Motorized Travel Management

Management Indicator Species Report

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Introduction

The purpose of this report is to evaluate and disclose the impacts of the Stanislaus National Forest (STF) Motorized Travel Management Project on the habitat of the twelve (12) Management Indicator Species (MIS) identified in the Stanislaus National Forest (STF) Land and Resource Management Plan (LMP) (USDA 1990) as amended by the Sierra Nevada Forests (SNF) MIS Amendment Record of Decision (ROD) (USDA 2007a). This report documents the effects of the proposed action and alternatives on the habitat of selected project-level MIS. Detailed descriptions of the STF Motorized Travel Management Project alternatives are found in the Environmental Impact Statement (EIS) (USDA 2008).

MIS are animal species identified in the SNF MIS Amendment 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). The current rule applicable to project decisions is the 2004 Interpretive Rule, which states "Projects implementing land management plans…must be developed considering the best available science in accordance with §219.36(a)…and must be consistent with the provisions of the governing plan." (Appendix B to §219.35). Guidance regarding MIS set forth in the STF LMP 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 STF LRMP as amended.

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 LMP as amended by the SNF MIS Amendment ROD.

Hence, where the STF LMP 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 STF LMP, as amended, for MIS analyzed for the STF Motorized Travel Management 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 LMP, 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). This MIS Report documents application of the above steps to select project-level MIS and analyze project effects on MIS habitat for the STF Motorized Travel Management Project.

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

The bioregional scale monitoring strategy for the STF's MIS is found in the SNF MIS Amendment ROD of 2007. 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. 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 SNF Bioregional MIS Report (USDA 2008).

MIS Habitat Status and Trend

All habitat monitoring data are collected and/or compiled at the bioregional scale, consistent with the LMP as amended by the 2007 SNF MIS Amendment ROD (USDA 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 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 SNF Bioregional MIS Report (USDA 2008).

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 SNF Bioregional MIS Report (USDA 2008).

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 2007a). The information is presented in detail in the 2008 SNF Bioregional MIS Report (USDA 2008).

Population monitoring strategies for MIS of the STF are identified in the 2007 SNF MIS Amendment ROD (USDA 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 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 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 SNF Bioregional MIS Report (USDA 2008).

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 (Frazier 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.

Selection of Project level MIS

MIS)for the STF are identified in the 2007 SNF MIS Amendment (USDA 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), Table 1 discloses whether or not the habitat of the MIS is potentially affected by the STF Motorized Travel Management Project (4th column).

Table 1. Selection of MIS for Project-Level Habitat Analysis for the STF Motorized Travel Management Project

Habitat or Ecosystem Component	CWHR Type(s) defining the habitat or ecosystem component[1]	Sierra Nevada Forests MIS *Scientific Name*	Category for Project Analysis[2]
Riverine & Lacustrine	lacustrine (LAC) and riverine (RIV)	aquatic macroinvertebrates	3
Shrubland (west-slope chaparral types)	montane chaparral (MCP), mixed chaparral (MCH), chamise-redshank chaparral (CRC)	fox sparrow *Passerella iliaca*	3
Oak-associated Hardwood & Hardwood/conifer	montane hardwood (MHW), montane hardwood-conifer (MHC)	mule deer *Odocoileus hemionus*	3
Riparian	montane riparian (MRI), valley foothill riparian (VRI)	yellow warbler *Dendroica petechia*	3
Wet Meadow	Wet meadow (WTM), freshwater emergent wetland (FEW)	Pacific tree 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 (canopy closures M and D), and tree size 6.	California spotted owl *Strix occidentalis occidentalis*	3
		American marten *Martes americana*	
		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*	2

[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] (CDFG 2005).

[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.

The black-backed woodpecker (Category 2) will not be discussed further in this analysis. Although habitat for the black-backed woodpecker occurs on the STF, it is only affected by fire salvage and fire restoration projects.

The MIS whose habitat would be either directly or indirectly affected by the STF Motorized Travel Management 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 STF Motorized Travel Management are the following: aquatic macroinvertebrates, fox sparrow, mule deer, yellow warbler, Pacific tree frog, mountain quail, sooty grouse (sooty grouse), California spotted owl, American marten, northern flying squirrel, and hairy woodpecker.

Bioregional Monitoring Requirements for MIS Selected for Project-Level Analysis

MIS Monitoring Requirements

SNF MIS Amendment (USDA 2007a) identifies bioregional scale habitat and/or population monitoring for the Management Indicator Species for ten National Forests, including the STF (USDA 2007a). The habitat and/or population monitoring requirements for STF's MIS are described in the SNF Bioregional MIS Report (USDA 2008) and are summarized below for the MIS being analyzed for the STF Motorized Travel Management Project. The applicable habitat and/or population monitoring results are described in the SNF Bioregional MIS Report (USDA 2008) and are summarized in Section 5 below for the MIS being analyzed for the STF Motorized Travel Management Project.

Habitat monitoring at the bioregional scale is identified for all the habitats and ecosystem components, including the following analyzed for the STF Motorized Travel Management Project: shrubland; oak-associated hardwood & hardwood/conifer; riparian; 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.

Bioregional Monitoring for aquatic macroinvertebrates: Index of Biological Integrity (IBI) and habitat condition and trend are measured by collecting aquatic macroinvertebrates, and analyzing the resulting data using the RIVPACS (Hawkins 2003) to determine whether the macroinvertebrate community has been impaired relative to reference condition within perennial water bodies. In addition, stream habitat features are measured according to the Stream Condition Inventory (SCI) manual (Frazier et al. 2005).

Population monitoring at the bioregional scale for fox sparrow, mule deer, yellow warbler, Pacific tree frog, mountain quail, sooty 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 2001, Appendix E).

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 SNF Bioregional MIS Report (USDA 2008) for details by habitat and MIS.

Description of Proposed Project

The STF Motorized Travel Management Project proposes the following: (1) prohibit motorized vehicle travel off of designated NFS roads, NFS trails and areas by the public, except as allowed by permit or other authorization (excluding snowmobile use); (2) add between 0 (Alt 3 - adds none) and 181.72 miles (Alt 4 – adds the most) of motorized routes to the current National Forest Transportation System (NFTS); seasonally restrict motorized use on native surface roads and trails; and change the class of vehicles.

@Table 2. Summary of Alternatives for STF Motorized Travel Management Project

Alternatives	Number of Acres Cross Country Travel	Miles of Route Additions	Areas Added to OHV Use	Seasons of Use
Alternative 1	All STF Lands	157.39	None	▪ Zone 1: all year ▪ Zone 2: 4/1-11/30 ▪ Zone 3: 5/15-11/30
Alternative 2	Prohibited 0 Designated Open: All STF Lands outside designated wilderness and roadless areas	0	None	▪ Forest Plan ▪ Existing Forest Orders
Alternative 3	All STF Lands	0	None	▪ Forest Plan ▪ Existing Forest Orders
Alternative 4	All STF Lands	181.72	None	▪ Zone 1: all year ▪ Zone 2: 4/1-12/31 ▪ Zone 3: 4/1-12/31
Alternative 5	All STF Lands	31.51	None	▪ Zone 1: all year ▪ Zone 2: 4/15-11/15 ▪ Zone 3: 5/15-11/15

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: aquatic macroinvertebrates, fox sparrow, mule deer, yellow warbler, Pacific tree frog, mountain quail, sooty grouse, California spotted owl, American marten, northern flying squirrel, and hairy woodpecker. The analysis of the effects of the STF Motorized Travel Management Project on the MIS habitat for the selected project-level MIS is conducted at the **project** scale. The analysis used the following habitat data: STF GIS Veg_1995 updated in 2000. Detailed information on the MIS is documented in the SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Cumulative effects at the bioregional scale are tracked via the SNF MIS Bioregional monitoring, and detailed in the SNF Bioregional MIS Report (USDA 2008).

Lacustrine/Riverine Habitat (Aquatic Macroinvertebrates)

Habitat/Species Relationship

Aquatic or Benthic Macroinvertebrates (BMI) were selected as the MIS for riverine and lacustrine habitat in the Sierra Nevada. They have been demonstrated to be very useful as indicators of water quality and aquatic habitat condition (Resh and Price 1984; Karr et al. 1986; Hughes and Larsen 1987; Resh and Rosenberg 1989). They are sensitive to changes in water chemistry, temperature, and physical habitat; aquatic factors of particular importance are the following: flow, sedimentation, and water surface shade.

Project-level Effects Analysis – Lacustrine/Riverine Habitat

Habitat Factor(s) for the Analysis: Flow; Sedimentation; and Water surface shade.

Flow. This habitat factor will not be affected by the proposed activities, and so will not be evaluated.

Sedimentation. This habitat factor will be ev)will be measured by route density within Riparian Conservation Areas (RCAs and stream crossing density within Riparian Conservation Areas (RCAs--RCAs are defined as the area within 100 feet on each side of intermittent streams and 300 feet of perennial streams. Lakes, ponds, and reservoirs are considered perennial and have a 300 foot RCA.)

Water surface shade. This habitat factor will be evaluated by assessing changes in water surface shade as a result of route locations that cross streams or are adjacent to streams, lakes and ponds. This change will serve to indicate changes in water surface shade to perennial and intermittent streams, and lakes and ponds.

Current Condition of the Habitat Factor(s) in the Project Area

Flow. There are currently approximately 2,307 miles of perennial stream, 2,533 miles of intermittent stream, and 18,323 acres of lakes, ponds, and reservoirs on the STF. These miles of perennial and intermittent streams, and acres of lakes, ponds, and reservoirs comprise the habitat for aquatic macroinvertebrates across the Forest.

Sedimentation. Native surfaced, motorized stream crossings and motorized routes within close proximity to riverine and lacustrine habitats can be a considerable source of sediment delivery to aquatic habitats important to macroinvertebrates (See Chapter 3.02 Water Resources). There are not currently any water bodies on the STF that are listed as impaired for sediment on the EPA's 303(d) List.

Water surface shade. Water surface shade varies tremendously on the STF depending on the type and amount of vegetation, topographic features, floodplain type, etc. that the watercourse falls within.

Direct and Indirect Effects to Habitat

Seasons of Use

Proposed seasons of use were analyzed for the project alternatives in terms of all aquatic species and their habitats. Motorized travel on native surfaced routes during the wet weather season has the potential to cause erosion and deliver sediment to aquatic species habitats.

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. Fish and other aquatic species would be benefited through the reduction of erosion and sedimentation that could occur from wet season wheeled motorized use on native-surfaced routes, especially motorized roads and trails that cross or are within close proximity to streams or other riparian aquatic habitats. The seasons of use

vary by alternative (see Table 2). Alternatives 2 and 3 only impose wet weather seasonal restrictions where current Forest Orders are in place. Since these closures are minimal, aquatic riparian dependent species would only slightly benefit from wet weather seasonal restrictions. Alternative 2 has the greatest number of motorized stream crossings and highest RCA route densities that could potentially deliver sediment to aquatic and riparian habitats from wheeled motorized use on native surfaced routes during the wet weather season.

Change in Class of Vehicle

The change in class of vehicle would not be expected to have any adverse impacts on riverine or lacustrine species. Alternatives 2 and 3 would not result in changes to vehicle class on any routes. Although there would be a significant amount of Maintenance Level 1 roads that would be converted to trails within the action alternatives (Alternative 1, 4, and 5), these changes would likely result in vegetation encroachment and narrowing of the exposed soil surface over the long-term. Vegetation encroachment and reductions in the exposed soil surface on routes near aquatic habitat would likely increase shade and decrease erosion and sedimentation; resulting in a beneficial impact to aquatic macroinvertebrates.

Prohibition of Cross Country Travel

Under Alternative 2, No Action, motorized cross country travel would not be prohibited on approximately 262,482 acres within RCAs, the potential for adversely affecting aquatic macroinvertebrate habitat factors by increasing sedimentation and altering water surface shade would exist. Under the action alternatives, prohibitions on cross country travel on 262,482 acres within RCAs would likely reduce the potential for sedimentation and alteration of water surface shade, and therefore benefit aquatic riverine and lacustrine habitat quality.

Proposed Route Additions to NFTS

Measures or indicators of changes in sedimentation and water surface shade are assessed by analyzing the number of stream crossings additions associated with motorized trail additions to the NFTS, and the miles motorized trail additions within RCAs for perennial and intermittent streams, and lakes, ponds, and reservoirs.

Number of Native Surfaced, Stream Crossings

The number of native-surfaced stream crossings is assessed for the alternatives, and provides a way to compare changes in sediment into riverine and lacustrine habitats for aquatic macroinvertebrates (Table 3). Alternative 2 poses the greatest risk of increased sedimentation where 173 stream crossings are affected by the continuance of cross country travel on unauthorized motorized trails. Of the action alternatives, Alternative 4 results in the greatest number of native surfaced, stream crossings (81 crossings) associated with proposed motorized trail additions to NFTS, followed by Alternatives 1, and 5, in descending order (Table 3). Alternative 3 does not add motorized trails to the NFTS, and therefore macroinvertebrate habitat factors of sedimentation or water surface shade would not be affected.

Table 3. Number of Native Surfaced, Stream Crossings Associated with Motorized Route Additions

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Motorized Stream crossings associated with proposed motorized route additions (negative impact)	69	173	0	81	19

Miles of Proposed Route Additions within RCAs

The miles of proposed motorized trail additions to the NFTS within RCAs were assessed for the alternatives, and provide additional information to assess the potential for off-site sediment delivery into riverine and lacustrine habitats for aquatic macroinvertebrates (Table 4). Alternative 2 poses the greatest risk to increased sedimentation potential from 40.92 miles of unauthorized motorized trails within RCAs that would remain due to not prohibiting cross country travel. Similar to stream crossing numbers, of the action alternatives, Alternative 4 also results in the greatest number of motorized route trails within RCAs that would be added to the NFTS, followed by Alternatives 1, and 5, in descending order (Table 4). As stated above, Alternative 3 does not add motorized trails to the NFTS, and therefore changes to macroinvertebrate habitat factors of sedimentation or water surface shade would not occur.

Table 4. Miles of Proposed Route Additions within Riparian Conservation Areas (RCAs)

	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5
Miles of proposed motorized trail additions within RCAs (negative impact)	16.50	40.92	0	19.30	3.0

Summary of Direct and Indirect Effects to Macroinvertebrate Habitat Factors

Table 5 summarizes the direct and indirect effects of macroinvertebrate habitat factors for the alternatives from proposed motorized trail additions to the National Forest Transportation System and cross country travel, including unauthorized motorized routes. None of the action alternatives are expected to measurably change the amount of habitat within intermittent and perennial streams, lakes, ponds, and reservoirs. Flows within intermittent and perennial streams are expected to remain in existing conditions. Habitat quality will be affected from changes to sedimentation and to water surface shade. The actions have been assessed for their potential to affect sedimentation, and to a lesser degree to water surface shade. Native surface road and motorized trail crossings and those routes within close proximity to watercourses have the potential to alter riparian habitat and therefore change the amount of water surface shade. These factors are measured by assessing the density of native surface road and motorized trails within the RCAs and the density of stream crossings within RCAs. (For a complete discussion on how the alternatives meet the Riparian Conservation Objectives (RCOs) Standards and Guidelines, see Riparian Conservation Objectives Analysis in the project record.) Water surface shade will be reduced by a very limited amount where shade has been removed by the proposed route crossings. Water surface shade alteration will depend upon the width of the crossing and the type of vegetation present at the crossing. Within some watercourses, water surface shade will either not be altered or only minimally reduced, such as at crossings within forested habitats. Crossings through riparian vegetation (herbaceous meadow plants and woody riparian shrubs) have resulted in a reduction of some water surface shade. The amount of

water surface shade will depend on the width of the crossings and the number of crossings (crossing density).

Table 5. Summary of Effects of Motorized Route Additions to Aquatic Macroinvertebrate Habitat Factors for the Alternatives

Alternatives	Changes in habitat quality in miles of Stream and Acres of Lakes/ Ponds/Reservoirs	Changes in Sediment Levels	Changes in Water Surface Shade
Alternative 1	Low	Increases (16.5 RCA route miles, 69 crossings)	Decreases
Alternative 2	Low	Increases the most (40.92 RCA route miles, 173 crossings)	Decreases the most
Alternative 3	Low	No Change	No Change
Alternative 4	Low	Increases (19.3 RCA route miles, 81 crossings)	Decreases
Alternative 5	Low	Increase the least (3.0 RCA route miles, 19 crossings)	Decreases the least

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to aquatic macroinvertebrates include all perennial and intermittent streams, lakes, ponds, and reservoirs located within the boundary of the STF.
Past and current cumulative effects to aquatic macroinvertebrate habitat that have affected the habitat factors of flow, sedimentation, and surface shade include the following: current and historic grazing along watercourses; loss of habitat (shade) and increased sedimentation through catastrophic wildfires; timber and fuels management where sedimentation has increased and cover has been reduced or removed; mining and dredging, urban development and expansion within a checkerboard land ownership pattern; and recreational activities such as hunting, camping, and general recreation activities including all forms of motorized use (4-wheeled drive vehicles, ATVs, motorcycles, etc.).

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on National Forest System (NFS) and private lands within the STF boundary. Some, but not all, of these activities will contribute to impacts to the aquatic macroinvertebrates within the STF boundary.

The STF currently has 35 active livestock grazing allotments including both cattle and sheep. Stanislaus LMP standards and guidelines, as amended by the Sierra Nevada Forest Plan Amendment (SNFPA) (USFS 2004), for grazing are generally reducing the amount of grazing impacts on rangelands.

From 2000 to 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. Many recent, current, and future vegetation and fuels reduction projects are designed to minimize effects to stream and riparian habitats by following RCOs as prescribed in the STF Forest Plan.

Approximately 37,000 acres burned on the STF from 2000 to 2008. Some of those wildfires may have resulted in changes in stream flow, increased sedimentation, and loss in surface cover.

Hydroelectric projects or impoundments are present on all major rivers on the STF with the exception of the Clavey River. Water developments have had a large impact on aquatic macroinvertebrates.

Impoundments can remove habitat for many species of aquatic invertebrates, while providing more habitat for other species (depending on a species' particular habitat needs). Impoundments have modified stream flows and water temperatures, and removed water surface shade, thus altering habitat for aquatic macroinvertebrates.

Currently, there is a high demand for recreational use on the STF due to its close proximity to urban centers. The STF provides a wide variety of recreational experiences including developed and dispersed camping, hiking, fishing, hunting, wildlife viewing, winter sports activities (downhill skiing, cross country skiing, snowmobiling), summer OHV use, and a variety of other non-motorized use (equestrian use and mountain biking). Recreational use on the STF has significantly increased compared to the past 20 to 30 years. Because of the proximity to urban areas and population growth, increased recreational use on the STF is expected to continue to increase in the future, including camping, hiking, fishing, wildlife viewing, hunting, and OHV use (See EIS, 3.04 Recreation Resources). Generally, the increase in recreational use on the STF has the potential to cause an increased impact to aquatic macroinvertebrate habitats because humans are attracted to streams, lakes, ponds, and reservoirs. Increased impacts to aquatic macroinvertebrate habitat would be expected, particularly during the summer months.

Cumulative Effects Conclusion

For the action alternatives, generally, changes in flow and water surface shade will be too small to be measured. When considering all the cumulative effects of past, present, and reasonably foreseeable future impacts from grazing, vegetation/fuels projects, wildfires, water developments, and recreation, Alternative 2 poses the greatest risk to the riverine and lacustrine habitats on the STF. Under this alternative cross country travel will continue on 262,482 acres within RCAs where there is the highest potential to reduce habitat quality by increasing sediment delivery and alter water surface shade to aquatic macroinvertebrate habitats.

Changes in class of vehicles on native surfaced routes may potentially increase sedimentation. Season of use implementation under Alternatives 1, 4, and 5 in Zones 2 and 3 would benefit macroinvertebrate habitat through the reduction of erosion and sedimentation that could result from wet-season wheeled motorized use on routes, especially native-surfaced wheeled motorized routes that are within close proximity to macroinvertebrate habitats.

Sedimentation of macroinvertebrate habitats would be the greatest under Alternative 2, where 173 stream crossings and 40.92 RCA miles of motorized trails would continue to have un-authorized motorized use since cross country is not prohibited. For the action alternatives, Alternative 4 results in the greatest number of native-surfaced stream crossings, followed by Alternatives 1, and 5, in descending order. Alternative 3 does not add any stream crossings because no route additions are proposed to the NFTS.

Summary of Aquatic Macroinvertebrate Status and Trend at the Bioregional Scale

The STF LMP (as amended by the SNF MIS Amendment) requires bioregional-scale Index of Biological Integrity and Habitat monitoring for aquatic macroinvertebrates; hence, the lacustrine and riverine effects analysis for the STF Motorized Travel Management Project must be informed by these monitoring data. The sections below summarize the Biological Integrity and Habitat status and trend data for aquatic

macroinvertebrates. This information is drawn from the detailed information on habitat and population trends in the SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Habitat and Index of Biological Integrity Status and Trend. Aquatic habitat has been assessed using Stream Condition Inventory (SCI) data collected since 1994 (Frazier et al. 2005) and habitat status information from the Sierra Nevada Ecosystem Project (SNEP) (Moyle and Randall 1996). Index of Biological Integrity is assessed using the River Invertebrate Prediction and Classification System (RIVPACS) and macroinvertebrate data collected since 2000 (see USDA 2008, Table BMI-1). These data indicate that the status and trend in the RIVPACS scores is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Aquatic Macroinvertebrates Habitat Trend

The STF Motorized Travel Management Project will affect the greatest amount of macroinvertebrate habitat under Alternative 2, through increased sedimentation and decreased surface shade, where 40.92 miles of motorized trails unauthorized to motorized public use would continue to occur under the continuance of cross country travel within RCAs. These motorized trails would effectively result in 173 native-surfaced stream crossings that could adversely affect the quality of macroinvertebrate habitats through increased sediment delivery and decreased surface water shade.

The analysis of the addition of motorized trails to the National Forest Transportation System (NFTS) for the action alternatives indicates Alternative 4 results in the greatest amount of impact to macroinvertebrate habitat, through the potential increase in sedimentation and decrease in surface water shade from motorized stream crossings and RCA route miles (19.3 RCA miles, 81 crossings). This alternative, in terms of impacts to macroinvertebrates, is followed by Alternatives 1 and 5, in descending order (Tables 3, 4, 5). Alternative 3 does not add any stream crossings or motorized trails within RCAs because no motorized trail additions to the NFTS are proposed under this alternative.

The action alternatives will not alter the existing trend in macroinvertebrate habitat, nor will it lead to a change in the distribution of macroinvertebrates across the Sierra Nevada bioregion. This is based on the relatively low amount of lacustrine and riverine habitat affected and the prohibition of cross country travel within 262,482 RCA acres.

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 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: For the proposed alternatives, the habitat factor used in this analysis was the amount of shrubland habitat (west-slope chaparral) that fell within a 200-meter zone of influence of proposed routes to be added to the NFTS. The no action alternative (Alternative 2) was analyzed by

determining the amount of shrubland habitat that fell within a 200 meter zone of influence of existing routes unauthorized for motorized public use.

Current Condition of the Habitat Factor(s) in the Project Area

The project area, comprised of the STF boundary, currently has 193,939 acres of shrubland habitat. Shrubland habitat is comprised of various age classes that range from young shrubs, intermediate, mature, to decadent age classes.

Direct and Indirect Effects to Habitat

Change in Class of Vehicles

Motorized routes have a "zone of influence" adjacent to those routes, within which habitat effectiveness or suitability is reduced and wildlife population densities are lower (Gaines et al. 2003, Trombulek and Frissell 2000). Although responses to motorized vehicle use varies by species and depends upon the type of vehicle, in addition to the intensity, timing, speeds, and amount motorized vehicle use, the specific species responses are not well understood. For this analysis, it is assumed that all vehicle types result in the same effects to fox sparrow habitat. Therefore, changes in the class of vehicles would not vary in their habitat effects on fox sparrow for all of the proposed alternatives.

Seasons of Use

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. The seasons of use vary by alternative (see Table 2). Fox sparrow habitat effectiveness would be benefited during the time of the seasonal closures through reduced disturbance and avoidance. Alternatives 2 and 3 would impose seasonal closures only where current Forest Orders are in place. Therefore, the fox sparrow habitat effectiveness would be minimally enhanced by seasonal closures under these alternatives.

Prohibition of Cross Country Travel

Under Alternative 2, cross country travel would not be prohibited, potentially affecting 193,939 acres of shrubland (west slope chaparral) habitat. Cross country travel could reduce habitat effectiveness through avoidance and abandonment by the fox sparrow due to disturbance. For the action alternatives, cross country travel would be prohibited on 193,939 acres, with the result that avoidance or abandonment due to disturbance would be reduced or eliminated. Existing LMP motorized prohibitions would remain in effect.

Proposed Route Additions to the NFTS

The direct and indirect effects to fox sparrow shrubland habitat from motorized trail additions to the NFTS results in a decrease in habitat quality displacement and/or avoidance of habitat due to disturbance as a result of activities associated with motorized vehicle use. Based on the analysis conducted for fox sparrow shrubland habitat, Alternative 2 would affect the greatest amount of habitat within a 200-meter zone of influence (Table 6). Approximately 9,232 acres or approximately 1% of Sierra Nevada-wide habitat would be affected by continued cross country travel on unauthorized motorized routes.

Alternative 4, 1, and 5 have decreasing direct and indirect effects to fox sparrow habitat, where a nominal percentage of Sierra Nevada-wide habitat would be affected by proposed motorized trail additions to the NFTS.

Table 6. Acres Cross Country Travel Prohibitions and Proportion of Fox Sparrow MIS habitat within a 200-meter "Zone of Influence" of Proposed Routes

Fox Sparrow MIS Habitat		Alt 1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Acres Cross Country Travel within Shrubland habitat						
Acres shrubland habitat where cross country travel would be prohibited		193,939	0	193.939	193,939	193,939
Fox Sparrow MIS habitat within a 200-meter "Zone of Influence" of Proposed Route Additions						
Acres shrubland (west-slope chaparral types)	Habitat Acres	2,941	9,232	0	3,336	678
Proportion of Habitat in Sierra Nevada	922,000	0.3%	1%	0%	0.4%	0.1%
Proportion of Habitat in Stanislaus NF boundary[2]	192,939	1.5%	4.8%	0%	1.7%	0.4%

[1]Alternative 2 includes existing routes unauthorized to motorized public use that would continue with continued cross country travel.

[2]The Zone of Influence within 200 meters of motorized routes includes both NFS and non-NFS lands within the boundary of the Stanislaus NF due to the complex checkerboard pattern. The proportion of habitat affected likely over-represents the actual amount of habitat affected on NFS lands.

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to fox sparrow includes all suitable fox sparrow shrubland on the STF. Past and current cumulative effects to shrubland habitat include the following: current and historic grazing of fox sparrow habitat; loss of habitat through catastrophic wildfires; timber and fuels management where cover and forage has been reduced or removed; urban development and expansion within a checkerboard land ownership pattern; and recreational activities including hunting, camping, and general recreation activities including all forms of motorized use including 4 wheeled drive vehicles, ATVs, and motorcycles.

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on NFS and private lands within the STF boundary. Some, but not all, of these activities will contribute to impacts to the fox sparrow within the STF boundary. From 2000 to 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. These treatments may result in some removal of shrubland habitat in the short-term, but may increase fox sparrow shrubland habitat in the long-term. From 2000 to 2008, approximately 37,000 acres burned on the STF, some of which have removed fox sparrow habitat, but over time, a large percentage of the burned areas quickly become revegetated by shrubland habitats, especially on highly productive sites.

The STF currently has 35 active livestock grazing allotments, including both cattle and sheep. STF LRMP standards and guidelines, as amended by the SNFPA (USFS 2004), for grazing are generally reducing the amount of grazing impacts on rangelands.

Currently, there is a high demand for recreational use on the STF due to its close proximity to urban centers. The STF provides a wide variety of recreational experiences including developed and dispersed camping, hiking, fishing, hunting, wildlife viewing, winter sports activities (downhill skiing, cross country skiing, snowmobiling), summer OHV use, and a variety of other non-motorized use (equestrian use and mountain biking). Recreational use on the STF has significantly increased compared to the past 20 to 30 years. Because of the proximity to urban areas and population growth, increased recreational use on the STF is expected to continue to increase in the future, including camping, hiking, fishing, wildlife viewing, hunting, and OHV use (See EIS, 3.04 Recreation Resources). Generally, the increase in recreational use on the STF has the potential to cause an increased impact to fox sparrow habitat because habitat effectiveness may diminish due to disturbance from the increased use.

Cumulative Effects Conclusion

Alternative 2 poses the greatest cumulative effects to fox sparrow shrubland habitat on the STF, where 9,232 acres out of 193,939 acres of fox sparrow habitat would be affected within a 200-meter zone of influence of existing unauthorized motorized routes. This would add to existing cumulative effects by approximately 4.8%. Although this alternative impacts the greatest amount of habitat within the project area, it would not be significant enough to result in a downward trend in fox sparrow habitat effectiveness. The remaining alternatives (Alternatives 1, 4, and 5) impact less than 2% of habitat and would not alter fox sparrow habitat within the project area. Alternatives 3 would not directly or indirectly affect fox sparrow habitat. Therefore, no cumulative effects would occur from implementation of this alternative.

Alternatives 1, 4, and 5 would impose seasons of use in Zones 2 and 3. Fox sparrow habitat effectiveness would benefit through the reduced disturbance and avoidance outside the seasons of use. The change in the class of vehicles would not affect fox sparrow habitat for all of the proposed alternatives. Finally, all the action alternatives would prohibit motorized cross country travel on 193,939 acres of fox sparrow habitat, where habitat effectiveness would be enhanced through reduced disturbance and avoidance.

Summary of Fox Sparrow Status and Trend at the Bioregional Scale

The STF LMP (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 STF Motorized Travel Management 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 Sierra Nevada Forests Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 922,000 acres of west-slope chaparral shrubland habitat on NFS lands in the Sierra Nevada. Within the last decade, the trend is stable.

Population Status and Trend. The fox sparrow has been monitored in the Sierra Nevada at various sample locations by avian point counts and breeding bird survey protocols, including: 1997 to present – Lassen National Forest (Burnett and Humple 2003, Burnett et al. 2005); 2002 to present - Plumas and

Lassen National Forests (Sierra Nevada Research Center 2007); on-going monitoring through California Partners in Flight Monitoring Sites (CPIF 2002); 1992 to 2005 – Sierra Nevada Monitoring Avian Productivity and Survivorship (MAPS) stations (Siegel and Kaschube 2007); and 1968 to present – Breeding Bird Survey (BBS) routes throughout the Sierra Nevada (Sauer et al. 2008). These data indicate that fox sparrows continue to be present at these sample sites, and 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 STF Travel Management Project would directly, indirectly, and cumulatively affect between 9,232 acres (highest) of fox sparrow shrubland habitat under Alternative 2 (No Action) and 0 acres (lowest) under Alternative 3. Based on the acres affected, which range from 0% to 1% of the total Sierra Nevada-wide, the STF Motorized Travel Management Project would not change the existing trend in the habitat, nor would it lead to a change in the distribution of fox sparrows across the Sierra Nevada bioregion.

Oak-Associated Hardwoods and Hardwood/Conifer Habitat (Mule deer)

Habitat/Species Relationship

The mule deer was selected as the MIS for oak-associated hardwood and hardwood/conifer in the Sierra Nevada, comprised of montane hardwood (MHW) and montane hardwood-conifer (MHC) as defined by CWHR (CDFG 2005). Mule deer range and habitat includes coniferous forest, foothill woodland, shrubland, grassland, agricultural fields, and suburban environments (CDFG 2005). Many mule deer migrate seasonally between higher elevation summer range and low elevation winter range (Ibid). On the west slope of the Sierra Nevada, oak-associated hardwood and hardwood/conifer areas are an important winter habitat (CDFG 1998).

Project-level Effects Analysis - Oak-Associated Hardwoods and Hardwood/Conifer Habitat

Habitat Factor(s) for the Analysis: For the proposed alternatives, the habitat factor used in this analysis was the amount of oak-associated hardwood and hardwood/conifer habitat that fell within a 200-meter zone of influence of proposed routes to be added to the NFTS. The no action alternative (Alternative 2) was analyzed by determining the amount of oak-associated hardwood and hardwood/conifer habitat that fell within a 200-meter zone of influence of existing unauthorized motorized routes.

Current Condition of the Habitat Factor(s) in the Project Area

The STF currently has 250,054 acres of oak-associated hardwood and hardwood/conifer habitat. Habitat is comprised of various age classes that range from sapling size with sparse canopy cover (CWHR size class 2S) to multi-layered stands with dense canopy cover (CWHR size class 6D).

Direct and Indirect Effects to Habitat

Change in Class of Vehicles

The change is the class of vehicles would have no effect to mule deer habitat, since the change in class of vehicles on existing motorized routes would generally not affect mule deer habitat condition.

Seasons of Use

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. The seasons of use vary by alternative (see Table 2). Mule deer habitat effectiveness would be benefited during the time of the seasonal closures through reduced disturbance and avoidance. Alternatives 2 and 3 would impose seasonal closures only where current Forest Orders are in place. Therefore, mule deer habitat effectiveness would be minimally enhanced by seasonal closures under these alternatives.

Prohibition of Cross Country Travel

Under Alternative 2, cross country travel would not be prohibited, potentially affecting 250,054 acres of oak-associated hardwood and hardwood/conifer habitat. The result would be reduced habitat effectiveness through disturbance, avoidance, and abandonment for the mule deer. For the action alternatives, cross country travel would be prohibited on 250,054 acres of habitat, where avoidance and abandonment of habitat by mule deer due to disturbance would be reduced or eliminated.

Proposed Route Additions to the NFTS

Mule deer were found to respond to disturbance associated with secondary motorized roads and trails within a 200-meter distance (Perry and Overly 1977, Rost and Bailey 1979, Johnson et al. 2000, Livezey 1991). Because deer may respond differently, depending on the type of route and the type of surrounding vegetation, analyzing for these variables can be complex. The amount of disturbance to deer depends upon the type of route, the intensity of use, and the degree to which motorized activities overlap with deer use. Deer can respond to disturbance by avoiding or abandoning otherwise suitable habitat. Thus, habitat effectiveness diminishes.

The project alternatives consider the addition of only motorized routes to the NFTS that are native surfaced. These types of routes are considered secondary. Therefore, a Zone of Influence within 200 meters of motorized routes was used by to compare differences in the direct and indirect impacts between alternatives for oak-associated hardwood and hardwood/conifer habitat used by deer. Oak-associated hardwood and hardwood/conifer habitats affected within a 200-meter zone of influence was then compared to the amount of oak-associated hardwood and hardwood/conifer habitat available Sierra Nevada-wide.

Areas that are less influenced by motorized roads and trails are considered “security habitat,” whereas the “zones of influence” are considered areas where deer are less secure. For alternative comparison purposes, a simple ranking system, such as the one developed by Gaines et al. (2003), is used. For this purpose, less than 25 percent of key habitat affected was ranked as a low level of road or trail influence, 25 to 50 percent of key habitat affected was ranked as a moderate level of influence, and greater than 50

percent of key habitat affected was ranked as a high level of influence. Using this ranking system, all the alternatives result in a low "security" risk to mule deer habitat. The habitat effectiveness of oak-associated hardwood and hardwood/conifer habitat would be minimally affected by the influence of motorized routes.

Alternative 2 poses the greatest risk to oak-associated hardwood and hardwood/conifer habitats by affecting 14,138 acres or 1.7% of Sierra Nevada-wide habitat (Table 7). These acres would result in reduced habitat effectiveness from potential disturbance or avoidance behavior as a result of factors associated with motorized roads and trails. Alternative 4, 1, and 5 have the next highest direct and indirect effects to mule deer habitat, where a nominal percentage of Sierra Nevada-wide habitat would be affected by proposed motorized trail additions to the NFTS.

Table 7. Acres of Cross Country Travel Prohibitions and Proportion of Mule Deer MIS habitat within a 200-meter "Zone of Influence" of Proposed Routes

		Alt 1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Acres of Cross Country Travel Prohibitions Within Oak-Associated Hardwood and Hardwood/Conifer Habitats						
Acres oak-associated and hardwood conifer habitat where cross country travel would be prohibited	250,054 habitat acres	0	250,054	250,054	250,054	250,054
Acres oak-associated and hardwood conifer habitat where cross country travel would not be prohibited		250,054	0	0	0	0
Proportion of Mule Deer MIS habitat within a 200-meter "Zone of Influence" of Proposed Routes						
Acres Oak-associated hardwood and hardwood/conifer habitats		3,596	14,138	0	3,954	927
Proportion of Sierra Nevada Habitat	809,000	0.4%	1.7%	0%	0.5%	0.1%
Proportion of Stanislaus NF Habitat[2]	250,054	1.4%	5.7%	0%	1.6%	0.4%

[1]Alternative 2 includes existing routes unauthorized to motorized public use that would continue with the continuance of cross country travel.

[2]The Zone of Influence within 200 meters of motorized routes includes both NFS and non-NFS lands within the boundary of the Stanislaus NF due to the complex checkerboard pattern. The proportion of habitat affected likely over-represents the actual amount of habitat affected on NFS lands

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to oak-associated hardwood and hardwood/conifer habitats includes all of these types of habitats within the boundary of the STF. Past and current cumulative effects to these habitats include the following: current and historic grazing of oak-associated hardwood and hardwood/conifer habitats; loss of habitat through catastrophic wildfires; timber and fuels management where cover and forage have been reduced or removed; urban development and expansion within a checkerboard land ownership pattern; and recreational activities such as hunting, camping, and general recreation activities including all forms of motorized use (4-wheeled drive vehicles, ATVs, and motorcycles, etc.).

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on NFS and private lands within the STF boundary. Some, but not all, of

these activities would contribute to impacts to oak-associated hardwood and hardwood/conifer habitats within the STF boundary.

From 2000 through 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. These treatments may result in short-term reduction of cover, though it is expected that greater amounts of habitat would be protected over the long-term from catastrophic wildfire. Furthermore, thinning treatments, through opening of the canopy, can increase early successional species that provide forage for mule deer. Many recent, current, and future vegetation and fuels reduction projects are emphasizing habitat improvement for deer by removing competing conifers within oak habitats and aspen habitats which are designed to enhance mule deer foraging condition.

Approximately 37,000 acres burned on the STF from 2000 through 2008. Some of these wildfires have removed mule deer habitat. Over time, a large percentage of the burned areas quickly becomes revegetated by early successional species, providing increased forage opportunities.

The STF currently has 35 active livestock grazing allotments. Grazing can reduce the quality of oak-associated hardwood and hardwood/conifer habitats through cattle browsing on oak, other hardwood species, and shrubs. Stanislaus LMP standards and guidelines, as amended by the SNFPA (USFS 2004), for grazing are generally reducing the amount of grazing impacts on rangelands.

Currently, there is a high demand for recreational use on the STF due to its close proximity to urban centers. The STF provides a wide variety of recreational experiences including developed and dispersed camping, hiking, fishing, hunting, wildlife viewing, winter sports activities (downhill skiing, cross country skiing, snowmobiling), summer OHV use, and a variety of other non-motorized use (equestrian use and mountain biking). Recreational use on the STF has significantly increased compared to the past 20 to 30 years. Because of the proximity to urban areas and population growth, increased recreational use on the STF is expected to continue to increase in the future including camping, hiking, fishing, wildlife viewing, hunting, and OHV use (see EIS, 3.04 Recreation Resources). Increased disturbance to mule deer would be expected due to the expected increase in recreation use, particularly during the summer months. The result would be a decrease in habitat effectiveness

When considering all the cumulative effects of past, present, and reasonably foreseeable future impacts from grazing, vegetation/fuels projects, wildfires, and recreation, Alternative 2 poses the greatest risk to oak-associated hardwood and hardwood/conifer habitats on the STF, where approximately 5.7% of that habitat would be affected. Alternatives 1 and 4 slightly increase the amount of cumulative effects on oak-associated hardwood and hardwood/conifer habitats, where site-specific localized effects may occur. Alternative 5 would only slightly increase overall cumulative impacts and would have a nominal impact on oak-associated hardwood and hardwood/conifer habitats within the STF. Alternative 3 does not add any unauthorized motorized routes to the National Forest Transportation System (NFTS), so does not add to existing cumulative impacts. All the action alternatives would result in a beneficial impact to oak-associated hardwood and hardwood/conifer habitats across the STF from the prohibition of cross-country travel. It is expected that non-motorized use may occur on these motorized routes unauthorized for motorized use. Non-motorized use would likely result in less disturbance to mule deer. However, some studies indicate that certain non-motorized activities (hiking, mountain bicycling, equestrian, etc.) could

actually result in greater disturbance to mule deer. Regardless, the amount of disturbance, can so the effectiveness of oak-associated hardwood and hardwood/conifer habitats, caused by non-motorized use would depend on the type, intensity and duration of the use. The prohibition of cross country travel would reduce mule deer disturbance from human activity. Therefore, the effectiveness of oak-associated hardwood and hardwood/conifer habitats would increase. The unauthorized routes which were not added to the NFTS may become revegetated and recover over time, either through active or passive restoration efforts. Thus, the amount of oak-associated hardwood and hardwood/conifer habitats may increase over time, although the increase is expected to be very slight. In addition, Alternatives 1, 4, and 5 would reduce disturbance to deer on most of the STF through the implementation of seasonal closures, thereby increasing oak-associated hardwood and hardwood/conifer habitat effectiveness during those closures.

Cumulative Effects Conclusion

Alternative 2 poses the greatest cumulative effects to oak-associated hardwood and hardwood/conifer habitat on the STF where 14,138 acres out of 250,054 acres of oak-associated hardwood and hardwood/conifer habitats would be affected within a 200-meter zone of influence of existing unauthorized motorized routes. This would add to existing cumulative effects by approximately 7.5%. Increasing direct and indirect effects on 7.5% of oak-associated hardwood and hardwood/conifer habitats within the project area could contribute to a downward trend in mule deer habitat effectiveness within oak-associated and hardwood/conifer habitats on the STF. All action alternatives (Alternatives 1, 4, and 5) would impact a small percentage of oak-associated hardwood and hardwood/conifer habitats that would not likely alter the existing trend in these habitats. Alternative 3 would not directly or indirectly affect oak-associated hardwood and hardwood/conifer habitats. Therefore, no cumulative effects would occur from implementation of this alternative.

The change is the class of vehicles would have no effect to oak-associated hardwood and hardwood/conifer habitats, since the change in class of vehicles on existing NFTS roads would generally not affect the condition of those habitats. Seasonal closures under Alternatives 1, 4, and 5 in Zones 2 and 3 would benefit oak-associated hardwood and hardwood/conifer habitat effectiveness through the reduced disturbance and avoidance when motorized use on routes are seasonally restricted. Finally, cross-country travel would be prohibited on 250,054 acres of oak-associated hardwood and hardwood/conifer habitats, with the implementation of the action alternatives, where disturbance, avoidance, and abandonment by mule deer would be reduced or eliminated.

Summary of Mule Deer Status and Trend at the Bioregional Scale

The STF LMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the mule deer; hence, the oak-associated hardwood and hardwood/conifer effects analysis for the STF Motorized Travel Management 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 mule deer. This information is drawn from the detailed information on habitat and population trends in the SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 809,000 acres of oak-associated hardwood and hardwood/mixed conifer habitat on NFS lands in the Sierra Nevada. The trend is slightly increasing (within the last decade, changing from 5% to 7% of the acres on NFS lands).

Population Status and Trend. The mule deer has been monitored in the Sierra Nevada at various sample locations by herd monitoring (spring and fall) and hunter survey and associated modeling (CDFG 2007). California Department of Fish and Game (CDFG) conducts surveys of deer herds in early spring to determine the proportion of fawns that have survived the winter, and conducts fall counts to determine herd composition (CDFG 2007). This information, along with prior year harvest information, is used to estimate overall herd size, sex and age rations, and the predicted number of bucks available to hunt (ibid). These data indicate that mule deer continue to be present across the Sierra Nevada, and current data at the rangewide, California, and Sierra Nevada scales indicate that, although there may be localized declines in some herds or Deer Assessment Units, the distribution of mule deer populations in the Sierra Nevada is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Mule Deer Trend

Alternative 2 results in the greatest amount of oak-associated hardwood and hardwood/conifer habitat affected by cross country travel--14,138 acres (1.7% of Sierra Nevada-wide habitat), including use on existing unauthorized motorized routes. The remaining alternatives would result in zero or nominal increases in acres of Sierra Nevada-wide oak-associated hardwood and hardwood/conifer habitats affected. Based on the small percentage of habitat affected, the STF Motorized Travel Management Project would not alter the existing habitat trend, nor would it lead to a change in the distribution of mule deer across the Sierra Nevada bioregion.

Riparian Habitat (Yellow warbler)

Habitat/Species Relationship

The yellow warbler was selected as the MIS for riparian habitat in the Sierra Nevada. This species is usually found in riparian deciduous habitats in summer (cottonwoods, willows, alders, and other small trees and shrubs typical of low, open-canopy riparian woodland) (CDFG 2005). Yellow warbler is dependent on both meadow and non-meadow riparian habitat in the Sierra Nevada (Siegel and DeSante 1999). On the STF, CWHR montane riparian habitat (MRI) provides suitable habitat for the yellow warbler.

Project-level Effects Analysis – Montane Riparian Habitat

Habitat Factor(s) for the Analysis: Two habitat factors were used to assess the effects of the proposed motorized trail additions to the NFTS for the alternatives on yellow warbler habitat. For Alternative 2, the habitat factors were used to assess the effects from existing motorized routes unauthorized for motorized use. The habitat factors used to assess direct and indirect effects of motorized routes for the yellow warbler were riparian habitat acres affected and the proportion of montane riparian habitat within a 200-meter “zone of influence” of motorized routes.

Habitat Acres: Acres of montane riparian habitat provides a measure of the direct effect to montane riparian habitat from proposed route additions. Habitat acres were determined by the length of the road/trail multiplied by the width of the road/trail. Road/trail width is assumed to be a maximum of 8 feet. In some cases, route width may be less; therefore, impacts may be somewhat over-emphasized.

Zone of Influence within 200 meters: For the action alternatives, the habitat factor used to assess the effects of yellow warbler habitat effectiveness consisted of determining the amount of montane riparian habitat that fell within a 200-meter zone of influence of proposed motorized trail additions.

Current Condition of the Habitat Factor(s) in the Project Area

The STF has approximately 3,166 acres CWHR montane riparian habitat (MRI).

Direct and Indirect Effects to Habitat

Change in Class of Vehicles

The change in class of vehicle would not be expected to have any adverse impacts on montane riparian habitat. Alternatives 2 and 3 would not result in changes to vehicle class on any routes. Although there would be a significant amount of Maintenance Level 1 roads that would be converted to trails within the action alternatives (Alternative 1, 4, and 5), these changes would likely result in vegetation encroachment and narrowing of the exposed soil surface over the long-term. Vegetation encroachment and reductions in the exposed soil surface on routes in montane riparian habitat would likely improve habitat conditions for the yellow warbler.

Seasons of Use

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. The seasons of use vary by alternative (see Table 2). Montane riparian habitats would benefit through the reduction of erosion and sedimentation that could occur from wet season wheeled motorized use on routes. The effectiveness of these yellow warbler habitats would benefit during the time of the seasonal closures through reduced disturbance to and habitat avoidance by the yellow warbler. Alternatives 2 and 3 would impose seasonal closures only where current Forest Orders are in place. Therefore, montane riparian habitat effectiveness would be minimally enhanced by seasonal closures under these alternatives.

Prohibition of Cross-Country Travel

Under Alternative 2, cross country travel would not be prohibited, affecting 3,166 acres of montane riparian habitat. Cross-country travel could reduce habitat effectiveness through avoidance and abandonment for the yellow warbler due to disturbance. For the action alternatives, cross-country travel would be prohibited on 3,166 acres, where avoidance and abandonment due to disturbance would be reduced or eliminated.

Proposed Route Additions to the NFTS

Table 9 displays the acres of montane riparian habitat directly and indirectly affected by the alternatives. Alternative 2 would affect the greatest amount of montane riparian habitat, suitable for yellow warbler. Under this alternative, continued use of unauthorized motorized routes would result in a loss or reduction

in montane riparian habitat within 0.16 out of 3,166 acres of STF montane riparian habitat. While this is more montane riparian habitat affected than under the other alternatives, it is a very small amount of increase (0.04 more acres). All of the project alternatives would result in nominal direct effects to montane riparian habitat that would not measurably affect yellow warblers.

Table 9. Proportion of Yellow Warbler MIS habitat affected by of Proposed Route Additions

Yellow Warbler MIS Habitat	Yellow Warbler Habitat Acres	Alt1	Alt2*	Alt 3	Alt 4	Alt 5
Acres Montane Riparian Habitat		0.12	0.16	0	0.12	0.12
Proportion of Sierra Nevada Habitat	29,000	<0.01%	<0.01%	0	<0.01%	<0.01%
Proportion of Stanislaus NF Habitat	3,166	<0.01%	<0.01%	0	<0.01%	<0.01%

*Alternative 2 includes existing routes unauthorized to motorized public use that would continue with the continuance of cross-country travel.

Table 10 displays the acres of montane riparian habitat that would be indirectly affected within a 200-meter zone of influence. All of the project alternatives would result in nominal indirect effects to montane riparian habitat and would not measurably affect yellow warblers.

Table 10. Proportion of Yellow Warbler MIS habitat within a 200-meter "Zone of Influence" of Proposed Routes

		Alt 1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Proportion of Yellow Warbler MIS habitat within a 200-meter "Zone of Influence" of Proposed Routes						
Acres Montane Riparian Habitat		21	25	0	23	18
Proportion of Sierra Nevada Habitat	29,000	<0.1%	<0.1%	0%	<0.1%	<0.1%
Proportion of Stanislaus NF Habitat[2]	3,166	0.66%	0.79%	0%	0.73%	0.57%

[1]Alternative 2 includes existing routes unauthorized to motorized public use that would continue with the continuance of cross country travel.

[2]The Zone of Influence within 200 meters of motorized routes includes both NFS and non-NFS lands within the boundary of the Stanislaus NF due to the complex checkerboard pattern. The proportion of habitat affected likely over-represents the actual amount of habitat affected on NFS lands

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to montane riparian habitats includes all of these habitats within the boundary of the STF.

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on NFS and private lands within the STF boundary. Some, but not all, of these activities would contribute to impacts to montane riparian habitats within the STF boundary. Past and current cumulative effects to these habitats include the following: current and historic grazing of montane riparian habitats; loss of habitat through catastrophic wildfires; timber and fuels management where riparian vegetation has been reduced or removed; water developments, including impoundments;

and recreational activities such as hunting, camping, and general recreation activities including all forms of motorized use (4-wheeled drive vehicles, ATVs, and motorcycles, etc.).

From 2000 through 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. Some of these treatments may result in short-term reduction of riparian vegetation, though it is expected that greater amounts of habitat would be protected over the long-term from catastrophic wildfire. Furthermore, thinning treatments, through opening of the canopy, can increase early successional riparian species. Many recent, current, and future vegetation and fuels reduction projects are emphasizing habitat improvement for riparian-associated species by removing competing conifers within aspen and other riparian habitats which are designed to improve riparian conditions.

Approximately 37,000 acres burned on the STF from 2000 through 2008. Some of these wildfires have removed montane riparian habitats. Over time, much of these habitats become revegetated by early successional riparian species, providing increased habitat for species such as the yellow warbler.

The STF currently has 35 active livestock grazing allotments. Grazing can reduce the quality of montane riparian habitats through cattle browsing on riparian species. Stanislaus LMP standards and guidelines, as amended by the SNF Plan Amendment (USFS 2004), for grazing are generally reducing the amount of grazing impacts on rangelands.

Hydroelectric projects or impoundments are present on all major rivers on the STF with the exception of the Clavey River. Many of these projects have affected streams that feed the rivers. Impoundments have removed montane riparian habitat through flooding and altered stream flow.

Currently, there is a high demand for recreational use on the STF due to its close proximity to urban centers. The STF provides a wide variety of recreational experiences including developed and dispersed camping, hiking, fishing, hunting, wildlife viewing, winter sports activities (downhill skiing, cross country skiing, snowmobiling), summer OHV use, and a variety of other non-motorized use (equestrian use and mountain biking). Recreational use on the STF has significantly increased compared to the past 20 to 30 years. Because of the proximity to urban areas and population growth, increased recreational use on the STF is expected to continue to increase in the future including camping, hiking, fishing, wildlife viewing, hunting, and OHV use (see EIS, 3.04 Recreation Resources). Increased disturbance to species such as the yellow warbler would be expected because of the expected increase in use. This increase would be particularly noticeable during the summer months, when many recreational users are attracted to riparian areas. The result of an increase in disturbance would be a decrease in habitat effectiveness

Because the alternatives would have such a small impact on montane riparian habitats (see Tables 9 and 10), the alternatives would add very little to the cumulative effects from the past, present, and reasonably foreseeable activities. All the action alternatives would result in a beneficial impact to montane riparian habitats across the STF from the prohibition of cross-country travel. It is expected that non-motorized use may occur on these unauthorized motorized routes. Non-motorized use would likely result in less disturbance to montane riparian associated species, and so would cause less of a reduction in habitat effectiveness. The unauthorized routes which were not added to the NFTS may become revegetated and recover over time, either through active or passive restoration efforts. Thus, the amount of montane riparian habitats may increase over time, although the increase is expected to be very slight.

In addition, Alternatives 1, 4, and 5 would reduce disturbance to montane riparian associated species on most of the STF through the implementation of seasonal closures, thereby increasing montane riparian habitat effectiveness during those closures.

Cumulative Effects Conclusion

The alternatives would contribute very little to the cumulative effects on montane riparian habitats and their associated species. The effects would not likely alter the existing trend in these habitats.

The change is the class of vehicles would have no effect on montane riparian habitats, since the change in class of vehicles on existing NFTS roads would generally not affect the condition of those habitats. Seasonal closures under Alternatives 1, 4, and 5 in Zones 2 and 3 would benefit montane riparian habitat effectiveness through the reduced disturbance and avoidance when motorized use on routes is seasonally restricted. Finally, cross-country travel would be prohibited on 3,166 acres of montane riparian habitats, with the implementation of the action alternatives, where disturbance, avoidance, and abandonment by yellow warbler and other montane riparian habitat associated species would be reduced or eliminated.

Summary of Yellow Warbler Status and Trend at the Bioregional Scale

The STF LMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the yellow warbler; hence, the riparian habitat effects analysis for the STF Motorized Travel Management 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 yellow warbler. This information is drawn from the detailed information on habitat and population trends in the SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 29,000 acres of riparian habitat on NFS lands in the Sierra Nevada. Within the last decade, the trend is stable.

Population Status and Trend. The yellow warbler has been monitored in the Sierra Nevada at various sample locations by avian point counts and breeding bird survey protocols, including Lassen NF (Burnett and Humple 2003, Burnett et al. 2005) and Inyo NF (Heath and Ballard 2003) point counts; on-going California Partners in Flight monitoring and studies (CPIF 2004); 1992 to 2005 – Sierra Nevada MAPS stations (Siegel and Kaschube 2007); and 1968 to present – BBS routes throughout the Sierra Nevada (Sauer et al. 2008). These data indicate that yellow warblers continue to be present at these sample sites, and current data at the rangewide, California, and Sierra Nevada scales indicate that the distribution of yellow warbler populations in the Sierra Nevada is stable.

Relationship of Project-level Habitat Impacts to Bioregional-Scale Yellow Warbler Trend

The STF Travel Management Project would directly, indirectly, and cumulatively affect between 25 acres (highest) of yellow warbler habitat under Alternative 2 (No Action) and 0 acres (lowest) under Alternative 3. Based on the acres affected, which under all alternatives are less than 0.1% of the total Sierra Nevada-

wide, the STF Motorized Travel Management Project would not change the existing trend in the habitat, nor would it lead to a change in the distribution of yellow warblers across the Sierra Nevada bioregion.

Wet Meadow Habitat (Pacific tree frog)

Habitat/Species Relationship

The Pacific tree 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: For this analysis the acres of wet meadow (WTM) habitat altered by the proposed alternatives is assessed. The amount of wet meadow altered or removed is calculated by determining the length of proposed routes that intersect wet meadows and multiplying by 8 feet (assumption: width of roads/trails equals 8 feet), and then converting to acres. Herbaceous cover, herbaceous plant height, and meadow hydrology have the potential to be indirectly affected by motorized roads and trails. In general, degradation in meadow hydrologic condition caused by motorized roads and trails can lead to reduced herbaceous cover and height, as well as changes in meadow plant species composition.

Current Condition of the Habitat Factor(s) in the Project Area

The STF currently has 19,165 acres of wet meadow habitat. Wet meadow habitat condition varies across the Forest from early, mid to late seral ecological status condition. In general, wet meadows on the STF predominately fall in the mid ecological status category. Wet meadow herbaceous ground cover ranges from sparse to dense depending upon the ecological status and management activities. Herbaceous height classes range from short to tall (<12” to >12”), with the majority averaging over 12” in height. Hydrological condition of wet meadows generally correlates with meadow ecological status.

Direct and Indirect Effects to Habitat

Change in Class of Vehicles

The change in class of vehicle would not be expected to have any adverse impacts on wet meadow habitat. Alternatives 2 and 3 would not result in changes to vehicle class on any routes. Although there would be a significant amount of Maintenance Level 1 roads that would be converted to trails within the action alternatives (Alternative 1, 4, and 5), these changes would likely result in vegetation encroachment and narrowing of the exposed soil surface over the long-term. Vegetation encroachment and reductions in the exposed soil surface on routes within wet meadows would likely improve habitat conditions for the Pacific tree frog.

Seasons of Use

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. The seasons of use vary by alternative (see Table 2). Wet meadow habitat for the Pacific tree frog would benefit through the reduction of erosion and sedimentation that could occur from wet season wheeled motorized use on routes, especially routes that are within close proximity to wet meadow habitats. Alternatives 2 and 3 would impose only seasonal closures where current Forest Orders are in place. Therefore, wet meadow habitat would be minimally protected by seasonal closures under these alternatives.

Prohibition of Cross-Country Travel

Under Alternative 2, cross-country travel would not be prohibited, affecting 19,165 acres of wet meadow habitat. Unrestricted travel over meadows can alter the hydrology of the meadows. As stated earlier, degradation in meadow hydrologic condition can lead to reduced herbaceous cover and height, as well as changes in meadow plant species composition. For the action alternatives, cross country travel would be prohibited on 19,165 wet meadow acres, where effects to wet meadow habitat would be reduced or eliminated.

Proposed Route Additions to NFTS

Table 11 displays the acres of wet meadow habitat directly and indirectly affected by the alternatives. Alternative 2 affects the greatest amount of wet meadow habitat, suitable for the Pacific tree frog, where continued use of unauthorized motorized routes results in a loss or reduction in montane riparian habitat within 1.27 out of 19,165 acres of STF wet meadow habitat. While this is more montane riparian habitat affected than under the other alternatives, it is a very small amount of increase (1.27 more acres affected). All of the project alternatives would result in nominal direct and indirect effects to wet meadow habitat that and would not measurably affect Pacific tree frogs.

Table 11. Proportion of Pacific Tree Frog MIS Wet Meadow habitat affected by of Proposed Motorized Trail Additions to the National Forest Transportation System

Pacific tree frog MIS Habitat	Wet Meadow Habitat Acres	Alt1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Acres Wet Meadow Habitat[2]		0.52	1.27	0	0.8	0.01
Proportion of Sierra Nevada Habitat	66,000	<0.01%	0%	0%	<0.01%	<0.01%
Proportion of Stanislaus NF Habitat	19,165	<0.01%	0.01%	0%	<0.01%	<0.01%

[1]Alternative 2 includes existing routes unauthorized to motorized public use under the continuance of cross country travel.

[2] The acres of wet meadow habitat affected by proposed route additions is calculated by multiplying the length of the route by the width of the route, and then converting to acres. The route width is assumed to be 8 feet. In some cases, route width will be less, and therefore, acres affected will be overestimated.

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to wet meadow habitat includes all of this habitat within the boundary of the STF.

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on NFS and private lands within the STF boundary. Some, but not all, of these activities would contribute to impacts to wet meadow habitat within the STF boundary. Past and current cumulative effects to this habitat include the following: current and historic grazing of wet meadow habitat habitats; loss of habitat through catastrophic wildfires; timber and fuels management; water developments, including impoundments; and recreational activities such as hunting, camping, and general recreation activities including all forms of motorized use (4-wheeled drive vehicles, ATVs, and motorcycles, etc.).

From 2000 through 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. These treatments rarely impact wet meadow habitat directly, though it is expected that greater amounts of habitat would be protected over the long term from catastrophic wildfire.

Approximately 37,000 acres burned on the STF from 2000 through 2008. Some of these wildfires have affected wet meadow habitat, although the effects have for the most part been slight.

The STF currently has 35 active livestock grazing allotments. Grazing can reduce the quality of wet meadow habitat through removal of meadow vegetation and through trampling. Stanislaus LMP standards and guidelines, as amended by the SNFPA (USFS 2004), for grazing are generally reducing the amount of grazing impacts on rangelands.

Hydroelectric projects or impoundments are present on all major rivers on the STF with the exception of the Clavey River. Some of these impoundments include what was wet meadow habitat.

Currently, there is a high demand for recreational use on the STF due to its close proximity to urban centers. The STF provides a wide variety of recreational experiences including developed and dispersed camping, hiking, fishing, hunting, wildlife viewing, winter sports activities (downhill skiing, cross country skiing, snowmobiling), summer OHV use, and a variety of other non-motorized use (equestrian use and mountain biking). Recreational use on the STF has significantly increased compared to the past 20 to 30 years. Because of the proximity to urban areas and population growth, increased recreational use on the STF is expected to continue to increase in the future including camping, hiking, fishing, wildlife viewing, hunting, and OHV use (see EIS, 3.04 Recreation Resources). Increased disturbance to species such as the Pacific tree frog would be expected because of the expected increase in use. This increase would be particularly noticeable during the summer months. Meadows are often attractive to recreational users. The result of an increase in use could be a decrease in wet meadow functioning, and possibly in a particular wet meadow itself.

Because the alternatives would have such a small impact on wet meadow habitat (see Table 11), the alternatives would add very little to the cumulative effects from the past, present, and reasonably foreseeable activities. All the action alternatives would result in a beneficial impact to wet meadow habitat across the STF from the prohibition of cross-country travel. It is expected that non-motorized use may occur on these unauthorized motorized routes. Non-motorized use would likely result in less effect on meadow hydrology, although deeply incised trails in wet meadows can affect the hydrology. The unauthorized routes which were not added to the NFTS may become revegetated and recover over time, either through active or passive restoration efforts. Thus, the amount of wet meadow habitat may increase

over time, although the increase is expected to be very slight. In addition, Alternatives 1, 4, and 5 would reduce impacts to wet meadow habitat on most of the STF through the implementation of seasonal closures.

Cumulative Effects Conclusion

The alternatives would contribute very little to the cumulative effects on wet meadow habitat and their associated species. The effects would not likely alter the existing trend in this habitat.

The change is the class of vehicles would have no effect on wet meadow habitat, since the change in class of vehicles on existing NFTS roads would generally not affect the condition of this habitat. Seasonal closures under Alternatives 1, 4, and 5 in Zones 2 and 3 would benefit wet meadow habitat through reduced travel when motorized use on routes is seasonally restricted. Finally, cross-country travel would be prohibited on 19,165 acres of wet meadow habitat with the implementation of the action alternatives. Therefore, unrestricted use of the meadows, with a probable corresponding decrease in meadow hydrology, would be eliminated.

Summary of Pacific Tree Frog Status and Trend at the Bioregional Scale

The STF LMP (as amended by the SNF MIS Amendment) requires bioregional-scale habitat and distribution population monitoring for the Pacific tree frog. Hence, the wet meadow effects analysis for the STF Motorized Travel Management 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 frog. This information is drawn from the detailed information on habitat and population trends in the SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 66,000 acres of wet meadow habitat on NFS lands in the Sierra Nevada. Within the last decade, the trend is stable.

Population Status and Trend. Since 2002, the Pacific tree frog has been monitored on the Sierra Nevada forests as part of the SNFPA monitoring plan (USDA 2006, 2007b; Brown 2008). These data indicate that Pacific tree 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 frog populations in the Sierra Nevada is stable.

Relationship of Project-Level Habitat Impacts to Bioregional-Scale Pacific Tree Frog Trend

The STF Travel Management Project would directly, indirectly, and cumulatively affect between 1.27 acres (highest) of wet meadow habitat under Alternative 2 (No Action) and 0 acres (lowest) under Alternative 3. Based on the acres affected, which under all the alternatives are less than 0.01% of the total Sierra Nevada-wide, the STF Motorized Travel Management Project would not change the existing trend in the habitat, nor would it 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: The habitat factor used in this analysis for the action alternatives was the amount of early and mid seral coniferous forest habitat that fell within a 200-meter zone of influence of proposed motorized trail additions to the NFTS. For Alternative 2, no action, the amount of early and mid seral coniferous forest habitat that fell within a 200-meter zone of influence of existing motorized trails unauthorized for motorized use was determined. Each alternative was compared to determine the proportion of habitat directly and indirectly affected in relation to the amount of early and mid seral coniferous forest habitat available at the Sierra Nevada-wide scale.

Current Condition of the Habitat Factor(s) in the Project Area

The STF Motorized Travel Management project area boundary currently includes 63,118 acres of early seral coniferous forest habitat and 411,697 acres of mid-seral coniferous forest habitat. Habitat is comprised of various age classes ranging from sparse seedling coniferous forest (1S) to pole size trees with dense canopy cover (3D) within the early seral habitat, and from small tree sizes with sparse cover (4S) to small tree sizes with dense cover (4D) in the mid-seral habitat type.

Direct and Indirect Effects to Habitat

Change in Class of Vehicles

Overall, the change is the class of vehicles would not likely have an effect on early and mid seral coniferous forest habitat, since the change in class of vehicles on existing NFTS roads will generally not affect or alter the condition of this habitat. Some existing motorized NFTS roads may receive changed maintenance, resulting in higher vegetation density at the road margins. The higher vegetation density would provide additional cover and/or foraging habitat. The resulting roadway condition would depend upon the amount and type of vegetation present and the amount of maintenance any given road receives.

Seasons of Use

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. The seasons of use vary by alternative (see Table 2). Early and mid seral coniferous forest habitat effectiveness would benefit during the time of the seasonal closures through reduced disturbance and avoidance by mountain quail and other associated species. Alternatives 2 and 3 would impose seasonal closures only where

current Forest Orders are in place. Therefore, mountain quail habitat effectiveness would be minimally enhanced by seasonal closures under these alternatives.

Prohibition of Cross Country Travel

Under Alternative 2, cross country travel would not be prohibited, affecting 474,815 acres of early seral and mid seral coniferous forest habitats combined. The cross-country travel could cause reduced habitat effectiveness through avoidance and abandonment by mountain quail due to disturbance. For the action alternatives, cross country travel would be prohibited in these habitats, where disturbance and the resulting avoidance and abandonment would be reduced or eliminated.

Proposed Route Additions to NFTS

Tables 13 and 14 display the proportion of early and mid seral coniferous forest affected by the alternatives within a 200-meter zone of influence of motorized roads and trails. Based on the amount of early and mid seral coniferous forest habitat affected within the zone of influence, Alternative 2, No Action, results in the greatest amount of both early seral (4,076 acres or 0.7% of Sierra Nevada-wide habitat) and mid seral (26,503 acres or 1% of Sierra Nevada-wide habitat) coniferous habitat affected. For the action alternatives, Alternative 4 results in the next greatest amount of both early and mid seral habitat affected by motorized trails added to the NFTS, which affects 1,495 acres (0.3% of Sierra Nevada-wide habitat) and 12,537 acres (0.5% of Sierra Nevada-wide habitat), respectively. The remaining action alternatives affect between 0 and 0.2% of early seral coniferous habitat and between 0.01% and 0.04% of mid seral coniferous habitat within the Sierra Nevada bioregion. For all the alternatives, the proportion of Sierra Nevada-wide early and mid seral habitat affected by motorized roads and trails results in a low risk to habitat security for mountain quail.

Table 13. Proportion of Mountain Quail Early Seral Coniferous Forest MIS habitat within a 200-meter "Zone of Influence" of Proposed Motorized Routes

Mountain Quail MIS Habitat	Total Habitat Acres[2]	Alt 1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Acres Early Seral Coniferous Forest		1,328	4,076	0	1,495	314
Proportion of Sierra Nevada Habitat	546,000	0.2%	0.7%	0%	0.3%	0%
Proportion of Stanislaus NF Habitat[2]	63,118	2.1%	6.5%	0%	2.4%	0.5%

[1]Alternative 1 includes existing routes unauthorized to motorized public use that would continue with the continuance of cross country travel.

[2]The Zone of Influence within 200 meters of motorized routes includes both NFS and non-NFS lands within the boundary of the Stanislaus NF due to the complex checkerboard pattern. The proportion of habitat affected likely over-represents the actual amount of habitat affected on NFS lands.

Table 14. Proportion of Mountain Quail Mid Seral Coniferous Forest MIS habitat within a 200-meter "Zone of Influence" of Proposed Motorized Routes

Mountain Quail MIS Habitat	Total Habitat Acres[2]	Alt 1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Acres Mid Seral Coniferous		11,090	26,503	0	12,537	2,420
Proportion of Sierra Nevada Habitat	2,766,000	0.4%	1%	0%	0.5%	0.1%
Proportion of Stanislaus NF Habitat	411,697	2.7%	6.4%	0%	3%	0.6%

[1] Alternative 1 includes existing routes unauthorized to motorized public use that would continue with the continuance of cross country travel.

[2] The Zone of Influence within 200 meters of motorized routes includes both NFS and non-NFS lands within the boundary of the Stanislaus NF due to the complex checkerboard pattern. The proportion of habitat affected likely over-represents the actual amount of habitat affected on NFS lands.

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to mountain quail includes mid and early seral coniferous forest habitat within the boundary of the STF. Past and current cumulative effects to early and mid seral coniferous forest habitat include the following: current and historic grazing of this habitat; loss of mid and early conifer forest habitat through catastrophic wildfires; timber and fuels management where cover and forage has been reduced or removed; urban development and expansion within a checkerboard land ownership pattern; and recreational activities such as hunting, camping, and general recreation activities including all forms of motorized use including (4-wheeled drive vehicles, ATVs, motorcycles, etc.).

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on NFS and private lands within the STF boundary. Some, but not all, of these activities would contribute to impacts on early and mid seral coniferous forest habitat within the STF boundary. From 2000 through 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. These treatments may result in some removal of early and mid seral coniferous forest habitat habitat in the short-term, but may increase such habitat in the long-term. From 2000 through 2008, approximately 37,000 acres burned on the STF, some of which have removed early and mid seral coniferous forest habitat habitat, but over time, a percentage of the burned areas become revegetated by coniferous forest, especially on highly productive sites. Initially these areas would be in the early seral stage, succeeding to the mid seral stage.

The STF currently has 35 active livestock grazing allotments. Cattle may graze on the shrubs found in the early and mid seral coniferous forest habitat. Stanislaus LMP standards and guidelines, as amended by the SNFPA (USFS 2004), for grazing are generally reducing the amount of grazing impacts on rangelands.

Currently, there is a high demand for recreational use on the STF due to its close proximity to urban centers. The STF provides a wide variety of recreational experiences including developed and dispersed camping, hiking, fishing, hunting, wildlife viewing, winter sports activities (downhill skiing, cross country skiing, snowmobiling), summer OHV use, and a variety of other non-motorized use (equestrian use and mountain biking). Recreational use on the STF has significantly increased compared to the past 20 to 30 years. Because of the proximity to urban areas and population growth, increased recreational use on the STF is expected to continue to increase in the future including camping, hiking, fishing, wildlife viewing, hunting, and OHV use (see EIS, 3.04 Recreation Resources). Therefore, increased disturbance, resulting in a decrease in early and mid seral coniferous forest habitat effectiveness, would be expected.

Cumulative Effects Conclusion

Alternative 2 adds the greatest amount to cumulative impacts by affecting 6.5% of early seral coniferous forest habitat and 6.4% of mid seral coniferous forest, totaling 12.9% of early and mid coniferous forest habitat on the STF. The action alternatives affect between less than 6% of early and mid seral coniferous forest habitat combined. Based on the small percentage of habitat affected by the project alternatives, the STF Motorized Travel Management Project would not alter the existing trend in early and mid seral coniferous forest habitat important for the mountain quail.

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. Early and mid seral coniferous forest habitat effectiveness benefit through the reduced disturbance and resulting avoidance by mountain quail and other associated species during the seasonal closures. The proposed changes in the class of vehicles would not affect early and mid seral coniferous forest habitat. Finally, all the action alternatives would prohibit motorized cross country travel on 474,815 acres of early and mid seral coniferous forest habitat. Thus, habitat effectiveness would be enhanced through reduced disturbance and resulting avoidance.

Summary of Mountain Quail Status and Trend at the Bioregional Scale

The STF LMP (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 the STF Motorized Travel Management 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 SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Habitat Status and Trend. There are currently 546,000 acres of early seral and 2,766,000 acres of mid seral coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir) habitat on NFS lands in the Sierra Nevada. Within the last decade, the trend for early seral is slightly decreasing (from 9% to 5% of the acres on NFS lands) and the trend for mid seral is slightly increasing (from 21% to 25% of the acres on NFS lands).

Population Status and Trend. The mountain quail has been monitored in the Sierra Nevada at various sample locations by hunter survey, modeling, and breeding bird survey protocols, including CDFG hunter survey, modeling, and hunting regulations assessment (CDFG 2004a, CDFG 2004b) and 1968 to present – BBS routes throughout the Sierra Nevada (Sauer et al. 2008). These data indicate that mountain quail continue to be present across the Sierra Nevada, and 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 STF Travel Management Project would directly, indirectly, and cumulatively affect between 26,503 acres (highest) of early and mid seral coniferous habitat under Alternative 2 (No Action) and 0 acres (lowest) under Alternative 3. Based on the acres affected, which range from 0% to 1% of the total Sierra

Nevada-wide, the STF Motorized Travel Management Project would not change the existing trend in the habitat, nor would it lead to a change in the distribution of mountain quail across the Sierra Nevada bioregion.

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: The habitat factor used in this analysis for the action alternatives was the amount of late seral open canopy coniferous forest habitat that fell within a 200-meter zone of influence of proposed motorized trail additions to the NFTS. For Alternative 2, no action, the amount of late seral open canopy coniferous forest habitat that fell within the 200-meter zone of influence of existing unauthorized motorized trails was determined. Each alternative was compared to determine the proportion of habitat directly and indirectly affected in relation to the amount of late seral coniferous open canopy forest habitat available at the Sierra Nevada-wide scale.

Current Condition of the Habitat Factor(s) in the Project Area

The project area (STF boundary NFS and non NFS lands) currently has 23,739 acres of late seral open canopy coniferous forest habitat. This habitat is comprised of size classes 5S (medium/large tress with sparse canopy cover and 5 (medium/large trees with open canopy cover).

Direct and Indirect Effects to Habitat

Change in Class of Vehicles

Overall, the change is the class of vehicles would not likely have an effect or alter the condition of late seral open coniferous forest habitat for the sooty grouse. In general, some smoothed surfaced roads may become rough surfaced roads through changed road maintenance, but this will not likely result in a measurable change in the condition or amount of late seral open canopy coniferous forest habitat at the forest-wide scale. In addition, some existing motorized NFTS roads may receive different maintenance, resulting in higher vegetation density at the road margins. The higher vegetation density would provide additional cover and/or foraging habitat in localized areas. However, it would be several decades before the margins would become late seral coniferous forest habitat, and it would not necessarily be open

canopied. The resulting roadway condition would depend upon the amount and type of vegetation present and the amount of maintenance any given road receives.

Seasons of Use

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. The seasons of use vary by alternative (see Table 2). Late seral open canopy coniferous forest habitat effectiveness would benefit during the time of the seasonal closures through reduced disturbance and avoidance by sooty grouse and other associated species. Alternatives 2 and 3 would impose seasonal closures only where current Forest Orders are in place. Therefore, sooty grouse habitat effectiveness would be minimally enhanced by seasonal closures under these alternatives.

Prohibition of Cross-Country Travel

Under Alternative 2, cross-country travel would continue, potentially affecting 23,739 acres of sooty grouse habitat within late seral open canopy coniferous forest. The cross-country travel could cause reduced habitat effectiveness through avoidance and abandonment by sooty grouse due to disturbance. For the action alternatives, cross country travel would be prohibited on 23,739 acres, where avoidance and abandonment due to disturbance would be reduced or eliminated.

Route Additions to the NFTS

Based on the analysis conducted, Alternative 2 affects the highest percentage of late seral open canopy coniferous forest with a 200-meter zone of influence along existing unauthorized motorized routes, which would continue under cross country travel. Alternative 2 affects 1,924 acres (2.6% of Sierra Nevada-wide habitat) (Table 15). Alternative 4 results in 853 acres (1.1%) of late seral open canopy coniferous forest affected by proposed motorized trail additions to the NFTS. Alternatives 1 and 5 affect 1% or less of Sierra Nevada-wide habitat. Alternative 3 would not add any routes to the NFTS and would not affect late seral open canopy coniferous forest habitat.

Table 15. Prohibition of Cross Country Travel and Proportion of Sooty (Blue) Grouse Late Seral Open Canopy Coniferous Forest MIS habitat within a 200-meter "Zone of Influence" of Proposed Route Additions

Sooty Grouse MIS Habitat		Alt 1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Prohibition of Cross Country Travel within Late Seral Open Canopy Coniferous Forest Sooty Grouse Habitat						
Acres of sooty grouse habitat where cross country travel is prohibited	23,739 acres STF habitat acres	0	23,739	23,739	23,739	23,739
Acres sooty grouse habitat where cross country travel would not be prohibited		23,739	0	0	0	0
Proportion of Sooty (Blue) Grouse Late Seral Open Canopy Coniferous Forest MIS habitat within 200-meter "Zone of Influence" of Proposed Route Additions						
Acres Sooty Grouse Habitat - Late Seral Open Coniferous Forest		723	1924	0	853	98
Proportion of Sierra Nevada Habitat	75,000	1%	2.6%	0%	1.1%	0.1%
Proportion of Stanislaus NF Habitat[2]	23,739	3%	8.1%	0%	3.6%	0.4%

[1] Alternative 1 includes existing routes unauthorized to motorized public use that would continue with the continuance of cross country travel.

[2] The Zone of Influence within 200 meters of motorized routes includes both NFS and non-NFS lands within the boundary of the Stanislaus NF due to the complex checkerboard pattern. The proportion of habitat affected likely over-represents the actual amount of habitat affected on NFS lands.

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to sooty grouse includes all late seral open canopy coniferous forest habitats within the boundary of the STF. Past and current cumulative effects to late seral open canopy coniferous forest habitat include the following: current and historic grazing of sooty grouse habitat; loss of habitat through catastrophic wildfires; timber and fuels management where cover and forage has been reduced or removed; urban development and expansion within a checkerboard land ownership pattern; and recreational activities such as hunting, camping, and general recreation activities including all forms of motorized use (4-wheeled drive vehicles, ATVs, motorcycles, etc.).

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on NFS and private lands within the STF boundary. Some, but not all, of these activities will contribute to impacts to late seral open canopy coniferous forest habitat within the STF boundary.

From 2000 through 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. These treatments may not have adverse effects on late seral open canopy coniferous forest habitat because they would return closed canopy coniferous forests to more of an open structure and would reduce the risk of catastrophic wildfire over the long-term.

Approximately 37,000 acres burned on the STF, from 2000 through 2008 some of which have removed late seral open canopy coniferous forest habitat. Wildfire can also create more open stands, thus increasing the amount of late seral open canopy coniferous forest habitat. In addition, over time, more late seral open canopy coniferous forest habitat may develop as the landscape recovers from wildfire.

The STF currently has 35 active livestock grazing allotments. While grazing would not affect the amount of late seral open canopy coniferous forest habitat, components of that habitat such as shrubs and grasses could be affected by cattle grazing on those species. Stanislaus LMP standards and guidelines, as amended by the SNFPA (USFS 2004), for grazing are generally reducing the amount of grazing impacts on rangelands.

Currently, there is a high demand for recreational use on the STF due to its close proximity to urban centers. The STF provides a wide variety of recreational experiences including developed and dispersed camping, hiking, fishing, hunting, wildlife viewing, winter sports activities (downhill skiing, cross country skiing, snowmobiling), summer OHV use, and a variety of other non-motorized use (equestrian use and mountain biking). Recreational use on the STF has significantly increased compared to the past 20 to 30 years. Because of the proximity to urban areas and population growth, increased recreational use on the STF is expected to continue to increase in the future including camping, hiking, fishing, wildlife viewing, hunting, and OHV use (see EIS, 3.04 Recreation Resources). Increased disturbance as a result of increased recreation use, causing in increased displacement and avoidance, could also be expected. Thus, late seral open canopy coniferous forest habitat effectiveness would be decreased.

Cumulative Effects Conclusion

Alternative 2 poses the greatest cumulative effects to late seral open canopy coniferous habitat on the STF. Approximately 8.1% of this habitat would be affected within a 200-meter zone of influence of existing unauthorized motorized routes. Alternatives 1, 4, and 5 would cumulatively affect an additional 3%, 3.6%, and 0.4%, respectively, of the STF late seral open canopy coniferous habitat. Alternative 3 would not directly or indirectly affect late seral open canopy coniferous forest habitat habitat, and therefore no cumulative impacts would be added under this alternative. The alternatives would not alter existing trend in late seral open canopy coniferous forest habitat.

The change is the class of vehicles would have no effect to sooty grouse habitat, since the change in class of vehicles on existing motorized routes will generally not alter sooty grouse habitat condition. Seasons of use under Alternatives 1, 4, and 5 in Zones 2 and 3 would benefit late seral open canopy coniferous forest habitat effectiveness through the reduced disturbance and resulting reduced avoidance when motorized use would be seasonally restricted. Finally, cross country travel would be prohibited on 23,739 acres of late seral open canopy coniferous forest habitat with the implementation of the action alternatives where disturbance, and the resulting avoidance, and abandonment, by sooty grouse and other associated species would be reduced or eliminated. Alternative 2 would have the greatest cumulative impact to late seral open canopy coniferous forest habitat, where cross country travel would not be prohibited, affecting 23,739 acres of this habitat.

Summary of Sooty Grouse Status and Trend at the Bioregional Scale

The STF LMP (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 STF Motorized Travel Management 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 SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Habitat Status and Trend. There is currently 75,000 acres of late seral open canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, red fir, and eastside pine) habitat on NFS lands in the Sierra Nevada. The trend is slightly decreasing (from 3% to 1% within the last decade on NFS 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 CDFG Blue (Sooty) Grouse Surveys (Bland 1993, 1997, 2002, 2006); CDFG 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. 2008). 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 STF Travel Management Project would directly, indirectly, and cumulatively affect between 1,924 acres (highest) of late seral open canopy coniferous forest habitat under Alternative 2 (No Action) and 0 acres (lowest) under Alternative 3. Based on the acres affected, which range from 0% to 2.6% of the total Sierra Nevada-wide, the STF Motorized Travel Management Project would not change the existing trend in the habitat, nor would 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, USDI 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 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 1987). Key components for westside and eastside marten habitat can be found in the SNFPA FEIS (USDA 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: To assess the effects on late seral closed canopy coniferous forest habitat (California spotted owl, American marten, and northern flying squirrel habitat) from action alternatives, the proportion of late seral closed canopy coniferous forest habitat that fell within a 200-meter zone of influence of proposed motorized trail additions to the National Forest Transportation System (NFTS) was assessed. For Alternative 2, the proportion of late seral closed canopy coniferous forest that fell within a 200-meter influence of existing unauthorized motorized trails was determined.

Current Condition of the Habitat Factor(s) in the Project Area

Within the STF Travel Management Project area, there are currently 168,575 acres of late seral closed canopy coniferous forest habitat [CWHR ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR)], within tree size 5 (canopy closures M and D) and tree size 6 (multilayered).

Direct and Indirect Effects to Habitat

Change in Class of Vehicles

Overall, the change is the class of vehicles would not likely have an effect or alter the condition of late seral closed canopy coniferous forest habitat for the American marten, California spotted owl, or the northern flying squirrel. In general, some smoothed surfaced roads may become rough surfaced roads through changed road maintenance, but this will not likely result in a measurable change in the condition or amount of late seral closed canopy coniferous forest habitat at the forest-wide scale. In addition, some existing motorized NFTS roads may receive different maintenance resulting in higher vegetation density at the road margins from resulting vegetation growth. The higher vegetation density would provide additional cover and/or foraging habitat in localized areas. However, it would be several decades before the margins would become late seral coniferous forest habitat, and it would not necessarily be closed canopied. The resulting roadway condition would depend upon the amount and type of vegetation present and the amount of maintenance any given road receives.

Seasons of Use

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. The seasons of use vary by alternative (see Table 2). Late seral closed canopy coniferous forest habitat effectiveness would benefit during the time of the seasonal closures through reduced disturbance and avoidance by California spotted owl, American marten, western gray squirrel, and other associated species. Alternatives 2 and 3 would impose seasonal closures only where current Forest Orders are in place. Therefore, late seral closed canopy coniferous forest habitat effectiveness would be minimally enhanced by seasonal closures under these alternatives.

Prohibition of Cross Country Travel

Under Alternative 2, cross country travel would not be prohibited, potentially affecting 168,575 acres of late seral closed canopy coniferous forest habitat. The cross-country travel could cause reduced habitat effectiveness through avoidance and abandonment by California spotted owl, American marten, western gray squirrel due to disturbance. For the action alternatives, cross country travel would be prohibited on 168,575 acres, where disturbance, and the resulting avoidance and abandonment, would be reduced or eliminated.

Proposed Route Additions to the NFTS

Based on the analysis conducted, Alternative 2 directly and indirectly affects the greatest amount of late seral closed canopy coniferous forest by a 200-meter zone of influence along existing unauthorized motorized routes. Travel on these routes would not be prohibited under this alternative. Alternative 2 affects 15,335 acres (1.5% of Sierra Nevada-wide habitat) (Table 16), with the potential to disturb, and so cause avoidance and abandonment, of late seral closed canopy coniferous forest habitat, by California spotted owl, American marten, northern flying squirrel, and other associated species. Alternatives 1, 4, and 5 affect less than 1% of Sierra Nevada-wide late seral closed canopy habitat. Alternative 3 would not add any routes to the NFTS and so would not affect late seral closed canopy coniferous forest habitat. The STF Motorized Travel Management Project would not result in a direct or indirect change in the amount of late seral closed canopy coniferous forest habitat affected by motorized roads and trails for all the alternatives. Habitat effectiveness for these species would be maintained at current levels.

Table 16. Prohibition of Cross Country Travel and Proportion of Late Seral Closed Canopy Coniferous Forest MIS habitat within a 200-meter "Zone of Influence" of Proposed Route Additions

Late Seral Closed Canopy Coniferous Forest MIS Habitat		Alt 1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Prohibition of Cross Country Travel within Stanislaus NF project area						
Acres of late seral closed canopy coniferous forest habitat where cross country travel is prohibited		0	168,575	168,575	168,575	168,575
Acres of late seral closed canopy coniferous forest habitat where cross country travel would not be prohibited		168,575	0	0	0	0
Proportion of Late Seral Closed Canopy Coniferous Forest MIS habitat within 200-meter "Zone of Influence" of Proposed Route Additions						
Acres Late Seral Closed Coniferous Forest[2]		5,515	15,335	0	6,343	617
Proportion of Sierra Nevada Habitat	994,000	0.6%	1.5%	0%	0.6%	0.1%
Proportion of Stanislaus NF Habitat[2]	168,575	3.3%	9.1%	0%	3.8%	0.4%

[1] Alternative 2 includes existing routes unauthorized to motorized public use that would continue with the continuance of cross country travel.

[2] The Zone of Influence within 200 meters of motorized routes includes both NFS and non-NFS lands within the boundary of the Stanislaus NF due to the complex checkerboard pattern. The proportion of habitat affected likely over-represents the actual amount of habitat affected on NFS lands.

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to late seral closed canopy coniferous forest habitat includes all of this habitat within the boundary of the STF. Past and current cumulative effects to late seral closed canopy coniferous forest habitat include the following: loss of habitat through catastrophic wildfires; timber and fuels management where cover and forage has been reduced or removed; urban development and expansion within a checkerboard land ownership pattern; and recreational activities such as hunting, camping, and general recreation activities including all forms of motorized use (4-wheeled drive vehicles, ATVs, motorcycles, etc.).

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on NFS and private lands within the STF boundary. Some, but not all, of these activities will contribute to impacts to late seral closed canopy coniferous habitat within the STF boundary.

From 2000 through 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. These treatments would likely have some adverse effects on habitat for late seral closed canopy species. These effects may include, but are not limited to, reductions in overhead cover and reductions in downed woody debris. The canopy cover would recover in 10 to 20 years. The downed woody component could take several decades to recover. Over the long-term these areas would be exposed to a decreased risk of catastrophic wildfire.

From 2000 through 2008, approximately 37,000 acres burned on the STF. Some of these wildfires have removed late seral closed canopy habitats.

Currently, there is a high demand for recreational use on the STF due to its close proximity to urban centers. The STF provides a wide variety of recreational experiences including developed and dispersed camping, hiking, fishing, hunting, wildlife viewing, winter sports activities (downhill skiing, cross country skiing, snowmobiling), summer OHV use, and a variety of other non-motorized use (equestrian use and mountain biking). Recreational use on the STF has significantly increased compared to the past 20 to 30 years. Because of the proximity to urban areas and population growth, increased recreational use on the STF, including camping, hiking, fishing, wildlife viewing, hunting, and OHV use, is expected to continue to increase in the future (see EIS, 3.04 Recreation Resources). Increased disturbance, with a resulting increase in displacement and avoidance could be expected.

Cumulative Effects Conclusion

Based on the analysis conducted, Alternative 2 directly, indirectly, and cumulatively affects the greatest amount of late seral closed canopy coniferous forest with a 200-meter zone of influence of existing unauthorized motorized routes. Use of these routes would continue without prohibiting cross country travel. Alternative 2 reduces habitat effectiveness by 9.1% on the STF, because of the potential to disturb, thereby causing avoidance and abandonment of late seral closed canopy coniferous forest habitat by California spotted owl, American marten, and northern flying squirrel. Since Alternative 2 would not prohibit cross-country travel and route proliferation would continue to occur within the STF boundary, Alternative 2 would cause a downward trend in habitat effectiveness for these species.

Alternatives 1, 4, and 5 affect approximately 3.3%, 3.8%, and 0.4%, respectively, of late seral closed canopy coniferous forest habitat on the STF. Alternative 3 would not add any routes to the NFTS and would not affect late seral closed canopy coniferous forest habitats. The STF Motorized Travel Management Project action alternatives would not result in a direct or indirect change in the amount of late seral closed canopy coniferous forest habitat affected by motorized routes for all the alternatives. Because of the small amount of habitat affected, the decrease in habitat effectiveness for these species under the action alternatives would be small.

For all the alternatives, the change in the class of vehicles would not directly, indirectly, or cumulatively affect late seral closed canopy coniferous forest habitats or their habitat effectiveness. Seasonal use under Alternatives 1, 4, and 5 in Zones 2 and 3 would enhance late seral closed canopy coniferous forest habitat effectiveness for the California spotted owl, American marten, and the northern flying squirrel because of the reduced disturbance, avoidance, and abandonment during the time the zones would be closed. Finally, the prohibition of motorized cross country travel on 168,575 acres of late seral habitats would benefit late seral closed canopy coniferous forest habitat effectiveness over time by preventing the continued increase in motorized route proliferation in the future.

Summary of Status and Trend at the Bioregional Scale

California spotted owl, American marten and Northern flying squirrel. The STF LMP (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 STF Motorized Travel Management 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 SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Habitat Status and Trend. There is currently 994,000 acres of late seral closed canopy coniferous forest (ponderosa pine, Sierran mixed conifer, white fir, and red fir) habitat on NFS lands in the Sierra Nevada. The trend is slightly increasing (from 7% to 9% within the last decade on NFS lands).

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; USDA 2001, 2004, 2006; USDI 2006; Sierra Nevada Research Center 2007). 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 from 1996-2002 (Zielinski et al. 2005). Since 2002, the American marten has been monitored on the Sierra Nevada forests as part of the SNFPA (SNFPA) monitoring plan (USDA 2005, 2006, 2007b). Current data at the range-wide, 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.

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), and 1958-2004 throughout the Sierra Nevada in various monitoring efforts and studies (see USDA 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. Based on the small proportion of late seral closed canopy coniferous forest habitat that is directly, indirectly and cumulatively affected (0% to 3% of Sierra Nevada habitat) by the alternatives, the STF Motorized Travel Management Project would not alter existing trend in the habitat, nor would it lead to a change is the distribution of California spotted owl across the Sierra Nevada bioregion.

American marten. Based on the small proportion of late seral closed canopy coniferous forest habitat that is directly, indirectly, and cumulatively affected (0 to 3% of Sierra Nevada habitat) by project alternatives, the STF Motorized Travel Management Project would not alter existing trend in the habitat, nor would it lead to a change is the distribution of American marten across the Sierra Nevada bioregion.

Northern flying squirrel. Based on the small proportion of late seral closed canopy coniferous forest habitat that is directly, indirectly, and cumulatively affected (0 to 3% of Sierra Nevada habitat) by project alternatives, the STF Motorized Travel Management Project would not alter existing trend in the habitat, nor would it lead to a change is 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: To assess the effects on the number of snags in the green forest component from action alternatives, the proportion of hairy woodpecker habitat (mid and late seral

coniferous forest habitat) that would fall within 300 feet of proposed road additions to the National Forest Transportation System (NFTS), of proposed conversion of Maintenance Level (ML) 1 roads to ML 2 or 3, and of proposed conversion of ML1 roads to trails was assessed.

The STF has the policy of removing hazard trees along all open roads. It does not usually remove hazard trees along ML1 roads or along trails. A tree is considered a hazard if it is dead or is damaged in some way and has the potential to land on the road. Most of the snags that would be considered hazardous would be 15 inches or greater. The maximum height of a snag that could hit a road is 300 feet. Thus, a 300-foot buffer is used for this analysis because that is the maximum distance from which snags would be removed.

Current Condition of the Habitat Factor(s) in the Project Area:

There are currently 1,422 miles of roads on the STF in hairy woodpecker habitat (mid and late seral coniferous forest habitat [[CWHR ponderosa pine (PPN), Sierran mixed conifer (SMC), white fir (WFR), red fir (RFR)], within tree size class 4 (all canopy closures), tree size 5 (all canopy closures), and tree size 6 (multilayered)]) along which hazard trees are removed. A 300-foot buffer along those roads is approximately 66,660 acres in size. There is a total of 435,920 acres of hairy woodpecker habitat on the STF.

Direct and Indirect Effects to Habitat.

Change in Class of Vehicles

The action alternatives would change the type of use on some routes. Some ML1 routes would be changed to ML2 or ML3, thus increasing the amount of miles along which hazard trees would be removed. Some ML2 or ML3 routes would be changed to trails or ML1 roads, thus decreasing the amount of miles along which hazard trees would be removed. There would be no change in class of vehicles, and therefore no change to the road mileage along which hazard trees are removed under Alternatives 2 or 3. Thus, there would be no change in the number of snags along routes.

Seasons of Use

Alternatives 1, 4, and 5 would impose seasons of use on all routes in Zones 2 and 3. The seasons of use vary by alternative (see Table 2). The number of snags per acre along roads would not be affected by the seasons of use.

Prohibition of Cross Country Travel

The prohibition on cross-country travel would not affect the number of snags along roads.

Proposed Route Additions to the NFTS

The addition of trails to the NFTS would not result in a reduction of snags in green forest. However, the addition of ML2 or ML3 roads would. Alternatives 2 and 3 (no action alternatives) would not add any roads or trails to the NFTS nor would they change the type of use on any routes. Therefore these alternatives would not result in reductions of snags in green forest. Alternatives 1 and 5 would decrease the acres affected by hazard tree removal by less than 0.01% each (Table 17). Alternative 4 would

increase the acres affected by hazard tree removal by less than 0.01%. Therefore, Alternatives 1 and 5 would have a very small net beneficial effect on the amount of snags in green forest within the STF, while Alternative 4 would have a very small net negative effect on the amount of snags in green forest within the STF.

Table 17. Acres of Hairy Woodpecker MIS habitat within which snags per acre would change

Hairy Woodpecker MIS Habitat	Habitat Acres	Alt 1	Alt 2[1]	Alt 3	Alt 4	Alt 5
Increase in acres where snags per acre would decrease		40	0	0	44	7
Decrease in acres where snags per acre would decrease		198	0	0	35	307
Net change in acres where snags per acre would decrease		-198	0	0	+9	-300
Proportion of Habitat in Stanislaus NF boundary	435,924	-<0.01%	0	0	+<0.01%	-<0.01%

[1]Alternative 2 acres are the same as Alternative 3, because there would be no increase or decrease in acres where snag number would be decreased, and there is no snag removal along the unauthorized routes under Alternative 2..

Cumulative Effects to Habitat in the Analysis Area

The spatial boundary for analyzing cumulative effects to snags in hairy woodpecker habitat includes mid and late seral coniferous forest habitat within the boundary of the STF. Past and current cumulative effects to snags in mid and late seral coniferous forest habitat include the following: loss of snags through catastrophic wildfires; timber and fuels management where snags have been reduced or removed; and hazard tree removal along open system roads..

Appendix B (STF Travel Management EIS) provides a list and description of past, present, and reasonably foreseeable projects on NFS and private lands within the STF boundary. Some, but not all, of these activities would contribute to impacts on snags in mid and late seral coniferous forest habitat within the STF boundary.

From 2000 through 2008, vegetation/fuels thinning treatments were implemented on approximately 25,000 acres to reduce the potential for catastrophic wildfire. These treatments may result in some removal of snags in mid to late seral coniferous forest habitat. The snag component of mid and late seral coniferous forest habitat may be better protected from loss due to wildfire because of fuels reduction projects.

From 2000 through 2008, approximately 37,000 acres burned on the STF. Wildfire removes snags and creates them.

Hazard tree removal along open NFTS roads is on-going. While the number of snags within 300 feet of roads decreases, not all snags are removed in these projects. And new snags develop over time. The amount of habitat affected by these activities is very small.

Cumulative Effects Conclusion

Fewer acres would be subject to hazard tree removal under Alternatives 1 and 5, so there would be more snags per acre remaining. More acres would be subject to hazard tree removal under Alternative 4, so

there would be fewer snags per acre remaining. The changes in acreage under any of the alternatives would be very small. There would be no change in acreage under Alternatives 2 or 3. For all the alternatives, the change in season of use and the prohibition on cross-country travel would not directly, indirectly, or cumulatively affect snags in mid and late seral coniferous forest habitat.

Summary of Hairy Woodpecker Status and Trend at the Bioregional Scale

The Stanislaus NF LMP (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 Motorized Travel Management 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 SNF Bioregional MIS Report (USDA 2008), which is hereby incorporated by reference.

Ecosystem Component Status and Trend. The current (based on 2001-2004 inventory sources) 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 1.4 per acre in eastside pine to 8.3 per acre in white fir. Detailed information by forest type, snag size, and snag decay class can be found in the SNF Bioregional MIS Report (USDA 2008).

Data from the mid-to-late 1990s 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 (+0.80), white fir (+1.98), and red fir (+0.68) and decreased within ponderosa pine (-0.17), productive hardwoods (-0.17), and eastside pine (-0.16).

Population Status and Trend. The hairy woodpecker has been monitored in the Sierra Nevada at various sample locations by avian point counts and breeding bird survey protocols, including 1997 to present – Lassen National Forest (Burnett and Humple 2003, Burnett et al. 2005); 2002 to present - Plumas and Lassen National Forests (Sierra Nevada Research Center 2007); 1992 to 2005 – Sierra Nevada MAPS stations (Siegel and Kaschube 2007); and 1968 to present – BBS routes throughout the Sierra Nevada (Sauer et al. 2008). These data indicate that the hairy woodpecker continues to be present at these sample sites, and 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 potential decrease in medium-sized snags per acre from on, at the most, 9 acres (under Alternative 4) out of 435,924 acres of mid and late seral coniferous forest habitat on the STF would not alter the existing trend in the ecosystem component, nor would it lead to a change in the distribution of hairy woodpecker across the Sierra Nevada bioregion.

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