



Woodpecker Preserve Bird Communities

A Report of 2013-2014 Bird Monitoring Efforts at
the Woodpecker Preserve



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Prepared by

Sierra Streams Institute

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Introduction

The purpose of this report is to provide an analysis of bird communities at the Woodpecker Preserve, as recorded via multiple field surveys conducted by Sierra Streams Institute (SSI) staff and volunteers over two seasons, in conjunction with habitat restoration and management activities with the Bear Yuba Land Trust (BYLT). BYLT has been implementing mechanical thinning, hand slash, and invasive species removal management techniques at the Woodpecker Preserve in conjunction with construction and maintenance of the new Orene Weatherall trail.

Bird communities can be monitored and analyzed as a proxy for overall ecosystem health, as habitat associations of various bird species have long been examined and tested (Rich 2002, Sallabanks et al. 2006). Bird community response to disturbance and management can be swift and telling, as changes in the avian population following disturbance can be directly indicative of overall ecosystem health (Jacquet and Prodon 2009). Additionally, with the onset of changes in habitat associated with climate change, avian communities can show us shifts in ecosystem health more quickly than most other organisms, and are increasingly showing direct responses to factors associated with climate change (Gardali et al. 2012). Bird monitoring has also been used to directly gauge restoration success, with particular species of birds providing significant indication of restored versus degraded habitat in both western riparian (Gardali et al. 2006) and wetland (Frederick et al. 2009) habitats.

At the Woodpecker Preserve, we used trained local bird experts to quantify bird communities and shifts in those communities over the two sampling seasons in 2013 and 2014. Bird communities were monitored to gauge restoration success and provide recommendations for future management of the Woodpecker Preserve property.

Methods

Point Counts

Sierra Streams Institute follows the Point Reyes Bird Observatory (PRBO, now known as Point Blue) methods for point counts (Ballard et al. 2003). The PRBO point count method is a standardized way to study yearly changes in bird communities, differences in species composition between habitats, and patterns in bird species abundance. The point count method is one of the most efficient methods for counting birds.

PRBO Point counts consist of one observer and one recorder standing in one spot and recording all birds seen or heard in 5 minutes at each sampling point

Observers are pre-screened local bird experts who identify all birds at each point via either visual or auditory observation. Recorders note the time each observation is made, the species being observed, and the detection type, which includes both distance (<50 meters from observer or >50 meters from observer) and if the bird was stationary or identified during a fly-over. Additional notes on breeding, nesting, and roosting patterns are also taken. PRBO recommends that sample points be placed approximately 250 meters from each other to avoid potential duplicate observations, but sampling distance can be adjusted to accommodate site constraints.

SSI volunteers and staff conduct these surveys during breeding season, from approximately April to mid-June (breeding season), during which sampling teams visit each site three times per week, beginning at six o' clock in the morning. Sites are usually paired to increase sampling efficiency, and order of site visits (i.e. site x first, then site y) is rotated each sampling day to ensure coverage of all sampling times.

At Woodpecker Preserve, bird sampling locations were chosen by selecting locations that were along the trail from Woodpecker Way past Cascade Canal, with a goal of 3 point

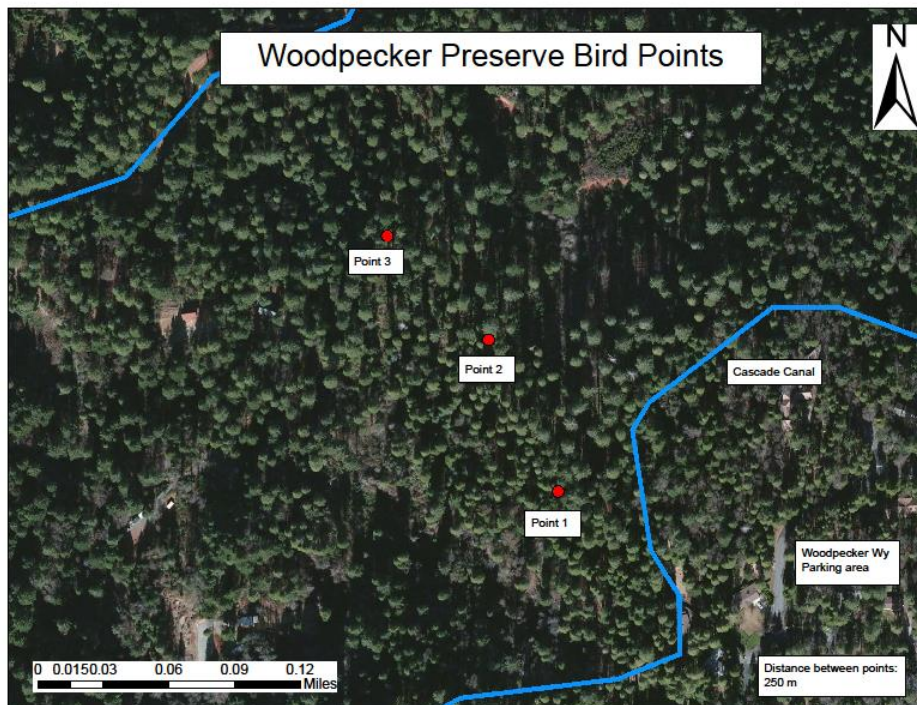


Figure 1. Woodpecker Wildlife Preserve bird monitoring points. All monitoring points are located along the Orene Wetherall Trail starting with Point 1 at the upper end of the trail spur from Cascade Canal.

6th-June 5th in the 2014 season.

locations selected.

All points were placed in the “lower” section, along Orene Wetherall trail (**Figure 1**), in an effort to monitor bird communities at the site overall and not areas impacted by the recent mechanical thinning along the upper trail, or nearby housing.

Bird point counts at Woodpecker Preserve were conducted May 9th- June 12th in the 2013 season, and May

Data Analysis

The goals of the data analysis were primarily to describe and document changes in the Woodpecker Preserve bird community over time, compare the community at the site to other sites within the Deer Creek watershed (**Figure 2**), and to examine overall bird community diversity with particular attention paid to rare or protected species that may be present. Only data from the 2013 and 2014 sampling seasons were included in this analysis for the purpose of only comparing Woodpecker Preserve communities to other sites in the same sampling years. Future bird studies would be useful to analyze to observe any changes in the bird community as the plants in the restoration area mature.

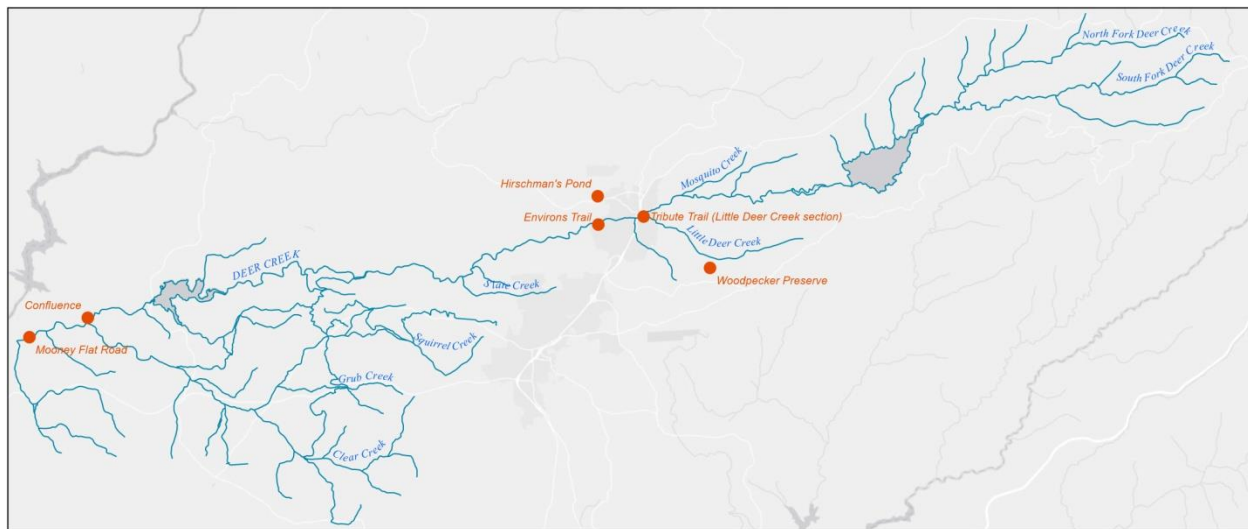


Figure 2. Bird monitoring locations surveyed by Sierra Streams Institute in the Deer Creek watershed during the 2013 and 2014 spring breeding seasons.

Bird observation data were first screened for incorrect bird species names and missing data. All data were then cleaned, processed, and analyzed using PC-ORD (McCune and Mefford 2011) and the plyr, ggplot2, and reshape packages within R (R Development Core Team 2011). Analyses were performed on two datasets that were sorted by (1) individual days (i.e. same site across all 10-11 sample days in the season) and (2) agglomerated years (i.e. the entire bird community sampled at one site in a season versus other sites in the same season). This was done to examine any trends by season, as well as compare the bird community at Woodpecker Preserve to that of other local sites.

Sampling efficiency was tested using species-area curves. Species-area curves calculate an “expected” number of species to be sampled based on observed species richness versus number of plots sampled, and compares this expected count to the actual number of species observed. We also calculated simple diversity metrics including: species richness (S), evenness

(E), Shannon diversity (H), and Simpson's diversity index (D') for each sample date and by site/year combination.

Non-metric Multidimensional Scaling (NMS) was used to examine differences and similarities in overall communities by year and by sample day. NMS is an ordination technique in which all sample data are plotted in ordination space relative to their similarities and differences to and from each other (Mather 1976, Kruskal 1964). Plots that appear closer together on the plot are more similar in overall species composition (both presence and abundance), and plots that appear farther apart are more different from each other. We used Sorenson distance as our distance measure in conducting the NMS ordinations, and performed all ordination analyses on data that were first relativized by both species maximum and sample total to reduce the effects of rare or abundant species on interpreting ordination distances. We also used simple bar plots of the raw data to compare abundance of rare or threatened species over the two year sample period among all sites.

Results

Overall Community Composition

A total of 105 species were observed across all sites (**Table 1**). During breeding season monitoring, Woodpecker Preserve had 40 species observed in 2013, and 36 species in 2014. Species area curves for both individual sampling days and for each site/year combination found that sampling effort was sufficient to capture most but not all of the expected species throughout the watershed and at each site, with a first order jackknife estimate of 128 species expected to be observed (23 more than recorded).

Relative species richness (# of species observed/ # of observation points) at Woodpecker Preserve was higher than all other locations sampled by SSI in the Deer Creek watershed, except for Hirschman's Pond for both years, and at Mooney Flat Road in 2014. Overall diversity (Shannon Diversity, H) at Woodpecker Preserve was in the middle of the range of values observed at all other sites.

The NMS ordination explained 93.2% of the variation in the bird communities, and shows that the community at Woodpecker Preserve is most similar to the Environs Trail community, and then the Little Deer Creek community (**Figure 3**). It should be noted that the Little Deer Creek location (adjacent to Pioneer Park in Nevada City) is closer to Woodpecker than the Environs Trail, but that the Environs Trail sample location has a more similar forest type and structure. The olive-sided flycatcher, yellow-headed warbler, and winter wren were all found almost entirely in Woodpecker Preserve sites and not at other sites. NMS ordination of all individual sampling days at all sites shows little to no within-sampling season variation with

all samples clustering by day and location (**Figure 4**), demonstrating sufficient sampling season length with very few early or late season observations.

Table 1. Number of individuals observed and associated diversity metrics from all bird monitoring sites within the Deer Creek watershed in 2013 and 2014, as a comparison with bird communities observed at Woodpecker Preserve (Bold). S: species richness (number of individual species observed), Rel. S.: Relative richness (# species observed/number of observation points), E: species evenness (distribution of species, with “1” representing the same number of each individual species), H: Shannon diversity, D’: Simpson’s diversity index (likelihood of selecting the same species if selecting one individual from each sample).

Site	Year	# Individuals	S	Rel. S	E	H	D’
Environs Trail	2013	678	47	7.83	0.77	2.94	0.92
Environs Trail	2014	522	40	6.67	0.76	2.82	0.91
Hirschman’s Pond	2013	581	52	17.33	0.82	3.22	0.93
Hirschman’s Pond	2014	638	51	17	0.81	3.19	0.93
Tribute Trail	2013	221	26	8.67	0.84	2.73	0.92
Tribute Trail	2014	230	29	9.67	0.81	2.72	0.91
Mooney Flat	2013	27	17	5.67	0.94	2.67	0.92
Mooney Flat	2014	401	52	17.33	0.83	3.28	0.94
Confluence	2013	745	57	9.5	0.83	3.34	0.95
Confluence	2014	794	48	8	0.84	3.24	0.95
Woodpecker	2013	393	40	13.33	0.78	2.88	0.91
Woodpecker	2014	417	36	12	0.79	2.83	0.91
Averages		470.6	41.2		0.82	2.99	0.93

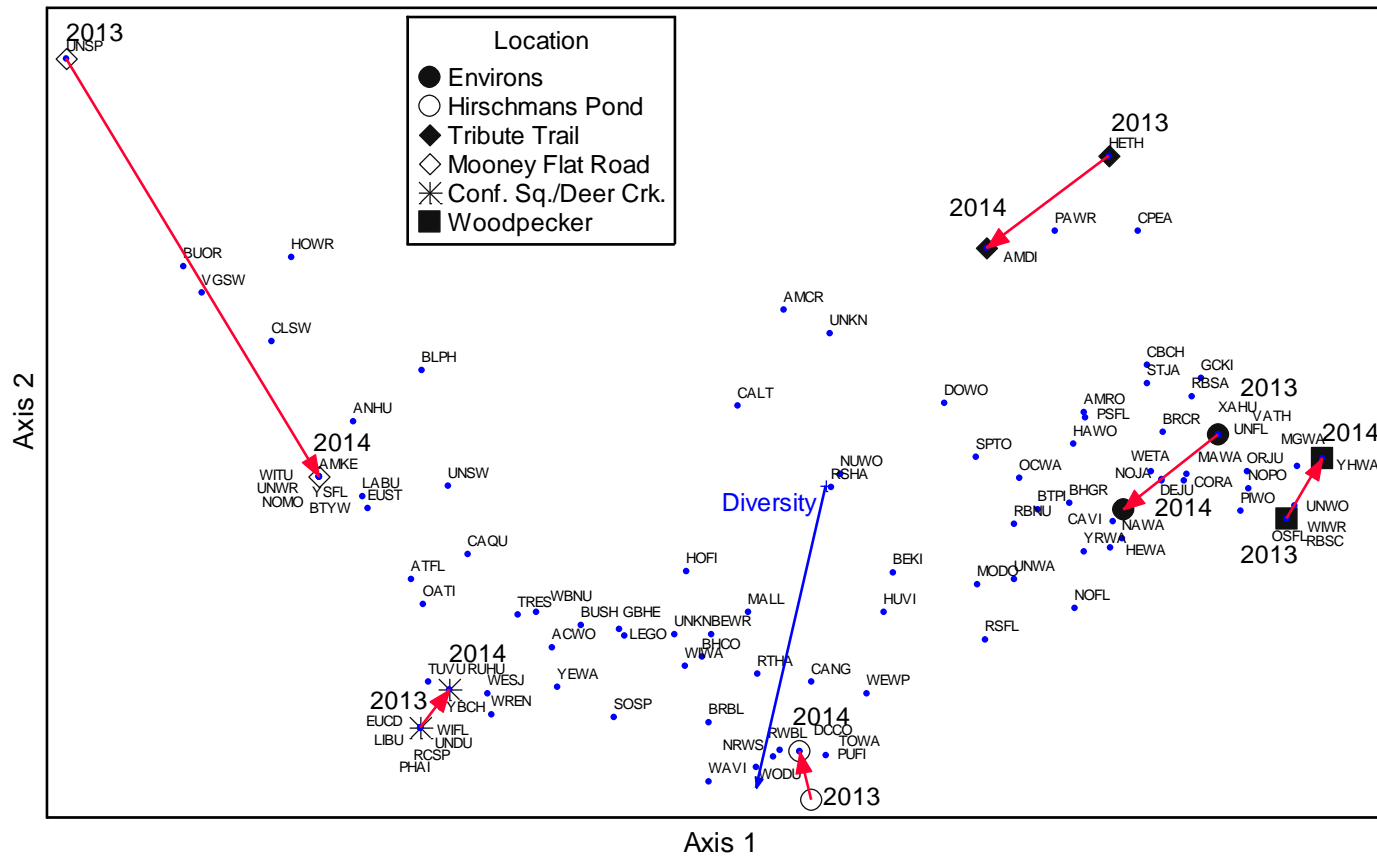


Figure 3. NMS ordination of bird communities at each site per year. Overall $R^2 = 0.932$, with Axis 1 explaining 80.2% of the variation. Large shapes represent sample locations, and small blue dots represent individual bird species. Sites that are close together in the plot are similar in species composition, while sites that are farther apart are more different from each other. Red arrows are successional vectors (change through time). The blue arrow overlay represents Shannon diversity, with the arrow direction showing that sample plots lower on axis 2 (the vertical axis) have higher diversity values. Individual bird species are labeled with species codes that are explained in Appendix B. Individual birds that are closer to plots on the graph are more heavily associated with that plot. For example, note that Yellow Headed Warbler (YHWA) and Olive-sided Flycatcher (OSFL) are only observed in 2014 at Woodpecker and 2013 at Woodpecker, respectively. Note that Woodpecker Preserve is most similar to the Environs Trail, which is at a similar elevation, and that the majority of individual species observed among all plots were observed in sample locations toward the right of the plot (Environs, Woodpecker, etc.)

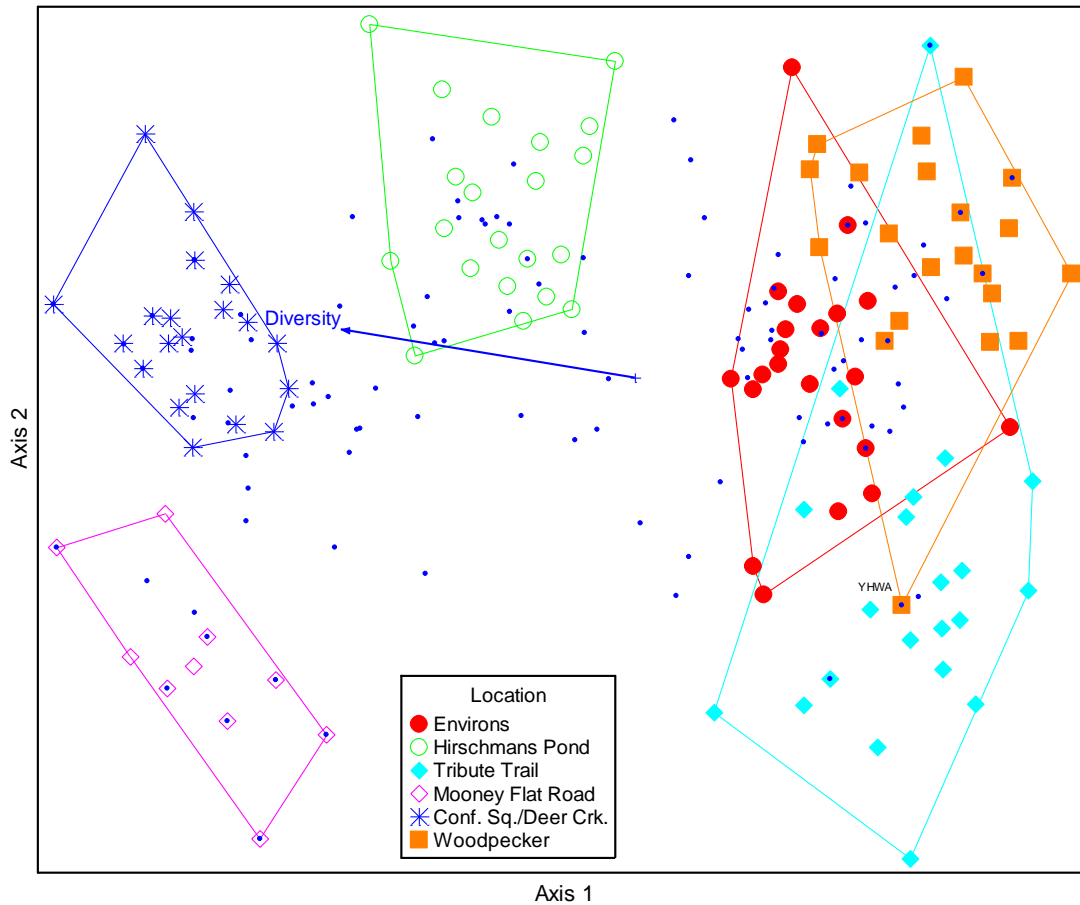


Figure 4. NMS ordination of individual sampling days across two seasons at all sites in Deer Creek watershed. Overall $R^2 = 0.753$, with Axis 1 explaining 59.4% of the variation. Lines are hulls that outline the extent of all samples from a given location. Sites show strong within-sample clustering, and limited within-sample season variation (no significant spread within samples). Also note that when comparing single sample days, Woodpecker Preserve sites are more similar to Environs Trail and Tribute Trail (Little Deer Creek section) sites.

Rare and listed species

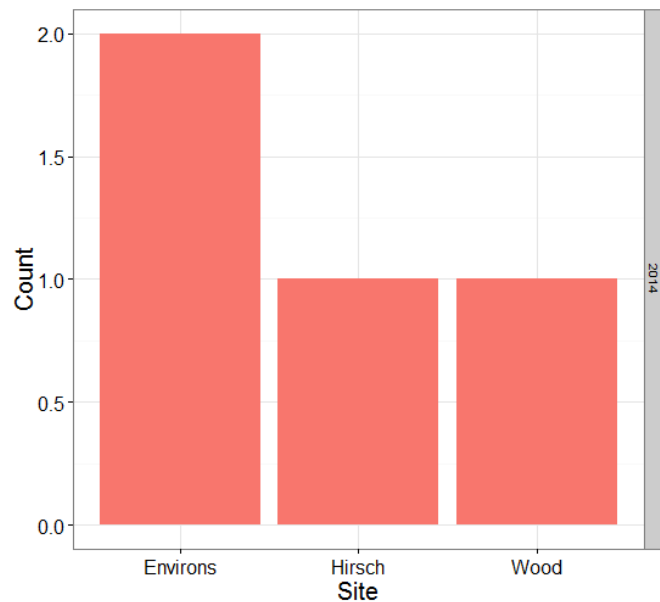
Five bird species currently listed as either: CA Department of Fish and Wildlife species of special concern (SSC), US Department of Fish and Wildlife birds of conservation concern (BCC), IUCN birds of least concern (LC) or near threatened (NT), or American Bird Conservancy watchlist birds of conservation concern (WLBC) were observed at Woodpecker Preserve during one or both sampling seasons. Listing status is described in **Table 2**.

Table 2. Special-status birds observed at Woodpecker Preserve listed in The California Natural Diversity Database (CNDDDB).

Species	Status
Hermit Warbler	ABC:WLBC, IUCN: LC
Nuttall's Woodpecker	ABC:WLBC, IUCN: LC
Oak Titmouse	ABC:WLBC, IUCN: LC
Olive-Sided Flycatcher	ABC:WLBC, DFG:SSC, IUCN:NT, USFWS:BCC
Yellow Warbler	DFG:SSC, USFWS:BCC

Presence of each of these species is indicative of healthy forest habitat, and trends in populations of these particular species should be monitored in subsequent years and following future restoration and management projects. Detailed descriptions of each of these species is below.

Hermit Warbler
Setophaga occidentalis

**Figure 5.** Hermit Warbler (*Setophaga occidentalis*) range map (left) and observation numbers at monitoring sites (right).

The Hermit Warbler is a new visitor to the Deer Creek watershed in 2014, and Woodpecker Preserve was one of three sites where the Hermit Warbler appeared (**Figure 5**). The Hermit Warbler is restricted to California, Oregon, and Washington. Hermit Warblers have a relatively limited breeding range confined to the Coast, and the Cascade and Sierra Nevada mountain ranges of Washington, Oregon, and California. Hermit Warblers are associated with tall coniferous forests, especially of Douglas fir and subsist on a diet of insects and spiders. Hermit Warblers are considered a conservation priority because of their habitat specialization, their limited breeding range in California, Oregon, and Washington, and the continued threat of large-scale logging in throughout the western region.

The major threat to this species appears to be the degradation or destruction of breeding habitat. Hermit Warblers are habitat specialists, breeding only in coniferous forests with a well-developed canopy. In managed forests in Washington, Hermit Warblers are found in highest numbers in stands that are more than 30 years old, and are not found at all in conifer stands that are less than 20 years of age. As habitat specialists with a limited breeding range, Hermit Warblers could certainly be threatened by future logging (especially clearcutting) in the Pacific Northwest. Two recommendations in The California Partners in Flight Coniferous Forest Bird Conservation Plan were specifically mentioned as being beneficial to important Hermit Warbler populations in the Sierra Nevada: managing forests for closed canopy and managing for tree species diversity.

Nuttall's Woodpecker

Picoides nuttallii

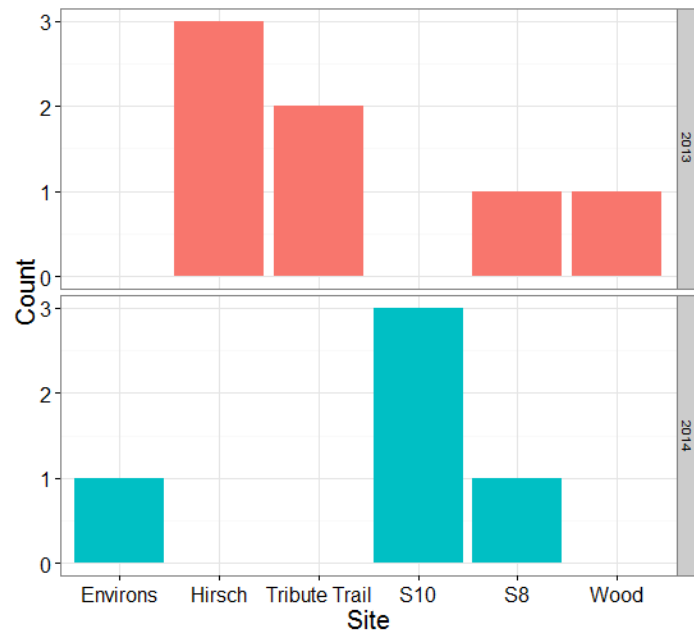
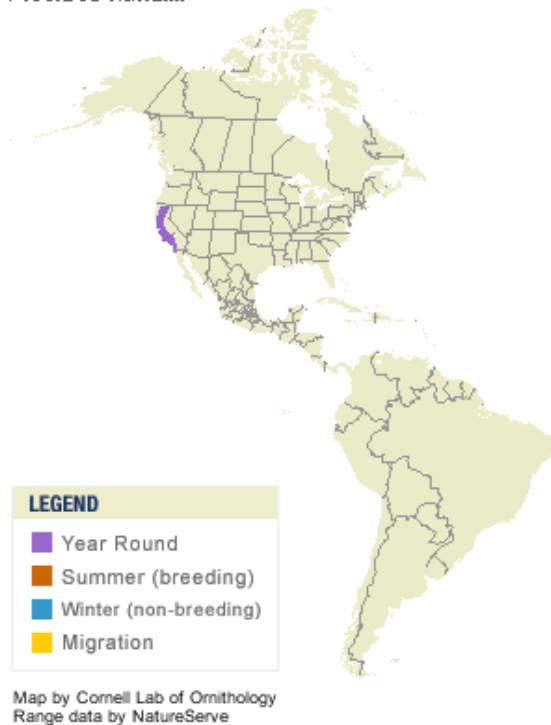


Figure 6. Nuttall's Woodpecker (*Picoides nuttallii*) range map (left) and observation numbers at monitoring sites (right).

A single Nuttall's Woodpecker was observed at Woodpecker Preserve in 2013, but no observations were made in 2014 (**Figure 6**). It is confined primarily to the oak woodlands of California. A permanent resident of oak woodlands, the Nuttall's Woodpecker's range barely extends outside of California. Its limited range, low density, and close association with oak woodlands and riparian zones make it vulnerable to development that encroaches on its habitat. Nuttall's Woodpecker is associated with oak woodlands and riparian woods, rarely in conifers. Snags and dead limbs are required for nest excavation as they nest in tree cavities, and the woodpecker subsists on a diet primarily made up of insects and arthropods, as well as some fruit. This woodpecker is of moderate conservation importance, primarily because of its limited range, low overall density, and its association with intact oak and riparian forests. As a primary cavity nester, this species provides nest sites for many other species in these forests. Populations appear to be stable at present, and this species is common and somewhat tolerant of human activity.

Habitat loss from development is the greatest threat to the species. Sudden Oak Death fungal disease, which has killed tens of thousands of oaks in California, may cause the loss of much habitat for the Nuttall's Woodpecker although in the short-term it could increase availability of nesting cavities because of the prevalence of dead and infected trees. California Partners in Flight recently created The Oak Woodland Bird Conservation Plan to guide land- management policy and action for California's oak woodland habitats and the wildlife that inhabit them. The conservation plan includes increasing the number of dead standing oak species in the Nuttall's Woodpecker's range. Live trees with dead limbs as well as diseased trees in which the heartwood decays are especially important to these woodpeckers, and Oak woodlands should be thinned to contain a canopy cover of 40-70%.

Oak Titmouse
Baeolophus inornatus

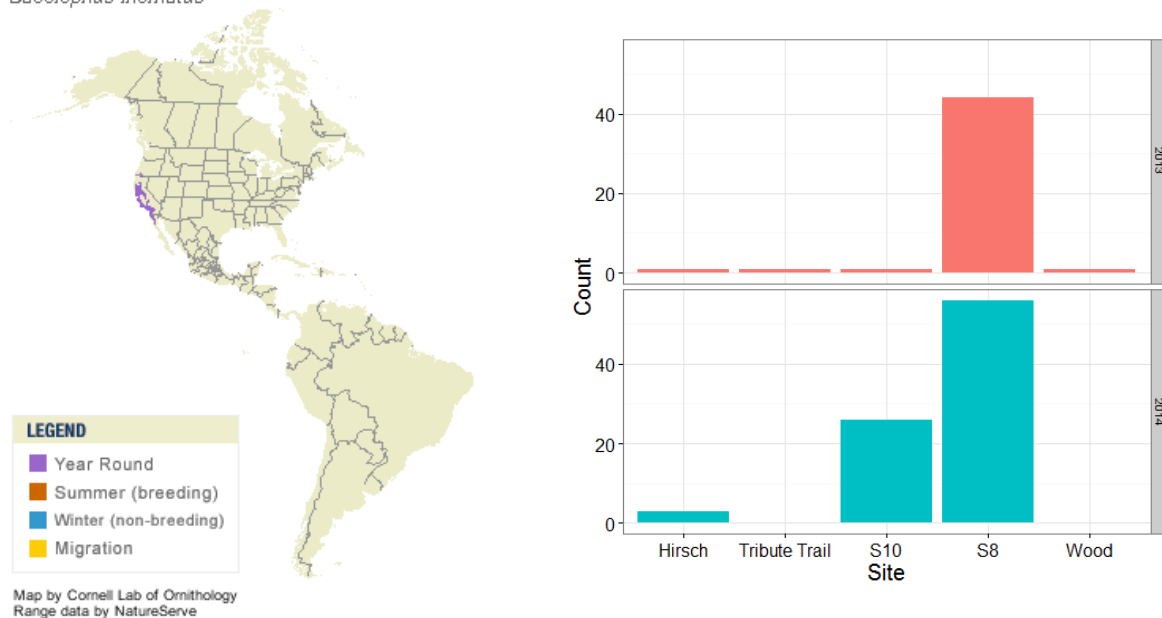


Figure 7. Oak Titmouse (*Baeolophus inornatus*) range map (left) and observation numbers at monitoring sites (right).

A single Oak Titmouse was observed at Woodpecker Preserve in 2013 (**Figure 7**), and no individuals were seen in 2014. The Preserve is on the edge of the Oak Titmouse's elevation range, as also demonstrated by the low numbers at Hirschman's Pond and along the Tribute Trail. The species is almost entirely restricted to dry slopes in California, though it ranges north to Oregon and south to Baja California as well. The Oak Titmouse is strongly tied to oak trees, which are less common at the elevation of Woodpecker Preserve with the exception of Black Oak, although they also live in areas of open pine or mixed oak-pine forest. Many will use scrub oaks or other brush as long as woodlands are nearby, and eat seeds and other plant materials as well as insects and other invertebrates, particularly in warmer months.

The Oak Titmouse is one of the most common birds in oak woodlands of California, but populations have declined by about 1.4 percent per year between 1966 and 2010, resulting in a cumulative decline of 46 percent, according to the North American Breeding Bird Survey. The decline of this species is linked to the increase in California's population during the twentieth century (from 1.5 million to more than 30 million people), which has increased pressures on oak woodlands from activities such as timber harvesting, clearing for agriculture, and urban and suburban development. An estimated 80 percent of California's remaining oak woodlands are privately owned, so landowners can play a crucial role in conservation of this unique habitat. The Oak Titmouse experienced a 1.6% annual decline in the California foothills from 1966 through 1996.

California Partners in Flight recently created The Oak Woodland Bird Conservation Plan to guide

land management policy and action for California's oak woodland habitats and the wildlife that inhabit them.

The conservation plan includes increasing the number of dead standing oak species in the Oak Titmouse's range. Live trees with dead limbs as well as diseased trees in which the heartwood decays are especially important. Oak woodlands should be thinned to contain a canopy cover of 40-70%.

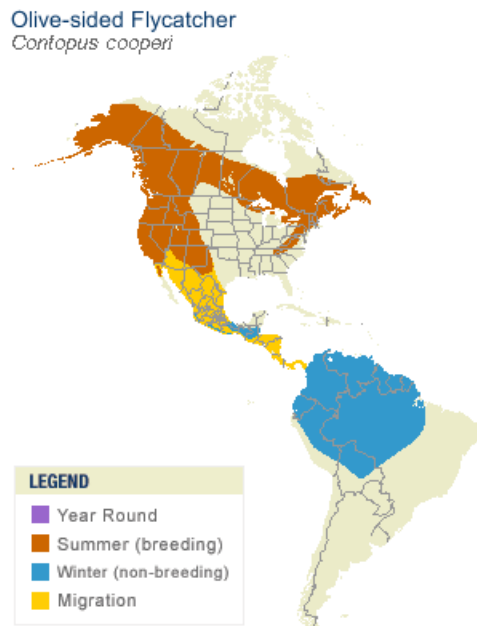


Figure 8. Olive-sided Flycatcher (*Contopus cooperi*) range map (left) and observation numbers at monitoring sites (right).

Two Olive-sided Flycatchers were observed at Woodpecker Preserve on May 21, 2013. The species did not appear at any other locations in the Deer Creek watershed in 2013, and did not appear at all in 2014. This species breeds in montane and northern coniferous forests, at forest edges and openings throughout the west (**Figure 8**), such as meadows and ponds. It winters at forest edges and clearings where tall trees or snags are present. These flycatchers are mostly associated with edges,

openings, and natural and human-created clearings in otherwise relatively dense forests, but they also occupy semi-open forests. They feed primarily on flying insects, especially bees.

Olive-sided flycatchers have declined seriously throughout much of its range. Loss of wintering habitat may be to blame, as well as removal of snags. Suitable breeding habitat may depend on forest fires and natural disturbances to create open space as this species responds well to disturbance. Increases in abundance have been seen in areas of timber harvesting, clear cutting, and forest fires.

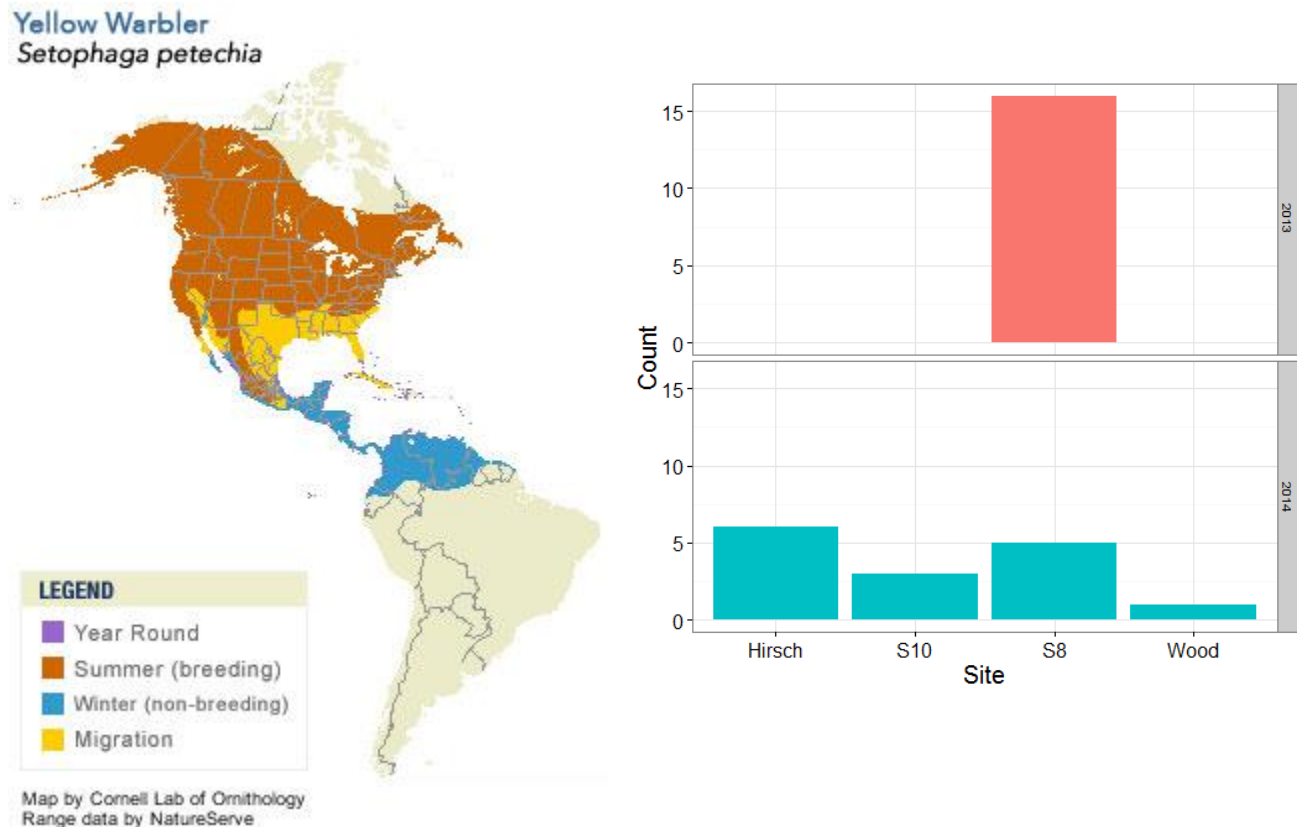


Figure 9. Yellow Warbler (*Setophaga petechia*) range map (left) and observation numbers at monitoring sites (right).

Yellow Warblers have been observed primarily in sites lower in the watershed, however, one individual was observed at Woodpecker in 2014 (**Figure 9**). Yellow Warblers prefer moist thickets, especially along streams and in swampy areas, as well as gardens. They spend the breeding season in thickets and other disturbed or re-growing habitats, particularly along streams and wetlands. Common trees include willows, alders, and cottonwoods across North America and up to about 9,000 feet in the West. In winter they mainly occur in mangrove forests of Central and South America. Their diet consists primarily of insects.

Yellow Warblers are one of the most numerous warblers in North America but their populations have been slowly declining since 1966, according to the North American Breeding Bird Survey. In the western U.S. active grazing of rangelands can degrade Yellow Warbler nesting habitat, particularly stands of willow trees along creeks. The Brown-headed Cowbird lays its eggs in the nests of many species including Yellow Warblers, and this can reduce their breeding success. Like many migratory songbirds that move at night, Yellow Warblers can be attracted to and killed by impact with tall, lighted structures such as TV towers and tall buildings. They are sensitive to decreases in deciduous habitat, riparian habitat heterogeneity, and riparian corridor width, and very susceptible to Brown-headed cowbird parasitism.

Conclusions and Recommendations

Community composition

The bird community observed through the 2013 and 2014 sampling season at Woodpecker Preserve is healthy and diverse. It is more diverse than any other bird sampling location in the Deer Creek watershed when considering number of species observed relative to sampling effort, and it is in the middle of the range of absolute diversity values. The community at the reserve is most similar to the Environs Trail community, relative to other sites within the Deer Creek watershed.

Visitation by rare and/or special-status birds reflects quality habitat within the Woodpecker Preserve, and the fairly large number of species that use the site demonstrates adequate habitat diversity and turnover.

Management Recommendations

The majority of bird species observed at the Woodpecker Wildlife Preserve are classified as habitat generalists, and are considered fairly common or within range during breeding season, which lends support to continued use of current management practices. The special-status species observed at the site have fairly similar and correlated habitat requirements that can be managed for collectively. Olive-sided Flycatchers and Nuttall's Woodpeckers both prefer snags left in place following disturbance, and Olive-sided Flycatchers prefer dynamically disturbed landscapes. The Oak Titmouse's preference for Oak species will also become an increasingly important concern their habitat range continues to shift upward in elevation with the progression of climate change and local drought effects. All of the observed habitat preferences lend support to active management that includes thinning of over-crowded conifer stands to allow regeneration of Black Oak and general mixed-species forests.

Management concerns related to the Hermit Warbler and Yellow Warbler habitat preferences, however, run counter to those for the other special status species. The Hermit Warbler's preference for mature, closed-canopy conifer stands and the Yellow Warbler's association with undisturbed

riparian habitat require limited forest thinning in mature stands and limited disturbance coupled with riparian restoration. Yellow Warblers are highly susceptible to Brown-headed Cowbird nest parasitism, and management should also focus on maintenance of prime habitat for Yellow Warblers and not Brown-headed Cowbirds.

Habitat requirements of all of the above species warrant a mixed management approach consisting of active forest management at select locations within a minimally disturbed landscape (i.e. a “management mosaic” approach), with selected mature, healthy stands interspersed with actively managed “succession” stands.

In summary, the bird community at Woodpecker Preserve is healthy and diverse and contains multiple special-status species. Continued management of the property is recommended to ensure continued health of the diverse bird community in the face of local habitat shifts in response to both climate change and local, seasonal drought conditions. Management goals for maintaining bird community health at Woodpecker Preserve should include the following:

- Mosaic approach with mature “preserved” stands mixed with actively-managed “succession” stands.
- Small-scale thinning of over-crowded, dense, and young conifer stands to encourage growth and species turnover
- Small-scale thinning in mixed species stands to encourage oak and other non-conifer diversity
- Restoration activities (i.e. invasive vegetation management and native riparian buffer planting) along riparian (both perennial and ephemeral) areas
- Continued bird monitoring to gauge impacts of management activities (preferably at same sites)

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Appendix A. All species observed at Woodpecker Preserve**Species**

American Robin
Ash-throated Flycatcher
Band-tailed Pigeon
Belted Kingfisher
Bewick's Wren
Black-Headed Grosbeak
Brown Creeper
Brown Headed Cowbird
Bushtit
Chestnut-backed
Chikadee
Common Raven
Dark-eyed Junco
Downy Woodpecker
Golden-crowned Kinglet
Hairy Woodpecker
Hermit Warbler
House Finch
Hutton's Vireo
Lazuli Bunting
Lesser Goldfinch
MacGillivray's Warbler
Magnolia Warbler
Mourning Dove
Nashville Warbler
Northern Flicker
Northern Pygmy Owl
Nuttall's Woodpecker
Oak Titmouse
Olive-Sided Flycatcher
Orange-Crowned
Warbler
Oregon Junco
Pacific Slope Flycatcher
Pacific Wren
Pileated Woodpecker
Red-Billed Scythebill
Red-Breasted Nuthatch
Red-Breasted Sapsucker
Red-shouldered Hawk

Red-Tailed Hawk
Song Sparrow
Spotted Towhee
Steller's Jay
Unidentified Warbler
Unknown Woodpecker
Western Tanager
Western Wood Peewee
Wilson's Warbler
Winter Wren
Yellow Warbler
Yellow-headed Warbler

Appendix B. Bird Species Codes for all birds observed at all sites

ACWO	Acorn Woodpecker
AMDI	American Dipper
AMCR	American Crow
AMKE	American Kestrel
AMRO	American Robin
ANHU	Anna's Hummingbird
ATFL	Ash-throated Flycatcher
BEKI	Belted Kingfisher
BEWR	Bewick's Wren
BHCO	Brown Headed Cowbird
BHGR	Black-Headed Grosbeak
BTYW	Black-throated Gray Warbler
BLPH	Black Phoebe
BRBL	Brewer's Blackbird
BRCR	Brown Creeper
BTPI	Band-tailed Pigeon
BUOR	Bullock's Oriole
BUSH	Bushtit
CALT	California Towhee
CANG	Canada Goose
CAQU	California Quail
CATO	California Towhee
CAVI	Cassin's Vireo
CBCH	Chestnut-backed Chickadee
CLSW	Cliff Swallow
CORA	Common Raven
CPEA	Common Peafowl
DCCO	Double-crested Cormorant
DEJU	Dark-eyed Junco
DOWO	Downy Woodpecker
EUCD	Eurasian Collared-Dove
EUST	European Starling
GBHE	Great Blue Heron
GCKI	Golden-crowned Kinglet
HAWO	Hairy Woodpecker
HEWA	Hermit Warbler
HETH	Hermit Thrush
HOFI	House Finch
HOWR	House Wren
HUVI	Hutton's Vireo
LABU	Lazuli Bunting

LAZB	Lazuli Bunting
LEGO	Lesser Goldfinch
LIBU	Little Bunting
MALL	Mallard
MAWA	Magnolia Warbler
MGWA	MacGillivray's Warbler
MODO	Mourning Dove
NAWA	Nashville Warbler
NOFL	Northern Flicker
NOJA	Northern Jacana
NOPO	Northern Pygmy Owl
NRWS	Northern Rough-winged Swallow
NUWO	Nuttall's Woodpecker
OATI	Oak Titmouse
OCWA	Orange-Crowned Warbler
ORJU	Oregon Junco
OSFL	Olive-Sided Flycatcher
PAWR	Pacific Wren
PHAI	Phainopepla
PIWO	Pileated Woodpecker
PSFL	Pacific Slope Flycatcher
PUFI	Purple Finch
RBNU	Red-Breasted Nuthatch
RBSA	Red-Breasted Sapsucker
RBSC	Red-Billed Scythebill
RCSP	Rufous-crowned Sparrow
RSFL	Red-shafted Flicker
RSHA	Red-shouldered Hawk
RTHA	Red-Tailed Hawk
RWBL	Red-winged Blackbird
RUHU	Rufous Hummingbird
SOSP	Song Sparrow
SPTO	Spotted Towhee
STJA	Steller's Jay
TRES	Tree Swallow
TUVU	Turkey Vulture
UNDU	Unidentified Duck
UNFL	Unidentified Flycatcher
UNWR	Unknown Wren
UNKN	Unknown
UNSP	Unknown Sparrow
UNSW	Unidentified Swallow
UNWA	Unidentified Warbler

UNWO	Unknown Woodpecker
VATH	Varied Thrush
VGSW	Violet-green Swallow
WAVI	Warbling Vireo
WBNU	White-breasted Nuthatch
WESJ	Western Scrub Jay
WETA	Western Tanager
WEWP	Western Wood Peewee
WIFL	Willow Flycatcher
WIWA	Wilson's Warbler
WIWR	Winter Wren
WODU	Wood Duck
WREN	Wrentit
XAHU	Xantus's Hummingbird
YBCH	Yellow-breasted Chat
YHWA	Yellow-headed Warbler
YEWA	Yellow Warbler
YRWA	Yellow Rumped Warbler
TOWA	Townsend's Warbler
YSFL	Yellow-shafter Flicker
NOMO	Northern Mockingbird
WITU	Wild Turkey