.15, Chapter Zero Code. Direct and indirect effects are those impacts that would potentially occur as a result of
implementation of the proposed action and alternatives. Direct effects are caused by the action and occur at the same time and place, while indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonable foreseeable. Cumulative effects are those impacts on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

In order to understand the contribution of past actions to the cumulative effects of the proposed action and alternatives, this analysis relies on current environmental conditions as a proxy for the impacts of past actions. This is because existing conditions reflect the aggregate impact of all prior human actions and natural events that have affected the environment and might contribute to cumulative effects.

This cumulative effects analysis does not attempt to quantify the effects of past human actions by adding up all prior actions on an action-by-action basis. There are several reasons for not taking this approach. First, a catalog and analysis of all past actions would be impractical to compile and unduly costly to obtain. Current conditions have been impacted by innumerable actions over the last century (and beyond), and trying to isolate the individual actions that continue to have residual impacts would be nearly impossible. Second, providing the details of past actions on an individual basis would not be useful to predict the cumulative effects of the proposed action or alternatives. In fact, focusing on individual actions would be less accurate than looking at existing conditions, because there is limited information on the environmental impacts of individual past actions, and one cannot reasonably identify each and every action over the last century that has contributed to current conditions. Additionally, focusing on the impacts of past human actions risks ignoring the important residual effects of past natural events, which may contribute to cumulative effects just as much as human actions. By looking at current conditions, we are sure to capture all the residual effects of past human actions and natural events, regardless of which particular action or event contributed those effects. Third, public scoping for this project did not identify any public interest or need for detailed information on individual past actions. Finally, the Council on Environmental Quality issued an interpretive memorandum on June 24, 2005 regarding analysis of past actions, which states, “agencies can conduct an adequate cumulative effects analysis by focusing on the current aggregate effects of past actions without delving into the historical details of individual past actions.”

The cumulative effects analysis in this EA is also consistent with Forest Service National Environmental Policy Act (NEPA) Regulations (36 CFR 220.4(f)) (July 24, 2008), which state, in part:

“CEQ regulations do not require the consideration of the individual effects of all past actions to determine the present effects of past actions. Once the agency has identified those present effects of past actions that warrant consideration, the agency assesses the extent that the effects of the proposal for agency action or its alternatives will add to, modify, or mitigate those effects. The final analysis documents an agency assessment of
the cumulative effects of the actions considered (including past, present, and reasonable foreseeable future actions) on the affected environment. With respect to past actions, during the scoping process and subsequent preparation of the analysis, the agency must determine what information regarding past actions is useful and relevant to the required analysis of cumulative effects. Cataloging past actions and specific information about the direct and indirect effects of their design and implementation could in some contexts be useful to predict the cumulative effects of the proposal. The CEQ regulations, however, do not require agencies to catalogue or exhaustively list and analyze all individual past actions. Simply because information about past actions may be available or obtained with reasonable effort does not mean that it is relevant and necessary to inform decision making. (40 CFR 1508.7)"

For these reasons, the analysis of past actions in the Environmental Consequences section is based on current environmental conditions. Present and future foreseeable projects that were considered in the cumulative effects analysis is provided in the project file.

### 3.2 Effects Relative to Pertinent Resources

#### 3.2.1 Hydrologic Resources

The following section is summarized from the Hydrology Report, which is hereby incorporated by reference (O’Connell 2012).

The analysis area is within three 5th field watersheds that include the Rubicon River, Silver Creek, and South Fork American River-Lake Aloha. Major drainages within the Rubicon River watershed include Pilot Creek, Gerle Creek, Rubicon River, and South Fork Rubicon River. The Silver Creek watershed includes Big Silver Creek, Bassi Creek, Jones Fork Silver Creek, South Fork Silver Creek, Tells Creek, and Lyons Creek. The South Fork American River – Lake Aloha watershed within the project area primarily includes the South Fork American River.

**Direct and Indirect Effects of the Proposed Action (Alternative 1)**

Negligible effects on stream condition and water quality are expected based on the distance of proposed activities from hydrologic features and the expected groundcover following these activities. The RCA widths would eliminate mechanical activities such as skidding, landing, and processing in close proximity to hydrologic features as well as burning activities. Therefore, soil impacts and hillslope erosion are not expected to increase in close proximity to hydrologic features associated with the proposed activities. Existing groundcover is currently at or near 100% and would remain so following skidding because tree branches would be lopped and scattered onsite providing additional groundcover. While burning activities would result in the removal of groundcover in small isolated patches where hand-piling activities have occurred, these areas account for a very small percentage of the project area. Therefore, it
is expected that groundcover following proposed activities would be adequate to capture and slow runoff; thereby not contributing to hillslope erosion or impacting the timing and delivery of runoff. In addition, the groundcover and distance from hydrologic features would be adequate to prevent the generation and delivery of sediment associated with the proposed activities.

With little or no adverse direct effects to stream condition and water quality expected, no indirect effects (those that may occur later in time or off site) are anticipated as a result of the proposed activities.

**Cumulative Effects of the Proposed Action (Alternative 1)**

No cumulative effects to stream condition, special aquatic features, and water quality are expected under Alternative 1 since little or no direct and indirect effects are likely to occur. This conclusion is based on the intensity and scale of anticipated activities and the distance from hydrologic features.

**Cumulative Watershed Effects (CWEs)**

The CWEs analysis for this project was based on anticipated disturbed acres. While individual watersheds may contain a considerable acreage of blowdown trees based on field reconnaissance and polygons on GIS, in actuality only a small total acreage in any given watershed would be disturbed as a result of the low density of blowdown trees.

Proposed activities would result in very little measurable Equivalent Road Area (ERA) contributions to any one watershed. These ERA contributions for proposed activities only, range from 0 to 19 ERAs which account for 0 to 0.2 percent of any one watershed. These values are directly related to the relatively small amount of anticipated disturbed acres within a given watershed with respect to the watershed area. As a result, these activities would have very little impact on the risk categories and would not change the current risk of any one watershed.

**Direct and Indirect Effects of No Action (Alternative 2)**

Under Alternative 2, no activities would be implemented, and there would be no risk of cumulative watershed effects caused by this project, and beneficial uses of water would continue to be met at present. No soil compaction or soil displacement would occur from mechanical activities, and no loss of groundcover would occur associated with skidding or burning activities. Soil infiltration rates would remain in their current state and there would be no increase in sediment available for transport or increases in runoff velocities. Increases in turbidity and suspended sediment associated with post-treatment runoff would not occur. Vegetative groundcover would continue to intercept precipitation and to slow runoff velocities and raindrop impact.

**Cumulative Effects of No Action (Alternative 2)**

Under Alternative 2, no activities would occur and there would be no risk of cumulative watershed effects associated with this alternative. Current ongoing and approved future activities would continue to occur on both public and private lands under this alternative.
3.2.2 Soils

The Foehn It In Blowdown Salvage Project was reviewed by the Forest Soils Scientist (email from Eric Nicita, dated April 27, 2012) to ensure consistency with the Eldorado National Forest LRMP (USDA Forest Service 1989), as amended by the Sierra Nevada Forest Plan Amendment (USDA Forest Service 2004).

Direct, Indirect, and Cumulative Effects of the Proposed Action (Alternative 1)

In general, the proposed action would contribute very little ground-disturbance to the existing condition. Because most of the blowdown trees that would be removed are within previously harvested areas or adjacent to existing roads where harvest operations have occurred in the past, the proposed project would primarily use existing skid roads and landings. In addition, BMPs would be implemented which are designed to protect water quality, but also help maintain adequate soil conditions on skid roads and landings (such as erosion control features). In addition, the proposed action would maintain adequate ground cover as crown material would be lopped and scattered and left on site.

There are several areas within the analysis area however, where based on office review and a review of Google Earth imagery, the soil type and location indicates that ground cover and the course woody debris component may be insufficient. The removal of blowdown trees could accelerate erosion and effect soil productivity in these areas if the course woody debris component is found to be insufficient. These areas include the Bunker Hill area, Ice House Fire Area, and several units north of Ice House Reservoir in the Bosworth Forest Health Project area. These areas will be reviewed prior to implementation of the proposed action, and if insufficient quantities of large woody debris are present within or adjacent to treatment area to meet soil objectives, additional large woody debris would be recruited from blowdown trees.

The proposed action is consistent with the Eldorado National Forest LRMP (1989), as amended by the Sierra Nevada Forest Plan Amendment (2004). The proposed action would have negligible effects to soil conditions and soil productivity.

Direct, Indirect, and Cumulative Effects of No Action (Alternative 2)

Under the no action alternative, there would be no change to the current soil conditions.

3.2.3 Wildlife (Terrestrial and Aquatic)

This section was summarized from the Biological Assessments/Biological Evaluations and Management Indicator Species Analysis for wildlife and aquatic species, which are hereby incorporated by reference (Ebert 2012, Ebert 2012b, Williams 2012).
Direct and Indirect Effects of the Proposed Action (Alternative 1)

Federally listed and Forest Service Sensitive Terrestrial Wildlife Species

The Biological Evaluation/Assessment for Terrestrial Wildlife Species (Ebert 2012) identified five Forest Service sensitive wildlife species known to occur or have suitable habitat within the project area, including California spotted owl, northern goshawk, Pacific fisher, American marten, and Sierra Nevada red fox. Each of these species depends upon late-seral coniferous forest habitat. There are no federally listed proposed, threatened, or endangered terrestrial wildlife species, or critical habitat that would be potentially affected by this project.

Disturbance during the nesting season can result in nest site failure or abandonment. Direct disturbance to nesting goshawks and California spotted owls would be minimized or avoided by the implementation of a LOP for project activities within ¼ mile of a known reproductive site. Project activities could result in temporary displacement of individual martens within the analysis area, but would not be expected to affect reproduction because the project activities are anticipated to occur outside of the core rearing season due to the snow and wet soil conditions that typically occur in spring and early summer. It is anticipated that most of the project activities would be implemented in the late summer/fall of 2012 (depending on weather), outside the breeding season. Some implementation may need to occur in the spring/summer months, however the duration of project activities within a stand of trees is expected to typically last from a few hours to several days. Therefore, the potential for disturbance, when people and mechanized equipment would be present is limited. Because of the short duration and scattered nature of project activities, the potential for disturbance to Forest Service sensitive species is low.

The project effects to habitat are limited to the large woody debris component of late-seral, forested habitat, and will not affect other forested habitat components such as tree size or species composition, canopy cover, or snags. The down log component that would be removed is limited to those trees that have an economic value; trees that have fallen within the analysis area within approximately the last several years (course woody debris decay class 1). These blowdown trees are scattered across the analysis area (as individual trees and in pockets), and it is estimated that approximately 10% of the analysis area will actually be affected (approximately 670 acres). Blowdown trees will not be removed in spotted owl and northern goshawk PACs, except within the few road prisms where blowdown trees are blocking NFS roads. Down logs will not be removed within riparian conservation areas, except on a case-by-case basis.

Desired conditions for these sensitive species as related to down logs is to retain snag and woody material levels that are higher than average, emphasizing retention of wood in the largest size classes and in decay classes 1, 2, and 3. The wind event resulted in an abundance of large down woody debris, some of which would be salvaged as a result of this project. There would be a reduction in down woody debris in decay class 1 within site specific locations. However, because of the scattered nature of the blowdown and the project being limited to past treatment areas, as well as no salvage occurring in RCAs and PACs (except
on a case-by-case basis), the effects of this project are expected to be negligible at a landscape level. In addition, because the project would not affect down logs in decay class 2-5, there is expected to be a sufficient level of down woody debris remaining within the treated areas. Down log inventories that were conducted within a small portion of past vegetation management treatment areas suggest that an average of 12 down logs/acre or an average of 8 tons/acre would be retained on site. If there are specific areas where quantities of large woody debris within or adjacent to a treatment area is insufficient to meet wildlife objectives, additional large woody debris would be recruited from blowdown trees.

**Federally Listed and Forest Service Sensitive Aquatic Species**

The Aquatic Species Biological Assessment and Evaluation (Williams 2012) identified one Forest Service sensitive aquatic species that has the potential to occur within the analysis area, which is the Sierra Nevada yellow-legged frog (*Rana sierra*). There have been no sightings documented within the analysis area. The nearest documented sighting, 2 adults in 1997, occurred within a mile of the project area in a meadow tributary to the Rubicon River. It was determined that with no salvage operations or piling and burning within Riparian Conservation Areas (RCAs), it is not likely that any direct effects or indirect effects would occur to this population of the Sierra Nevada yellow-legged frog, or any other individuals.

There are no federally listed proposed, threatened, or endangered aquatic species that have the potential to occur within the analysis area. There would be no affect to any proposed, threatened, endangered, or Forest Service sensitive aquatic species, or critical habitat, potentially occurring on the Eldorado National Forest.

**Cumulative Effects of the Proposed Action (Alternative 1)**

Because there would be no direct or indirect effects to federally listed proposed, threatened, endangered and no effect or negligible potential effects to Forest Service sensitive species, the proposed action is not expected to contribute toward significant adverse cumulative effects. Where there is the potential for sensitive species habitat to be directly or indirectly affected by the proposed action, it is limited to the slight reduction in the course woody debris component of late-seral habitat. It is anticipated however, that sufficient levels of course down woody debris that maintains suitable habitat would be retained within the analysis area. Therefore, this project would not contribute towards adverse cumulative effects when combined with past, present, and reasonable foreseeable future projects.

**Determination**

**Federally Listed Species**

It was determined that there would be no affect to Valley Elderberry longhorn beetle, California red-legged frog, Central Valley spring-run Chinook salmon, Central Valley steelhead, delta smelt, Lahontan cutthroat trout, and winter-run Chinook salmon from implementation of the proposed action.
Forest Service Sensitive Species
It was determined that the proposed action may affect individuals or habitat but is not likely to result in a trend toward Federal listing, or loss of species viability for California spotted owl, northern goshawk, Pacific fisher, and American marten.

It was determined that the proposed action would not affect the bald eagle, Peregrine falcon, great gray owl, willow flycatcher, California wolverine, Sierra Nevada red fox, pallid bat, Townsend’s big-eared bat, western red bat, foothill yellow-legged frog, hardhead, Sierra Nevada yellow-legged frog, northern leopard frog, western pond turtle, or Yosemite toad.

Direct, Indirect, and Cumulative Effects of the Proposed Action (Alternative 1)

Management Indicator Species
A Management Indicator Species (MIS) Report, which analyzed the project-level effects on MIS habitat was completed (Ebert 2012b) and is briefly summarized here. The MIS whose habitat would potentially be either directly or indirectly affected by the proposed action and were selected for project-level MIS analysis include: American marten, California spotted owl, and northern flying squirrel, each of which represents late-seral, closed canopy coniferous forest habitat. It was determined that the project-level impacts would not alter the existing trend in the habitat, nor will it lead to a change in the distribution of American marten, California spotted owl, and northern flying squirrel.

Direct, Indirect, and Cumulative Effects of No Action (Alternative 2)

Proposed, Threatened, Endangered, and Forest Service Sensitive Species (Terrestrial Wildlife and Aquatic Species)
Since no new management activities would occur, there would be no project-related disturbance to the sensitive wildlife species that potentially occupy habitat within the analysis area, and there would be no effect to the course woody debris component of the late-seral forested habitat. The No Action Alternative would retain the down logs that contribute toward structural diversity on the forest floor and provide denning sites for species such as the American marten and habitat for a variety of small mammals and prey species.

Under the no action alternative, it was determined that there would be no direct, indirect, or cumulative effects to federally listed proposed, threatened, endangered, or Forest Service sensitive species (Ebert 2012, Williams 2012).

Management Indicator Species
Under the no action alternative, there would be no effect to the course woody debris component of late seral, closed canopy coniferous forest. There would be no affect to MIS habitat (Ebert 2012b).
### 3.2.4 Plants and Noxious Weeds

The discussion below is summarized from the Biological Evaluation/Biological Assessment for Sensitive Plant Species and the Noxious Weed Risk Assessment for the Foehn It In Blowdown Salvage Project, which are hereby incorporated by reference (Durham 2012, Durham 2012b).

**Direct and Indirect Effects of the Proposed Action (Alternative 1)**

The plant species biological evaluation/biological assessment for the Foehn It In Blowdown Salvage Project identified three sensitive plant species known to occur in the analysis area (three-ranked hump-moss, Stebbins’ phacelia, and either Hutchison’s lewisia or Kellogg’s lewisia) and seventeen sensitive plant species for which potential habitat exists within the analysis area or are known to occur in the vicinity of the analysis area. There are no federally listed plant species that occur or have potential habitat within the analysis area.

Potential habitat for sensitive plants is grouped into two broad types: 1) Upland midslope habitat, and 2) meadows and riparian habitats. The risk of direct effects to documented and undiscovered sensitive plant species is mitigated by design elements that have been incorporated into the proposed action, such as equipment exclusion within lava caps, meadows, fens, and springs, as well as flagging for avoidance at known sensitive plant occurrences.

Indirect effects to sensitive plants can result from project activities that alter habitat, hydrology, sedimentation, soil compaction, and that lead to the introduction and spread of invasive plant species. Soil disturbances can provide opportunities for the introduction and proliferation of non-native invasive plant species. The magnitude of the impact from invasive plant species is difficult to predict since it is contingent on the introduction of invasive plant species into an area, an event which may or may not occur. Previous surveys within the analysis area identified six high priority invasive plant species (tall whitetop, spotted knapweed, yellow starthistle, scotch broom, rush skeleton weed, and barbed goatgrass), but they currently have a limited distribution within the project area, and there are few high priority invasive plant species documented within units or within the analysis area. Design elements to reduce the risk of introduction or spread of invasive plant species includes equipment cleaning and post-treatment monitoring. There is however, a low to moderate risk of spreading invasive plant species as a result of project activities.

**Cumulative Effects of the Proposed Action (Alternative 1)**

Stebbin’s phacelia and potentially yellow bur navarretia are the primary sensitive plant taxa for which there is the potential for the proposed action in combination with present and future foreseeable projects (MissFire Fuels Reduction Project; 2011 Pacific Hazard Tree Removal Project, and vegetation management activities associated with SMUD facilities and transmission line maintenance) to contribute towards cumulative effects.
Although it is not anticipated, it is assumed that effects to yellowbur navarretia could occur in the Peavine Ridge area. However, effects to populations are anticipated to be short-term because potentially affected populations would reseed after the disturbance. Indirect effects that could alter habitat to the extent that the populations would not persist are unlikely.

Effects to one occurrence of Stebbin’s phacelia are anticipated and effects to this occurrence also could be affected by present and future foreseeable projects. Effects are anticipated to be short-term because affected populations, like those for yellowbur navarretia would reseed after disturbance. Indirect effects that could alter habitat to the extent that the populations would not persist are unlikely.

The proposed action would not contribute towards significant adverse cumulative effects when combined with past, present, and reasonably foreseeable future projects.

**Determination**

**Federally Listed Species**

It was determined that the proposed action will not affect *Packera layneae*.

**Candidate Species**

It was determined that the proposed action will not affect *Pinus albicaulis*.

**Forest Service Sensitive Species**

It was determined that the proposed action may affect individuals or habitat but is not likely to result in a trend toward Federal listing, or loss of species viability for *Allium tribracteatum, Balsamorhiza macrolepis var. macrolepis, Botrychium ascendens, Botrychium crenulatum, Botrychium lunaria, Botrychium minganense, Botrychium montanum, Bruchia bolanderi, Calochortus clavatus var. avius, Cypripedium montanum, Epilobium howellii, Helodium blandowii, Lewisia kelloggii var. hutchisonii, Lewisia kelloggii var. kelloggii, Lewisia serrata, Meesia triquetra, Meesia uliginosa, Navarretia prolifera ssp. lutea, Peltigera hydrothyria, or Phacelia stebbinsii.*

It was determined that the proposed action will not affect the remaining nine sensitive plant taxa currently listed by the Regional Forester for the Eldorado National Forest.

**Direct, Indirect, and Cumulative Effects of No Action (Alternative 2)**

Under the no action alternative, it was determined that there would be no direct, indirect, or cumulative effects to federally listed proposed, threatened, endangered, or Forest Service sensitive plant species.

### 3.2.5 Cultural Resources

This project complies with Section 106 of the National Historic Preservation Act of 1966, as amended in accordance with provisions of the *Programmatic Agreement among the U.S.D.A. Forest Service, Pacific Southwest Region, the California State Historic Preservation Officer, the Advisory Council on Historic*
Preservation regarding the identification, evaluation, and treatment of historic properties managed by the National Forests of the Sierra Nevada, California (Sierra PA), including the interim protocols outlined in Stipulation XIV of the Sierra PA.

**Direct and Indirect of the Proposed Action (Alternative 1)**

The project area has been previously surveyed and numerous archaeological sites are known to be located within the Area of Potential Effect (APE). Of the total 81 sites within the APE, 15 are not considered at risk from project activities, primarily due to their prior evaluation and determination that they were not eligible for inclusion in the National Register of Historic Places, or due to their location near a unit, but on the opposite side of a substantially wide stream where no equipment will be operating, and no hazard trees will be felled. The remaining 66 sites are considered to be at risk, and require the application of the design criteria outlined in the proposed action including the specific site-by-site protective measures outlined in the heritage resource report for this project (R2012-05-03-50007 by Deal, 2012, with supplements). The heritage resource report is part of the project record and is incorporated by reference. By following these procedures, there will be no effect to historic properties / heritage resources from implementing the proposed action.

**Cumulative Effects of the Proposed Action (Alternative 1)**

The cumulative effects to cultural resources under the Proposed Action are low. Protection of cultural resources will be included in all foreseeable future projects initiated by the Forest Service. Future timber harvests on private lands could have a slight risk to archaeological sites located near shared boundaries, or for sites located along co-op roads to private lands. Coordination with the private land holders through review and input to THPs (timber harvest plans) will mitigate these potential future risks.

**Direct, Indirect, and Cumulative Effects of No Action (Alternative 2)**

There would be no new actions taken that would directly or indirectly effect cultural resources. Cumulatively, there would be an increased risk to cultural resources sites that have blowdown trees located on them through the increase in fuel loads, particularly if the down trees are creating an increased risk of damage to particular archaeological sites or features via heat-pulse down during future fire events (Ryan et. al. 2012).

**3.2.6 Socio-Economic Effects**

**Direct, Indirect, and Cumulative Effects of the Proposed Action (Alternative 1)**

It is estimated that the project would result in the harvest of approximately 1.0 mmbf of timber, which represents approximately 5% of the 20 mmbf of average timber volume sold each year on the Eldorado National Forest. Stumpage receipts resulting from the harvest of 1.0 mmbf would approximate $125,000.00 under the current timber market conditions.
Timber volume associated with the proposed action would help satisfy the demand by local mills for timber supplies. The proposed treatments would also provide employment to local business directly and indirectly associated with salvage activities and associated equipment use and maintenance. This alternative would generate approximately 12 direct and indirect permanent, full-time jobs related to the harvest of the blowdown trees. Funds received from the sale of timber products would also be available to fund the sale administration work and other future salvage sale opportunities should the need occur.

**Direct, Indirect, and Cumulative Effects of No Action (Alternative 2)**

No commercial removal of blowdown trees would occur, and there would be no direct or indirect full-time jobs generated related to the salvage harvest of blowdown trees.
Chapter 4: References

4.1 References Cited


Williams, Jann. 2012. Aquatic Species Biological Assessment and Biological Evaluation for the Foehn It In Blowdown Salvage Project. Eldorado National Forest, Pacific Southwest Region, Forest Service, U.S. Department of Agriculture.