Executive Summary

The No Action Alternative will have no effect on any Forest Service Sensitive species. For all other proposed alternatives (the action alternatives), there will be no effect on California wolverines, Shasta salamanders, California floaters, topaz jugas, montane peaclams, nugget pebblesnails, Shasta sideband snails, Wintu sideband snails, Shasta chaparral snails, Tehama chaparral snails, Pressley (Big Bar) Hesperian snails and Shasta Hesperian snails. There may be effects to individual Pacific fishers, American martens, pallid bats, western red bats, Townsend’s big eared bats, bald eagles, northern goshawks, willow flycatchers, western pond turtles, cascade frogs, foothill yellow-legged frogs and southern torrent salamanders, but potential effects are expected to be limited, and will not cause a trend toward listing for any of these species.
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I. INTRODUCTION

The USDA Forest Service defines sensitive species as those plant and animal species identified by a Regional Forester for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density, or significant current or predicted downward trends in habitat capability that would reduce the distribution of the species. Sensitive species are managed under the authority of the National Forest Management Act (PL 94-588) and the USDA Forest Service Manual Direction (FSM 2600).

The purpose of this biological evaluation is to assess the potential effects of the proposed Stafford Fire Salvage and Restoration Project in sufficient detail to determine if it may affect sensitive wildlife species and cause a trend toward listing under the federal Endangered Species Act. The Sensitive Species List for the Pacific Southwest Region was updated in October, 2007, and the sensitive wildlife species evaluated in this document are displayed in Table 1 (page 4). This analysis is based on information collected from National Forest databases and the California Natural Diversity Database, as well as information collected during numerous site visits to the project area.

Seven sensitive wildlife species are also designated as Survey and Manage species (Table 1). They are addressed in this document using the analysis criteria that apply to Forest Service Sensitive species. They are also addressed in the Wildlife Survey and Manage Report for this project (see project record), using the analysis criteria that apply to Survey and Manage species.

The Shasta-Trinity National Forest Land and Resource Management Plan (Forest Plan) provides additional protection to sensitive species in the form of management goals to maintain or increase existing viable populations of sensitive species (pp. 3-26, 4-5). It also includes Standards and Guidelines, management direction pertaining to individual species of wildlife, and specific management direction for each Management Area on the Forest. The Forest Plan provisions pertinent to this proposed action are listed in Appendix 1 of this document.
Table 1. Sensitive Species list - USDA Forest Service Pacific Southwest Region

<table>
<thead>
<tr>
<th>Common name</th>
<th>Scientific name</th>
<th>Also a Survey and Manage species (Y/N)?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAMMALS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pacific fisher</td>
<td>Martes pennanti pacific</td>
<td>N</td>
</tr>
<tr>
<td>American marten</td>
<td>Martes americana</td>
<td>N</td>
</tr>
<tr>
<td>California wolverine</td>
<td>Gulo gulo luteus</td>
<td>N</td>
</tr>
<tr>
<td>Pallid bat</td>
<td>Antrozous pallidus</td>
<td>N</td>
</tr>
<tr>
<td>Townsend’s big-eared bat</td>
<td>Corynorhinus townsendii</td>
<td>N</td>
</tr>
<tr>
<td>Western red bat</td>
<td>Lasiurus blossevillii</td>
<td>N</td>
</tr>
<tr>
<td><strong>BIRDS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bald eagle</td>
<td>Haliaeetus leucocephalus</td>
<td>N</td>
</tr>
<tr>
<td>Northern goshawk</td>
<td>Accipiter gentilis</td>
<td>N</td>
</tr>
<tr>
<td>Willow flycatcher</td>
<td>Empidonax traillii</td>
<td>N</td>
</tr>
<tr>
<td><strong>REPTILES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Western pond turtle</td>
<td>Clemmys marmorata marmorata</td>
<td>N</td>
</tr>
<tr>
<td><strong>AMPHIBIANS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cascade frog</td>
<td>Rana cascadae</td>
<td>N</td>
</tr>
<tr>
<td>Foothill yellow-legged frog</td>
<td>Rana boylii</td>
<td>N</td>
</tr>
<tr>
<td>Southern torrent salamander</td>
<td>Rhyacotriton variegtus</td>
<td>N</td>
</tr>
<tr>
<td>Shasta salamander</td>
<td>Hydromantes shastae</td>
<td>Y</td>
</tr>
<tr>
<td><strong>AQUATIC AND TERRESTRIAL INVERTEBRATES</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>California floater</td>
<td>Anodonta californiensis</td>
<td>N</td>
</tr>
<tr>
<td>Topaz juga</td>
<td>Juga (Calibasis)acutifilosa</td>
<td>N</td>
</tr>
<tr>
<td>Montane peaclam</td>
<td>Pisidium (Cyclocalyx) ultramontanum</td>
<td>N</td>
</tr>
<tr>
<td>Nugget pebblesnail</td>
<td>Fluminicola seminalis</td>
<td>Y</td>
</tr>
<tr>
<td>Shasta sideband snail</td>
<td>Monadenia troglodytes troglodytes</td>
<td>Y</td>
</tr>
<tr>
<td>Wintu sideband snail</td>
<td>Monadenia troglodytes wintu</td>
<td>Y</td>
</tr>
<tr>
<td>Shasta chaparral snail</td>
<td>Trilobopsis roperi</td>
<td>Y</td>
</tr>
<tr>
<td>Tehama chaparral snail</td>
<td>Trilobopsis tehama</td>
<td>Y</td>
</tr>
<tr>
<td>Pressley (Big Bar) Hesperian snail</td>
<td>Vespericola pressleyi</td>
<td>Y</td>
</tr>
<tr>
<td>Shasta Hesperian snail</td>
<td>Vespericola Shasta</td>
<td>Y</td>
</tr>
</tbody>
</table>
II. PROPOSED ACTION

Proposed activities for all alternatives are briefly described below. A more detailed description and list of project design features for each alternative is included in the project Environmental Assessment.

**Alternative 1: Proposed Action**

The Proposed Action will treat 1,775 acres within the Stafford Fire area through a combination of treatment methods to meet the Purpose and Need. Treatments will be excluded from the Wells Inventoried Road Area. Salvage treatments will be excluded from Riparian Reserves, but hazardous fuels reduction to protection infrastructure and planting will occur within Riparian Reserves. All treatments will retain all pine trees over 20 inches in diameter except for hazard trees.

An Emergency Situation Determination (ESD) was requested on April 8, 2013 for the implementation of the Proposed Action; due to the safety risk from hazard trees, risk to human health and safety related fire hazard, and the substantial loss of economic value if implementation were delayed.

**Table 4: Proposed Action Treatments**

<table>
<thead>
<tr>
<th>Treatment Type</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salvage and Fuels Reduction followed by Planting Treatments</td>
<td>780</td>
</tr>
<tr>
<td>Plantation Treatments</td>
<td>129</td>
</tr>
<tr>
<td>Restoration Treatments</td>
<td>711</td>
</tr>
<tr>
<td>Defensible Fuel Profile Management Zones</td>
<td>155</td>
</tr>
<tr>
<td><strong>Treatments Total</strong></td>
<td><strong>1,775</strong></td>
</tr>
<tr>
<td>Non-Treatment Areas</td>
<td></td>
</tr>
<tr>
<td>Wells IRA</td>
<td>596</td>
</tr>
<tr>
<td>No/low burn severity</td>
<td>1,800</td>
</tr>
<tr>
<td>Riparian Reserves</td>
<td></td>
</tr>
<tr>
<td><strong>Project Area Total</strong></td>
<td><strong>4,462</strong></td>
</tr>
</tbody>
</table>

**Salvage and Fuels Reduction followed by Planting Treatments**

The Proposed Action includes an estimated 780 acres of salvage removal of dead and dying trees. The definition of “dying” is the 70% mortality threshold using the Marking Guidelines for Fire-Injured Trees in California (Smith and Cluck 2011). The salvage treatments will be used to reduce fuels, provide economic return and employment opportunities, and to prepare sites for planting. Proposed salvage actions will be implemented by helicopter yarding on an estimated 167 acres, cable yarding on an estimated 464 acres, and mechanical skidding on an estimated 149 acres. These salvage activities will begin during the current year and possibly continue into 2014.

As detailed in the Silviculture Report and seen on the associated map, the salvage treatments will utilize National Forest System (NFS) roads 31N13, 31N17, 31N17A, 31N17B, 31N23, 31N25, 31N51, 31N51A, and 31N51B for implementation of identified units for each treatment type. NFS roads 31N13, 31N17, 31N19, 31N42, 31N51, and 31N51A will be utilized to haul timber and biomass outside of the project area. The primary haul route out of the project area will be
NFS roads 31N51A and 31N51 to NFS road 31N42, NFS road 31N19, and then State Highway 3. The other haul routes out of the project area will be NFS road 31N17 to Morgan Hill Road and NFS road 31N13 to Wildwood Road. All roads will be maintained to meet their management objective with the exception of operational or resource protection needs.

Up to an estimated 12 temporary landings would be constructed, each measuring roughly 100 x 100 feet to 100 x 200 feet, and an additional 72 existing landings would be reused. Of these landings, three helicopter landings are proposed for the project area. Helicopter landings tend to be larger than landings utilized for ground-based or cable yarding systems. Landings are critical for handling and storing the substantial amount of woody material that would be produced by the removal of large numbers of relatively small diameter trees and dead fuel within project units. No green retention trees greater than 24 inches diameter at breast height (DBH) would be cut to create landings. The landings would be decompacted to facilitate water infiltration and natural revegetation following the proposed thinning and fuels reduction. New landings will not be constructed within Riparian Reserves.

There will be no new system road construction, and no green retention trees over 24 inches DBH will be removed due to road-related project activities. An estimated 1.55 miles of temporary road (1.01 miles in areas where lands have been utilized for skid trails in the past and 0.54 miles with no previous activity is evident) will be constructed within project units to aid in tree removal, and ripped and closed after completion of project activities (temporary road will be built, used, and removed in the same dry season).

Within the areas identified for salvage (780 acres), the fuels will be reduced by lop and scattering and jackpot burning treatments on an estimated 167 acres, and by yarding un-merchantable material (YUM), leaving tops attached (LTA), lopping and scattering, hand piling, burning piles, jackpot burning, and chipping on an estimated 613 acres. Dead and dying trees will be cut and removed throughout the area to create a mosaic of fuel loading that does not exceed 10 tons per acre. The requirement for identifying dying trees is a 70% mortality threshold using the Marking Guidelines for Fire-Injured Trees in California. The desired condition for this area is a stand with a relatively open understory. Canopy base heights\(^1\) will be eight feet off the forest floor. All hazard trees exceeding resource needs will be felled. Coarse woody debris will be reduced to 10 tons per acre.

After salvage and fuel reduction actions, these units will be planted with a mix of conifer seedlings to begin the restoration process. The mix of species planted will be representative of the stand that existed on the site prior to the Stafford Fire. Units will be planted with 60 to 100 clusters per acre. A cluster is a grouping of 3 to 4 trees planted closely together and spaced 21 to 27 feet from the adjacent cluster. The goal of cluster planting is to develop between 60 and 80 large trees or small groups of trees per acre. The number of clusters will be dependent on the site class, and more clusters will be planted on the more productive sites. To help ensure stand establishment, conifer protection measures (seedling protectors) will be applied to minimize deer and rabbit browsing and manual release to help ensure acceptable levels of seedling survival and growth. These activities are anticipated to occur within the next 5 years.

**Plantation**

\(^1\) Canopy base heights refers to the typical lower level of branches defining the lower `boundary' of the tree canopy.
Within existing plantations affected by the fire (and outside of salvage areas), crews will implement reforestation with conifer species to improve stocking (125 to 200 trees per acre) through site preparation, planting, protection and release on an estimated 129 acres. Site preparation includes the removal of dead vegetation and resprouting shrubs within plantations. This material will be strategically cut, piled and burned to prepare the site for reforestation activities. Some dead vegetation may be left standing on harsh sites to create shade and improve survival of seedlings. Seedling protectors will be utilized to protect seedlings from browsing. Competing vegetation will be managed while trees are becoming established (1 to 3 years after planting). These activities will occur within the next 5 years.

**Restoration**

Within natural stands that burned with high and moderate severity (and not proposed for salvage harvest), 711 acres will be planted. No other site preparation will occur in these areas. Reforestation will occur in large deforested patches where the seed source has been limited by the fire. A mix of conifer species (i.e. Douglas-fir, sugar pine, ponderosa pine) will be planted in 60 to 100 clusters per acre. The number of clusters will be dependent on the site class - more clusters will be planted on the more productive sites. Seedling protectors will be utilized to protect planted trees from browsing. Competing vegetation will be managed while trees are becoming established (1 to 3 years after planting).

**Defensible Fuel Profile Management Zones**

In the Wildland Urban Interface defense zone, Defensible Fuel Profile Management Zones (DFPMZ’s, or fuelbreaks) will be created within an estimated 600 feet of identified private lands and improvements on National Forest System lands, and within an estimated 300 feet (150 feet on each side) of Forest Service system roads 31N51 and 31N17. Activities in DFPMZ’s include treatments already described in the “Salvage and Fuels Reduction followed by Planting Treatments” section above plus felling snags, hand piling fuels and burning piles.

An estimated 67 acres of DFPMZ’s are adjacent to private lands and improvements, an estimated 25 acres are along road 31N51, and an estimated 62 acres are along road 31N17; for an estimated total of 155 acres.

To meet the need of reducing fuels, dead or dying fuels exceeding 10 tons/acre within DFPMZ’s will be treated by one or a combination of the following treatments: scattering, piling or burning. Dead or dying hazard trees within DFPMZ’s that pose a risk of falling onto or rolling into private property will be felled.

Reforestation will occur in large deforested patches where the seed source has been limited by the fire. A mix of conifer species (i.e. Douglas-fir, sugar pine, ponderosa pine) will be planted in 40 to 60 clusters per acre (27 to 33 feet between adjacent clusters). Seedling protectors will be utilized to protect planted trees from browsing. Competing vegetation will be managed while trees are becoming established (1 to 3 years after planting).

**Maintenance schedule and treatments**

The treatments will be maintained over time to retain the fuels reduction benefits, improve establishment of planted trees, and guide the development of the forest toward desired
conditions. The maintenance treatments will occur over the same areas where initial treatments are proposed. The initial treatments will be lumped into five areas for maintenance:

- A private boundary fuelbreak consisting of a 600 foot buffer bordering private property,
- A fuelbreak 150 feet on either side of NFS road 31N17,
- A fuelbreak 150 feet on either side of NFS road 31N51,
- Restoration areas, and
- Plantation areas.

**Table 5: Proposed Action Maintenance Treatments**

<table>
<thead>
<tr>
<th>Maintenance Treatment Type</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>600 foot Northern Private Boundary Shaded Fuelbreak</td>
<td>173</td>
</tr>
<tr>
<td>300 foot 31N17 Shaded Fuelbreak</td>
<td>74</td>
</tr>
<tr>
<td>300 foot 31N51 Fuelbreak</td>
<td>83</td>
</tr>
<tr>
<td>Restoration Treatments</td>
<td>1,316</td>
</tr>
<tr>
<td>Plantation Treatments</td>
<td>129</td>
</tr>
<tr>
<td><strong>Maintenance Treatments Total</strong></td>
<td><strong>1,775</strong></td>
</tr>
<tr>
<td>Non-Treatment Areas</td>
<td></td>
</tr>
<tr>
<td>Wells IRA</td>
<td>596</td>
</tr>
<tr>
<td>No/low burn severity</td>
<td>1,800</td>
</tr>
<tr>
<td>Riparian Reserves</td>
<td></td>
</tr>
<tr>
<td><strong>Project Area Total</strong></td>
<td><strong>4,462</strong></td>
</tr>
</tbody>
</table>

The private boundary DFPMZ (shaded fuelbreak) is approximately 173 acres buffering the northern private property of the Stafford fire area. This area combines the DFPMZ established along the northern boundary and the salvage/fuels/planting treatments within the 600 foot buffer. Treatments will slow the potential spread of wildfires onto private or public lands. The desired condition for this area will be a stand with an open understory. Canopy base heights will be eight feet off the forest floor. All hazard trees will be felled. Trees less than eight inches diameter breast height (DBH) will be thinned to a 20 foot spacing (110 trees per acre). Coarse woody debris will be reduced to 10 tons an acre.

The NFS road 31N17 shaded fuelbreak is approximately 74 acres. Treatments will allow safe access to and from a fire by firefighters. The desired condition for this area is a stand with an open understory. Canopy base heights will be eight feet off the forest floor. All hazard trees will be felled. Trees less than eight inches DBH will be thinned to a 20 foot spacing (110 trees per acre). Coarse woody debris will be reduced to 10 tons an acre.

Characteristics of shaded fuelbreaks are single story canopy with no ladder fuels to initiate crown fire and low fuel loading less than ten tons an acre to keep flame lengths lower than 4 feet and less than 100 BTU/Ft/second. Within these areas portions of the canopy are still green. The Stafford fire in these areas killed smaller trees and brush and occasionally killed pockets of larger trees. The initial treatment will remove the hazard trees and ground fuels to meet the fire behavior objectives stated above. These units will need to be maintained over time. Fire ecologists recommended that these units be monitored every 10-15 years to determine if they still meet the fire behavior objectives. When the units begin to exceed the fire behavior objectives the following treatments will need to be implemented either alone or in combination: prune
canopy base height to 8 feet in all trees, reduce ladder fuels 8 inches DBH or less to 110-170 trees per acre, and hand pile and burn.

The NFS road 31N51 fuelbreak is approximately 83 acres and creates a strategic fuelbreak on a north south running ridge that runs parallel to Wildwood Road. Treatments will allow firefighters an area to contain wildfires running from the east towards the community of Hayfork or wildfires running from the west towards the communities in Summit Creek and along Wildwood Road. The desired condition for this area will be a stand with an open understory and an overstory that cannot support crown fire. Canopy base heights will be eight feet off the forest floor. Canopy cover will be 50% or less. All hazard trees will be felled. Trees less than eight inches DBH will be thinned to a 20 foot spacing (110 trees per acre). Coarse woody debris will be reduced to 10 tons an acre.

Fuelbreaks are characterized by open canopy, no ladder fuels and little to no surface fuels. The majority of this area has little to no forest vegetation as the majority of all vegetation was killed by the fire. This area will need to be maintained over time. Fire ecologists recommend that this area be monitored every 3-7 years to determine if it still meets the fire behavior objectives. When the area begins to exceed the fire behavior objectives the following treatments will need to be implemented either alone or in combination: cut brush, reduce ladder fuels 8 inches DBH or less to 70-110 trees per acre, machine/hand pile, and burn.

Within restoration and salvage/fuels/planting treatments the primary goal of maintenance will be the restoration of forest cover. A release for establishment may take place 1 to 3 years after planting and will control competing vegetation within a five-foot circle around planted trees. A release for growth will occur approximately 10 years after planting and will thin conifers if stand density was higher than expected (1 to 2 trees per cluster surviving, 40 to 100 clusters per acre) due to natural regeneration or high survival of planted trees within clusters.

Within plantations, approximately 129 acres, the primary goal of maintenance will be the establishment and growth of planted trees. A release for establishment may take place 1 to 3 years after planting and will control competing vegetation within a five-foot circle around planted trees. A release for growth will occur approximately 10 years after planting and will thin conifers if stand density was higher than expected (125 to 200 trees to the acre) due to natural regeneration or high survival of planted trees.

Alternative 2: No Action

To meet the intent of 40 CFR 1502.14(d) a No Action alternative will be developed. Based on Forest Service policy direction, this is interpreted to mean that no new action will occur from this alternative. Any fire or safety impacts from the current condition would not be mitigated at this time.

Alternative 3: Community Protection Alternative

The Community Protection Alternative is designed to strategically treat fuels in key areas of the Stafford fire area to afford firefighters more options in suppressing a wildfire. A smaller percentage of the Stafford fire area will be treated in this alternative than the proposed action but
some treatments may be more intensive. This treatment will meet STNF Forest Plan standards and guides.

Alternative 3 consists of three Defensible Fuel Profile Management Zones (DFPMZ) totaling 503 acres. This alternative has three benefits: ingress/egress route on NFS road 31N17, increase fire suppression tactics and safety, and create a strategic fuelbreak. In all units all hazard trees will be felled. The desired condition is to lower flame lengths to less than 4 feet and heat per unit less than 100/BTU’s/second. This will allow firefighters to attack the head or flank of the fire with hand tools. Hand lines should contain fires (RMRS-GTR-253).

Unit one is a 108 acre unit buffering the private property on the north side of the Stafford fire area. Treatments in this unit will include one or a combination of the following: fell hazard trees, lop and scatter, and handpile and burn. These treatments will slow the potential spread of wildfire traveling onto private or public lands. The desired condition for this unit will be a stand with an open understory. Canopy base heights will be eight feet off the forest floor. Trees less than eight inch DBH will be thinned to a 20 foot spacing (110 trees per acre). Coarse woody debris will be reduced to 10 tons an acre.

Unit two is a 68 acre unit that is a 150 foot buffer on both sides of NFS road 31N17. Treatments in this unit will include one or a combination of the following: fell hazard trees, lop and scatter, and handpile and burn. These treatments will allow safe access to and from a fire by firefighters. The desired condition for this unit will be a stand with an open understory. Canopy base heights will be eight feet off the forest floor. Trees less than eight inch DBH will be thinned to a 20 foot spacing (110 trees per acre). Coarse woody debris will be reduced to 10 tons an acre.

Unit three establishes two zones: zone one treats 150 feet on each side along 31N51 over an estimated 84 acres, and zone two treats between 31N51 and 31N51A over an estimated 243 acres. These two zones create a strategic fuelbreak on a north south running ridge that runs parallel to Wildwood Road. Treatments in this unit will include one or a combination of the following: fell hazard trees, lop and scatter, hand/machine pile, burn, and plant conifer trees. These treatments will allow suppression resources an area to contain wildfires running from the east towards the community of Hayfork or wildfires running from the west towards the communities in Summit Creek and along Wildwood Road. The desired condition for these units will be a stand with an open understory and an overstory that cannot support crown fire. Canopy base heights will be eight feet off the forest floor. Canopy cover will be 50% or less. Trees less than eight inch DBH will be thinned to a 20 foot spacing (110 trees per acre). Coarse woody debris will be reduced to 10 tons an acre.

Unit four is a 14 acre unit that treats fuels along Wildwood Road between Hayfork Creek to the west and Wells IRA to the east. Treatments in this unit will include one or a combination of the following: fell hazard trees, lop and scatter, handpile and burn including jackpot burning, or firewood. These treatments will allow safe travel by public and firefighters traveling along Wildwood Road. These treatments will also allow suppression resources more options in suppressing fires. The desired condition for this unit will be a stand with an open understory. Canopy base heights will be eight feet off the forest floor. Trees less than eight inch DBH will be thinned to a 20 foot spacing (110 trees per acre). Coarse woody debris will be reduced to 10 tons an acre.
NFS roads 31N17, 31N51, and 31N51A will be utilized for implementation of this Alternative. Proposed Action Design Features will be used for this alternative.

**Maintenance schedule and treatments**
Units one, two, and four are planned to be shaded fuelbreaks. Characteristics of shaded fuelbreaks are single story canopy with no ladder fuels to initiate crown fire and low fuel loading less than ten tons an acre to keep flame lengths lower than 4 feet and less than 100 BTU/Ft/second. Within these units portions of the canopy are still green. The Stafford fire in these units killed smaller trees and brush and occasionally killed pockets of larger trees. The initial treatment will remove the hazard trees and ground fuels to meet the fire behavior objectives stated above. These units will need to be maintained over time. Fire ecologists recommend that these units be monitored every 10-15 years to determine if they still meet the fire behavior objectives. When the units begin to exceed the fire behavior objectives the following treatments will need to be implemented either alone or in combination: prune canopy base height to 8 feet in all trees, reduce ladder fuels 8 inches DBH or less to 110-170 trees per acre, hand pile and burn.

The initial treatments in unit three will meet the fire behavior objectives stated above. The two zones will combine to be a fuelbreak. Fuelbreaks are characterized by open canopy, no ladder fuels and little to no surface fuels. The majority of this unit will have little to no forest vegetation as the majority of vegetation was killed by the fire. This unit will need to be maintained over time. It is recommended that this unit be monitored every 3-7 years to determine if it still meets the fire behavior objectives. When the unit begins to exceed the fire behavior objectives the following treatments (zone one will use both machine and hand treatments, zone two will use only hand treatments) will need to be implemented either alone or in combination: cut brush, reduce ladder fuels 8 inches DBH or less to 12-27 trees per acre, machine/hand pile, and burn.

**Alternative 4: Timber Salvage Alternative**
The Timber Salvage Alternative will harvest approximately 613 acres of salvage removal of dead and dying trees. The definition of “dying” is the 70% mortality threshold using the Marking Guidelines for Fire-Injured Trees in California (Smith and Cluck 2011). The salvage treatments will be used to provide economic return and employment opportunities and reduce fuels. Salvage treatments will be implemented by cable yarding on an estimated 464 acres and mechanical skidding on an estimated 149 acres. These salvage activities will begin during the current year and possibly continue into 2014.

Alternative 4 was developed to display the total economic value that is available from removing the salvageable fire killed timber on in the Stafford fire area. Alternative 4 would not require removal of any fire killed timber where the cost of the removal would exceed the value of the salvaged logs. The total value of the salvaged material would represent the public's asset value of the fire killed timber and would be returned to the Federal Treasury. While no post salvage fuels treatments or reforestation effort is proposed in Alternative 4, the implementation of the project will reduce the fire killed fuel loading by an average of 47 tons per acre on the acres
treated. All hazard trees will be felled and removed. No secondary fuels work will be done with this alternative. Limbs and tops from cut hazard trees will be left onsite.

III. SPECIES EVALUATIONS

This section evaluates the potential effects of all proposed action alternatives. Alternative 2, the No Action Alternative, will have no effect on any Forest Service sensitive species. No restoration work will take place, no reduction in fire hazard will be accomplished, and no acceleration of the growth of forested habitats will be realized. The effects of Alternative 2 will not be addressed further in this document.

Pacific fisher (*Martes pennanti pacific*)

Species account: Pacific fishers are most closely associated with late successional and old growth conifer forests throughout their range. Numerous studies have documented that resting/denning fishers in the western United States favor forest stands with large trees, large snags, coarse woody-debris, dense canopy closure, multiple-canopy layers, large diameter hardwoods, and steep slopes near water (Powell 1993, Powell and Zielinski 1994, Freel 1991; Seglund 1995; Dark 1997; Truex *et al.* 1998; Self and Kerns 2001; Aubry *et al.* 2002; Carroll *et al.* 1999; Mazzoni 2002; Yeager 2005, Zielinski *et al.* 2004b). California populations have displayed a preference for riparian areas. These habitats provide concentrations of broken-top trees, snags and coarse woody debris, which are useful to fishers as rest sites. Self and Kerns (2001) found that fisher selectively used rest sites within 500 feet of water. Resting and denning trees must be large enough to bear the type of stresses that initiate cavities, and the type of ecological processes (e.g., decay, woodpecker activity) that form cavities of sufficient size to be useful to fishers (Zielinski *et al.* 2004b). Yeager (2005) also found that on the Shasta-Trinity National Forest (STNF) fisher favored resting locations away from roads and human disturbance. Pacific fishers have large home ranges, and are opportunistic predators with a diverse diet that includes birds, squirrels, mice, shrews, voles, reptiles, insects, carrion, vegetation and fruit, and they forage in a wide variety of habitats (seral stages) associated with this diverse prey base (Powell 1993; Martin 1994; Zielinski *et al.* 1999).

The West Coast Distinct Population Segment (DPS; in California, Oregon, and Washington) of the Pacific fisher was designated as a Candidate DPS in 2004 by the US Fish and Wildlife Service (FWS). They concluded that loss of the species from the west coast range would represent (1) a significant gap in the species range, (2) the loss of genetic differences from fisher in the central and eastern United States, and (3) the loss of the species from a unique ecological setting.

According to the FWS Notice of Candidate Review, activities that may fragment or remove key elements of fisher habitat include forest vegetation management practices such as timber harvest and fuels reduction treatments. Major threats of direct injury/mortality include vehicle collisions, predation and disease. The FWS considered the magnitude of threats as high and resulting in a negative impact on fisher distribution and abundance. However, they
considered threats to be non-imminent, with the greatest long-term risks to be the isolation of small populations of fishers.

Pacific fishers have been observed across the South Fork Management Unit, including two recorded observations within the project area. They are assumed to occupy suitable habitats within and adjacent to the project area.

Direct effects: Project activities may cause disturbance to fishers using surviving suitable habitats in or near treatment units. DFPMZ and Restoration units include a limited amount of surviving suitable habitat. There is no suitable denning habitat within salvage treatment units, but fishers using habitat near salvage units will potentially be subject to noise disturbance from project activities. Increased road traffic will increase the possibility of vehicle-caused mortality, and individual fishers may leave the area temporarily during project implementation due to the presence of humans, equipment and increased noise. A Limited Operation Period (February 1 through July 10) has been incorporated into the project design to avoid disturbance to northern spotted owls during their breeding season. This will apply to all activities producing loud and continuous noise or smoke that would potentially disturb spotted owls. This protection measure will further decrease potential effects to Pacific fishers. Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

Indirect effects: DFPMZ treatments may result in habitat modification through removal of scattered hazard trees, some of which would otherwise be potentially useful to fishers as resting or denning sites as snags now and as logs in the future. Indirect effects of salvage treatments are expected to be somewhat limited. Although data are somewhat contradictory, salvage logging may affect the value of “edge” habitats for interior forest species to some degree (Hanson and Stuart 2005). Russell et al. (2006) estimated the half-life of fire-killed snags in Idaho to be 12-13 years for Douglas-fir and 7-8 years for ponderosa pine where salvage logging occurred, and 15-16 years for Douglas-fir and 9-10 years for ponderosa pine where salvage logging did not occur. Re-growth of forest habitat suitable for fisher reproduction in the project area is estimated to take 80-100 years (Bryant and Schaefer, pers. comm.), and in that time, the majority of snags currently in these units would likely have fallen and decayed to some degree regardless of salvage harvest operations, limiting their usefulness to this species. Project design features also include retention of existing large, downed logs and standing, pre-existing snags, as well as retention of snags within salvage treatment areas, which will further limit effects to Pacific fishers and other species utilizing snags and large woody debris, and snag density is expected to remain high after project implementation (Table 3). The removal of small trees during fuels reduction treatments is not expected to reduce habitat quality for this species. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.
Determination: It is my determination that all proposed Action alternatives may affect individual Pacific fishers, but the potential effects to populations of this species are limited and will not cause a trend toward listing.

Table 3. Snags and live trees (≥15” diameter) following Stafford fire.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Pre-implementation</th>
<th>Post-implementation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Live trees per acre</td>
<td>Dead trees per acre</td>
</tr>
<tr>
<td>Live trees per acre</td>
<td>8.2</td>
<td>22.0</td>
</tr>
<tr>
<td>Dead trees per acre</td>
<td>22.0</td>
<td>16.8</td>
</tr>
<tr>
<td>Salvage/Fuels/Planting units</td>
<td>&lt;1</td>
<td>36.0</td>
</tr>
<tr>
<td>Riparian Reserves</td>
<td>11.5</td>
<td>18.2</td>
</tr>
<tr>
<td>Plantation Units</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Restoration Units</td>
<td>22.3</td>
<td>7.6</td>
</tr>
<tr>
<td>DFPMZ Units</td>
<td>13.7</td>
<td>19.0</td>
</tr>
</tbody>
</table>

American marten (*Martes americana*)

Species account: On the STNF this species is associated with higher elevation (>4,500 feet) late-successional red-fir stands (Buskirk and Powell 1994; Freel 1991), and to a lesser extent with lower elevation conifer forest habitats similar to fisher habitat. Marten stand-level habitat characteristics are the same as those discussed previously for fisher resting/denning habitat. In most studies of habitat use, martens were found to prefer late-successional conifer forest habitats, especially those with complex physical structure near the ground (Buskirk and Powell 1994). This structure provides protection from predators, access to the subnivean (below snow level) spaces where most prey are captured in winter, and protective thermal microenvironments (Buskirk and Powell 1994). They are most abundant in forested areas adjacent to meadows or riparian corridors, but use areas comprised of closed canopy forests to move between foraging areas (Powell and Zielinski 1994, Ruggiero et al. 1994). Martens generally avoid habitats that lack overhead cover, and tend to avoid crossing large openings (>300 yards), especially in winter.

The presence of fishers often excludes martens from the area (Buskirk and Powell 1994; Krohn et al. 1997; Small et al. 2003; Ruggiero et al. 2007). Habitat stratification appears to occur between these species, with marten occupying the higher elevations that support greater snow loads throughout winter months. Extensive survey work on the STNF using techniques suitable for detecting martens detected numerous fishers but no martens (Yeager 2005; Zielinski et al. 2004b; Seglund 1995).

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2 Portions of salvage units not including mapped “skip” areas where dead and dying trees will be left on-site for operational or resource protection reasons.
Wildlife databases show no detections of American martens in or near the project area. The nearest recorded observation was approximately 18 miles to the northeast, in the Trinity Alps Wilderness Area. Maximum elevation in the project area is approximately 4,700 feet. As a result, available habitat in the project area is likely to be absent or very limited, and martens are likely to be absent from the project area.

Direct effects: If martens do occur in the project area, project activities may cause disturbance to martens using surviving suitable habitats in or near treatment units. DFPMZ and Restoration units may include a limited amount of surviving suitable habitat. There is no suitable habitat within salvage treatment units, but martens using habitat near salvage units will potentially be subject to noise disturbance from project activities. Increased road traffic will increase the possibility of vehicle-caused mortality, and individual martens may leave the area temporarily during project implementation due to the presence of humans, equipment and increased noise. A Limited Operation Period (February 1 through July 10) has been incorporated into the project design to avoid disturbance to northern spotted owls during their breeding season. This would apply to all activities producing loud and continuous noise or smoke that would potentially disturb spotted owls. This protection measure will further decrease potential effects to martens. Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

Indirect effects: Large woody debris, especially in the form of large-diameter logs, is an important feature of marten habitat. Logs are useful to martens as resting sites and for facilitating access to subnivean areas. Removing snags and/or down logs may thus indirectly affect martens by reducing habitat quality. Hazard tree treatments may result in limited habitat modification through removal of scattered standing snags, some of which would otherwise be potentially useful to martens as resting or denning sites now and as logs in the future. Indirect effects of salvage treatments are expected to be somewhat limited. Although data are somewhat contradictory, salvage logging may affect the value of “edge” habitats for interior forest species to some degree (Hanson and Stuart 2005). Russell et al. (2006) estimated the half-life of fire-killed snags in Idaho to be 12-13 years for Douglas-fir and 7-8 years for ponderosa pine where salvage logging occurred, and 15-16 years for Douglas-fir and 9-10 years for ponderosa pine where salvage logging did not occur. Re-growth of forest habitat suitable for martens in the project area is estimated to take 80-100 years (Bryant and Schaefer, pers. comm.), and in that time the majority of snags currently in these units would likely have fallen and decayed to some degree regardless of salvage harvest operations, limiting their usefulness to this species. Project design features also include retention of existing large, downed logs and standing, pre-existing snags, as well as retention of snags within salvage treatment units, which will further limit effects to American martens and other species utilizing snags and large woody debris, and snag density is expected to remain high after project implementation (Table 3). The removal of small trees during fuels reduction treatments is not expected to reduce habitat quality for this species. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action.
Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Determination:** It is my determination that all proposed Action alternatives may affect individual American martens, but the potential effects to populations are very limited, and will not cause a trend toward listing.

**California wolverine** (*Gulo gulo luteus*)

**Species account:** Coniferous forests are the primary habitats of wolverines, but they also make significant use of alpine habitats (Banci 1994). In north coastal areas, wolverines were historically observed in Douglas-fir and mixed conifer habitats, and likely also used red fir, wet meadow and montane riparian habitats. They are opportunistic feeders that primarily scavenge carrion, but also eat fruit and insects and prey on small animals. They are generally described as opportunistic omnivores in summer and primarily scavengers in winter (USDI Fish and Wildlife Service 2003, Ruggiero *et al.* 1994). Wolverine home ranges can be extremely large, and availability and distribution of food is considered a primary factor in determining wolverine movements and home range sizes. Wolverines appear to select areas that are free of significant human disturbance, especially during the denning period from late winter through early spring (USDI Fish and Wildlife Service 2003).

In California, wolverines historically occurred throughout the Sierra Nevada, Cascade, Klamath, and northern Coast ranges in alpine, boreal forest and mixed forest vegetation types (Schempf and White 1977). Zeiner *et al.* (1990) noted the wolverine is a scarce resident of North Coast mountains and the Sierra Nevada. Sightings have ranged from Del Norte and Trinity Counties, east through Siskiyou and Shasta counties in the Coast Range, and south through Tulare County. Most reported sightings in this region range from 1600 to 4800 feet in elevation, according to California Department of Fish and Game records from 2005. There have been unconfirmed wolverine sightings reported on the Shasta-Trinity National Forest over the past 20 years, but no documented observations. Surveys conducted in California over that time span using remote cameras and track plate surveys, including survey sites on the STNF, have resulted in only one confirmed observation in the state, on the Tahoe National Forest in February, 2008 (Heil *et al.* 2008), and the project area is outside the current known range of this species (California Department of Fish and Game 2010).

**Direct and indirect effects:** There have been no documented occurrences of wolverines on the STNF for the last 20 years. If wolverines do occur on the Forest, it is unlikely they inhabit this project area. Road density and human usage is high compared to the interior portions of remote areas such as the Trinity Alps and Yolla Bolly-Middle Eel Wilderness Areas, which are much more likely to provide the large secluded areas this species requires. In addition, none of the proposed action alternatives would modify the suitability of any California wolverine habitat or affect the likelihood of occurrence of this species.

**Determination:** It is my determination that none of the proposed Action alternatives will affect California wolverines.
**Pallid bat** (*Antrozous pallidus*)

**Species account:** Pallid bats have a wide distribution throughout the western United States, and most often occur in open, dry habitats with rocky areas for roosting (Sherwin and Rambaldini 2005). They roost in deep crevices in rock faces, caves, mines, bridges, cavities in trees and occasionally in open buildings, and are sensitive to roost site disturbance (Zeiner *et al.* 1990). In California, cavities in broken branches of black oaks are selectively favored by this species (Pierson and Rainey 2007). Pallid bats feed almost entirely on the ground, commonly preying on crickets, grasshoppers, beetles and scorpions. They are colonial and tend to hibernate in deep rock crevices and caves rather than migrating (Tuttle 1997).

Wildlife databases show no observations of pallid bats in the project area. The nearest observations were approximately 8 miles to the south.

**Direct effects:** If Pallid bats do use the project area, project activities may cause direct effects to this species. Noise generated during project implementation could disturb bats and cause temporary abandonment of the area. Direct mortality could result from felling of snags in treatment units. Retention of hardwood snags in the project area will reduce potential effects to this species, as will the project design features on snag retention (retain ≥10 snags/ac) and protecting caves (250-foot equipment exclusion zone). Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Indirect effects:** Although data are somewhat contradictory, salvage logging may affect the value of “edge” habitats to some degree (Hanson and Stuart 2005). Removal of dead and dying trees may reduce the future availability of roost sites for this species. However, project design features include retention of existing large, downed logs and standing, pre-existing snags, as well as retention of snags within salvage treatment units, and snag density is expected to remain high after project implementation (Table 3). These design features will limit potential effects to pallid bats and other species utilizing snags and large woody debris, and are likely to result in roost site abundance that is equal to or greater than pre-fire levels. The snags that existed pre-fire are more likely to have the hollows and cavities this species uses for roost sites, and their retention will be especially beneficial to this species. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Determination:** It is my determination that all proposed action alternatives may affect individual pallid bats, but the potential effects to populations are limited and will not cause a trend toward listing.

**Townsend’s big-eared bat** (*Corynorhinus townsendii*)

**Species account:** This species occupies a variety of habitats ranging from coniferous forests and woodlands to deciduous riparian woodlands, semi-desert and montane shrublands.
Townsend’s big-eared bats are strongly correlated with the availability of caves and cave-like roosting habitat, although they also make use of man-made structures such as abandoned buildings, water diversion tunnels and bridges (USDA Forest Service 1998; Zeiner 1990; Arizona Game and Fish Department 1993). This species feeds primarily on small moths and appears to show a preference for foraging along edges of riparian vegetation where conifers and deciduous riparian species support Lepidopteran prey species (Fellers and Pierson 2002, Arizona Game and Fish Department 1993).

Wildlife databases show no observations of Townsend’s big-eared bats in or near the project area. The nearest recorded observation was approximately 2 miles to the south.

**Direct effects:** If Townsend’s big-eared bats do use the project area, project activities may cause direct effects to this species. Noise generated during project implementation could disturb bats and cause temporary abandonment of the area. The project design feature protecting caves (250-foot equipment exclusion zone) will greatly reduce or eliminate the potential for direct effects to roosting sites. Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Indirect effects:** Indirect effects from project activities are expected to be minimal. In addition to protection of caves, extensive riparian protection zones have also been incorporated into the project design. These measures will greatly reduce the potential for effects to roosting sites and the primary foraging sites for this species. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Determination:** It is my determination that all proposed action alternatives may affect individual Townsend’s big-eared bats, but the potential effects to populations are very limited and will not cause a trend toward listing.

**Western red bat** (*Lasiurus blossevillii*)

**Species account:** Western red bats are typically solitary, roosting primarily in the foliage of trees and shrubs and feeding on a variety of insects (Bolster 2005). Their day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas. There is an association with intact riparian habitat, particularly willows, cottonwoods, and sycamores (Bolster 2005). Red bats are locally common in some areas of California, occurring from Shasta County to the Mexican border, west of the Sierra Nevada/Cascade crest and deserts (Zeiner et al. 1990).

Wildlife databases show no observations of this species within 15 miles of the project area, and this site may well be outside the range of this species.
**Direct and indirect effects:** If Western red bats do occur in the project area, project activities may cause direct effects to this species. Noise generated during project implementation could disturb bats and cause temporary abandonment of the area. Individual bats roosting in trees or shrubs in salvage, hazard tree removal or fuels reduction units may be displaced or suffer direct mortality during project implementation. Although data are somewhat contradictory, salvage logging may affect the value of “edge” habitats to some degree (Hanson and Stuart 2005). Direct and indirect effects will be limited in salvage units, where the focus is on removal of fire-killed trees rather than the live trees and shrubs used by this species. The effects of hazard tree treatment are expected to be relatively limited due to the scattered nature of tree removal. Fuels reduction treatments may have a greater effect on this species due to removal of small trees. This species favors riparian zones, and the extensive protection of these habitats incorporated into the project design in Alternatives 1 and 3 (130, 150 and 300 feet from the edge of seasonal, permanent non-fish-bearing, and fish-bearing streams, respectively) will greatly reduce the potential for direct and indirect effects to this species. Of the action alternatives, potential direct and indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Determination:** It is my determination that all proposed action alternatives may affect individual Western red bats, but the potential effects to populations are limited and will not cause a trend toward listing.

**Bald eagle (Haliaeetus leucocephalus)**

**Species account:** On the STNF bald eagles typically utilize large live trees protected from disturbance for nests, and late successional and old growth forests relatively close to large rivers or lakes for winter roosting sites. Their primary food source is fish, which are taken live or as carrion. Other food sources include waterfowl, shorebirds, small mammals, turtles and carrion. Suitable nesting and foraging habitat is located near coastlines, rivers, large lakes, reservoirs and streams near adequate food supplies (Anthony et al. 1992; USDI Fish and Wildlife Service 1986). On the STNF many large conifers provide potential nest sites on slopes overlooking Trinity Lake, Lewiston Lake, and the Trinity River.

An active bald eagle nest was documented in the project area on May 6, 2013. This site is within a DFPMZ unit.

**Direct effects:** Nesting bald eagles are often sensitive to human disturbance (USDI Fish and Wildlife Service 2013). To prevent noise disturbance to this nest site during the bald eagle breeding season, a limited operating period (LOP) will be imposed from February 1 to August 15 within 0.5 miles of the nest site. Treatment units within this LOP area are:

- salvage units 92 A-E, 95 A-C, 96 and 101
- plantation unit Morgan Helicopter 007
- (un-numbered) fuels treatment units south of Hayfork Creek between Limestone Gulch and McCovey Gulch

The exact location of the nest tree will be provided to implementation personnel prior to initiation of work, and implementation activities will be modified as needed to prevent any potential effects to the nest tree. Of the action alternatives, potential
direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 3 are less than Alternative 1 due to a smaller spatial extent and lack of salvage treatments. Potential effects of Alternative 4 are less than Alternatives 1 or 3 due to a smaller spatial extent of both salvage and fuels treatments and removal of helicopter salvage units near the nest site.

Indirect effects: The nest site is not within a salvage area, but is within a DFPMZ unit. Fuels treatments consist primarily of removal of small trees, and removal of large trees is limited to hazard trees. These activities are not expected to result in any measurable effects to bald eagle habitat suitability. Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 3 are less than Alternative 1 due to a smaller spatial extent and lack of salvage treatments. Potential effects of Alternative 4 are less than Alternatives 1 or 3 due to a smaller spatial extent of both salvage and fuels treatments and removal of helicopter salvage units near the nest site.

Determination: It is my determination that the all proposed action alternatives may affect individual bald eagles, but the potential effects to populations are limited and will not cause a trend toward listing.

**Northern goshawk (Accipiter gentilis)**

Species account: Northern goshawks inhabit ponderosa pine, mixed-species, and spruce-fir forests, typically with little understory vegetation and flat or moderately sloping terrain (generally less than 35% slope). This habitat provides large trees for nesting, a closed canopy for protection and thermal cover, and open spaces below the canopy allowing maneuverability. Northern goshawks build stick nests, typically 25-50 feet off the ground, and aggressively defend nest sites. They are opportunistic predators, preying mostly on birds and small mammals. Many habitats suitable for northern spotted owls are likely to provide suitable habitat for northern goshawks (USDA Forest Service 1998; Hall 1984; Squires and Reynolds 1997; Reynolds et al. 1992). Woodbridge and Detrich (1994) reported nesting densities in California remained high despite fragmentation of mature forests through timber harvest, although territories associated with large contiguous forest patches were more consistently occupied than highly fragmented stands.

Wildlife databases include 1 northern goshawk observation (non-reproducing) in the project area, and several other observations near the project area. The nearest reproductive site was approximately 3 miles to the southeast.

Direct effects: Project activities may cause disturbance to goshawks using surviving suitable habitats in or near treatment units. Increased road traffic may cause individual goshawks to leave the area temporarily during project implementation due to the presence of humans, equipment and increased noise. DFPMZ and Restoration units include a limited amount of surviving suitable habitat. There is no suitable habitat within salvage treatment units, but goshawks using habitat near salvage units will potentially be subject to noise disturbance from project activities. A Limited Operation Period (February 1 through July 10) has been incorporated into the project design to avoid disturbance to northern spotted owls during their breeding season. This will apply to all activities producing loud and continuous noise or
smoke that will potentially disturb spotted owls. This protection measure will decrease potential disturbance to northern goshawks. Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

Indirect effects: Although data are somewhat contradictory, salvage logging may affect the value of “edge” habitats for interior forest species to some degree (Hanson and Stuart 2005). Salvage treatments are not proposed in any suitable goshawk habitats. Hazard tree and fuels reduction treatments may result in minor habitat modification through removal of scattered standing hazard trees, but fuels treatments consist primarily of removal of small trees, and removal of large trees is limited to hazard trees. Snag density is expected to remain high after project implementation (Table 3). As a result, potential indirect effects to goshawks are limited. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Determination:** It is my determination that all proposed action alternatives may affect individual northern goshawks, but the potential effects to populations are limited and will not cause a trend toward listing.

**Willow flycatcher** (*Empidonax traillii*)

**Species account:** Willow flycatchers are restricted to river corridors and moist or wet shrubby habitats in the arid West. Sedgwick (2000) quoted Grinnell and Miller (1944) as concluding that in California it is “strikingly restricted to thickets of willows, whether along streams in broad valleys, in canyon bottoms, around mountain-side seepages, or at the margins of ponds and lakes”. Today it is absent from most of California, with currently known breeding locations restricted primarily to the Sierra Nevada/Cascade region (southeast Shasta County south to north Kern County, including Alpine, Inyo, and Mono Counties), and Santa Barbara, Riverside, and San Diego Counties (Sedgwick 2000).

Wildlife databases show no observations of this species within the project area. The nearest recorded observations were approximately 11 miles to the west.

**Direct effects:** If willow flycatcher do use the project area, project activities may cause disturbance to willow flycatchers using suitable riparian habitats in or near treatment units. Increased road traffic may cause individuals to leave the area temporarily during project implementation. DFPMZ and Restoration units may include a limited amount of surviving suitable habitat. For Alternatives 1 and 3, there is no suitable habitat within salvage treatment areas, but willow flycatchers using habitat near salvage units will potentially be subject to noise disturbance from project activities. This species favors riparian zones, and the extensive protection of these habitats incorporated into the project design for these alternatives (130, 150 and 300 feet from the edge of seasonal, permanent non-fish-bearing, and fish-bearing streams, respectively) will greatly reduce the potential for direct effects to
this species. In addition, a Limited Operation Period (February 1 through July 10) has been incorporated into the project design to avoid disturbance to northern spotted owls during their breeding season. This will apply to all activities producing loud and continuous noise or smoke that will potentially disturb spotted owls. This design feature will further decrease the potential for disturbance to willow flycatchers. Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Indirect effects:** For Alternatives 1 and 3, salvage treatments are not proposed in riparian habitats, but hazard tree and fuels reduction treatments may result in minor habitat modification through removal of scattered standing hazard trees. Since treatments in riparian protection zones are limited to hazard trees, potential indirect effects to willow flycatchers through habitat modification are very limited. Willow thickets are unlikely to be classified as hazard tree areas, so potential indirect effects to willow flycatcher habitats are expected to be very limited. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to a smaller spatial extent and lack of salvage treatments.

**Determination:** It is my determination that all proposed action alternatives may affect individual willow flycatchers, but the potential effects to populations are very limited and will not cause a trend toward listing.

**Western pond turtle** (*Clemmys marmorata marmorata*)

Species account: Western pond turtles occur in a variety of habitat types associated with permanent or nearly permanent water from sea level to 6,000 feet in elevation (Holte 1998). They concentrate in ponds and low flow regions of rivers and creeks such as side channels and backwater areas, and prefer creeks that have deep, still water and sunny banks. Basking sites such as rocks and partially submerged logs are important habitat components, and are used as basking sites and refugia from predators (Zeiner et al. 1988). Western pond turtles are omnivorous, but their diet typically consists primarily of insects, crayfish and other aquatic invertebrates (Jennings and Hayes 1994, Holland 1991, Wilson et al. 1991). During the spring or summer females may travel great distances away from ponds to find sites suitable for nesting, although the travel distance to most nest sites is ≤300 meters. Dry grassy areas are used as nest sites. The young emerge the following spring (March-April) and travel from nest sites to watercourses (Jennings and Hayes 1994, Zeiner et al. 1988; Reynolds et al. 1992, Holland 1991). In warm climates they may be active year-round, but in colder areas they hibernate in the winter in bottom mud or in upland areas, including forested areas. These upland hibernation sites can occur as far as 500 meters from occupied aquatic habitat (Jennings and Hayes 1994, Reese and Welsh 1998).

Wildlife databases show no observations of this species within the project area, but numerous observations have been recorded near the project area in Hayfork Creek.
Direct effects: Project activities may cause disturbance to western pond turtles using suitable riparian habitats in or near treatment units. Increased road traffic will increase the possibility of vehicle-caused mortality, and individual pond turtles may be temporarily displaced during project implementation due to the presence of humans, equipment and increased noise. The extensive protection of riparian habitats incorporated into the project design will greatly reduce the potential for direct effects to this species (130, 150 and 300 feet from the edge of seasonal, permanent non-fish-bearing, and fish-bearing streams, respectively). Additionally, the Limited Operation Period (February 1 through July 10) incorporated into the project design to avoid disturbance to northern spotted owls during their breeding season will greatly decrease potential disturbance to western pond turtles as they leave riparian areas during their nesting season. Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments.

Indirect effects: Hazard tree and fuels reduction treatments may result in minor habitat modification through removal of scattered standing hazard trees. Since treatments in riparian protection zones are limited to hazard trees, potential effects to pond turtle habitat are very limited. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments.

Determination: It is my determination that all proposed action alternatives may affect individual western pond turtles, but the potential effects to populations are limited and will not cause a trend toward listing.

Cascade Frog (*Rana cascadae*)

Species account: Cascade frogs typically inhabit high-altitude ponds, marshes, lakes, and streams in open coniferous forests from Washington to northern California. They are typically found at elevations above 2500 feet and are closely restricted to water. They can survive in ephemeral water bodies where at least some substrate remains saturated (Corkran and Thoms 1996). Open, shallow water that remains unshaded during the hours of strong sunlight provide egg-laying sites. Cascade frogs hibernate in bottom mud in winter (Briggs 1987, Jennings and Hayes 1994, USDA Forest Service 1998). This species is believed to be relatively abundant in the Trinity Alps Wilderness (Fellers *et al.* 2007).

Wildlife databases show no observations of cascade frogs in the project area. The nearest recorded observations were approximately 30 miles to north in the Trinity Alps Wilderness Area.

Direct effects: If Cascade frogs do use the project area, project activities may cause disturbance to individuals using suitable riparian habitats in or near treatment units. Increased road traffic will increase the possibility of vehicle-caused mortality, and individual
Cascade frogs may be temporarily displaced during project implementation due to the presence of humans, equipment and increased noise. The extensive protection of riparian habitats incorporated into the project design will greatly reduce the potential for direct effects to this species (130, 150 and 300 feet from the edge of seasonal, permanent non-fish-bearing, and fish-bearing streams, respectively). Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments.

**Indirect effects:** Riparian protection measures have been incorporated into the project design (see description above). Hazard tree and fuels reduction treatments may result in minor habitat modification through removal of scattered standing hazard trees, but since treatments in riparian protection zones are limited to hazard trees, Cascade frog habitat is not expected to be measurably affected by these activities. As a result, potential indirect effects to Cascade frogs through habitat modification are very limited. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments.

**Determination:** It is my determination that the proposed action may affect individual Cascade frogs, but the potential effects to populations are very limited and will not cause a trend toward listing.

**Foothill yellow-legged frog** (*Rana boylii*)

**Species account:** Foothill yellow-legged frogs are found in or near permanent rocky streams in a variety of habitats, including ponderosa pine, mixed conifer and mixed chaparral. They are highly aquatic, spending most or all of their life in or near streams. Breeding occurs in the spring, where adults congregate in habitats consisting of shallow, slow flowing water with pebble and cobble substrate, preferably with shaded riffles and pools. They require shallow, flowing water, and display an apparent preference for small to moderate-sized streams with at least some cobble-sized substrate. Insects are likely the primary food source for adults (Jennings and Hayes 1994, USDA Forest Service 1998, Zeiner 1988). Adult foothill yellow-legged frogs are often seen breeding in pools on the main stem of the Trinity River in spring and moving to basking and foraging sites in the tributaries in the summer. This species is widely distributed across the Trinity portion of the STNF.

Wildlife databases include one record of this species within the project area near the confluence of Hayfork Creek and a small unnamed tributary, and numerous observations near the project area.

**Direct effects:** If foothill yellow-legged frogs do use the project area, project activities may cause disturbance to individuals using suitable riparian habitats in or near treatment units. Increased road traffic will increase the possibility of vehicle-caused mortality, and individual foothill yellow-legged frogs may be temporarily displaced during project implementation due
to the presence of humans, equipment and increased noise. The extensive protection of riparian habitats incorporated into the project design will greatly reduce the potential for direct effects to this species (130, 150 and 300 feet from the edge of seasonal, permanent non-fish-bearing, and fish-bearing streams, respectively). Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments.

**Indirect effects:** Riparian protection measures have been incorporated into the project design (see description above). Hazard tree and fuels reduction treatments may result in minor habitat modification through removal of scattered standing hazard trees, but since treatments in riparian protection zones are limited to hazard trees, foothill yellow-legged frog habitat is not expected to be measurably affected by these activities. As a result, potential indirect effects to foothill yellow-legged frogs through habitat modification are very limited. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments.

**Determination:** It is my determination that the proposed action alternatives may affect individual foothill yellow-legged frogs, but the potential effects to populations are very limited and will not cause a trend toward listing.

**Southern torrent salamander** (*Rhyacotriton variegatus*)

**Species account:** Southern torrent salamanders occur in aquatic habitats of conifer forests in the Coast Range from Mendocino County, California to northwestern Oregon. They occur in springs, seeps, small streams, and margins of larger streams, where they avoid open water and seek the cover of moss, rocks, and organic debris in shallow, cold water (Welsh and Lind 1996, Jennings and Hayes 1994). They occur within a relatively narrow range of physical and microclimatic conditions. They are associated with cold, clear headwater to low-order streams with loose rocky substrates (low sedimentation) in humid forest habitats with large conifers, abundant moss, and greater than 80% canopy closure. They are seldom more than one meter from free-running water (Nussbaum and Tait 1977). Adults eat mostly amphipods, springtails and insect larvae (Jennings and Hayes 1994). The southern torrent salamander demonstrates an ecological dependence on streamside conditions of microclimate and habitat structure that in northwestern California are typically best created, stabilized, and maintained within late seral forests (Welsh and Lind 1996, Jennings and Hayes 1994).

This species occurs from northwestern California (Mendocino County) northward through the Coast Range of Oregon (Polk, Tillamook, and Yamhill Counties) in mid to low elevations (Blaustein 1995). Southern torrent salamanders require cold mountain streams, springs, and/or seepages that are well shaded (Stebbins 1966) and require water for all stages of their life cycle. Declines of torrent salamanders have been attributed to increased amount of sediments and increased water temperatures as a result of timber harvesting within their
preferred habitat. Changes in forest canopies and the hydrology of seeps and streams can affect southern torrent salamanders.

Wildlife databases show no observations of this species within the project area. The nearest recorded observations were approximately 15 miles to the west. The project area may be outside the range of this species.

Direct effects: If southern torrent salamanders do use the project area, project activities may cause disturbance to individuals using suitable riparian habitats in or near treatment units. Increased road traffic will increase the possibility of vehicle-caused mortality, and individual southern torrent salamanders may be temporarily displaced during project implementation due to the presence of humans, equipment and increased noise. The extensive protection of riparian habitats incorporated into the project design will greatly reduce the potential for direct effects to this species (130, 150 and 300 feet from the edge of seasonal, permanent non-fish-bearing, and fish-bearing streams, respectively). Of the action alternatives, potential direct effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments.

Indirect effects: Riparian protection measures have been incorporated into the project design (see description above). Hazard tree and fuels reduction treatments may result in minor habitat modification through removal of scattered standing hazard trees, but since treatments in riparian protection zones are limited to hazard trees, southern torrent salamander habitat is not expected to be measurably affected by these activities. Of the action alternatives, potential indirect effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments.

Determination: It is my determination that the proposed action may affect individual southern torrent salamanders, but the potential effects to populations are limited and would not cause a trend toward listing.

**Shasta salamander** (*Hydromantes shastae*), **California floater** (*Anodontia californiensis*), **topaz juga** (*Juga [Calibasis] acutifilosa*), **montane peclam** (*Pisidium [Cyclocalyx] ultramontanum*), **nugget pebble snail** (*Fluminicola seminalis*), **Shasta sideband snail** (*Monadenia troglodytes troglodytes*), **Wintu sideband snail** (*Monadenia troglodytes wintu*), **Shasta chaparral snail** (*Trilobopsis roperi*), **Tehama chaparral snail** (*Trilobopsis tahamana*), **Pressley (Big Bar) Hesperian snail** (*Vespericola pressleyi*) and **Shasta Hesperian snail** (*Vespericola Shasta*).

Species accounts: Shasta salamanders inhabit moist rocky areas such as limestone outcrops. Their distribution is limited to a small area near Lake Shasta, California (USDA Forest Service 1998). California floaters are aquatic mollusks associated with lakes and slow rivers. Their distribution on the STNF is restricted to the Fall and Pit River systems in Shasta County (Furnish 2007). Topaz jugas are aquatic mollusks associated with large springs and their outflows. Their distribution on the Shasta-Trinity National Forest (STNF) is restricted
Montane peaclams are aquatic mollusks associated with sand-gravel substrates. There are historical records of this species from the Pit River system, but there are no known extant populations on the STNF (Furnish 2007, USDI Bureau of Land Management 1997). Nugget pebblesnails are aquatic mollusks typically associated with large streams that have gravel-cobble substrate and clear, flowing water. Their distribution is limited to the area around Lake Shasta, California (Furnish 2007, USDA Forest Service and USDI Bureau of Land Management 1999). Shasta sideband snails and Wintu sideband snails are associated with limestone areas including caves and talus slopes. Their distribution on the STNF is limited to the area east of Shasta Lake, California (USDI Bureau of Land Management 1999). Shasta chaparral snails are associated primarily with rockslides. Their distribution on the STNF is limited to the area east of Shasta Lake, California (USDI Bureau of Land Management 1999). Tehama chaparral snails are associated with rocky talus areas. Their distribution on the STNF is limited to the area east of Shasta Lake, California (USDI Bureau of Land Management 1999). Pressley (Big Bar) Hesperian snails inhabit conifer and/or hardwood forest habitat in permanently wet areas. (USDI Bureau of Land Management 1999, Roth 1985). Because of the riparian protection measures incorporated into the project design, no effects to Pressley (Big Bar) Hesperian snails are expected. Shasta Hesperian snails inhabit moist bottomlands and caves around Lake Shasta, California (USDI Bureau of Land Management 1999).

**Determination:** It is my determination that none of the proposed action alternatives will have any direct or indirect effects on any of these species.

**IV. CUMULATIVE EFFECTS**

Analysis of cumulative effects under the National Environmental Policy Act (NEPA) addresses the impact on the environment that results from the incremental impact of the proposed action when added to other past, present and reasonable foreseeable future actions, regardless of which agency (federal or non-federal) or person undertakes these actions (40 CFR 1508.7).

This cumulative effects analysis is bounded in space and time to properly evaluate whether there will be an overlap of effects caused by this project in combination with effects of other past, present, or future foreseeable actions. To encompass potentially affected individuals of all Forest Service Sensitive species, this analysis is bounded in space to include any area within 2.2 miles of treatment areas. This area is appropriate because it considers home range sizes of the Forest Service Sensitive species considered in this analysis, and includes all areas of treatment plus a surrounding area adequate to assess potential effects to individuals of these species (Zielinski et al. 2004a). This analysis is bounded in time to include all actions up to 50 years into the future. This time frame is appropriate because it reflects the life span of individuals of Forest Service Sensitive species and the potential for effects to individuals that may currently inhabit the project area.

The effects of all past actions are reflected in the descriptions of currently existing conditions. Reasonably foreseeable future actions on private lands in the analysis area include small-scale agriculture and forestry on the small private parcels primarily north of the project area, and continued intensive timber management and harvest on the industrial forest lands primarily east of Siskiyou County (Furnish 2007).
of the project area. Other ongoing activities on private and federal lands include annual road maintenance, recreation use, and appropriate responses for fire suppression. On federal lands, completion of the Homestake Mine project will result in approximately 3 additional acres of ground disturbance in the form of test pits. A review of the CalFire timber harvest plan website on June 5, 2013 revealed no current timber harvest plans in the action area (http://www.fire.ca.gov/resource_mgt/resource_mgt_forestpractice_thpstatus.php).

Potential effects of the Stafford Fire Salvage and Restoration project to Forest Service Sensitive species consist of disturbance/injury and habitat modification. Most species analyzed in this report are subject to potential disturbance and/or injury from project activities, and many are subject to potential habitat modification (see species-specific analyses above). This analysis will therefore focus on these two potential sources of cumulative effects.

**Disturbance/injury:** Potential disturbance/injury from the Stafford Fire Salvage and Restoration project is limited to the time required for project implementation. Other activities in the analysis area consist primarily of small-scale agriculture and forestry, and intensive industrial timber management. These ongoing activities are well-established in the Hayfork valley and surrounding area, and levels of activity that may disturb/injure Forest Service Sensitive species are not expected to diverge in any significant way from currently established levels. Activities on small parcels, such as use of farm machinery, results in persistent low-intensity disturbance and risk of injury to Forest Service Sensitive species. The industrial forest lands in the analysis area are managed on a long-term sustainable yield basis, resulting in relatively consistent levels of activity over time. The potential for disturbance/injury on these lands result is thus greater during intensive forest management activities, but it is also highly intermittent, with long periods of very limited activity. As a result, when the potential disturbance/injury effects of this project are added to the potential effects of current and foreseeable future actions, the cumulative effects of disturbance/injury for all action alternatives are expected to be minor, and not lead to a trend toward federal listing of any Forest Service Region 5 Sensitive species. Of the action alternatives, potential cumulative effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments and lack of salvage treatments.

**Habitat modification:** Some of the potential habitat modifications from this project may persist well into the future. Snag density in particular will decrease initially, but project effects will diminish over time as the snags to be felled and/or removed would have fallen and deteriorated had they been left standing. Suitable habitats on small private parcels in the analysis area were extensively altered historically, and further modification through current/future activities is expected to be limited. Habitat modification on the industrial forest lands in the analysis area is more intensive, but typically remains relatively consistent over time. On these lands, the habitat features used by Forest Service Sensitive species have either been largely removed or are managed on a consistent basis. As a result, availability of these features is expected to remain consistent into the future. When the potential habitat modifications resulting from this project are added to the potential effects of current and foreseeable future actions, the cumulative effects to populations for all action alternatives are
expected to be minor and not lead to a trend toward federal listing of any Forest Service Region 5 Sensitive species. Of the action alternatives, potential cumulative effects are greatest with Alternative 1, the Proposed Action. Potential effects of Alternative 4 are less than Alternative 1 due to a smaller spatial extent of both salvage and fuels treatments. Potential effects of Alternative 3 are less than Alternatives 1 or 4 due to the smaller spatial extent of treatments and lack of salvage treatments.

V. CONTACTS AND CONTRIBUTORS

Ken Boucher, Fuels Planner and Interdisciplinary Team Leader, Shasta-Trinity National Forest
Jeff Bryant, Consulting Forester
Jim Schaefer, Forester, Shasta-Trinity National Forest
Kelly Wolcott, Forest Wildlife Biologist, Shasta-Trinity National Forest
Randi Paris, Forester, Shasta-Trinity National Forest
Talitha Derksen, NEPA Planner, Shasta-Trinity National Forest
Tom Quinn, Wildlife Biologist, Shasta-Trinity National Forest

VI. LITERATURE CITED


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APPENDIX 1. FOREST PLAN MANAGEMENT DIRECTION

Management Area
The proposed project is within the Hayfork Management Area (Management Area 18; Forest Plan pp. 4-153 to 4-155) and is within the Hayfork Adaptive Management Area. Current management and desired future condition is driven by several factors including wildlife habitat, fisheries resources, water quality (including domestic supplies), recreation, heritage resources, grazing and production of commercial wood products.

Standards and Guidelines
Treatments are proposed within the following Forest Plan land management allocations: Matrix Lands and Riparian Reserves. The Forest Plan Standards & Guidelines pertinent to this analysis are listed below.

Forest–wide Standards & Guidelines
Monitor and protect habitats for Federally listed threatened and endangered (T&E) and candidate species. Assist is recovery efforts for T&E species (Forest Plan page 4-5).

Manage habitat for sensitive plants and animals in a manner that will prevent any species from becoming a candidate for T&E (threatened/endangered) status (Forest Plan p. 4-5).

Maintain natural wildlife species diversity by continuing to provide special habitat elements within Forest ecosystems (Forest Plan page 4-6).

Manage cliffs, caves, talus slopes and rock outcrops on a site-by-site basis to protect their existing micro environments and the viability of dependent animal and plant species. Manage nearby water sources to perpetuate natural cave processes (Forest Plan page 4-14).

Over time, provide the necessary number of replacement snags to meet density requirements as prescribed for each land allocation. Live, green cull trees, decadent trees, and trees exhibiting wildlife use are preferred (Forest Plan page 4-14).

Provide connecting travel corridors for wildlife species, particularly late-successional dependent species, by using Riparian Reserves and silvicultural prescriptions (Forest Plan page 4-14).

Manage habitat for neotropical migrant birds to maintain viable population levels (Forest Plan page 4-29).

Maintain and/or enhance habitat for TE&S (federally threatened, endangered and sensitive) species consistent with individual species recovery plans. Survey and evaluate habitat for TE&S species at the project level in coordination with the US Fish and Wildlife Service (Forest Plan page 4-30).

Riparian Reserves – prescription #9 (Forest Plan page 4-59)
Maintain and restore the species composition and structural diversity of plant communities in riparian areas and wetlands (Forest Plan page 4-53).

Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on-site when needed to meet coarse woody debris objectives (Forest Plan page 4-58).

**Matrix Lands**

Manage to provide a renewable supply of large down logs well distributed across the matrix landscape in a manner that meets the needs of species and provides for ecological functions (Forest Plan page 4-61).

Coarse woody debris already on the ground should be retained and protected to the greatest extent possible (Forest Plan page 4-61).

Retain snags within harvest units at levels sufficient to support species of cavity-nesting birds at 40 percent of potential population levels based on published guidelines and models or an average of 1.5 snags per acre greater than 15 inches in diameter and 20 feet in height. The objective is to meet the 40 percent minimum standard throughout the Matrix, with per-acre requirements met on average areas no larger than 40 acres. Maintain adequate numbers of large snags and green-tree replacements for future snags within the range of the white-headed woodpecker, black-backed woodpecker, pygmy nuthatch and flammulated owl (Forest Plan pages 4-61 to 4-62).

Note: Project design features include retention of all pre-existing snags and large, downed logs, as well as retention of all hardwood snags and at least XX snags per acre overall within treatment units. These levels are well in excess of Forest Plan requirements, and project design features are likely to result in snag abundance that is equal to or greater than pre-fire levels for white-headed woodpeckers, pygmy nuthatches and flammulated owls. The project area is outside the known range of the black-backer woodpecker (California Department of Fish and Wildlife 2013).

**Roaded Recreation – prescription #3 (Forest Plan page 4-64)**

Timber management activities will be designed to meet recreation, visual and ecosystem management objectives. Timber yields will result from activities required to attain the desired future condition of the landscape. Disperse openings created by timber harvest throughout project areas. Size of openings will average 5 acres or less (Forest Plan page 4-65).

Manage hardwoods for sustainability on a landscape basis consistent with desired future ecosystem conditions (Forest Plan page 4-65).

Maintain an average of 10 tons of unburned dead/down material per acre on slopes less than 40 percent. Preference is to have a portion of this tonnage in large material (4 to 6 logs over 10 feet long at the largest available diameter). Where feasible, maintain the same amount on slopes greater than 40 percent (Forest Plan pages 4-65/66).

**Wildlife Habitat Management – prescription #6 (Forest Plan page 4-66)**
Timber management activities will be designed to meet recreation, visual and ecosystem management objectives (Forest Plan page 4-66).

Manage hardwoods for sustainability on a landscape basis consistent with desired future ecosystem conditions (Forest Plan page 4-66).

Use this Prescription to help provide additional habitat for fisher, marten, and goshawk (Forest Plan page 4-66).

**Bald eagles and peregrine falcons**
Comply with individual nesting territory management plans (Forest Plan p. 3-27).

Note: A bald eagle nest site was recently documented in the project area. To prevent noise disturbance to this site during the bald eagle breeding season, a limited operating period (LOP) will be imposed from February 1 to August 15 within 0.5 miles of the nest site. Treatment units subject to this LOP are salvage units 92 A-E, 95 A-C, 96 and 101, plantation unit Morgan Helicopter 007, and the (un-numbered) fuels treatment units south of Hayfork Creek between Limestone Gulch and McCovey Gulch. The exact location of the nest tree will be provided to implementation personnel prior to initiation of work, and implementation activities will be modified as needed to prevent any potential effects to the nest tree.

Note: There are no recorded peregrine falcon nest sites in the project area. The nearest recorded nest site was approximately 5 miles to the north. This site will not be affected by project activities.

**Northern goshawks**
Protect each known nest site during planning and implementation (Forest Plan p. 3-27).

Note: There are no known northern goshawk nest sites in the project area. The nearest recorded nest site was approximately 3 miles to the southeast. This site will not be affected by project activities.

**Pacific fishers and American Martens**
Provide a network of suitable habitat to include linkage in the form of dispersal habitat. This direction is being fulfilled with the implementation of the Forest’s LSR (Late Successional Reserve) and Riparian Reserve systems (Forest Plan page 3-27).

**Willow flycatchers**
Provide for population viability through the protection of riparian habitat such as Riparian Reserves and wet meadows (Forest Plan page 3-27).