

Project Level

**Migratory and Residential Bird
Population Trend Monitoring
Report for the
Salt Timber Harvest and Fuels Hazard
Reduction Project**

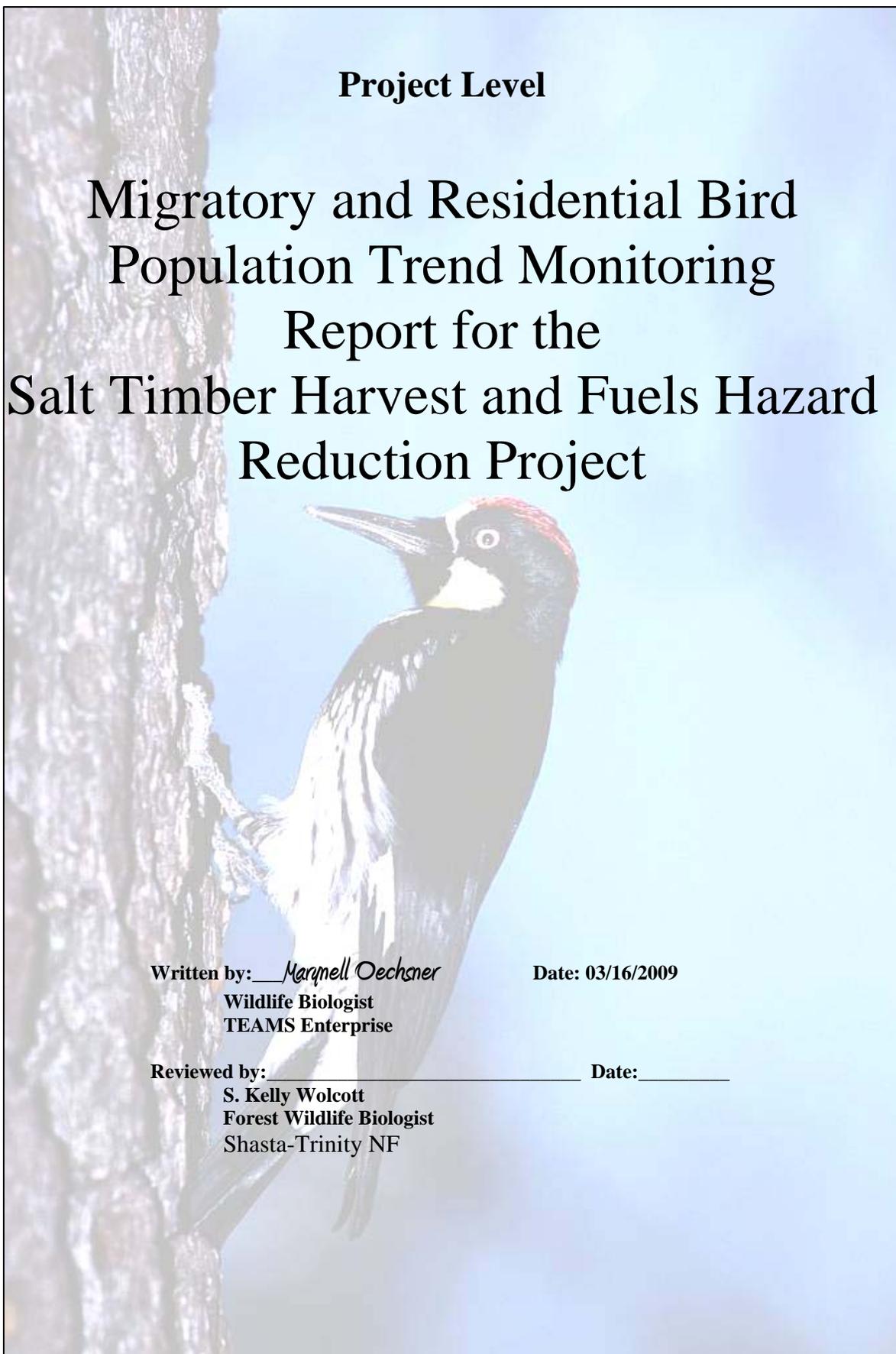
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Introduction

Continental and local declines in numerous bird populations have lead to concerns for the future of migratory and resident land birds. The reasons for declines of migratory and resident land birds are complex. Habitat loss, modification and fragmentation, loss of wintering and migratory habitat, and brood parasitism have been implicated (Rich etal, 2004).

This report fulfills all laws and regulations relative to migratory and residential birds and evaluates the effects of the Salt Timber Harvest and Fuels Hazard Reduction project to migratory and residential birds and their habitat. This report presents the best available data and provides decision makers on the Shasta-Trinity National Forest with an analysis of migratory and residential bird population trends on the Forest and within the bio-ecological area relative to the Salt Timber Harvest and Fuels Hazard Reduction project. Much of the data utilized in this report is derived from the Shasta-Trinity National Forest Migratory and Resident Bird Population Trend Monitoring Report (Wolcott, 2007).

Regulatory Framework and Management Direction

Laws and treaties have been enacted that provide protection for migratory birds. The primary legal frameworks to consider for the effects of management on migratory birds include:

1. The Migratory Bird Treaty Act (MBTA) of 1918 and amendments. Specific provisions in the statute include the establishment of a Federal prohibition, (unless permitted by regulations), to "pursue, hunt, take, capture, kill, attempt to take, capture or kill, possess, offer for sale, sell, offer to purchase, purchase, deliver for shipment, ship, cause to be shipped, deliver for transportation, transport, cause to be transported, carry, or cause to be carried by any means whatever, receive for shipment, transportation or carriage, or export, at any time, or in any manner, any migratory bird, included in the terms of this Convention . . . for the protection of migratory birds . . . or any part, nest, or egg of any such bird." (16 U.S.C. 703) For the most part, Federal agencies have not been held liable for violations of this act when the taking of a migratory bird has been incidental to the purpose and need for an action.
2. Executive Order 13186. The intentions of the Migratory Bird Treaty Act were reinforced by Executive Order 13186 signed by President Clinton on January 10, 2001. The most relevant elements of the Executive Order (a) ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern; (b) identify where unintentional take reasonably attributable to agency actions is having, or is likely to have, a measurable negative effect on migratory bird populations, focusing first on species of concern, priority habitats, and key risk factors.
3. Memorandum of Agreement 08-MU-1113-2400-264. In December 2008, the USDA Forest Service and U.S. Fish and Wildlife Service finalized a Memorandum of Understanding to protect, restore and conserve the habitat of migratory birds by addressing the responsibilities in Executive Order 13186. Along with ten other items

specified, the Forest Service shall within the NEPA process, evaluate the effects of agency actions on migratory birds, focusing first on species of management concern along with their priority habitats and key risk factors.

4. As part of the Bird Conservation Initiative, the U. S. D. A. Forest Service Land bird Strategic Plan and the Partners In Flight Landbird Conservation Plan (Rich et al 2004) has developed a conservation program to maintain and restore habitats necessary to sustain long term, healthy migratory and resident bird populations. The Forest Service Land bird Strategic Plan recommends that management activities complement the goals and objectives identified in Partners in Flight Conservation Plans. The goal of Partners In Flight land bird conservation planning is to ensure long-term maintenance of healthy populations of native land birds.

5. National Forest Management Act (“NFMA”) directs the Forest Service to “provide for diversity of plant and animal communities based on the suitability and capability of the specific land area.” Federal regulations under 36 CFR 219.19 mandate the Forest to maintain viable populations of existing native and desired non-native vertebrate species in the planning area.

6. The Shasta-Trinity National Forests Land and Resource Management Plan (LRMP) mentions migratory birds in relation to the Neotropical Migrant Bird Program. The goal of the program is to “maintain, enhance, and restore declining populations of these birds” ((USDA 1995a) page 3-26). The section goes on to say that “mapping habitat changes, bird banding and breeding bird surveys will help determine the status and changes.” On Pages 4-63 and 4-64 Matrix Land Management Direction for Birds:

White-headed Woodpecker, Black-backed Woodpecker, Pygmy Nuthatch, and Flammulated Owl apply the following mitigation standards and guidelines to ensure that the distribution and numbers of all four species do not severely decline on National Forests and BLM Districts within the range of the northern spotted owl. These guidelines apply to the forest Matrix outside designated habitat for the northern spotted owl and Riparian Reserves.

Maintain adequate numbers of large snags and green-tree replacements for future snags within the four species’ ranges in appropriate forest types. Where feasible, green-tree replacements for future snags can be left in groups to reduce blowdown. Specifically, the Scientific Analysis Team recommends that no snags over 20 inches dbh be marked for cutting. The Scientific Analysis Team recognizes, however, that safety considerations may prevent always retaining all snags. Use of standardized definitions of hazard trees is required. For the longer term, provide for sufficient numbers of green trees to provide for the full (100 percent) population potential of each species.

The 100 percent population potential for white-headed woodpeckers is 0.60 conifer snags (ponderosa pine or Douglas-fir) per acre in forest habitats; these snags must be at least 15 inches dbh (or largest available if 15 inch dbh snags are not available) and in soft decay stages, and must be provided in stands of ponderosa pine and mixed pine/Douglas-fir.

The 100 percent population potential for black-backed woodpeckers is 0.12 conifer snags per acre in forest habitats: these snags must be at least 17 inches dbh

(or largest available if 17 inch dbh snags are not available) and in hard decay stages, and must be provided in stands of mixed conifer and lodgepole pine in higher elevations of the Cascade Range.

Provision of snags for other cavity-nesting species, including primary cavity-nesters, must be added to the requirements for these two woodpecker species. Site-specific analysis, and application of a snag recruitment model (specifically, the Forest Service's Snag Recruitment Simulator) taking into account tree species, diameters, falling rates, and decay rates, will be required to determine appropriate tree and snag species mixes and densities. If snag requirements cannot be met, then harvest must not take place.

As identified by the expert panel, black-backed woodpeckers also require beetle infested trees for foraging: some such trees should be provided in appropriate habitat, and sanitation harvest of all such trees will be detrimental to the species.

Pygmy nuthatches use habitat very similar to those of white-headed woodpeckers. Pygmy nuthatches require large trees, typically ponderosa pine within the range of the northern spotted owl, for roosting. Provision of snags for white-headed woodpeckers is assumed to provide for the needs of pygmy nuthatch, as no species-specific guidelines for the species have been developed.

Flammulated owls are secondary cavity-nesters and use cavities, in snags and live trees, created by woodpeckers or, less often, that occur naturally. It is assumed that standards and guidelines for snags and green-tree replacements for woodpeckers and other primary cavity-nesting species, as provided by existing National Forest and BLM District Land and Resource Management Plans and for the woodpeckers in this species group, will provide for flammulated owls

Project Area Description

The Salt Timber Harvest and Fuels Hazard Reduction Project is located in the Rattlesnake Creek drainage in the Klamath Mountains of northern California. Elevations range from about 2500 to 5800 feet. The forested project area is 4,278 acres in size. Overstory vegetation within the assessment area generally includes an open Greypine/live oak found on low-elevation shallow rock soil sites. Mixed conifer, Douglas-fir, Jeffery Pine - ponderosa pine, incense cedar, sugar pine and white fir become more prevalent in developed soils as the elevation increases.

Hardwood species, predominately black oak, madrone, white oak live oak and white alder comprise a substantial stand component throughout the assessment area. White alder occurs along perennial stream courses and adjacent to year-round wet areas (Petersen and Amell, 2009).

Forested stands range from single storied young, small diameter plantations, single storied intermediate sized mixed-conifer to multi-aged, multi-storied, dense mixed-conifer. Crown cover varies between 46 and 78%.

Stand exam data from 2008 shows that currently there is an average of 13 dead trees per acres across the project area. Six of the 13 dead trees per acre averaged 12.1 inches dbh or greater (Petersen and Amell, 2009).

Large woody debris ranges from 5 to 10 trees per acre for mixed conifer stands, from 3 to 8 trees per acre for tree/brush stands and 1 to 5 logs per acre for brush areas (Foss, 2009). Downed woody material ranges from less than 7 tons per acre to over 68 tons per acre with an overall average of approximately 37 tons per acre on most of the project area (Lewis 2009).

Summary of the Salt Timber Harvest and Fuels Hazard Reduction Project

The Hayfork District of the Shasta Trinity National Forest is proposing to use vegetation treatments on a total of approximately 1,619 acres in the Salt Creek watershed to improve forest health, reduce risks from fire and provide forest products. The Environmental Impact Statement considers two action alternatives in detail. Table 1 displays a summary of treatments proposed in the two action alternatives.

Table 1. Summary of Treatments Proposed by Alternative in the Salt Timber Harvest and Fuels Hazard Reduction Project

Treatment	Alternative 2	Alternative 3
Intermediate Thin	963	881
Shaded Fuel Break	103	100
Precommercial Thin	481	421
Hand Fuel Treatment	14	41
Regeneration Harvest/Green Tree Retention	27	30
Shelterwood with Green Tree Retention	31	0

Additional actions proposed that are common to both action alternatives include: road reconstruction; tractor and helicopter yarding; tractor site preparation and jackpot piling; burning piles; landing construction; temporary road construction and decommissioning roads. A detailed description of the Salt Timber Harvest and Fuels Hazard Reduction Project can be found in the Environmental Impact Statement (USDA, 2009).

Table 2. Wildlife Resource Protection Measures

Resource Protection Measure
Wildlife
Should a new goshawk territory be discovered prior to or during implementation, conferencing with a biologist will occur and a buffer zone and limited operating period will be established.
Snags and Downed Woody Debris
Existing snags and down logs greater than 19” in diameter will be retained (unless there are safety concerns or the snag is within a skid trail, temporary road location, or landing site). An average of 1.5 snags per acre greater than 15 inches in diameter and 20 feet in height will be retained. Snags felled for safety reasons would be left on site.
Maintain an average of 5 tons of logs per acre (or 10 tons of logs per acre depending upon land management allocation direction)with a preference to have 4 to 6 logs per acre at the largest available diameter.
Retain hardwoods that have a reasonable chance of surviving and thriving after stand treatments.
Riparian Reserves*
Perennial and Non-perennial: No treatment or equipment within any of the riparian reserves.
Perennial: No thinning and no equipment in perennial stream riparian reserves. Riparian reserves for perennial streams for this project are 300 feet for fish bearing streams and 225 feet for non-fish bearing streams.
Non-Perennial Streams: The non-perennial riparian reserve is defined for this project as a protection zone 150 feet wide measured along the slope from the high watermark up the hillslope. <ul style="list-style-type: none"> • No landings would be located inside of RRs • At least 60% of overstory canopy remains after thinning. • Designate/approve Riparian Reserve crossings in coordination with the fisheries biologist and/or hydrologist. • Equipment will be excluded from operating on active or potentially active landslides and thinning will be prescribed by a geoscientist. • Selective commercial thinning within RRs, adjacent to EEZs, would be accomplished through a combination of mechanical operations and hand thinning. • Hazard trees within RRs must be dropped and retained on site if > 16” dbh. Handpiles of thinned fuels would be placed outside of EEZs and burned in the riparian reserve in a manner that leaves at least 50% of the localized area unburned at any given time. In addition, hand piles would be placed in a checkerboard pattern whenever possible (not one pile directly above another). • When fuels treatments involve area ignition, use backing fire in RRs. There would be no ignition within RRs associated with understory burning; however, fire would be allowed to creep into riparian areas.
Equipment Exclusion Zone: No equipment and no thinning allowed within the equipment exclusion zone (EEZ). The EEZ is a portion of the riparian reserve defined for this project as the area that extends 50 feet (slope distance) from the high watermark on slopes >30% and extends 25 feet (slope distance) on slopes <30% OR extends to the inner gorge , which ever is greater.

Migratory and Residential Bird Related Issues Addressed

Potential migratory and residential bird related issues identified during scoping included:

- Thinning within the project area, and when considered cumulatively with other effects to neotropical bird habitat, may contribute to declining populations.
- Treatments, when considered cumulatively with past projects in the watershed may fragment habitat.
- Removing old legacy trees may impact wildlife habitat including future snag habitat.
- Concerns about the effects of mastication in pre-commercial thin units to neotropical migrant birds

Migratory and Residential Bird Analysis

Existing Condition

The Salt Timber Harvest and Fuels Hazard Reduction Project area occurs in the Sierra Nevada bioregion (Physiographic Area #66). Figure 1 displays the Sierra Nevada Physiographic Area #66.

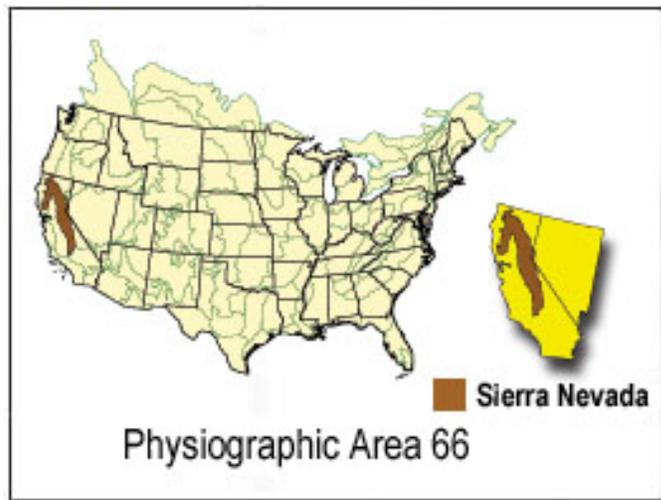


Figure 1. Sierra Nevada Physiographic Area #66

Shasta-Trinity National Forest is part of four distinct breeding bird survey (BBS) stratas which are the Pitt-Klamath Plateau, the Sierra Nevada, the California Foothills, and Pacific Coast Rainforest. These four bioregional strata are part of the larger Sierra Nevada Physiographic Area 66. Figure 2 illustrates the BBS strata that intersect with the Shasta-Trinity National Forest.

The bioregional strata are reasonable delineations of ecologically similar zones. The Salt Timber Harvest and Fuels Hazard Reduction Project area is located in the Sierra Nevada strata of the Shasta Trinity National Forest.

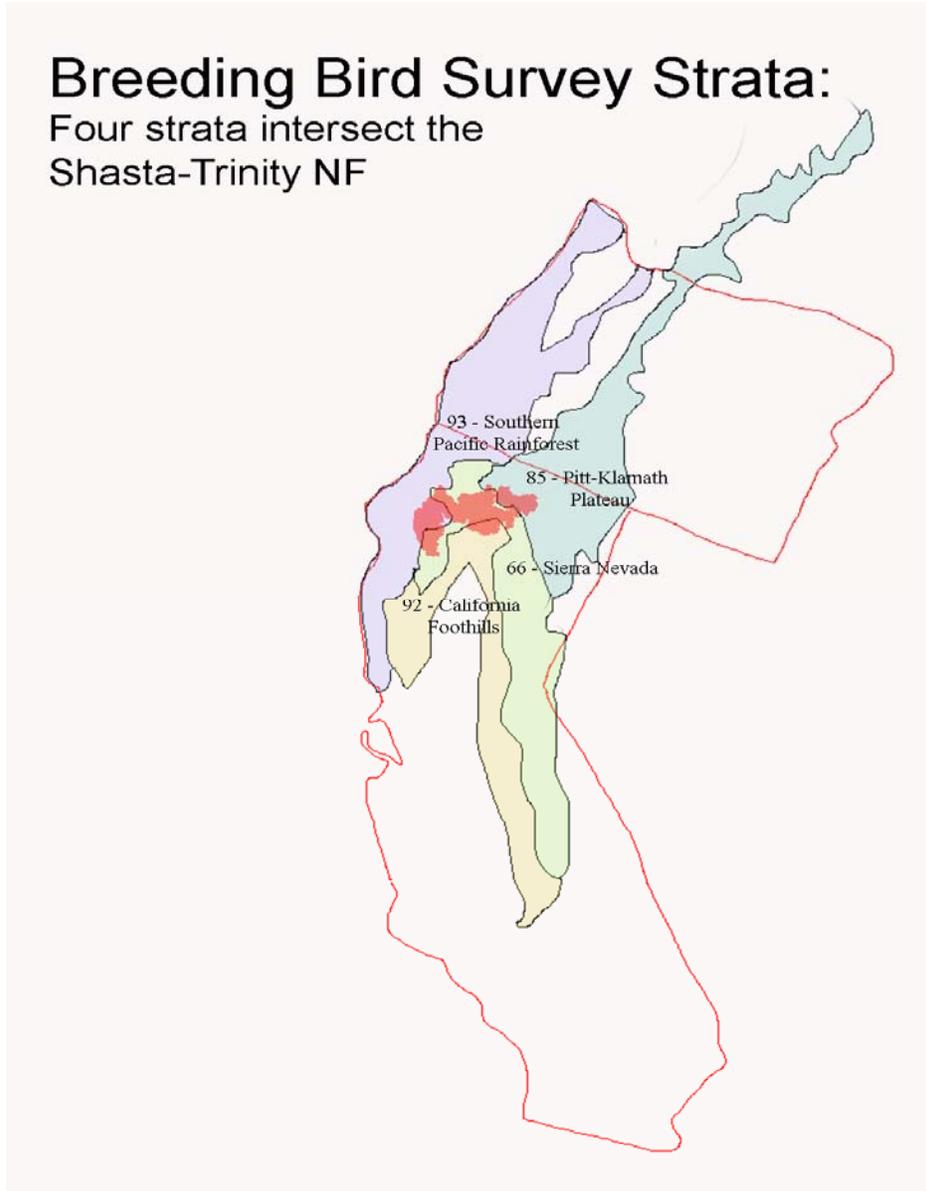


Figure 2. Breeding Bird Survey Strata

Figure 3 displays the location of the breeding bird survey (BBS) routes of the Shasta Trinity National Forest relative to the Salt Timber Harvest and Fuels Hazard Reduction Project area.

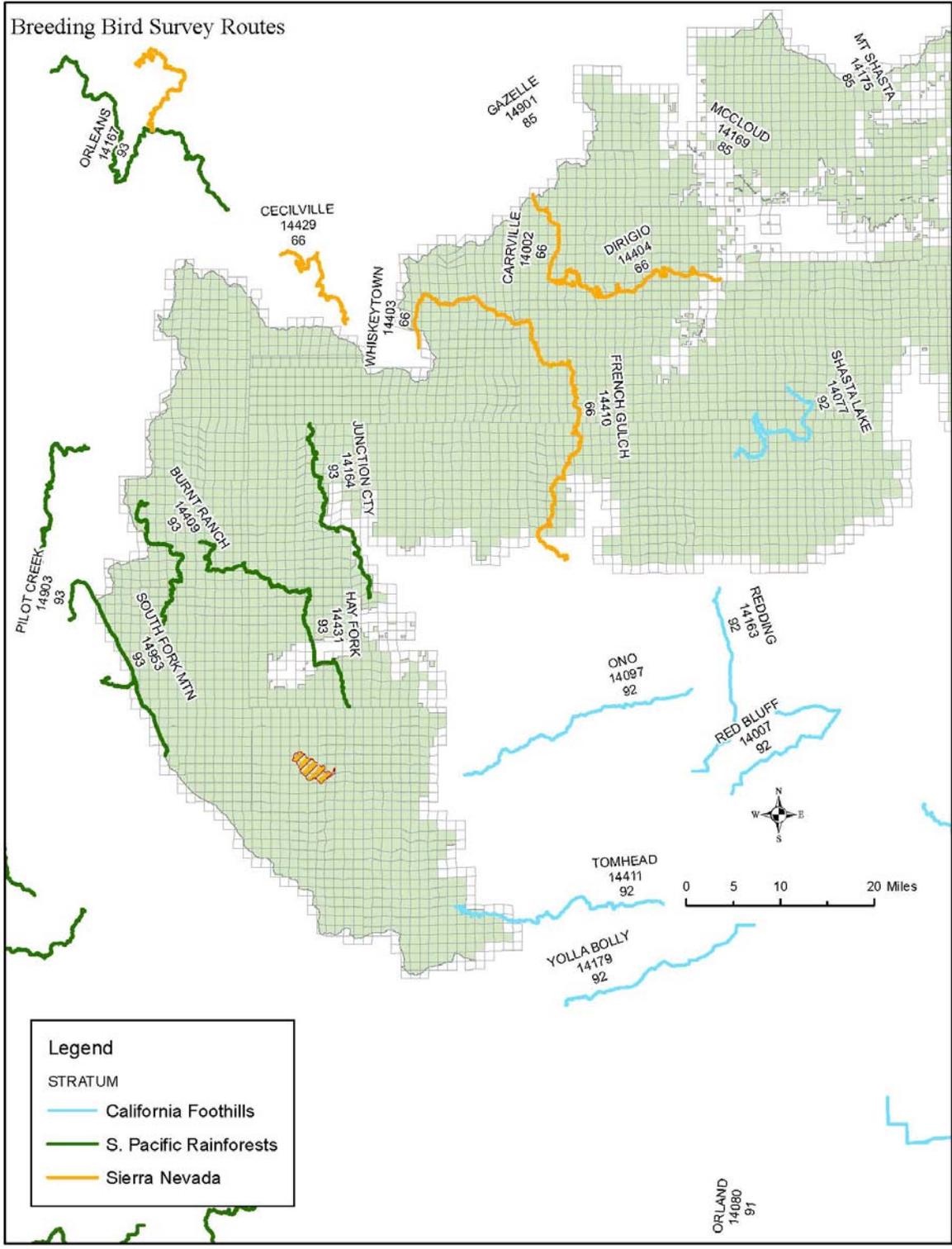


Figure 3. Breeding Bird Survey Routes

While the Hayfork breeding bird survey route is nearest to the project area, it occurs in the S. Pacific Rainforest strata, which is different ecologically than the Sierra Nevada strata in which the Salt project area occurs. The nearest known breeding bird survey

routes located in the Sierra Nevada strata is approximately 20 miles from the Salt project area. No BBS surveys have been conducted within the Salt project area. Appendix A (pages 19-23) lists Sierra Nevada strata birds that may occur in the Salt project area. The bird list in Appendix A was developed by using other Sierra Nevada strata BBS survey information and the presence of various habitat assemblages present in the Salt project area.

Methodology for Analysis

Forest planning occurs on at least two levels; Forestwide and project. The Shasta-Trinity Land and Resource Management Plan directs that management indicator analysis be completed using population trend or key habitat components for analysis.

The Shasta-Trinity LRMP (1995) identified nine wildlife habitat assemblages or their key habitat components for Management Indicator analysis. An “assemblage” is a collection of vegetation, species and conditions that characterize either a habitat type such as late-seral or a habitat component such as snags and downed logs. Some representative species include migratory and residential birds.

Seven management indicator assemblages have been identified in the project area (Oechsner, 2009). Table 3 displays the habitat assemblages and approximate acres of each that occur in the Salt Timber Harvest and Fuels Hazard Reduction Project area. (Overlap between assemblages occurs in the acreage figures).

Table 3. Assemblage Types and Acres of Each That Occur in the Project Area.

Assemblage Type	Acres
Late Seral	3,533
Open and Early	670
Riparian	1,054
Chaparral	48
Cliff, Cave, Talus, Rock Outcrops	28

Other assemblages not listed in Table 2, but present in the project area include the Hardwood Assemblage, the Snag and Down Log Habitat Assemblage and the Multi-Habitat Assemblage.

The Hardwood Assemblage is not represented separately within the project area. Hardwoods are present in the project area as a component of the mixed conifer stands.

The Multi-habitat Wildlife Assemblage represents a variety of vegetated habitats, seral stages and special habitat components that often occurs within or are part of the other assemblages listed in Table 3.

Chaparral and cliffs, caves, talus and rock outcrops assemblage habitats are present within the analysis area but are unlikely to be directly or indirectly affected by actions proposed in either Alternative 2 or Alternative 3.

Of the seven management indicator assemblages identified within the Salt project area, five assemblages are likely to be either directly or indirectly affected by Alternative 2 or Alternative 3 of the Salt Timber Harvest and Fuels Hazard Reduction Project. The five assemblages are: late-seral, openings and early seral stage forest, snag & downed logs, hardwood, and riparian assemblages.

The Forest maintains and analyzes the best available population level data on 244 vertebrate species that occur on the Shasta Trinity National Forest. Population trend data is maintained on 242 migratory or residential birds using Breeding Bird Survey information (Wolcott, 2007).

This analysis combines the results of Sierra Nevada strata and Forest-wide analysis of migratory and residential bird population trends derived from the Breeding Bird Survey data with five management indicator assemblage habitats affected by the Salt Timber Harvest and Fuels Hazard Reduction Project.

Temporal and Spatial Scale of Analysis

Population data at various scales are important to both assess and provide meaningful context for population status and trend at the Forest scale.

The analysis that follows considers three spatial scales of analysis: the Salt Timber Harvest and Fuels Hazard Reduction Project area, the Shasta-Trinity National Forest and the Sierra Nevada bioregional strata. Two spatial scales were analyzed over three time frames used in the Breeding Bird Survey effort. The time frames are: 1966 to 2005, 1966 to 1979 and 1980 to 2005 (Wolcott, 2007).

In addition to the Salt project area and Forest level analysis, the bioregional perspective is appropriate for analysis because population trends from a larger scale helps determine the significance of localized increases or decreases in mobile, opportunistic bird species that are not necessarily significant relative to the species population overall in Physiographic Area 66.

Project Area Level Analysis

Alternative 1 – No Action

Migratory bird habitat within the Salt project area would not change. There would be no impacts to migratory birds.

Alternatives Two and Three

With either Alternative Two or Three of the Salt Timber Harvest and Fuels Hazard Reduction Project, impacts to the habitat and migratory and residential bird species listed in Appendix A would occur. Some changes in bird species composition, density and abundance in the project area would be expected. The proposed Salt Timber Harvest and Fuels Hazard Reduction Project would have adverse impacts on some migratory and residential birds and their habitat while other species would benefit. Short-term responses may differ from long-term responses and breeding bird response may differ from wintering bird response (*in* Pilliod, et al, 2006).

Direct effects to birds could include disturbance and/or displacement to adjacent suitable habitat and/or unintentional mortality of adults and young, particularly in those areas that would receive treatment during the breeding bird season, which varies by species.

Table 4 displays the acres of habitat by assemblage that will be disturbed by actions proposed in Alternative 2 and Alternative 3 of the Salt Timber Harvest and Fuels Hazard Reduction Project. Alternative 3 would affect fewer acres of bird habitat. The acres disturbed would not shift to a different assemblage as a result of treatment.

Table 4. Acres of Habitat by Assemblage that would be Disturbed by Actions Proposed in Alternatives 2 and Alternative 3.

Assemblage Type	Acres Disturbed	
	Alt. 2	Alt. 3
Late Seral	951	877
Open and Early	148	138
Riparian	142	0

The immediate effect of the proposed treatments would alter the physical habitat and habitat components of the stands. Removal of smaller diameter trees (the average diameter of retained trees would be about 16.5 inches DBH [Petersen, personal communication]) would alter the canopy closure, vertical, horizontal, and understory structures and ground cover along with the density of mixed conifer stands within the project area. Treatments would impact existing nesting, roosting, perching and foraging habitat and forage of migratory and residential birds.

The dense mixed conifer stands present in the project area currently provides a high degree of structural diversity and cover. Those species dependent upon dense, close canopied, structurally diverse stands would be negatively impacted. Likewise, bird species that prefer less dense forested habitat would be positively affected by the proposed treatments.

Alternative 2 would thin approximately 481 acres of plantations to 150 trees per acre and Alternative 3 would thin approximately 421 acres of plantations. Total species abundance in the plantation thinning units may change. Total abundance of bird species was greater in thinned young stands compared to young-unthinned stands in one Oregon study (Muir et al. 2002), while another study found some species decreased in numbers (9 out of 22), others increased (8 out of 22) and some were not influenced (5 out of 22) (Hayes et al, 2003).

A reduction in the number of smaller trees would reduce competition for nutrients, light and water and increase the growth and size of the remaining largest trees. Long term, this would likely have a positive affect on birds that prefer larger trees for nesting and foraging, although knowledge of long term responses to thinning is scant (Hayes et al, 1997).

In Alternative 2, tree removal would reduce crown closure up to 60% in the 103 ac. shaded fuel break (i.e. 40% canopy closure will be retained). Canopy closure would be reduced to 50% closure in all other thinned units except for 41 acres within intermittent or ephemeral stream riparian reserves, which will be reduced to no more than 40% (i.e. 60% canopy closure will be retained). The modeled projection of crown canopy 50 years following treatment would range from 54 to 75% (Petersen and Amell, 2009).

In Alternative 3, canopy closure would be reduced to 60% closure in all thinned units as well as in the shaded fuelbreak. No thinning treatments would occur in any riparian reserves, preserving the existing canopy closure in those areas. Because canopy closure would be reduced less during treatment, higher levels of canopy closure would be achieved sooner. Canopy closure would be projected to be higher in 50 years by implementing Alternative 3. The modeled projection of crown canopy 50 years

following treatment would range from 59 to 77% (Petersen and Amell, 2009) or slightly (approximately 2-4%) more canopy closure would be available to birds that prefer it.

The varying degrees of canopy closure reduction in either Alternative 2 or Alternative 3 would more or less affect those bird species that perch, nest and forage in the canopy and/or depend on a high degree of crown closure in the overstory.

Currently there is an average of 13 dead trees per acres across the project area. Eight of the 13 dead trees per acre average 18.2 inches dbh. (Petersen and Amell, 2009). Some habitat for snag and down woody dependent bird species would be affected by the proposed treatments. Some dead, dying and mistletoe infected trees would be removed. Thinning treatments that select against mistletoe infected trees would likely be detrimental to those bird species that forage and nest in mistletoe brooms. Removal of dying trees and those infected with mistletoe would reduce future snags and down woody debris.

Resource protection measures will assure that existing snags and down logs greater than 19” in diameter will be retained, unless they are in a skid trail, landing site, or are a safety hazard during logging operations. Some loss of snags <19 inches dbh and down woody material in the 3” to 20” class would occur. Less snag and down woody habitat would be affected in Alternative 3 because fewer acres would be treated. An average of 1.5 snags per acre greater than 15 inches in diameter and 20 feet in height will also be retained. Snags felled for safety reasons would be left on site. Additionally an average of 5 tons of logs per acre will be retained with a preference to have 4 to 6 logs per acre at the largest available diameter. These resource protection measures will ensure that adequate snag, cavity and down woody dependent birds habitat will remain within the areas treated as well as the project area.

Berry, cone and mast production would be altered in areas receiving treatment. Ground cover and some bird foods would be expected to increase due to the reduction in canopy closure and subsequent increase in sunlight that would stimulate grasses, forbs and shrub layer development.

Bird species that depend upon the hardwood component that occurs within the mixed conifer stands would be minimally affected by treatments proposed in Alternative 2 or Alternative 3. Hardwoods would not be treated, but some individual trees may be inadvertently damaged and subsequently lost as a result of thinning and logging operations. Damaged hardwoods would be left on site, slightly increasing the number of hardwood snags and future down woody debris which would provide for cavity and down woody dependent bird species. Loss of hardwoods would be expected to be minimal across the project area. Resprouting of some hardwood species would also be expected and would benefit birds that utilize hardwood shrubs.

Alternative 2 would result in a net shift of approximately 45 acres of late-seral and snag and down log assemblage habitat to open and early seral assemblage habitat. This shift would occur as a result of the regeneration and shelterwood harvest with green tree retention treatments. Alternative 3 would result in a net shift of approximately 30 acres of late-seral and snag and down log assemblage habitat to open and early seral assemblage habitat. This shift would occur as a result of the shelterwood harvest with green tree retention treatment. Birds that prefer late-seral and snag and down log habitat

would be negatively affected, while bird species that prefer open and early seral habitats would benefit.

A few acres of existing bird habitat in the project area would be altered for the reconstruction and construction of temporary roads, landings and gravel pit expansion. Roads and landings contribute to habitat fragmentation which negatively affects some interior forest dependent birds. Birds with a preference for edge habitats would likely be positively affected. The decommissioning of 13.8 miles of road would improve these edge habitats for bird species with a preference for edge, open and early seral habitats.

Migratory and Residential Bird Population Trends

Forest Level Analysis

The Forest wildlife biologist on the Shasta-Trinity National Forest maintains population trend data on 242 species of migratory or residential birds. Of the 242 species that have some relevant population trend data, 139 are given the highest level of credibility by researchers. These species were assigned to assemblages based on habitat use descriptions.

Table 5 displays credible and significant bird species trends on the Shasta-Trinity National Forest for three of the habitat assemblages affected by The Salt Timber Harvest and Fuels Hazard Reduction Project. No credible or significant bird population monitoring trend information is available for the open and early seral or riparian assemblages of the Shasta-Trinity National Forest.

Table 5. Credible and Significant Bird Population Monitoring Trend Information for the Shasta-Trinity National Forest by Assemblages (Wolcott, 2007) Identified in the Salt Project Area

Assemblages	Bird Species That Are Increasing	Bird Species That Are Decreasing
Late Successional	White-headed woodpecker	Steller's jay Mountain chickadee
Snags and Down Logs	White-headed woodpecker	Golden-crowned Kinglet
Hardwoods	None	Band-tailed pigeon; Warbling vireo

Trends are similar for many of the same species of birds that occur in the same assemblages on the Shasta-Trinity National Forest within the Sierra Nevada Strata. Table 6 displays those credible and significant trends. For the Sierra Nevada Strata, no credible or significant bird trend information is available for the riparian assemblage.

Table 6. Credible and Statistically Significant Trends in Birds that Occur on the Shasta-Trinity NF within the Sierra Nevada Strata, 1966 to 2005 for habitat assemblages occurring in the Salt Project Area

Assemblages	Increasing	Decreasing
Late	White-headed woodpecker	Steller's jay Mountain chickadee
Openings and Early	None	American robin Nashville warbler Dark-eyed junco Purple finch Cassin's finch
Snags and down logs	White-headed woodpecker	Golden-crowned Kinglet
Hardwoods	None	Band-tailed pigeon Warbling vireo

Sierra Nevada Strata Analysis Area

Within the Sierra Nevada Strata, of the 40 species of birds with the highest data and statistical credibility rating assigned by the Breeding Bird Survey (BBS), one species is increasing and 13 are decreasing with significant statistical validity. The white-headed woodpecker is increasing while the olive-sided flycatcher and mountain chickadee are decreasing in the late seral assemblage. Table 7 displays the species that are increasing and decreasing by assemblage in the Sierra Nevada strata.

Table 7. Species increasing and declining in the BBS Sierra Nevada strata and their associated assemblage habitat types.

Increasing		Decreasing	
Species	Assemblage	Species	Assemblage
White-headed woodpecker	Late; Snags and Down Logs	Olive-sided flycatcher	Late
		Mountain Chickadee	Late
		Western wood peewee	Riparian
		Wilson's warbler	Riparian
		Stellers Jay	Open and Early
		Golden-crowned Kinglet	Open and Early
		American robin	Open and Early
		Nashville warbler	Open and Early
		Dark-eyed junco	Open and Early
		Black-headed grosbeak	Open and Early
		Brown headed cowbird	Open and Early
		Purple Finch	Open and Early
		Cassins finch	Open and Early

Table 8 displays the percent change in bird species trends occurring on the Shasta-Trinity National Forest in the Sierra Nevada Strata.

Table 8. Percentage change (trend) in Sierra Nevada strata populations from 1966 to 2005 of avian species with high credibility ratings from the BBS occurring on the Shasta-Trinity National Forest

Increasing Survey Wide		Decreasing Survey Wide	
Species	Trend (% change)	Species	Trend (% change)
Late Seral Assemblage Habitat Associated species			
White-headed woodpecker	+2.6	Olive-sided flycatcher	-3.8
		Steller's jay	-1.3
		Mountain Chickadee	-1.7
Open and early Seral Assemblage Habitat Associated species			
None		American robin	-2.1
		Nashville warbler	-3.3
		Dark-eyed junco	-2.4
		Purple finch	-2.5
		Cassin's finch	-3.7
Snag and Down Log Assemblage Habitat Associated species			
White-headed woodpecker	+2.6	Golden crowned kinglet	-3.1
Riparian Assemblage Habitat Associated species			
None		Western wood-peewee	-1.1
		Wilson's warbler	-4.7
		Black-headed grosbeak	-1.7
		Brown-headed cowbird	-4.0
Hardwood Assemblage Habitat Associated species			
None		Black-headed grosbeak	-1.7

In the Sierra Nevada Strata, the available data does not indicate a precipitous loss of either species or habitat assemblage type, but documents moderate shifts in species density and habitat occurrence. These shifts appear to be within the range of variation except for the olive sided flycatcher the Nashville warbler, Cassin's finch, golden-crowned kinglet, Wilson's warbler and brown-headed cowbird. These species all show decreases greater than 3%. It is not known if declines greater than 3% are within natural or normal variation for the species.

Relationship of Project-Level Impacts to Forest-Scale Habitat and Population Trends for the species.

Thirty-eight percent of the 4,278 acre project area would be treated in Alternative 2. Thirty-four percent of the project area would be treated in Alternative 3. Bird species currently present within the project area would likely remain present within the project area following treatment, albeit with changes in distribution based upon habitat needs.

While habitat components available to birds would change as a result of the treatments, acres of each of the types of habitat assemblages would only shift by about 1%. It is unlikely that a net shift in 45 acres and 30 acres of late seral habitat assemblage to open and early seral habitat assemblage in Alternative 2 and Alternative 3, respectively, would result in any change in bird species numbers, composition or density. Competition among snag dependent birds may increase slightly as a result of the loss of some smaller snags. This would not be expected to affect overall numbers or abundance of snag dependent birds present in the project area.

Changes in forested vegetation patterns in the Salt project area and across the Forest in general indicate a shift of open and early seral stage assemblage habitat to late-seral assemblage forests over the last 30 years. Either Alternative 2 or Alternative 3 of the Salt Timber Harvest and Fuels Hazard Reduction project would not significantly alter this gradual habitat assemblage shift. The impacts to bird habitat resulting from implementation of Alternative 2 or Alternative 3 of the Salt Timber Harvest and Fuels Hazard Reduction project would not influence bird species trends in the habitat assemblages within the project area or on the Shasta-Trinity National Forest.

Reference List

- Foss, Jacqueline. Soil Scientist. TEAMS Enterprise. Salt Timber EIS. 2009 Soil Resource Report. 27 pp.
- Hayes, John P., Samuel S. Chan, William h. Emmingham, John C. Tappeiner, Loren D. Kellogg, and John D. Bailey. 1997. Wildlife Response to Thinning Young Forests in the Pacific Northwest. *Journal of Forestry*. August 1997. pp. 28-33.
- Lewis, Glenn. Fuels Specialist. TEAMS Enterprise. 2009. Salt Fire/Fuels Report. 23 pp.
- Muir, P. S., Mattingly, J. C. Tappeiner II, J. D. Bailey, W. E. Elliott, J. C. Hagar, J. C. Miller, E. B. Peterson, and E. E. Starkey. 2002. Managing for biodiversity in young Douglas-fir forests of western Oregon. U. S. Geological Survey, Biological Resources Division, Biological Science Report USGS/BRD/BSR-2002-0006. 76 pp.
- Oechsner, Marynell. Wildlife Biologist. TEAMS Enterprise. 2009. Project-level Management Indicator Assemblages Report. Salt Timber harvest and Fuels Hazard Reduction Project. South Fork management Unit. Hayfork Ranger District. Shasta-Trinity National Forest. 21 pp.
- Petersen, Gary and Larry Amell. Silviculturists. TEAMS Enterprise. 2009. Salt Timber harvest and Fuels hazard Reduction Project. Silviculture Report. 36 pp.
- Pilliod, David S.; Bull, Evelyn L.; Hayes, Jane L.; Wales, Barbara C. 2006. Wildlife and invertebrate response to fuel reduction treatments in dry coniferous forests of the Western United States: a synthesis. Gen. Tech. Rep. RMRS-GTR-173. Fort Collins, CO: U. S. Department of Agriculture, Forest Service, Rocky Mountain Research Station. 34 p.
- Rich, T. D., C. J. Beardmore, H. Berlanga, P. J. Blancher, M. S. W. Bradstreet, G. S. Butcher, D. W. Demarest, E. H. Dunn, W. C. Hunter, E. E. Inigo-Elias, J. A. Kennedy, A. M. Martell, A. O. Panjabi, D. N. Pashley, K. V. Rosenberg, C. M. Rustay, J. S. Wendt, T. C. Will. 2004. Patterns in Flight North American Landbird Conservation Plan. Cornell Lab of Ornithology, Ithaca, NY. 64 pp + Appendices.
- U.S. Department of Agriculture. Forest Service., U.S. Fish and Wildlife Service. 2008. Memorandum of Understanding Between the U.S. Department of Agriculture Forest Service and the U. S. Fish and Wildlife Service to Promote the Conservation of Migratory Birds. FS Agreement#08-MU-1113-2400-264. 13 pp.
- United States Department of Agriculture. Forest Service. Shasta-Trinity National Forest. Shasta-Trinity National Forests Land and Resource Management Plan (LRMP). 1995 Apr 28.
- United States Department of Agriculture. Forest Service. Pacific Southwest Region. Shasta-Trinity National Forest. South Fork Management Unit. Hayfork Ranger District. 2009. Draft Environmental Impact Statement. Salt Timber Harvest and Fuel Hazard Reduction Project. Trinity County California. 253 pp.

United States Department of Agriculture U. S. Forest Service Shasta-Trinity National Forest and Kelly Wolcott. Shasta-Trinity National Forest Management Indicator Assemblage Report. First issued in 2006.

Wolcott, S. Kelly. Wildlife Biologist. Shasta-Trinity National Forest. 2007. Shasta-Trinity National Forest Migratory and Residential Bird Population Trend Monitoring Report.

Appendix A

List of Breeding Birds Likely to Occur in the Salt Project Area by Habitat Assemblage*

Species	Late Seral	Openings & Early Seral	Multi-Habitat	Snag and Down Log	Riparian	Hardwood	Chaparral	Cliffs Caves Talus Rock
Turkey Vulture		X						
Cooper's Hawk						X		
Northern Goshawk	X							
Red-tailed Hawk		X						
Golden Eagle		X						
American Kestrel		X						
Blue Grouse	X							
Mountain Quail		X						
California Quail		X						
Common Snipe		X						
Band-tailed Pigeon						X		
Mourning Dove		X	X		X			
Great Horned Owl		X						
Northern Pygmy-Owl								
Common Nighthawk		X						
Common Poorwill		X						
Vaux's Swift		X						
White-throated Swift								
Anna's Hummingbird		X						
Calliope Hummingbird		X						
Rufous Hummingbird		X	X		X			
Acorn Woodpecker				X				
Williamson's Sapsucker				X				
Sapsucker (3 species)				X				
Red-breasted Sapsucker				X	X			
Nuttall's Woodpecker								
Downy Woodpecker				X				
Hairy Woodpecker	X			X				
White-headed Woodpecker	X			X				
Black-backed Woodpecker				X				
Northern Flicker				X				

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Species	Late Seral	Openings & Early Seral	Multi-Habitat	Snag and Down Log	Riparian	Hardwood	Chaparral	Cliffs Caves Talus Rock
Pileated Woodpecker	X			X				
Olive-sided Flycatcher	X							
Western Wood-Pewee					X			
Willow Flycatcher					X			
Willow/Alder Flycatcher					X			
Hammond's Flycatcher	X							
Gray Flycatcher							X	
Dusky Flycatcher		X						
Pac.-sl./Co. Flycatcher					X			
Black Phoebe					X			
Ash-throated Flycatcher		X						
Plumbeous Vireo								
Cassin's Vireo	X							
Hutton's Vireo								
Warbling Vireo						X		
Steller's Jay	X							
Western Scrub-Jay						X		
Pinyon Jay		X						
Clark's Nutcracker		X						
Black-billed Magpie		X						
American Crow		X						
Common Raven		X						
Horned Lark		X						
Tree Swallow				X	X			
Violet-green Swallow				X	X			
N. Rough-winged Swallow		X						
Cliff Swallow								X
Barn Swallow		X						
Mountain Chickadee	X							
Chestnut-bkd. Chickadee	X			X				
Oak Titmouse				X		X		
Bushtit		X						
Red-breasted Nuthatch	X			X				
White-breasted Nuthatch				X		X		
Pygmy Nuthatch	X			X				
Brown Creeper	X							
Rock Wren		X						
Canyon Wren								X
Bewick's Wren		X						

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Species	Late Seral	Openings & Early Seral	Multi-Habitat	Snag and Down Log	Riparian	Hardwood	Chaparral	Cliffs Caves Talus Rock
House Wren					X			
Winter Wren					X			
American Dipper								
Golden-crowned Kinglet				X				
Ruby-crowned Kinglet		X						
Blue-gray Gnatcatcher		X						
Western Bluebird		X						
Mountain Bluebird				X				
Townsend's Solitaire		X						
Swainson's Thrush					X			
Hermit Thrush					X			
American Robin		X						
Wrentit							X	
California Thrasher								
European Starling		X						
Orange-crowned Warbler		X						
Nashville Warbler		X						
Yellow Warbler					X			
Yellow-rumped Warbler		X						
Black-thr. Gray Warbler		X						
Hermit Warbler	X							
MacGillivray's Warbler					X			
Common Yellowthroat					X			
Wilson's Warbler					X			
Yellow-breasted Chat					X			
Western Tanager		X						
Green-tailed Towhee							X	
Spotted Towhee		X						
California Towhee							X	
Chipping Sparrow		X						
Brewer's Sparrow								
Vesper Sparrow		X						
Savannah Sparrow		X						
Fox Sparrow		X						
Song Sparrow		X						

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Species	Late Seral	Openings & Early Seral	Multi-Habitat	Snag and Down Log	Riparian	Hardwood	Chaparral	Cliffs Caves Talus Rock
Lincoln's Sparrow					X			
White-crowned Sparrow		X						
Dark-eyed Junco		X						
Black-headed Grosbeak								
Lazuli Bunting								
Brewer's Blackbird		X						
Brown-headed Cowbird					X			
Bullock's Oriole					X			
Pine Grosbeak								
Purple Finch		X						
Cassin's Finch		X						
House Finch		X						
Red Crossbill	X							
Pine Siskin		X						
Lesser Goldfinch		X						
Lawrence's Goldfinch								
American Goldfinch		X						
Evening Grosbeak	X							
House Sparrow						X		
Red-winged Blackbird					X			
Western Meadowlark		X						
Yellow-head. Blackbird								
Brewer's Blackbird		X						
Brown-headed Cowbird					X			
Bullock's Oriole					X			
Pine Grosbeak								
Purple Finch		X						
Cassin's Finch		X						
House Finch		X						
Red Crossbill	X							
Pine Siskin		X						
Lesser Goldfinch		X						
Lawrence's Goldfinch								
American Goldfinch		X						
Evening Grosbeak	X							
House Sparrow						X		

Species in red are those declining. Species in blue are those increasing.