Project Management Indicator Species Report

Yuba Project

Yuba River Ranger District

Tahoe National Forest

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1. Introduction

The purpose of this report is to evaluate and disclose the impacts of the Yuba Project on the habitat of the thirteen (13) Management Indicator Species (MIS) identified in the Forest (NF) Land and Resource Management Plan (LRMP) (USDA 1990) as amended by the Sierra Nevada Forests Management Indicator Species Amendment (SNF MIS Amendment) Record of Decision (USDA Forest Service 2007a). This report documents the effects of the proposed action and alternatives on the habitat of selected project-level MIS. Detailed descriptions of the Yuba Project alternatives are found in the Yuba Project Environmental Assessment NEPA document (USDA Forest Service 2017).

MIS are animal species identified in the SNF MIS Amendment Record of Decision (ROD) signed December 14, 2007, which was developed under the 1982 National Forest System Land and Resource Management Planning Rule (1982 Planning Rule) (36 CFR 219). Guidance regarding MIS set forth in the Tahoe National Forest LRMP as amended by the 2007 SNF MIS Amendment ROD directs Forest Service resource managers to (1) at project scale, analyze the effects of proposed projects on the habitat of each MIS affected by such projects, and (2) at the bioregional scale, monitor populations and/or habitat trends of MIS, as identified in the Tahoe National Forest LRMP as amended.

1.a. Direction Regarding the Analysis of Project-Level Effects on MIS Habitat

Project-level effects on MIS habitat are analyzed and disclosed as part of environmental analysis under the National Environmental Policy Act (NEPA). This involves examining the impacts of the proposed project alternatives on MIS habitat by discussing how direct, indirect, and cumulative effects will change the habitat in the analysis area.

These project-level impacts to habitat are then related to broader scale (bioregional) population and/or habitat trends. The appropriate approach for relating project-level impacts to broader scale trends depends on the type of monitoring identified for MIS in the LRMP as amended by the SNF MIS Amendment ROD. Hence, where the Tahoe NF LRMP as amended by the SNF MIS Amendment ROD identifies distribution population monitoring for an MIS, the project-level habitat effects analysis for that MIS is informed by available distribution population monitoring data, which are gathered at the bioregional scale. The bioregional scale monitoring identified in the Tahoe NF LRMP, as amended, for MIS analyzed for the Yuba Project is summarized in Section 3 of this report.

Adequately analyzing project effects to MIS generally involves the following steps:

- Identifying which habitat and associated MIS would be either directly or indirectly affected by the project alternatives; these MIS are potentially affected by the project.
- Summarizing the bioregional-level monitoring identified in the LRMP, as amended, for this subset of MIS.
- Analyzing project-level effects on MIS habitat for this subset of MIS.
- Discussing bioregional scale habitat and/or population trends for this subset of MIS.

- Relating project-level impacts on MIS habitat to habitat and/or population trends at the bioregional scale for this subset of MIS.

These steps are described in detail in the Pacific Southwest Region's draft document "MIS Analysis and Documentation in Project-Level NEPA, R5 Environmental Coordination" (May 25, 2006) (USDA Forest Service 2006a). This Management Indicator Species (MIS) Report documents application of the above steps to select project-level MIS and analyze project effects on MIS habitat for the Yuba Project.

1.b. Direction Regarding Monitoring of MIS Population and Habitat Trends at the Bioregional Scale.

The bioregional scale monitoring strategy for the Tahoe NF's MIS is found in the Sierra Nevada Forests Management Indicator Species Amendment (SNF MIS Amendment) Record of Decision (ROD) of 2007 (USDA Forest Service 2007a). Bioregional scale habitat monitoring is identified for all twelve of the terrestrial MIS. In addition, bioregional scale population monitoring, in the form of distribution population monitoring, is identified for all of the terrestrial MIS except for the greater sage-grouse. For aquatic macroinvertebrates, the bioregional scale monitoring identified is Index of Biological Integrity and Habitat. The current bioregional status and trend of populations and/or habitat for each of the MIS is discussed in the 2010 Sierra Nevada Forests Bioregional Management Indicator Species (SNF Bioregional MIS) Report (USDA Forest Service 2010a).

- **MIS Habitat Status and Trend.**

All habitat monitoring data are collected and/or compiled at the bioregional scale, consistent with the LRMP as amended by the 2007 SNF MIS Amendment ROD (USDA Forest Service 2007a).

Habitats are the vegetation types (for example, early seral coniferous forest) or ecosystem components (for example, snags in green forest) required by an MIS for breeding, cover, and/or feeding. MIS for the Sierra Nevada National Forests represent 10 major habitats and 2 ecosystem components (USDA Forest Service 2007a), as listed in Table 1. These habitats are defined using the California Wildlife Habitat Relationship (CWHR) System (CDFG 2005). The CWHR System provides the most widely used habitat relationship models for California's terrestrial vertebrate species (ibid). It is described in detail in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a).

Habitat status is the current amount of habitat on the Sierra Nevada Forests. Habitat trend is the direction of change in the amount or quality of habitat over time. The methodology for assessing habitat status and trend is described in detail in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a).

- **MIS Population Status and Trend.**

All population monitoring data are collected and/or compiled at the bioregional scale, consistent with the LRMP as amended by the 2007 SNF MIS Amendment ROD (USDA Forest Service 2007a). The information is presented in detail in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a).

Population monitoring strategies for MIS of the Tahoe NF are identified in the 2007 Sierra Nevada Forests Management Indicator Species (SNF MIS) Amendment ROD (USDA Forest Service 2007a). Population status is the current condition of the MIS related to the population monitoring data required in the 2007 SNF MIS Amendment ROD for that MIS. Population trend is the direction of change in that population measure over time.

There are a myriad of approaches for monitoring populations of MIS, from simply detecting presence to detailed tracking of population structure (USDA Forest Service 2001, Appendix E, page E-19). A distribution population monitoring approach is identified for all of the terrestrial MIS in the 2007 SNF MIS Amendment, except for the greater sage-grouse (USDA Forest Service 2007a). Distribution population monitoring consists of collecting presence data for the MIS across a number of sample locations over time. Presence data are collected using a number of direct and indirect methods, such as surveys (population surveys), bird point counts, tracking number of hunter kills, counts of species sign (such as deer pellets), and so forth. The specifics regarding how these presence data are assessed to track changes in distribution over time vary by species and the type of presence data collected, as described in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a).

- **Aquatic Macroinvertebrate Status and Trend.**

For aquatic macroinvertebrates, condition and trend is determined by analyzing macroinvertebrate data using the predictive, multivariate River Invertebrate Prediction And Classification System (RIVPACS) (Hawkins 2003) to determine whether the macroinvertebrate community has been impaired relative to reference condition within perennial water bodies. This monitoring consists of collecting aquatic macroinvertebrates and measuring stream habitat features according to the Stream Condition Inventory (SCI) manual (Frasier et al. 2005). Evaluation of the condition of the biological community is based upon the "observed to expected" (O/E) ratio, which is a reflection of the number of species observed at a site versus the number expected to occur there in the absence of impairment. Sites with a low O/E scores have lost many species predicted to occur there, which is an indication that the site has a lower than expected richness of sensitive species and is therefore impaired.

2. Selection of Project level MIS

Management Indicator Species (MIS) for the Tahoe NF are identified in the 2007 Sierra Nevada Forests Management Indicator Species (SNF MIS) Amendment (USDA Forest Service 2007a). The habitats and ecosystem components and associated MIS analyzed for the project were selected from this list of MIS, as indicated in Table 1. In addition to identifying the habitat or ecosystem components (1st column), the CWHR type(s) defining each habitat/ecosystem component (2nd column), and the associated MIS (3rd column), the Table discloses whether or not the habitat of the MIS is potentially affected by the Yuba Project (4th column).

Table 1. Selection of MIS for Project-Level Habitat Analysis for the Yuba Project.

Habitat or Ecosystem Component	CWHR Type(s) defining the habitat or ecosystem component[1]	Sierra Nevada Forests Management Indicator Species *Scientific Name*	Category for Project Analysis [2]
Riverine & Lacustrine	lacustrine (LAC) and riverine (RIV)	aquatic macroinvertebrates	2
Shrubland (west-slope chaparral types)	montane chaparral (MCP), mixed chaparral (MCH), chamise-redshank chaparral (CRC)	fox sparrow *Passerella iliaca*	3
Sagebrush	Sagebrush (SGB)	greater sage-grouse *Centrocercus urophasianus*	1
Oak-associated Hardwood & Hardwood/conifer	montane hardwood (MHW), montane hardwood-conifer (MHC)	mule deer *Odocoileus hemionus*	1
Riparian	montane riparian (MRI), valley foothill riparian (VRI)	yellow warbler *Dendroica petechia*	2
Wet Meadow	Wet meadow (WTM), freshwater emergent wetland (FEW)	Pacific tree (chorus) frog *Pseudacris regilla*	3
Early Seral Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree sizes 1, 2, and 3, all canopy closures	Mountain quail *Oreortyx pictus*	3
Mid Seral Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree size 4, all canopy closures	Mountain quail *Oreortyx pictus*	3
Late Seral Open Canopy Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree size 5, canopy closures S and P	Sooty (blue) grouse *Dendragapus obscurus*	3
Late Seral Closed Canopy Coniferous Forest	ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), tree size 5	California spotted owl *Strix occidentalis occidentalis*	3
		American marten *Martes americana*	

	(canopy closures M and D), and tree size 6.	northern flying squirrel *Glaucomys sabrinus*	
Snags in Green Forest	Medium and large snags in green forest	hairy woodpecker *Picoides villosus*	3
Snags in Burned Forest	Medium and large snags in burned forest (stand-replacing fire)	black-backed woodpecker *Picoides arcticus*	1

[1] All CWHR size classes and canopy closures are included unless otherwise specified; **dbh** = diameter at breast height; **Canopy Closure classifications:** S=Sparse Cover (10-24% canopy closure); P= Open cover (25-39% canopy closure); M= Moderate cover (40-59% canopy closure); D= Dense cover (60-100% canopy closure); **Tree size classes:** 1 (Seedling)(<1" dbh); 2 (Sapling)(1"-5.9" dbh); 3 (Pole)(6"-10.9" dbh); 4 (Small tree)(11"-23.9" dbh); 5 (Medium/Large tree)(≥24" dbh); 6 (Multi-layered Tree) [In PPN and SMC] (Mayer and Laudenslayer 1988).

[2] **Category 1:** MIS whose habitat is not in or adjacent to the project area and would not be affected by the project.
Category 2: MIS whose habitat is in or adjacent to project area, but would not be either directly or indirectly affected by the project.
Category 3: MIS whose habitat would be either directly or indirectly affected by the project.

There are no sagebrush or oak associated hardwood habitats within the Yuba Project area. Riparian habitats occur within the project area. The RCA guidelines identify inner riparian zones within which no activities would occur. Riparian vegetation and riverine and lacustrine habitats will not be affected from the proposed actions. Best Management Practices developed for this project protect water quality. Therefore, there are no effects to aquatic invertebrates or yellow warbler habitat. This project does not propose to remove any snags within burned forests, so there are no effects to black-backed woodpecker habitat.

The MIS whose habitat would be either directly or indirectly affected by the Yuba Project, identified as Category 3 in Table 1, are carried forward in this analysis, which will evaluate the direct, indirect, and cumulative effects of the proposed action and alternatives on the habitat of these MIS. The MIS selected for project-level MIS analysis for the Yuba Project are: Fox sparrow, Pacific tree frog, Mountain quail, sooty blue grouse, Ca. spotted owl, American marten, Northern flying squirrel, and the Hairy woodpecker.

3. Bioregional Monitoring Requirements for MIS Selected for Project-Level Analysis

3.a. MIS Monitoring Requirements.

The Sierra Nevada Forests Management Indicator Species (SNF MIS) Amendment (USDA Forest Service 2007a) identifies bioregional scale habitat and/or population monitoring for the Management Indicator Species for ten National Forests, including the Tahoe NF. The habitat and/or population monitoring requirements for the Tahoe NF's MIS are described in the 2010 Sierra Nevada Forests Bioregional Management Indicator Species (SNF Bioregional MIS) Report (USDA Forest Service 2010a) and are summarized below for the MIS being analyzed for the Yuba Project. The applicable habitat and/or population monitoring results are also described

in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a) and are summarized in Section 5 below for the MIS being analyzed for the Yuba Project.

Habitat monitoring at the bioregional scale is identified for all the habitats and ecosystem components, including the following analyzed for the Yuba Project: shrubland; wet meadow; early seral coniferous forest; mid seral coniferous forest; late seral open canopy coniferous forest; late seral closed canopy coniferous forest; snags in green forest.

Population monitoring at the bioregional scale for fox sparrow, Pacific tree frog, mountain quail, blue grouse, California spotted owl, American marten, northern flying squirrel, and hairy woodpecker: Distribution population monitoring. Distribution population monitoring consists of collecting presence data for the MIS across a number of sample locations over time (also see USDA Forest Service 2001, Appendix E).

3.b. How MIS Monitoring Requirements are Being Met.

Habitat and/or distribution population monitoring for all MIS is conducted at the Sierra Nevada scale. Refer to the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a) for details by habitat and MIS.

4. Description of Proposed Project.

The Yuba Project area is located in Sierra County approximately five miles northeast of sierra City, CA. The yuba project proposes vegetation management on 6,965 acres to reduce fuels, move forest condition towards its historic range of canopy and structure, and reduce encroachment of conifers into meadows and aspens. These activities are proposed to occur within a 14,545-acre project area. See the proposed action in the Yuba Project Environmental Assessment for a more detailed description of the project. The proposed action includes the following activities: (1) Mechanical thinning, (2) Hand thinning of smaller sized trees and brush, (4) Prescribed burning, (5) Precommercial thinning (chainsaw), (6) Aspen restoration, (7) Road Decommissioning (9) Non-motorized trail construction, (10) Control of non-native invasive plants through manual removal in specified locations, (11) Meadow enhancement by removing conifers and maintaining roads

Table 2. Summary of Yuba Project Treatments with pre- and post-treatment CWHR Type Acres

Treatment Prescription	Acres	Pre-treatment CWHR type – Acres (same as No Action)	Alternative A Post Treatment CWHR Type - Acres	Alternative C Post Treatment CWHR Type - Acres
Mechanical Thinning	1,185		14 acres 4M to 5M 449 acres 4D to 4M	449 acres 4D to 4M

		Late Seral: SMC 5D—48 acres Mid Seral: RFR/SMC/WFR 4D—611 acres 4M—526 acres	Late Seral: SMC 5D—48 acres SMC 5M—14 acres Mid Seral: RFR/SMC/WFR 4D—179 acres 4M—944	Late Seral: SMC 5D—48 acres Mid Seral: RFR/SMC/WFR 4D—179 acres 4M—958
Pre-commercial Thin plantation	68	SMC 1, 2,3--68	SMC 1, 2,3--68	SMC 1, 2,3--68
Powerline Hazard tree and understory veg management	323	MCP—125 Mid open RFR/SMC 4S/P--198 Late Open: RFR/SMC 5S/P--63	No change	No change
Helitorch Burn Shrubs	846	MCP—846--dense	MCP 846--sparse	MCP 846—sparse
Manage Forest Fuels – Underburn with Prescribed Fire	3,258	Late closed—661: SMC6--74 WFR/RFR 5M—587 Late open—605: RFR/SMC/WFR 5S, 5P Mid open—167: SMC/WFR 4P Mid closed—520: LPN/RFR/WFR 4M—341 LPN/RFR/SMC/WFR4D--179 Early—521: LPN3M-22 RFR1S, 1P--293 RFR2S, 2P--186 RFR3S, 3P--20	No change	No change

Manage Forest Fuels—Hand cut understory, pile and pile burn	574	Late Closed: RFR/WFR 5M—71 Late Open: SMC/WFR 5P, 5S—26 Mid closed: LPN/RFR/SMC/WFR 4M--80	No change	No change
Trail Construction	0.75	RFR/SMC 4P	BAR—0.75	BAR—0.75
Road Mgt. – Decommissioning	5	BAR – 5	BAR--5	BAR - 5
Aspen Enhancement	155	RFR5P—25 SMC5P—11 SMC5S—10 WFR5P—13 WFR4M—32 SMC4M--64	ASP – 155	ASP – 59 WFR/SMC 4M-96
Meadow Restoration	345	WTM—345	WTM--345	WTM—345

The following additional proposals would occur within a variety of CWHR types: Invasive plant treatments, install bird nest boxes, construct wildlife cover piles, and allow Christmas tree cutting along roads. These activities would occur sporadically, and they are spread out within units and linearly along roads, covering only fractions of an acre (< 0.1) in any one place. Their implementation would not change any CWHR type. Therefore, these proposals will not be analyzed further.

Table 3. Summary of Pre- and Post-treatment Terrestrial MIS Habitat Acres

Pre-treatment MIS Habitat – Acres (same as No Action)	**Post Treatment MIS Habitat – Acres – Alt. A**	**Change in MIS Habitat Acres**	**Post Treatment MIS Habitat – Acres – Alt. C**	**Change in MIS Habitat Acres**
Shrubs—MCP Underburn 846 Powerline 125	971	0 (971 from closed to sparse)	846	0 (971 from closed to sparse)
Wet Meadow WTM--345	345	0	345	0
Coniferous Forest, early seral – 68	Coniferous Forest, early seral -- 68	0	Coniferous Forest, early seral -- 68	0
Coniferous Forest, mid seral – 2250	Coniferous Forest, mid seral--2236		Coniferous Forest, mid seral – 2250	0

Pre-treatment MIS Habitat – Acres (same as No Action)	Post Treatment MIS Habitat – Acres – Alt. A	Change in MIS Habitat Acres	Post Treatment MIS Habitat – Acres – Alt. C	Change in MIS Habitat Acres
Thinning: 1185 Aspen Rest: 96 Powerline: 198 Underburn: 687 Hand cut/pile: 80 Trail const.: 0.75	Thinning: 1174 Apen Rest: 0 Powerline: 198 Underburn: 687 Hand cut/pile: 80 Trail const.: 0.75	-14 acres (changes to late seral) -96 ac. 4M	Thinning: 1185 Aspen Rest: 96 Powerline: 198 Underburn 687 Hand cut/pile: 80 Trail const.: 0.75	
Coniferous, late seral, open--728 Aspen Rest: 34 Powerline: 63 Underburn 605 Hand cut/pile: 26	Coniferous, late seral, open 728 Aspen Rest: 34 Powerline: 63 Underburn 605 Hand cut/pile: 26	0	Coniferous, late seral, open 728 Aspen Rest: 34 Powerline: 63 Underburn 605 Hand cut/pile: 26	0
Coniferous, late seral, closed Thinning: 48 ac Powerline: 198 Underburn: 661 Hand cut/pile: 71	Coniferous, late seral, closed Thinning: 62 ac Powerline: 198 Underburn: 661 Hand cut/pile: 71	Thinning: +14 acres	Coniferous, late seral, closed Thinning: 48 ac. Powerline: 198 Underburn: 661 Hand cut/pile: 71	0

5. Effects of Proposed Project on the Habitat for the Selected Project-Level MIS.

The following section documents the analysis for the following 'Category 3' species: fox sparrow, Pacific tree frog, mountain quail, blue grouse, California spotted owl, American marten, northern flying squirrel, and hairy woodpecker. The analysis of the effects of the Yuba Project on the MIS habitat for the selected project-level MIS is conducted at the project scale. The analysis used the following habitat data: Forest vegetation maps showing forest strata (STRATA_80), crosswalk vegetation layers for CWHR types (CWHR_00), seral stage maps (SERAL_00), corrected strata using stand exam data, digital orthophoto quads and aerial photos. Detailed information on the MIS is documented in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a), which is hereby incorporated by reference.
Detailed information on the MIS is documented in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a), which is hereby incorporated by reference.

Cumulative effects at the bioregional scale are tracked via the SNF MIS Bioregional monitoring, and detailed in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a).

Shrubland (West-Slope Chaparral) Habitat (Fox Sparrow)

Habitat/Species Relationship.
The fox sparrow was selected as the MIS for shrubland (chaparral) habitat on the west-slope of the Sierra Nevada, comprised of montane chaparral (MCP), mixed chaparral (MCH), and chamise-redshank chaparral (CRC) as defined by the California Wildlife Habitat Relationships System (CWHR) (CDFG 2005). Recent empirical data from the Sierra Nevada indicate that, in the Sierra Nevada, the fox sparrow is dependent on open shrub-dominated habitats for breeding (Burnett and Humple 2003, Burnett et al. 2005, Sierra Nevada Research Center 2007).

Project-level Effects Analysis - Shrubland (West-Slope Chaparral) Habitat

Habitat Factor(s) for the Analysis: (1) Acres of shrubland (chaparral) habitat [CWHR montane chaparral (MCP), mixed chaparral (MCH), and chamise-redshank chaparral (CRC)]. (2) Acres with changes in shrub ground cover class (Sparse=10-24%; Open=25-39%; Moderate=40-59%; Dense=60-100%). (3) Acres with changes in CWHR shrub size class (Seedling shrub (seedlings or sprouts <3years); Young shrub (no crown decadence); Mature Shrub (crown decadence 1-25%); Decadent shrub (>25%).

Current Condition of the Habitat Factor(s) in the Project Area: There are 1,504 acres of montane chaparral with a dense canopy cover present within the Yuba Project area, which represents 10% of the 14,545-acre project area. These are currently dense canopy shrubs comprised of a mix of the following species: *Arctostaphylos patula, Garryea fremontii, Prunus emarginata,* and *Ceanothus sp.* The Yuba Project would prescribe burn 846 acres, and reduce shrubs beneath powerlines to protect the lines within 125 acres.

Alternatives A and C (Action Alternatives)
Direct and Indirect Effects to Habitat. Prescribed burning would occur within 846 acres out of 1504 that are in the project area, reducing shrub canopy in 56% of the shrub habitats that are present to an open condition. Arctostaphylos patula is a burl sprouting shrub that recovers quickly following fire. Within five to ten years the shrubs would have rejuvenated to a moderate density. After about ten years, shrub cover would again be dense.

Cumulative Effects to Habitat in the Analysis Area. The Yuba Project analysis area, which encompasses 14,545 acres, is the spatial boundary selected for the cumulative effects analysis. Shrub habitats comprise 10% of the analysis area. These shrub habitats are concentrated in the southwestern portion of the project area, which previously burned in the past 100 years. The Bassett's Fire reburned a proportion of shrubs in 2006. There are no additional reasonably foreseeable future actions that have been identified that affect this habitat.

Cumulative Effects Conclusion: The change in shrub ground cover would not alter the existing trend in this habitat, as shrubs would readily grow back following burning and cutting.

Summary of Fox Sparrow Status and Trend at the Bioregional Scale

The Tahoe NF LRMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the fox sparrow; hence, the shrubland effects analysis for the Yuba Project must be informed by both habitat and distribution population monitoring data. The sections below summarize the habitat and distribution population status and trend data for the fox sparrow. This information is drawn from the detailed information on habitat and population trends in the 2010 Sierra Nevada Forests Bioregional MIS Report (USDA Forest Service 2010a), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 1,009,681 acres of west-slope chaparral shrubland habitat on National Forest System lands in the Sierra Nevada. Over the last two decades, the trend is slightly increasing (changing from 8% to 9% of the acres on National Forest System lands).

Population Status and Trend. . Monitoring of the fox sparrow across the ten National Forests in the Sierra Nevada has been conducted since 2009 in partnership with PRBO Conservation Science, as part of a monitoring effort that also includes mountain quail, hairy woodpecker, and yellow warbler (USDA Forest Service 2010a, http://data.prbo.org/partners/usfs/snmis/). Fox sparrows were detected on 36.9% of 1659 point counts in 2009 and 44.3% of 2266 point counts in 2010, with detections on all 10 national forests in both years. The average abundance (number of individuals recorded on passive point count surveys) was 0.563 in 2009 and 0.701 in 2010. These data indicate that fox sparrows continue to be distributed across the 10 Sierra Nevada National Forests. In addition, the fox sparrows continue to be monitored and surveyed in the Sierra Nevada at various sample locations by avian point count, spot mapping, mist-net, and breeding bird survey protocols. These are summarized in the 2008 Bioregional Monitoring Report (USDA Forest Service 2008). Current data at the rangewide, California, and Sierra Nevada scales indicate that, although there may be localized declines in the population trend, the distribution of fox sparrow populations in the Sierra Nevada is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Fox Sparrow Trend.

The change in cover of 846 acres out of 1,504 acres of shrubs in the Yuba Project Area will not alter the existing trend in the habitat, nor will it lead to a change in the distribution of fox sparrows across the Sierra Nevada bioregion.

Wet Meadow Habitat (Pacific tree (chorus) frog)

Habitat/Species Relationship.
The Pacific tree frog (now known as the Pacific chorus frog) was selected as an MIS for wet meadow habitat in the Sierra Nevada. This broadly distributed species requires standing water for breeding; tadpoles require standing water for periods long enough to complete aquatic development, which can be as long as 3 or more months at high elevations in the Sierra Nevada (CDFG 2005). During the day during the breeding season, adults take cover under clumps of vegetation and surface objects near water; during the remainder of the year, they leave their breeding sites and seek cover in moist niches in buildings, wells, rotting logs or burrows (ibid).

Project-level Effects Analysis – Wet Meadow Habitat

Habitat Factor(s) for the Analysis: (1) Acres of wet meadow habitat [CWHR wet meadow (WTM) and freshwater emergent wetland (FEW)]. (2) Acres with changes in CWHR herbaceous height classes [short herb (<12”), tall herb (>12”)]. (3) Acres with changes in CWHR herbaceous ground cover classes (Sparse=2-9%; Open=10-39%; Moderate=40-59%; Dense=60-100%). (4) Changes in meadow hydrology.

Current Condition of the Habitat Factor(s) in the Project Area: Wet meadow habitat within the Yuba Project area is limited, totaling only 20 acres. Eighty years of successful fire suppression has allowed conifers to encroach into meadow habitats. As these conifers take up water and transpire, they continuously lower water tables, which dries meadows.

Alternatives A and C (Action Alternatives)
Direct and Indirect Effects to Habitat. The action alternatives would conduct meadow enhancement within 18 acres of wet meadows out of 20 acres within the Yuba Project area. This action would cut out conifers, primarily lodgepole pine, that has encroached into the meadow edges. A proportion of larger trees would be girdled and recruited as snags. Because conifers compete with other vegetation for water, removing encroaching trees would help to raise the water table and improve wet meadow habitats where this occurs. This will allow sun to get to meadow vegetation and encourage herbaceous vegetation to occur.

Cumulative Effects to Habitat in the Analysis Area. There are no records of fire occurring within any meadows in the Yuba Project area. Successful fire suppression has allowed conifers, especially lodgepole to encroach into meadows. Roads running through or adjacent to most meadows has diverted water from running across the meadow, and concentrated it into culverts and ditches, some of which are eroding. There have been no meadow restoration projects that have occurred in the project area in the past 15 years, and no future projects are planned outside of the Yuba Project.

Cumulative Effects Conclusion: Removing encroaching conifers would free up water and make it more available to meadow grasses and forbs. The Yuba Project would add beneficial effects to meadows in the project area.

Summary of Pacific Tree (Chorus) Frog Status and Trend at the Bioregional Scale
The Tahoe NF LRMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the Pacific tree (chorus) frog; hence, the wet meadow effects analysis for the Yuba Project must be informed by both habitat and distribution population monitoring data. The sections below summarize the habitat and distribution population status and trend data for the Pacific tree (chorus) frog. This information is drawn from the detailed information on habitat and population trends in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 61,247 acres of wet meadow habitat on National Forest System lands in the Sierra Nevada. Over the last two decades, the trend is stable.

Population Status and Trend. Since 2002, the Pacific tree (chorus) frog has been monitored on the Sierra Nevada forests as part of the Sierra Nevada Forest Plan Amendment (SNFPA) monitoring plan (USDA Forest Service 2006b, 2007b, 2009, 2010b; Brown 2008). These data indicate that Pacific tree (chorus) frog continues to be present at these sample sites, and current data at the rangewide, California, and Sierra Nevada scales indicate that the distribution of Pacific tree (chorus) frog populations in the Sierra Nevada is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Pacific Tree (Chorus) Frog Trend. Actions to remove competing conifers from within 18 acres of wet meadow habitat within the Yuba Project area will improve conditions for herbaceous vegetation. This will improve the existing trend in the habitat in the Yuba Project Area. Because this is such a small area, it will not lead to a change in the distribution of Pacific tree frogs across the Sierra Nevada bioregion.

Early and Mid Seral Coniferous Forest Habitat (Mountain quail)

Habitat/Species Relationship.
The mountain quail was selected as the MIS for early and mid seral coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, red fir, and eastside pine) habitat in the Sierra Nevada. Early seral coniferous forest habitat is comprised primarily of seedlings (<1” dbh), saplings (1”-5.9” dbh), and pole-sized trees (6”-10.9” dbh). Mid seral coniferous forest habitat is comprised primarily of small-sized trees (11”-23.9” dbh). The mountain quail is found particularly on steep slopes, in open, brushy stands of conifer and deciduous forest and woodland, and chaparral; it

may gather at water sources in the summer, and broods are seldom found more that 0.8 km (0.5 mi) from water (CDFG 2005).

Project-level Effects Analysis – Early and Mid Seral Coniferous Forest Habitat

Habitat Factor(s) for the Analysis: (1) Acres of early (CWHR tree sizes 1, 2, and 3) and mid seral (CWHR tree size 4) coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, red fir, and eastside pine) habitat [CWHR ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree sizes 1, 2, 3, and 4, all canopy closures]. (2) Acres with changes in CWHR tree size class. (3) Acres with changes in tree canopy closure. (4) Acres with changes in understory shrub canopy closure.

Current Condition of the Habitat Factor(s) in the Project Area: There is a total of 6,143 acres of early and mid-seral forests in the 15,454-acre project area, which represents 40% of the project. Early and Mid-seral forests currently are uniform and overstocked, with little within-stand diversity. Successful fire suppression has created an unnaturally high level of small woody debris on the forest floor, and tree branches occurring close to the forest floor that creates ladder fuels into the canopy. There are few forest openings, that characterize forests that occur under a natural fire regime. Stands are also overstocked, and trees are competing for water and nutrients.

<u>Alternative A (Proposed Action)</u>
Direct and Indirect Effects to Habitat.

Yuba Project proposals within early and mid Seral Coniferous Forest Habitat.

This project proposes the following: thin 68 acres of early seral forests and another 1188 acres of mid-seral forests, restore aspens within 96 acres of open canopy mid-seral forests, remove hazard trees along the powerlines within 198 acres, underburn 687 acres, Hand cut, pile and burn understory fuels in 80 acres, and construct trail that would traverse 0.75 acres. In Alternative A, thinning in mid-seral forests would remove enough small trees within 14 acres so that the average tree diameter that remains would increase the CWHR size class from 4M to 5M. Because thinning would not occur in these 14 acres in Alternative C, there would be no change in these same 14 acres. All other treatments would retain the current CWHR size classes. Thinning in Alternative A would change the overall canopy cover density in 432 acres of 4D, changing it to 4M. This would not change of overall quantity of MIS habitat in the project area.

Cumulative Effects to Habitat in the Analysis Area.

The Yuba Project analysis area, which encompases 15,454 acres is the spatial boundary selected for the cumulative effects analysis area. The temporal period selected for this project is habitat changes since 2007, because this is the time period for which forest vegetation layers and disturbances are readily available. Early seral habitats comprise 10% of the project area, and mid-seral forests comprise 30%. There has been no logging on private or public land within this

time frame that has changed or reduced the quality of any of these habitats. Neither of the action alternatives would change the overall distribution of habitats. There are no reasonably foreseeable future actions that have been identified that would affect these habitats. Alternative A would change 14 acres of mid-seral habitat to late-seral, based on the average size of trees in the stand. This occurs by removing enough small diameter trees, while retaining the large diameter trees, that the average diameter of the remaining trees increases.

Cumulative Effects Conclusion: Both action alternatives A and B would reduce canopy cover by thinning plantations and mid-seral forests. Alternative A in the Yuba Project changes the current quantity of early and mid-seral forests by only 14 acres, changing 14 acres considered to be mid-seral into late seral. This is less than 1% of the mid-seral habitat in the project area. Alternative C would not change the quantity of any early and mid-seral forests.

Summary of Mountain Quail Status and Trend at the Bioregional Scale

The Tahoe NF LRMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the mountain quail; hence, the early and mid seral coniferous forest effects analysis for theYuba Project must be informed by both habitat and distribution population monitoring data. The sections below summarize the habitat and distribution population status and trend data for the mountain quail. This information is drawn from the detailed information on habitat and population trends in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 530,851 acres of early seral and 2,776,022 acres of mid seral coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir) habitat on National Forest System lands in the Sierra Nevada. Over the last two decades, the trend for early seral is decreasing (changing from 9% to 5% of the acres on National Forest System lands) and the trend for mid seral is increasing (changing from 21% to 25% of the acres on National Forest System lands).

Population Status and Trend. Monitoring of the mountain quail across the ten National Forests in the Sierra Nevada has been conducted since 2009 in partnership with PRBO Conservation Science, as part of a monitoring effort that also includes fox sparrow, hairy woodpecker, and yellow warbler (USDA Forest Service 2010a, http://data.prbo.org/partners/usfs/snmis/). Mountain quail were detected on 40.3 percent of 1659 point counts (and 48.6% of 424 playback points) in 2009 and 47.4% of 2266 point counts (and 55.3% of 492 playback points) in 2010, with detections on all 10 national forests in both years. The average abundance (number of individuals recorded on passive point count surveys) was 0.103 in 2009 and 0.081 in 2010. These data indicate that mountain quail continue to be distributed across the 10 Sierra Nevada National Forests. In addition, mountain quail continue to be monitored and surveyed in the Sierra Nevada at various sample locations by hunter survey, modeling, and breeding bird survey protocols. These are summarized in the 2008 Bioregional Monitoring Report (USDA Forest Service 2008).Current data at the rangewide, California, and Sierra

Nevada scales indicate that the distribution of mountain quail populations in the Sierra Nevada is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Mountain Quail Trend. The change in canopy closure on 1256 acres (17%) of the 6,979 acres of early to mid-seral habitats that are present within the Project Area will not alter the existing trend in the habitat, nor will it lead to a change in the distribution of mountain quail across the Sierra Nevada bioregion. Both Action alternatives retain the current quantity of early and mid-seral stands.

Late Seral Open Canopy Coniferous Forest Habitat [Sooty (blue) grouse]

Habitat/Species Relationship.
The sooty grouse was selected as the MIS for late seral open canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, red fir, and eastside pine) habitat in the Sierra Nevada. This habitat is comprised primarily of medium/large trees (equal to or greater than 24 inches dbh) with canopy closures less than 40%. Sooty grouse occurs in open, medium to mature-aged stands of fir, Douglas-fir, and other conifer habitats, interspersed with medium to large openings, and available water, and occupies a mixture of mature habitat types, shrubs, forbs, grasses, and conifer stands (CDFG 2005). Empirical data from the Sierra Nevada indicate that Sooty Grouse hooting sites are located in open, mature, fir-dominated forest, where particularly large trees are present (Bland 2006).

Project-level Effects Analysis - Late Seral Open Canopy Coniferous Forest Habitat

Habitat Factor(s) for the Analysis: (1) Acres of late seral open canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, red fir, and eastside pine) habitat [CWHR ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), eastside pine (EPN), tree size 5, canopy closures S and P]. (2) Acres with changes in tree canopy closure class. (3) Acres with changes in understory shrub canopy closure class.

Current Condition of the Habitat Factor(s) in the Project Area: There are 3,236 acres of late seral open canopy stands in the Yuba Project area, which represents 21% of the 15,250-acre project area. There has been little to no fire occurring within these habitats, and successful fire suppression has resulted in conifer encroachment into aspen stands. Encroachment is occurring sufficiently to put the long-term persistence of aspens at risk throughout the project area.

Alternative A (Proposed Action)
Direct and Indirect Effects to Habitat.

There are 728 acres on late seral open stands proposed for treatments as follows: 34 acres aspen restoration, 63 acres of hazard tree removal along powerlines, 605 acres of underburning, and 26 acres of hand cutting and piling understory fuels. This represents 22% of the 3,236 acres of late seral open canopy forests in the Yuba project area.

Underburning, removing understory vegetation, and hazard tree removal would not change the CWHR types. Aspen treatments in Alternative A would remove overstory conifers in 34 acres of aspens, and would reduce conifer canopy cover. The aspen restoration represents 34 acres out of 3,236 acres, of 1% of late seral open canopy stands in the Yuba Project area. In Alternative C, the aspen restoration would not occur. The Project proposal includes the retention of large legacy trees, and if legacy conifers are not present, the retention of at least 2 of the largest conifers per acre. This would still retain late seral open conifer stands, while regenerating the aspens.

Cumulative Effects to Habitat in the Analysis Area. The Yuba Project analysis area, which encompases 15,250 acres is the spatial boundary selected for the cumulative effects analysis area. The temporal period selected for this project is habitat changes since 2007, because this is the time period for which forest vegetation layers and disturbances are readily available. Late seral open habitats comprise 21% of the project area. There has been no logging on private or public land within this time frame that has changed or reduced the quality of any of these habitats. Neither of the action alternatives would change the overall distribution of habitats. There are no reasonably foreseeable future actions that have been identified that would affect these habitats. Alternative A would change 14 acres of mid-seral habitat to late-seral, based on the average size of trees in the stand. This occurs by removing enough small diameter trees, while retaining the large diameter trees, that the average diameter of the remaining trees increases.

Cumulative Effects Conclusion: Both action alternatives A and B would retain the overall quantity of late-seral forests in the project Area. Alternative A would reduce canopy cover in 34 acres (1%), but would retain the early seral open CWHR type, while Alternative C would not treat the 34 acres. This is a negligible difference, and does not affect CWHR typing.

Summary of Sooty Grouse Status and Trend at the Bioregional Scale

The Tahoe NF LRMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the sooty grouse; hence, the late seral open canopy coniferous forest effects analysis for the Yuba Project must be informed by both habitat and distribution population monitoring data. The sections below summarize the habitat and distribution population status and trend data for the sooty grouse. This information is drawn from the detailed information on habitat and population trends in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 63,795 acres of late seral open canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, red fir, and eastside pine) habitat on National Forest System lands in the Sierra Nevada. Over the last two decades, the trend is decreasing (changing from 3% to 1% of the acres on National Forest System lands).

Population Status and Trend. The sooty grouse has been monitored in the Sierra Nevada at various sample locations by hunter survey, modeling, point counts, and breeding bird survey protocols, including California Department of Fish and Game Blue (Sooty) Grouse Surveys (Bland 1993, 1997, 2002, 2006); California Department of Fish

and Game hunter survey, modeling, and hunting regulations assessment (CDFG 2004a, CDFG 2004b); Multi-species inventory and monitoring on the Lake Tahoe Basin Management Unit (LTBMU 2007); and 1968 to present – BBS routes throughout the Sierra Nevada (Sauer et al. 2007). These data indicate that sooty grouse continue to be present across the Sierra Nevada, except in the area south of the Kern Gap, and current data at the rangewide, California, and Sierra Nevada scales indicate that the distribution of sooty grouse populations in the Sierra Nevada north of the Kern Gap is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Sooty Grouse Trend. The change in canopy cover in 34 acres of these habitats out of 3,236 acres (1%) of late seral open canopy coniferous forests in the Project Area will not alter the existing trend in the habitat, nor will it lead to a change in the distribution of sooty grouse across the Sierra Nevada bioregion.

Late Seral Closed Canopy Coniferous Forest Habitat (California spotted owl, American marten, and northern flying squirrel)

Habitat/Species Relationship.

California spotted owl. The California spotted owl was selected as an MIS for late seral closed canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir) habitat in the Sierra Nevada. This habitat is comprised primarily of medium/large trees (equal to or greater than 24 inches dbh) with canopy closures above 40% within ponderosa pine, Sierran mixed conifer, white fir, and red fir coniferous forests, and multi-layered trees within ponderosa pine and Sierran mixed conifer forests. The California spotted owl is strongly associated with forests that have a complex multi-layered structure, large-diameter trees, and high canopy closure (CDFG 2005, USFWS 2006). It uses dense, multi-layered canopy cover for roost seclusion; roost selection appears to be related closely to thermoregulatory needs, and the species appears to be intolerant of high temperatures (CDFG 2005). Mature, multi-layered forest stands are required for breeding (Ibid). The mixed-conifer forest type is the predominant type used by spotted owls in the Sierra Nevada: about 80 percent of known sites are found in mixed-conifer forest, with 10 percent in red fir forest (USDA Forest Service 2001).

American Marten. The American marten was selected as an MIS for late seral closed canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir) habitat in the Sierra Nevada. This habitat is comprised primarily of medium/large trees (equal to or greater than 24 inches dbh) with canopy closures above 40% within ponderosa pine, Sierran mixed conifer, white fir, and red fir coniferous forests, and multi-layered trees within ponderosa pine and Sierran mixed conifer forests. Martens prefer coniferous forest habitat with large diameter trees and snags, large down logs, moderate-to-high canopy closure, and an interspersion of riparian areas and meadows. Important habitat attributes are: vegetative diversity, with predominately mature forest; snags; dispersal cover; and large woody debris (Allen 1982). Key components for westside and eastside marten habitat can be found in the Sierra Nevada Forest Plan Amendment FEIS (USDA Forest Service 2001), Volume 3, Chapter 3, part 4.4, pages 20-21.

Northern flying squirrel. The northern flying squirrel was selected as an MIS for late seral closed canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir)

habitat in the Sierra Nevada. This habitat is comprised primarily of medium/large trees (equal to or greater than 24 inches dbh) with canopy closures above 40% within ponderosa pine, Sierran mixed conifer, white fir, and red fir coniferous forests, and multi-layered trees within ponderosa pine and Sierran mixed conifer forests. The northern flying squirrel occurs primarily in mature, dense conifer habitats intermixed with various riparian habitats, using cavities in mature trees, snags, or logs for cover (CDFG 2005).

Project-level Effects Analysis – Late Seral Closed Canopy Coniferous Forest Habitat.

Habitat Factor(s) for the Analysis: (1) Acres of late seral closed canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir) habitat [CWHR ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR), tree size 5 (canopy closures M and D), and tree size 6]. (2) Acres with changes in canopy closure (D to M). (3) Acres with changes in large down logs per acre or large snags per acre.

Current Condition of the Habitat Factor(s) in the Project Area: There are 3,326 acres of late-seral closed canopy habitats, which represents 22% of the 15,250 acres in the Project Area. Field inventories within the stands proposed for thinning determined that the stands are overstocked, increasing their susceptibility to unnaturally high levels of mortality in the future. Fire exclusion has resulted in ladder fuels and an accumulation of small dead wood and litter that risk the longer term persistence of these stands during a wild fire.

<u>Alternative A (Proposed Action)</u>

Direct and Indirect Effects to Habitat. The Yuba Project would Thin 48 acres of late seral closed stands, remove hazard trees along the powerlines in 198 acres, underburn 661 acres, and hand cut, pile, and burn smaller understory vegetation in 71 acres. None of the proposals would change the existing CWHR type. Thinning 14 acres of one mid-seral closed-canopy stand would raise the average diameter of trees in the stand, so that it adds these 14 acres as a late seral habitat. This is because many small diameter trees are removed, while the largest trees are retained. Underburning woud restore fire into the system and make the stands more resilient to a wild fire, and thinning would reduce tree competition making the stand more resilient to insect attacks. Thinning 48 acres affects 1% of the late seral closed-canopy habitats in the Project area.

Cumulative Effects to Habitat in the Analysis Area The Yuba Project analysis area, which encompasses 15,250 acres is the spatial boundary selected for the cumulative effects analysis area. The temporal period selected for this project is habitat changes since 2007, because this is the time period for which forest vegetation layers and disturbances are readily available. There are 3,326 acres of late seral closed habitats that comprise 22% of the project area. There has been no logging on private or public land within this time frame that has changed or reduced the quality of any of these habitats. Neither of the action alternatives would change the overall distribution of habitats. There are no reasonably foreseeable future actions that have been identified that would affect these habitats. Alternative A would change 14 acres of mid-seral

habitat to late-seral, based on the average size of trees in the stand. This occurs by removing enough small diameter trees, while retaining the large diameter trees so that the average diameter of the remaining trees increases.

Cumulative Effects Conclusion: Both action alternatives A and B would retain the overall quantity of late-seral forests in the project Area. Alternative A would recruit 14 acres of mid-seral into late seral, while Alternative C would not treat the 14 acres enough to raise the average tree diameter enough to change the CWHR type. This is a negligible difference, and does not meaningfully change the CWHR types in the project area..

Summary of Status and Trend at the Bioregional Scale

California spotted owl, American marten, and Northern flying squirrel. The Tahoe NF LRMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the California spotted owl, American marten, and northern flying squirrel; hence, the late seral closed canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir) habitat effects analysis for the Yuba Project must be informed by both habitat and distribution population monitoring data. The sections below summarize the habitat and distribution population status and trend data. This information is drawn from the detailed information on habitat and population trends in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 1,006,923 acres of late seral closed canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir) habitat on National Forest System lands in the Sierra Nevada. Over the last two decades, the trend is slightly increasing (changing from 7% to 9% of the acres on National Forest System lands); since the early 2000s, the trend has been stable at 9%.

Population Status and Trend - California spotted owl. California spotted owl has been monitored in California and throughout the Sierra Nevada through general surveys, monitoring of nests and territorial birds, and demography studies (Verner et al. 1992; Gutierrez et al. 2008, 2009, 2010; USDA Forest Service 2001, 2004, 2006b; USFWS 2006; Sierra Nevada Research Center 2007, 2008, 2009, 2010). Current data at the rangewide, California, and Sierra Nevada scales indicate that, although there may be localized declines in population trend [e.g., localized decreases in “lambda” (estimated annual rate of population change)], the distribution of California spotted owl populations in the Sierra Nevada is stable.

Population Status and Trend – American marten. American marten has been monitored throughout the Sierra Nevada as part of general surveys and studies since 1996 (e.g., Zielinski et al. 2005, Moriarty 2009). Since 2002, the American marten has been monitored on the Sierra Nevada forests as part of the Sierra Nevada Forest Plan

Amendment (SNFPA) monitoring plan (USDA Forest Service 2005, 2006b, 2007b, 2009, 2010b). Current data at the rangewide, California, and Sierra Nevada scales indicate that, although marten appear to be distributed throughout their historic range, their distribution has become fragmented in the southern Cascades and northern Sierra Nevada, particularly in Plumas County. The distribution appears to be continuous across high-elevation forests from Placer County south through the southern end of the Sierra Nevada, although detection rates have decreased in at least some locatized areas (e.g., Sagehen Basin area of Nevada County).

Population Status and Trend – northern flying squirrel. The northern flying squirrel has been monitored in the Sierra Nevada at various sample locations by live-trapping, ear-tagging, camera surveys, snap-trapping, and radiotelemetry: 2002-present on the Plumas and Lassen National Forests (Sierra Nevada Research Center 2007, 2008, 2009, 2010), and 1958-2004 throughout the Sierra Nevada in various monitoring efforts and studies (see USDA Forest Service 2008, Table NOFLS-IV-1). These data indicate that northern flying squirrels continue to be present at these sample sites, and current data at the rangewide, California, and Sierra Nevada scales indicate that the distribution of northern flying squirrel populations in the Sierra Nevada is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Trends.

California spotted owl. The change in canopy closure within 48 acres under Alternative A affects 1% of these habitats present in the Project Area, and they do not change the CWHR type. Alternative A recruits an additional 14 acres of CWHR 5M, while alternative C does not. The difference between the two action alternatives is negligible, affecting less than 1% of the habitat type. Neither action alternative will alter the existing trend in the habitat, nor will it lead to a change in the distribution of the California spotted owl across the Sierra Nevada bioregion.

American marten. The change in canopy closure within 48 acres under Alternative A affects 1% of these habitats present in the Project Area, and they do not change the CWHR type. Alternative A recruits an additional 14 acres of CWHR 5M, while alternative C does not. The difference between the two action alternatives is negligible, affecting less than 1% of the habitat type. Neither action alternative will alter the existing trend in the habitat, nor will it lead to a change in the distribution of the American marten across the Sierra Nevada bioregion

Northern flying squirrel. The change in canopy closure within 48 acres under Alternative A affects 1% of these habitats present in the Project Area, and they do not change the CWHR type. Alternative A recruits an additional 14 acres of CWHR 5M, while alternative C does not. The difference between the two action alternatives is negligible, affecting less than 1% of the habitat type. Neither action alternative will alter the existing trend in the habitat, nor will it lead to a change in the distribution of the northern flying squirrel across the Sierra Nevada bioregion

Snags in Green Forest Ecosystem Component (Hairy woodpecker)

Habitat/Species Relationship.
The hairy woodpecker was selected as the MIS for the ecosystem component of snags in green forests. Medium (diameter breast height between 15 to 30 inches) and large (diameter breast height greater than 30 inches) snags are most important. The hairy woodpecker uses stands of large, mature trees and snags of sparse to intermediate density; cover is also provided by tree cavities (CDFG 2005). Mature timber and dead snags or trees of moderate to large size are apparently more important than tree species (Siegel and DeSante 1999).

Project-level Effects Analysis – Snags in Green Forest Ecosystem Component

Habitat Factor(s) for the Analysis: (1) Medium (15-30 inches dbh) snags per acre. (2) large (greater than 30 inches dbh) snags per acre.

Current Condition of the Habitat Factor(s) in the Project Area: Stand exams were conducted with a focus of quantifying the existing condition of snags within units proposed for treatment in the Project Area. These indicate that existing snag numbers vary, averaging approximately 4-12 snags per acre. This meets the six snags per acre as identified in the Sierra Nevada Forest Plan Amendment for snag retention in fir forests. Hazard trees, if they are present along roads, would be removed only along Forest Service or County roads level 1 and 2. Only hazard trees that could result in the tree falling across the road would be removed. This equates to an estimated These equate to approximately 408 acres where hazardous snags would be felled. Management Requirements are included in the Project design requiring that hazardous snags be retained to meet downed wood retention levels.

<u>Alternative A (Proposed Action)</u>
Direct and Indirect Effects to Habitat.

Alternatives A and C propose to fell hazardous snags within approximately 408 acres, out of 15,250 total acres, which would affect 3% of the Project Area. Underburning is proposed within 3,938 acres, or 26% of the project area, which will cause some tree mortality, and recruit additional snags within treatment areas. The exact numbers reduced or recruited are not known from underburns, but it is likely to recruit snags in a much greater proportion of the project area. Hazardous snags would not be removed following underburning, and would be recruited as downed logs.

Cumulative Effects to Habitat in the Analysis Area.

The Yuba Project analysis area, which encompasses 15,250 acres, is the spatial boundary selected for the cumulative effects analysis. The temporal period selected for this project The Yuba Project analysis area, which encompasses 15,250 acres is the spatial boundary selected for the cumulative effects analysis area. The temporal period selected for this project is habitat changes since 2007, because this is the time period for which forest vegetation layers and disturbances are readily available. There has been no logging on private or public land within this time frame that has changed or reduced the quality of any of these habitats. There are no

reasonably foreseeable future actions that have been identified that would affect these habitats. Alternatives A and C would reduce snags that occur within the falling distance of roads, but they would also recruit snags, by underburning 3,938 acres. There would likely be a net gain of snags within the project area from each of the action alternatives. An increasing trend at the scale of the Project will not alter the existing trend in the ecosystem component at the bioregional scale.

Cumulative Effects Conclusion: The decrease in the number of snags per acre in 3% of the Project area (408 of 15,250) and an increase in 23% (3,938 of 15,250) is likely to result in a net gain of this habitat component.

Summary of Hairy Woodpecker Status and Trend at the Bioregional Scale

The Tahoe NF LRMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the hairy woodpecker; hence, the snag effects analysis for the Yuba Project must be informed by both habitat and distribution population monitoring data. The sections below summarize the habitat and distribution population status and trend data for the hairy woodpecker. This information is drawn from the detailed information on habitat and distribution population trends in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a), which is hereby incorporated by reference.

Ecosystem Component Status and Trend. The current average number of medium-sized and large-sized snags (≥ 15" dbh, all decay classes) per acre across major coniferous and hardwood forest types (westside mixed conifer, ponderosa pine, white fir, productive hardwoods, red fir, eastside pine) in the Sierra Nevada ranges from 1.5 per acre in eastside pine to 9.1 per acre in white fir. In 2008, snags in these types ranged from 1.4 per acre in eastside pine to 8.3 per acre in white fir (USDA Forest Service 2008).

Data from the early-to-mid 2000s were compared with the current data to calculate the trend in total snags per acre by Regional forest type for the 10 Sierra Nevada national forests and indicate that, during this period, snags per acre increased within westside mixed conifer (+0.76), white fir (+2.66), productive hardwoods (+0.35), and red fir (+1.25) and decreased within ponderosa pine (-0.16) and eastside pine (-0.14) Detailed information by forest type, snag size, and snag decay class can be found in the 2010 SNF Bioregional MIS Report (USDA Forest Service 2010a).

Population Status and Trend. Monitoring of the hairy woodpecker across the ten National Forests in the Sierra Nevada has been conducted since 2009 in partnership with PRBO Conservation Science, as part of a monitoring effort that also includes mountain quail, fox sparrow, and yellow warbler (USDA Forest Service 2010a, http://data.prbo.org/partners/usfs/snmis/). Hairy woodpeckers were detected on 15.1% of 1659 point counts (and 25.2% of 424 playback points) in 2009 and 16.7% of 2266 point counts (and 25.6% of 492 playback points) in 2010, with detections on all 10 national forests in both years. The average abundance (number of individuals recorded on passive point count surveys) was 0.116 in 2009 and 0.107 in 2010. These data indicate that hairy woodpeckers continue to be distributed across the 10 Sierra Nevada National Forests. In addition, the hairy woodpeckers continue to be monitored and

surveyed in the Sierra Nevada at various sample locations by avian point count and breeding bird survey protocols. These are summarized in the 2008 Bioregional Monitoring Report (USDA Forest Service 2008).Current data at the rangewide, California, and Sierra Nevada scales indicate that the distribution of hairy woodpecker populations in the Sierra Nevada is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Hairy Woodpecker Trend.

The decrease in 3% of the habitat in the Yuba Project Area, and increase in 23% may increase the existing trend in the ecosystem component at the scale of the 15,250-acre Project, but it will not lead to a change in the distribution of hairy woodpecker across the Sierra Nevada bioregion.

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