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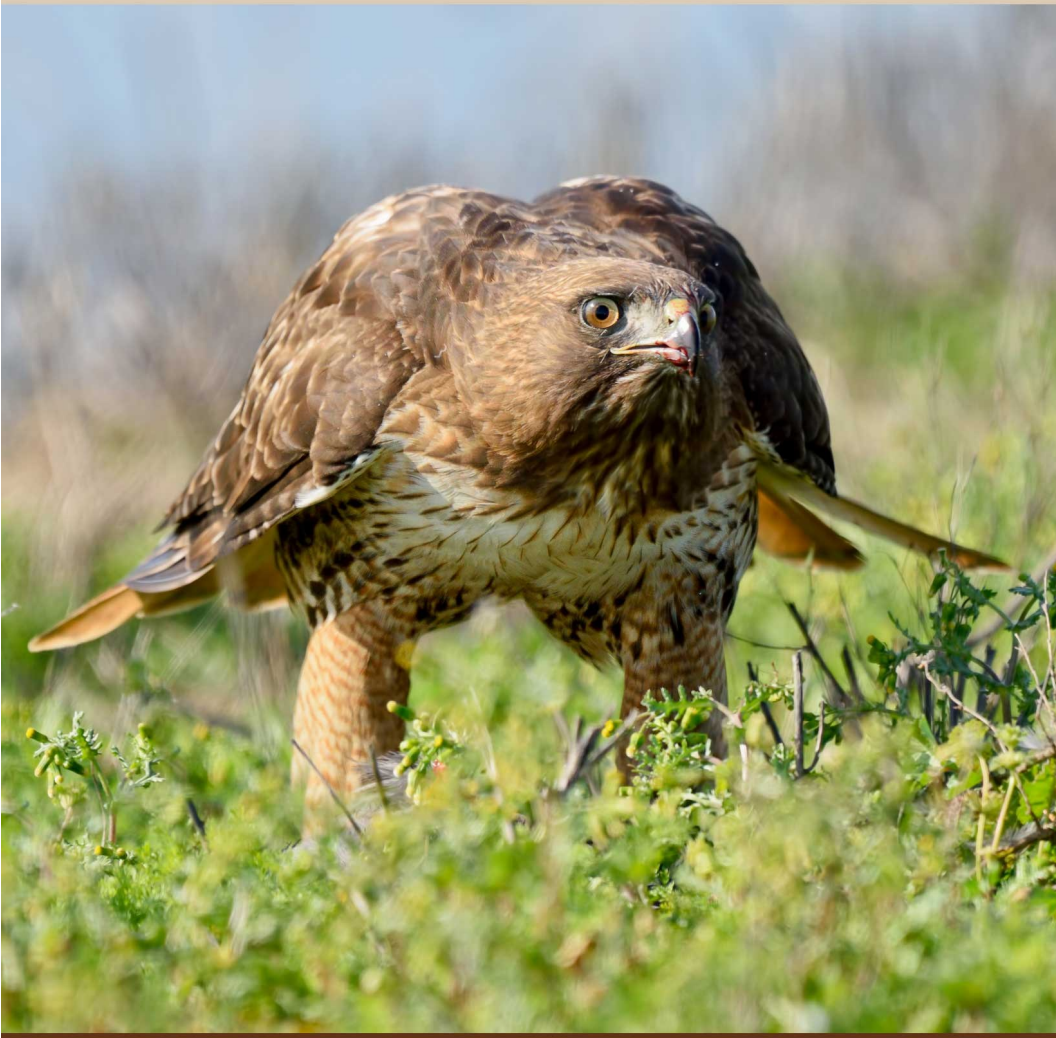

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Photo by Andy Engilis, Jr.

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Ratios of Adults to Juveniles Vary by Land Cover for Red-tailed Hawks Wintering in California's Central Valley

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Keywords: *Buteo jamaicensis,* age-related habitat selection, age structure, intraspecific behavior

ABSTRACT

We used data from a three-year study of raptor winter land cover associations throughout the Central Valley, and 14 years of year-round surveys along a transect (the Le Grand transect) in the Sierra Nevada foothills in eastern Merced and western Mariposa counties of California to compare relative winter abundance of adult and juvenile Red-tailed Hawks *(Buteo jamaicensis*) in various land cover types. We found that adult:juvenile ratios for Red-tailed Hawks were significantly greater in grassland, savanna, and rural residential land covers than in others covers. The ratios in most other land covers did not differ significantly from the overall ratio of approximately six to one. Two land cover types generally avoided by most Red-tailed Hawks (vineyards and orchards), showed significantly lower adult:juvenile ratios, while one cover type highly favored by the species (rice) also showed lower adult:juvenile ratios. Examining year-round data from the Le Grand transect, 90% of which occurs in grassland and oak savanna, we observed a pattern suggesting that juveniles vacate grassland/savanna areas in late summer and that the influx of wintering Red-tailed Hawks did not include more than a few juveniles. Several authors have suggested that juvenile Red-tailed Hawks are excluded from the highest quality habitats, presumably by resident and migrant adults. Our data showed significant differences in the distribution of adults and juveniles among land covers, but our results did not support the hypothesis that juveniles are generally excluded from the best habitats. We discuss implications of our findings with regard to mechanisms to explain this difference in distribution of adults and juveniles among land cover types.

The first winter in a raptor's life is particularly difficult. Young birds must quickly learn how and where to find prey and how to efficiently subdue it. They must deal with adults defending established winter territories and learn whether to challenge those adults. As a result of these and other challenges, most young raptors do not survive their first winter. Newton (1979) concluded that first year survival for nearly all raptor species rarely exceeds 50%. After the crucial first winter, annual survival rates improve dramatically (typically to 80% or greater). Studies of Red-tailed Hawks (*Buteo jamaicensis*) estimate that first year mortality ranges from 50 to 75% and annual mortality rates fall to less than 20% after the first year (Luttich et al. 1971, Preston 2000). Thus, understanding the population dynamics for raptors requires understanding the key factors that influence their survival during their first winter.

California, and the Central Valley in particular, support one of the largest populations of wintering Red-tailed Hawks in North America (Preston 2000, Pandolfino 2006, Fink et al. 2024). The winter populations consist of local breeders that maintain year-round territories (Fitch et al. 1946, Grinnell and Miller 1944, Preston 2000, Preston and Beane 2024) and an influx of larger numbers of migrants from elsewhere in western North America (Bloom et al. 2015, Fink et al. 2024, Preston and Beane 2024). Therefore, juvenile Red-tailed Hawks attempting to winter in this area find that their search for habitat that supports an adequate concentration of prey is complicated by the possibility that resident adults already occupy these habitats. In addition, as the season progresses, more wintering adult Red-tailed Hawks arrive seeking good quality habitat. Anecdotal reports from Wisconsin (Orians 1955), Arkansas (Garner and Bednarz 2024), Oklahoma (Lowe 1978, Lish and Burge 1995, Lish 2015), Georgia (Sexton 2005), and Nebraska (Schoenebeck et al. 2014) suggested that wintering juvenile Red-tailed Hawks occupied lower quality habitats than adults. These authors speculated that adults actively exclude juveniles from the best habitats. However, none of these studies provided statistically significant data to support differences in occupied habitat or evidence for active exclusion of juveniles by adults.

We tested the hypothesis that juvenile Red-tailed Hawks are forced into lower quality habitats during winter in California's Central Valley by comparing adult:juvenile ratios using three years of data on land cover associations (Pandolfino et al. 2011). We also used 14 years of year-round data from one of those routes (the Le Grand transect, Young et al. 2025) to examine the dynamics of this ratio throughout the year there.

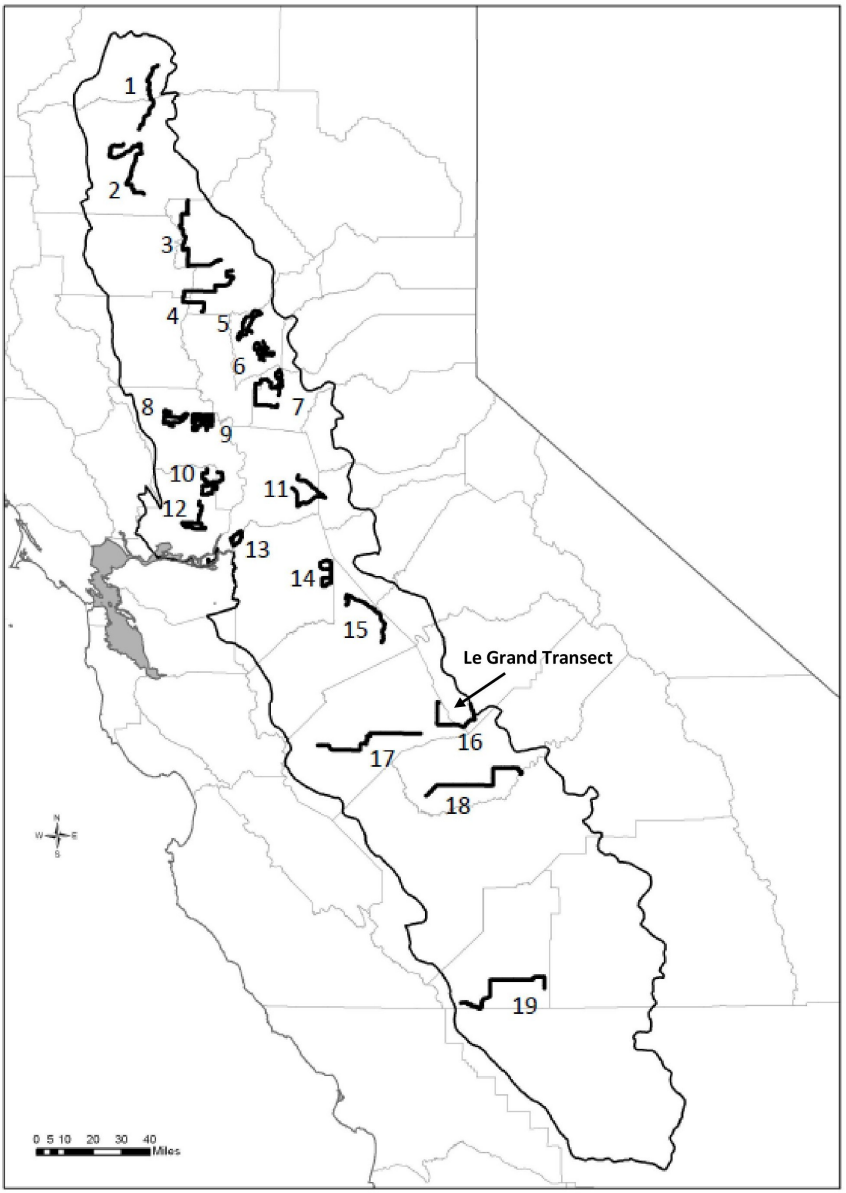

Figure 1. The Central Valley, California, and the 19 survey routes used to assess land cover associations of diurnal wintering raptors, 2007–2010. (1 = Shasta, 2 = Tehama, 3 = Butte North, 4 = Butte South, 5 = Yuba, 6 = Beale, 7 = Lincoln, 8 = Dunnigan Hills, 9 = Woodland, 10 = Davis, 11 = Folsom, 12 = Jepson, 13 = Delta, 14 = Linden, 15 = Oakdale, 16 = LeGrand, 17 = Los Banos, 18 = Madera, 19 = Kings).

STUDY AREA

The study area encompassed the Central Valley and the lower foothills of the Sierra Nevada and Coast Ranges (Figure 1) as described in detail by Pandolfino et al. (2011). All 19 routes were surveyed in winter for three winters (from 2007–08 through 2009–10). One route, the Le Grand transect, was also surveyed year-round from 2011 to 2025. That transect is in eastern Merced and western Mariposa counties along the eastern edge of the San Joaquin Valley and the western foothills of the Sierra Nevada (Figure 1) and is described in detail by Young et al. (2025). The land cover along this transect consists almost entirely of grassland (80%) and oak savanna (10%). Other land covers along the 19 survey routes include alfalfa, grassland, orchards, hay and other forage crops, irrigated pasture, rice, row crops, savanna, vineyards, wetlands, and rural residentials (i.e., ranchettes and small farms). Detailed descriptions and the relative proportion of each land cover are described elsewhere (Pandolfino et al. 2011, Pandolfino and Smith 2011); however, in those publications, the term "urbanized" is used instead of rural residentials.

METHODS

The survey protocol used for the three-year winter study throughout the Central Valley and for the Le Grand transect was described in detail by Pandolfino et al. (2011). These surveys were roadside area searches intended to count every raptor or Loggerhead Shrike (*Lanius ludovicianus*) observed within 500 m. Species, behavior, and location (mileage along the transect) were recorded for each bird, and when possible, the age, sex, and plumage morph were also noted. The original protocol required at least one survey per month for the winter months of December through February. The land cover type was also recorded along the transect every 800 m so that each observation could be associated with a dominant cover type. Year-round surveys of the Le Grand transect occurred between March 2011 and May 2025 (171 surveys).

RESULTS

During the three winters of the Central Valley wide surveys, we obtained 7,950 Red-tailed Hawk observations. Ages were determined for 6,309 (79%) of those observations. The overall adult:juvenile ratio across all transects and all land covers was 6:1. The adult:juvenile ratio was significantly higher than expected in grassland, savanna, and rural residentials, and significantly lower in vineyards, orchards, hay, and rice (Figure 2).

Monthly data from the year-round surveys (Figure 3) of the Le Grand transect showed that few juvenile Red-tailed Hawks were present from August through March. The number of juveniles increased from April to May and peaked in June. The numbers declined in July, with August recording the fewest juveniles of any month.

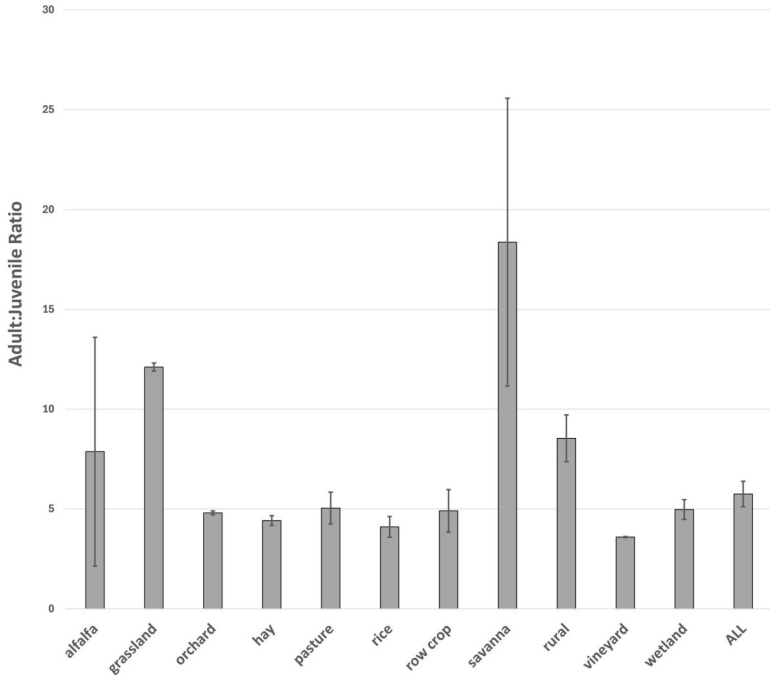

Figure 2. Ratios of adult to juvenile Red-tailed Hawks in various land cover types across all 19 survey routes, 2007–2010. Error bars represent standard error among years.

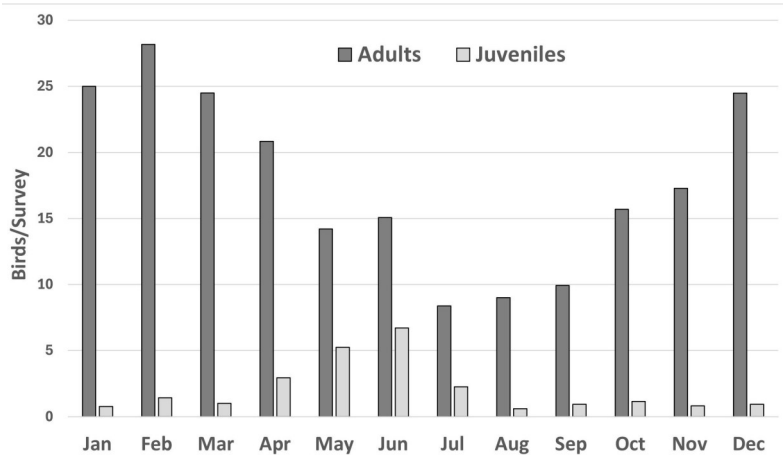

Figure 3. Relative abundance by month of adult and juvenile Red-tailed Hawks on the Le Grand Transect, 2007–2025.

DISCUSSION

Using the same three-year data set used for this study, Pandolfino et al. (2011) found that Red-tailed Hawks in winter were found significantly more often than expected in four land cover types: wetland, flooded rice fields, alfalfa, and irrigated pasture. They occurred significantly less often than expected in areas of intense agriculture (row crops, orchards, vineyards), rural residentials, and oak savanna. Based on the hypothesis that wintering juveniles are forced into lower quality land covers, as suggested by others (Orians 1955, Lowe 1978, Lish and Burge 1995, Sexton 2005, Schoenebeck et al. 2014, Lish 2015, Garner and Bednarz 2024), one would expect that the ratios of adults to juveniles would be highest in wetland, rice, alfalfa, and irrigated pasture, and lowest in row crops, orchards, vineyards, rural residentials and oak savanna. Our analysis, however, showed that the highest adult:juvenile ratios were in grassland, oak savanna, and rural residentials, and the lowest in vineyards, orchards, other forage (chiefly hay), and rice (Figure 2). Thus, our data did not support the exclusion hypothesis.

The year-round data from the Le Grand transect (of which 80% is grassland or oak savanna) showed very few juveniles (Figure 3) during the winter. Most juveniles were observed from April through July. This juvenile abundance pattern is consistent with these birds being locally fledged. In the Central Valley, fledglings are seen as early as late April to early May, and their numbers peak from late May into early July (Pandolfino and Douglas 2021). The Le Grand data showed those juveniles were largely gone by August, before the bulk of the wintering adults arrived. This pattern is consistent with the observations that juvenile Red-tailed Hawks, similar to many other raptor species, usually migrate earlier than adults (Newton 1979, Hull et al. 2009, Preston and Beane 2024).

Of particular note is that the three land cover types with the highest ratios of adults to juvenile Red-tailed Hawks were also those most likely to support breeding adults (open to semi-open areas with tall trees for nesting; Preston and Beane 2024). Most of the grasslands in our area included at least a few scattered trees, and the areas characterized as rural residentials consisted mostly of small ranches, where trees are also a common element. Other land covers (e.g., row crops, vineyards, orchards, and rice) usually lack trees large enough to host nesting Red-tailed Hawks. In winter, the tree requirement does not exist, and this allows Red-tailed Hawks to exploit other cover types.

Given that most authors believe that breeding Red-tailed Hawks in our area are largely year-round residents (Fitch et al. 1946, Grinnell and Miller 1944, Preston 2000, Preston and Beane 2024), the following hypothesis plausibly explains our findings. As juvenile Red-tailed Hawks disperse in July

and August looking for suitable wintering areas, they will find that much of the grassland, savanna, and rural residential land covers are occupied by resident pairs of adults. Rather than compete for these occupied areas, juveniles may move into other areas with land covers where migratory adult Red-tailed Hawks have not yet arrived. Thus, the observed distribution of juveniles among these habitats would not need to involve active exclusion of juveniles by adults. This is consistent with the observations of others (Craighead and Craighead 1956, Gates 1972, Preston and Beane 2024) that intraspecific aggression in winter is quite rare among Red-tailed Hawks. Lowe (1978) noted instances of wintering adults in Oklahoma driving juveniles from their territories; however, in most reported cases of intraspecific aggression, there is no indication that adults are the primary initiators (Ballam 1984, Preston and Beane 2024). This hypothesis is further supported by the short-distance natal dispersal of juveniles in at least one California location (Briggs et al. 2020). Therefore, early, short-distance movement from their breeding location would give these juveniles ample opportunity to locate promising habitats before most migratory adults have arrived.

This hypothesis could be tested by observing Red-tailed Hawks from late summer into winter in high-quality Red-tailed Hawk wintering land covers such as rice, noting relative abundance by age and any instances of intraspecific aggression. Our hypothesis would predict that: 1) adult Red-tailed Hawks would be largely absent in July and August; 2) juveniles would begin arriving in late summer; and 3) there would be few examples of intraspecific aggression that resulted in exclusion of juveniles.

It is also possible that the differences in land cover associations we observed are the result of juveniles selecting cover types that offer easier access to prey or prey types that are easier for less experienced birds to obtain. Testing this hypothesis would require detailed studies of hunting success rates, types of prey consumed, prey abundance, and over-winter survival in a variety of land covers.

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Red-tailed Hawks *(Buteo jamaicensis*). 30 November 2021. Sacramento National Wildlife Refuge, Glenn County, California.

Photo by Liam Huber.

Mute Swan Abundance and Habitat Use in the Central Sierra Nevada Foothills, California

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Key words: breeding, *Cygnus olor*, habitat selection, invasive species

ABSTRACT

The Mute Swan (*Cygnus olor*) has recently colonized California, and its population is reported to be growing rapidly, but little information is available on its occurrence and habitat use there. I conducted surveys for the species at waterbodies in the foothills of the central Sierra Nevada during the 2025 breeding season. I summarize information on occurrence by waterbody size and whether emergent vegetation and islands were present. Swans occupied 23 (20%) of 114 surveyed waterbodies. They avoided using waterbodies smaller than 1 ha (only 4% used) and larger than 100 ha (at low densities and only in shallower reservoirs) and occurred at 37% of 57 waterbodies 1–100 ha in size. Mute Swans used waterbodies with emergent vegetation and islands more than expected if use were random. More than one pair of swans were found only at three waterbodies that ranged in size from 4.6–76 ha. This study shows that the Mute Swans are widespread at stock ponds and other waterbodies in the Sierra foothills. This information provides a baseline for future status surveys and can be used to more thoroughly assess the regional population, the potential for further expansion in the region and in other similar areas in the state, and the effectiveness of control efforts in the region.

The Mute Swan (*Cygnus olor*) is a large bird (8.5–12 kg adult mass) that is native to central Europe and Asia (Wood et al. 2024). The species was introduced to coastal eastern North America in the late 1800s and has since expanded dramatically in range and numbers there and in the Great Lakes region (Wood et al. 2024).

The Mute Swan's occurrence was highly localized in California before the mid-1990s, but subsequently the species began to increase in numbers and expand its range (https://ebird.org/map). Little information, however, has

been published on its status, distribution or numbers there. For example, the only reference to the species' status in California in the 2024 revision to the Birds of the World account (Wood et al. 2024) is "there is a growing and apparently established population in central California from Marin and Sonoma Counties east to Sacramento and San Joaquin counties (eBird data, accessed 30 April 2023)." No studies have evaluated rates of range expansion, habitat requirements, and potential for future increase, although range expansion is under study (R. Araias, pers. comm.)

The status of the Mute Swan is changing in the Sierra Nevada foothills. The first few eBird records appeared in 2007 and have steadily increased, and breeding has been reported (https://ebird.org/map). Beedy and Pandolfino's (2013) comprehensive treatment of Sierra Nevada birds, however, did not identify the Mute Swan as present there and indicating its rare and localized status. Pandolfino et al. (2021) documented colonization of eastern Sacramento County between two breeding bird atlas periods (1988–1993 and 2016–2020).

Establishment and expansion of the Mute Swan's range and numbers in California is of concern because of potential for interference competition with other species, habitat modification, and threats to public safety including collisions with aircraft, disease transmission, attacks on humans, and crop damage (Guillaume et al. 2014, Marks 2018). Local information is needed on changes in distribution and abundance, habitat use, and potential effects on aquatic habitats and other waterbird species to guide management.

Incidental to other studies, in 2025 I studied Mute Swans in a section of central interior California to characterize the species' abundance, breeding status, and habitat associations. Although results are preliminary, in that they span only one year and a portion of the species' current geographic range, they may have value in documenting the species' current status and habitat needs and may elucidate and encourage other more intensive studies.

STUDY AREA

I conducted Mute Swan surveys within a 2,000 km^2 area in the foothills of the Sierra Nevada on the western side of the Central Valley, California, on lands at 10 to 450 m elevation (Figure 1). I surveyed 114 waterbodies and other waterbodies of all sizes mainly from public roads and in public recreation areas. Portions of the following counties (with number of ponds) were surveyed: Sacramento (15), Amador (32), Calaveras (63), San Joaquin (3), and Tuolumne (1). Most waterbodies (84%) were on private lands and viewed from public roads and were small impoundments used for livestock watering or to store irrigation water or stormwater. I also surveyed portions of six large reservoirs (Camanche, Pardee, Salt Springs Valley, New Hogan, Tulloch, and New Melones) and three wastewater treatment ponds (Ione,

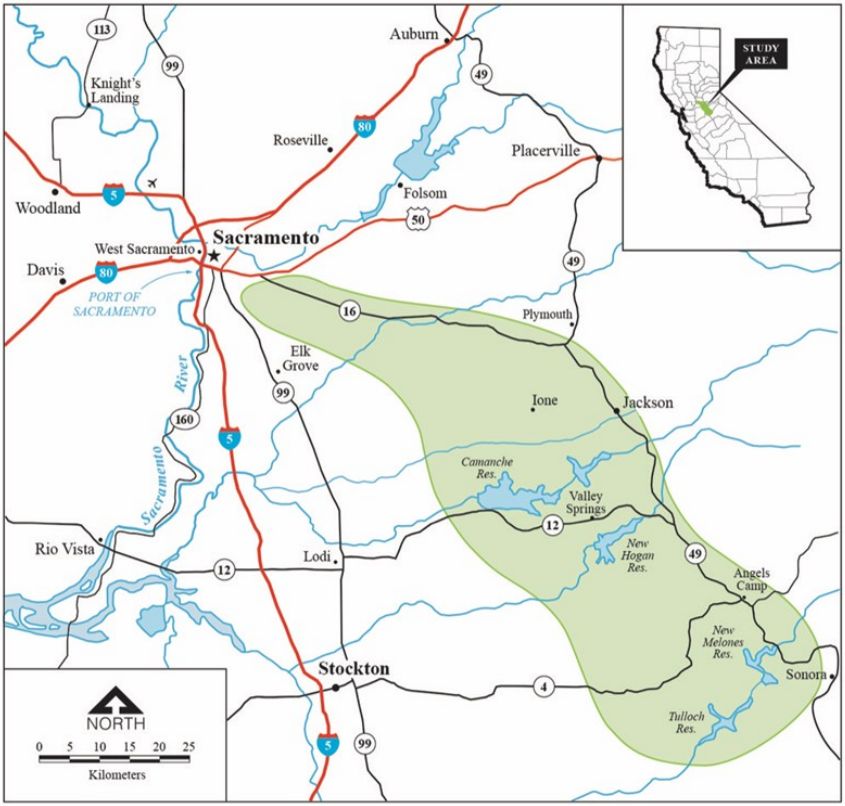

Figure 1. Central interior California study area in the Sierra Nevada foothills.

Valley Springs, New Melones). Vegetation surrounding surveyed waterbodies consisted primarily of annual grassland and oak woodland, with lesser amounts of chaparral, agricultural lands (irrigated pasture, vineyards, orchard), wetlands, and rural residential properties (Airola and Estep 2022).

METHODS

I conducted surveys opportunistically during 2 March to 2 June 2025, while surveying in this region for other species (Airola and Estep 2022, 2024; Airola et al. 2025). I checked 114 surveyed waterbodies mostly before May 6, with only nine checked thereafter. Numbers of visits to ponds varied, with 53 visited once, 40 visited 2 or 3 times, and 21 visited 4–8 times.

Surveys mainly consisted of looking for and checking waterbodies along public roads and within public recreation areas using 10x binoculars and a 15–60x spotting scope to determine swan occupancy and numbers. Swans were generally easy to identify from up to 1 km away because of their large

size and white color. As a result of access limitations, I wasn't always able to see all portions of some ponds and was only able to access a few ponds to look for nests.

I only surveyed portions of the six larger reservoirs in the study area. To supplement these surveys, I summarized eBird records for major waterbodies. I characterized reservoirs as predominantly shallow or deep based on aerial and onsite visual assessment of water depths and surrounding topography (i.e., steeply or gradually sloped).

Due to schedule constraints, I was unable to survey during the peak times when recently hatched young would be present in 2025. Therefore, I report only a few records of numbers of young produced in 2025, augmented by observations I made at one site (Dogtown Road, Calaveras County) during 2019–2020 and 2022–2023. Because of limited survey effort during the period when young were present, I based the analysis of breeding occurrence on occupancy during the period prior to hatching.

I measured sizes of waterbodies and identified the presence of islands and emergent vegetation through field examination and viewing aerial imagery in Google Earth (earth.google.com, image dated August 2025). I considered ponds to have emergent vegetation, including cattails (*Typhia latifolia*) and tules (*Schoenoplectus acutus*), if at least 0.5 ha was present in a concentrated patch (i.e., at least 5 m wide at its narrowest part). I evaluated whether swans were selecting waterbodies with islands for nesting and emergent vegetation by comparing swan use of waterbodies with and without islands and emergent vegetation with expected use values if waterbody use were random, using the χ^2 statistical test.

RESULTS

I found 64 adult Mute Swans at 23 (20%) of 114 waterbodies surveyed within the study area (Appendix 1). Swans were found during the first survey conducted at 18 (78%) of the 23 ponds eventually determined to be occupied. Overall, swans were observed during 64% of 76 total visits to the 23 ponds where swans were ultimately determined to be present, suggesting that additional swans may have been present and not detected at surveyed ponds visited only once or a few times.

Half of all waterbodies (57) surveyed were smaller than 1 ha in size, and only 2 (3.5%) of them were occupied, a use pattern that differed significantly from random use ($\chi^2_{1\,df.} = 9.69$, $p = 0.002$) Occupation was higher (37%) for ponds >1 ha in size (Figure 2).

I found Mute Swans at only one of the six major reservoirs in partial surveys (Table 1). Breeding season eBird records of the Mute Swan at larger reservoirs were concentrated at the two shallowest reservoirs: Salt Springs

Valley, and Camanche Reservoir. I did not find swans at the other four deeper reservoirs, and only one or two eBird breeding season records were reported at each of them (Table 1).

Figure 2. Number of waterbodies in various size classes (ha) that were occupied and not occupied by Mute Swans in the Sierra foothills in 2025.

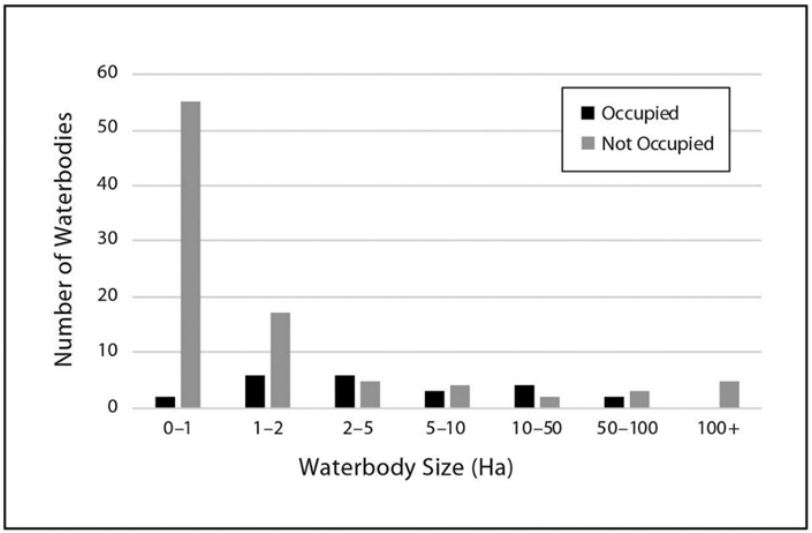

Table 1. Mute Swan survey results and eBird records from major reservoirs in the central interior California study area.

Reservoir	Size (Ha)	Approximate Area Surveyed (Ha)	No. Swans Detected in Surveys	eBird Breeding Season Records
Camanche	3,120	200	0	23
Pardee	890	230	0	2
New Hogan	2,570	500	0	2
Salt Springs Valley	370	75	2	12
New Melones	5,060	1,050	0	1
Tulloch	510	90	0	1
Total	12,520	2,145	2	41

I found only one or two adult swans at most occupied waterbodies (97%). The three lakes that supported >2 adults swans were large, including Mather Lake (25 ha, 5 adults), a lake near Ione Rd and State Route 16 (76 ha, 11 adults), and a pond north of State Route 4 at Cherokee Creek (20 ha, 9 adults).

Emergent vegetation was present at 19 (83%) of the 23 occupied sites, significantly more than expected based on random use (i.e., at 39% of all sites; $\chi^2_{1\,df.} = 10.34$, $p = 0.001$). Islands were present at 5 (22%) of 23 occupied sites, significantly different from expected use (i.e., 11% of all sites, $\chi^2_{1\,df.} = 4.35$, $p = 0.037$).

I only observed four active nests (Figure 3) and four swan broods (with 4, 6, 7 and 8 young) at four waterbodies in 2025, but these small numbers likely resulted from the few (9) surveys after 7 May and none after 2 June. All four waterbodies with nests or broods had extensive areas of emergent vegetation and two had islands. A pair I monitored at Dogtown Road pond during four years since 2019, when swans arrived, twice produced zero young and five young. Thus, productivity overall in the region averaged 4.4 young/nesting pair for the eight monitored nesting attempts.

Figure 3. Mute swan on nest (on left) in tules at Tule Pond, Camanche Reservoir South Shore Recreation Area. 23 March 2025.

DISCUSSION

The Mute Swan appears to be established and is apparently breeding in many areas in the central Sierra Nevada foothills, based on the presence of adults at 23 sites during the breeding season and direct evidence of breeding at four waterbodies. Swan colonization of the foothills only began in the last 15–20 years (eBird.org) and so may still be in progress. It appears likely that some additional suitable areas that are not yet occupied may be colonized in the future if control efforts (see below) are not effective.

Waterbodies in the foothills that appear to be most suitable to swans are of intermediate size (2–100 ha) and support emergent vegetation and islands. Waterbodies smaller than 2 ha (and especially <1 ha) are avoided, likely because they are too small to allow the large swans to land and take off, nesting or foraging habitat is insufficient, or they may make swans more susceptible to predators.

Larger reservoirs, except the shallower Camanche and Salt Springs Valley, appear to support few Mute Swans, presumably because they are steep-sided, and thus too deep and fluctuate too much to support extensive emergent vegetation. My surveys, however, were incomplete and shallow areas, such as at the mouths of tributary streams, may support breeding swans.

In 2026, the California Department of Fish and Wildlife approved open, year-round hunting of the Mute Swan, in an effort to control the species (https://wildlife.ca.gov/News/Archive/new-legislation-adds-invasive-mute-swan-to-list-of-nongame-birds-that-may-be-taken). How effective this public-based control program will be may depend on both hunter interest in harvesting swans and complex public attitudes toward the species (Hindman and Tjaden 2014, Jager et al. 2016). Our 2025 survey results may serve as a baseline from which to evaluate the effectiveness of this and other control efforts.

Although my surveys were localized and incomplete, they provide the first depiction of the status and habitat needs of the Mute Swan in central California. The identified characteristics of occupied ponds (intermediate size, presence of emergent vegetation and islands) could be used via remote sensing to develop a habitat-population model to more completely estimate the occurrence and additional population that may be currently occupying suitable ponds in inaccessible areas or to identify areas that may be colonized in the future. Such a model, especially if validated through aerial surveys using unmanned aerial vehicles (i.e., drones), could more clearly characterize in the regions.

My results also may apply to other similar foothill regions in California where stock ponds and other waterbodies are present. I recommend additional surveys in these areas and studies to more clearly characterize the species' status in California.

Further studies are warranted to evaluate Mute Swan population size and trend throughout California and to determine if new liberalized hunting recommendations are effective in reducing population size or slowing its growth rate. I also recommend more work on determining effects of more habitat variables on swan occurrence, density, and growth rate, including finer assessment of effects of availability of emergent vegetation and nesting islands as well as water quality and human activity (boating, shoreline use). Finally, effects of swan occurrence on other breeding waterbird species and aquatic habitats deserve evaluation.

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Appendix 1. Central Sierra Foothills ponds occupied by Mute Swans and evidence of breeding.

Co.[1]	General Area	Waterbody	Latitude, Longitude	Area (Ha)
SAC	Rancho Cordova	Mather Lake	38.5560, -121.2579	25.4
	Rancho Cordova	Anatolia Pond	38.5356, -121.2400	7.6
	Rancho Cordova	Bosphorus Dr Pond	38.5422, -121.2415	2.1
	Florin Rd	Florin Rd, Gene Andal Preserve	38.4949, -121.2708	4.6
	Jackson Hwy	Roadside pond at horse barn	38.4921, -121.1262	5.7
	Jackson Hwy	S side Hwy 16 behind horse barn	38.4921, -121.1266	5.0
	Ione Rd	Ione Rd lg pond	38.4695, -121.0552	76.0
	Ione Rd	Ione Rd medium pond	38.4590, -121.0455	1.2
	Ione Rd	W of Ione Rd and Hwy 16	38.4783, -121.0475	1.8
AMA	Hwy 104	Mining Pond, Ione/ Michigan Bar Rd	38.3762, -121.9737	1.6
	Hwy 104	Dutschke Rd Pond	38.3738, -120.9756	0.3
	Sutter Creek	Hwy 49 Pond nr Sutter Cr.	38.3829, -121.1266	4.5
	Martin Rd	NE of Rd	38.3098, -1209435	
SJO	Hwy 12	Gerardot Stables pond	38.2009, -120.9978	14.3
CAL	Camanche Res.	S shore Trout pond	38.2137, -120.9219	3.8
	Camanche Res.	S shore Tule pond	38.2171, -120.9222	10.6
	Salt Springs Valley	Salt Spr V Reservoir —East side arm	38.0382, -120.7523	75.0
	Dogtown Rd	D. Airola ranch pond	38.1047, -120.5634	1.2
	Dogtown Rd	Dogtown at Lakeside Dr. pond	38.0985, -120.5642	4.4
	Hwy 4	Lower Cherokee Cr. Pond N Hwy 4	38.0759, -120.6042	1.8
	Hwy 4	Higher Cherokee Cr pond N Hwy 4	38.0725, -120.5933	1.9
	Hwy 4	Hwy 4 pond W of Cherokee Cr	38.0715, -120.6149	19.8
	Rock Cr. Rd	Lg pond, Rock Cr Rd	38.0278, -120.6919	5.2
	Rock Cr. Rd	Felix Memorial pond	38.0165, -120.6946	0.7

Co.[1] (SAC = Sacramento, AMA = Amador, SJO = San Joaquin, CAL = Calaveras).

Appendix 1 (cont.)

Co.[1]	Location	Adults	Nests	Broods	No. Young	Notes
SAC	Mather Lake	5	1	2	10	Broods of 6 & 4 young, 5/7
	Anatolia Pond	2				
	Bosphorus Dr Pond	2				
	Florin Rd, Gene Andal Preserve	8				
	Roadside pond at horse barn	2				
	S side Hwy 16 behind horse barn	1				
	Ione Rd lg pond	11				
	Ione Rd medium pond	1				In emergents, possib. nesting 3/23
	W of Ione Rd and Hwy 16	1				
AMA	Mining Pond, Ione/ Michigan Bar Rd	2	1	1	7	On nest 3/23; 7 downy young 4/18
	Dutschke Rd Pond	1				
	Hwy 49 Pond nr Sutter Cr.	1				
	NE of Rd	1	1			
SJO	Gerardot Stables pond	1				In emergents, possib. nesting 3/23
CAL	S shore Trout pond	2				
	S shore Tule pond	2	1			On nest 3/23
	Salt Spr V Reservoir —East side arm	2				
	D. Airola ranch pond	1				
	Dogtown at Lakeside Dr. pond	2				
	Lower Cherokee Cr. Pond N Hwy 4	2				
	Higher Cherokee Cr pond N Hwy 4	2				
	Hwy 4 pond W of Cherokee Cr	9		1	8	
	Lg pond, Rock Cr Rd	2				
	Felix Memorial pond	2				

First Record of a Brown-headed Cowbird Parasitizing an Ash-throated Flycatcher Nest

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Key words: Brood parasitism, California, Central Valley, *Myiarchus cinerascens*, *Molothrus ater*, nest box

ABSTRACT

The Brown-headed Cowbird (*Molothrus ater*) is a common brood parasite whose range has undergone a major expansion into western North America. We describe an apparent first report of an Brown-headed Cowbird parasitizing an Ash-throated Flycatcher (*Myiarchus cinerascens*) nest. Although Brown-headed Cowbirds are unlikely to parasitize most cavity-nesting species, cavities with larger entrances are at a higher risk. Host choice significantly affects Brown-headed Cowbird breeding success, and the Ash-throated Flycatcher is unlikely to be an important host. We also report briefly on Western Bluebirds (*Sialia mexicana*) laying eggs opportunistically in Ash-throated Flycatcher nests.

Brown-headed Cowbirds (*Molothrus ater*) rarely parasitize cavity nesting species, with the only common exception being the Prothonotary Warbler (*Protonotaria citrea*; Friedmann 1929, Peer and Liang 2025). Cowbird parasitism from other cavity nesters such as bluebirds (*Sialia* sp.), Northern House Wrens (*Troglodytes aedon*), and Tree Swallows (*Tachycineta bicolor*) has been documented, but is rare (Friedmann 1929, Friedmann 1938, Friedmann 1963, Peck and James 1997, Peck and James 1998, Truan 2003, Peer and Liang 2025). Cavity entrance size has a significant effect on the likelihood of cowbird parasitism (Pribil and Picman 1997). When the entrance diameter is too small, the cowbird female struggles to enter and exit the cavity, which makes it more difficult for them to parasitize cavity nesting species (Pribil and Picman 1997, Peer and Liang 2025). Only one *Myiarchus* species, the Great Crested Flycatcher (*M. crinitus*) has been recorded as having been parasitized by the Brown-headed Cowbird, and only rarely (Friedmann 1963, Peck and James 1997, Miller and Lanyon 2020).

The Shiny Cowbird (*Molothrus bonariensis*) commonly parasitizes cavity nests and is known to parasitize two other cavity-nesting *Myiarchus* species, the Brown-crested Flycatcher (*M. tyrannulus*) and Puerto Rican Flycatcher (*M. antillarum*; Cardiff and Dittman 2020, Cox 2020, Lowther and Post 2020). Thus, the Short-crested Flycatcher (*Myiarchus ferox*) and the Grenada Flycatcher (*M. nugator*), cavity nesters whose ranges also overlap with the Shiny Cowbird, are likely vulnerable to cowbird parasitism as well, although we could find no confirmed reports (Joseph 2020, Buckmire and Boesman 2025). To our knowledge, there are no published records of cowbirds parasitizing an Ash-throated Flycatcher (*Myiarchus cinerascens*) nest.

STUDY AREA

The nest was in an artificial nest box at the University of California, Davis Putah Creek Riparian Reserve at Russell Ranch, Yolo County, California (38.537529° N, -121.866293° W).

METHODS

The nest box was monitored during the 2025 breeding season as part of the Putah Creek Nestbox Highway Project (Riggio et al. 2022), where 160 nest boxes were monitored weekly. Entrance diameters were consistently sized to approximately 40 mm to allow use by Ash-throated Flycatcher and smaller cavity nesters and exclude the larger nonnative European Starlings (*Sturnus vulgaris*). All flycatcher nestlings' wing chords were measured during each visit, and they were banded with USGS service bands and auxiliary color bands once they reached the appropriate age and size, 12-to-13 days or a wing chord between 55 and 60 mm.

RESULTS

On 5 June 2025, we found three warm (i.e., incubated) Ash-throated Flycatcher eggs in the artificial nest box. One week later, one warm Brown-headed Cowbird egg was also present (Figure 1). A nest check on 18 June revealed that all four eggs had hatched (Figure 2). Both flycatcher parents were near the box and calling, and we could hear a cowbird chick begging when we were within 10 m of the box. The wing chords of the flycatchers' were each 12 mm, while the cowbird's wing chord was 6 mm. Based on their wing chord measurements, the flycatchers were about 3 days old (M. Truan, unpublished data). Meanwhile, the cowbird chick's wing chord indicated that it was no more than 1 day old (Scott 1979). Wing chord length is a reliable measurement for estimating the age of nestling passerines (Ricklefs 1975, Haggerty 1994, Jongsomjit et al. 2007, Brown et al. 2011).

Figure 1.

Nest on 12 June with three Ash-throated Flycatcher eggs and one Brown-headed Cowbird egg (bottom right).

Photo by Karene Liu.

Figure 2.

Nest on 18 June with three flycatcher nestlings and one smaller cowbird (the chick with mouth open and orange gape).

Photo by Maggie Bourda.

On 20 June, we checked the nest box, and the cowbird chick was missing. We searched ground around the tree, but found no cowbird carcass.

Depredation is unlikely to have occurred because the flycatcher chicks were still present. Their wing chords were 15, 17, and 18 mm, which is within the average wing chord length for their age (M. Truan, unpublished data). We banded the flycatchers on 28 June, with an average wing chord of 60 mm, which is expected for their 13-day age. All three flycatchers fledged successfully. Of our 385 nesting attempts by Ash-throated Flycatchers on Putah Creek since 2000, this is the only instance of cowbird parasitism. We measured the entrance diameter of the nest box and found it was slightly larger than our average box at 41 mm instead of 40 mm.

DISCUSSION

Brown-headed Cowbirds do not typically parasitize birds in songbird nest boxes because the small entrances make it difficult to enter and exit. Pribil and Picman (1997) found that a hole diameter of 38 mm is the smallest that a cowbird can move through without issue. The entrance diameter of boxes on the Putah Creek Nestbox Highway is typically 40 mm. However, the entrance diameter of the box parasitized by the cowbird was 41 mm which may have made the box marginally easier for the cowbird to enter.

We are uncertain of the fate of the missing cowbird chick. It seems likely that incompatible differences resulting from age at hatching, competition with larger Ash-throated chicks, and behavior between the cowbird and the host may have led to premature mortality of the cowbird chick (Peer and Bollinger 1997, Heeb et al. 2003, Langmore et al. 2003, Grim 2006, Rivers et al. 2014, Yasukawa et al. 2016). If the cowbird perished in the nest due to these differences, the parent likely removed it from the nest. Great Crested Flycatchers are known to remove dead chicks from the nest, and it is probable that Ash-throated Flycatchers do the same (Taylor and Kershner 1991).

Historically, the breeding ranges of the Brown-headed Cowbird and Ash-throated Flycatcher in California were allopatric. The earliest records of Brown-headed Cowbirds from the Central Valley were documented after 1890 (Laymon 1987). They were observed with some regularity in the Sacramento Valley by 1927 (Grinnell and Miller 1944), and the cowbird naturalized in the Sacramento Valley by the early 1930s as human development drove the expansion of the cowbird range, thereby bringing the two species into contact (Laymon 1987, Rothstein 1994, Cardiff and Dittmann 2020, Lowther and Post 2020). Thus, the species ranges have overlapped significantly for at least nine decades in the northern end of the Central Valley, potentially more (Rothstein 1994).

Generally, cowbird eggs are laid during the laying period of the host, and hatch earlier than the host's eggs due to their relatively shorter incubation period (Friedmann 1929, Lowther and Post 2020). The cowbird egg, however, was laid after the flycatcher eggs were already being incubated. As a result,

the cowbird hatched later than the flycatchers, putting it at a disadvantage (Scott and Lemon 1996). Parasitism of hosts with small clutch sizes increases the likelihood that cowbirds will lay their eggs asynchronously with the host's clutch and thereby increases the likelihood that the cowbird will hatch later than the host eggs (Scott and Lemon 1996). Choice of host is important to the cowbird's success (Weatherhead 1989, Scott and Lemon 1996, Rivers et al. 2014). The lack of reports of Brown-headed Cowbird parasitism of the Ash-throated Flycatcher, despite a long period of extensive overlap in the geographic range, and our observation of this single incidence of unsuccessful parasitism on the Putah Creek Nest Box Highway, indicates that the flycatcher is an infrequent and unimportant cowbird host locally and generally.

Of interest, we observed two instances of Western Bluebirds (*Sialia mexicana*) laying eggs in Ash-throated Flycatcher nests on Putah Creek, one at Russell Ranch in 2017 and one at Old Davis Road Restoria, Solano County, California (38.517459° N, -121.759359° W) in 2024. Young of both species were successfully fledged only at Russell Ranch. Similarly, Mountain Bluebirds (*S. currucoides*) have also been reported to lay eggs opportunistically in Ash-throated Flycatcher nests, leading to fledglings of both species (Simpkin and Gubanich 1991). There is also one record of a European Starling (*Sturnus vulgaris*) laying an egg in a Great Crested Flycatcher nest, although it is unclear whether the egg hatched (Bent 1942).

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A juvenile Ash-throated Flycatcher. near Winters, Yolo County, California.

Photo by Lee Howell.

Recent Literature on Central Valley Birds - 2024

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Here is a list of published papers and books published in 2024 on birds studied within the Central Valley that have appeared other than in *Central Valley Birds*. Please contact me to suggest additions to future lists.

Airola, D.A. 2024. Survey methods for the Purple Martin in California. California Fish and Wildlife Journal 110:e2. https://doi.org/10.51492/cfwj.110.2

Airola, D.A., E.C. Beedy, S. Sanders, and J. Medley. 2024. Tricolored Blackbird survey methods. California Fish and Wildlife Journal 110:e6. https://doi.org/10.51492/cfwj.110.6

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Central Valley Bird Highlights: August through November 2024

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A shocking first Central Valley **Wood Sandpiper** spent two days at the Woodland WTP in Yolo County 9–10 September (JG). This Eurasian shorebird of the genus *Tringa* was seen and photographed by dozens of observers and moved between the main WTP and a tiny drainage pond behind a storage facility where birders were graciously given access to view the bird. This sandpiper, a juvenile, was accepted by the California Bird Records Committee (CBRC) as the fifth record for California.

Wood Sandpiper *Photo by Josh Greenfield.*

A **White-winged Scoter** at the Sacramento NWR in Glenn County 4–17 November was the first county record for this sea duck (JS). It quickly settled comfortably near the main observation auto tour route platform where many photographed it. Another **White-winged Scoter** was along the American River Parkway from 29 November through the period (MMa). As is typical in the fall, **Red-breasted Mergansers** were reported from throughout the region. Early birds were at Folsom Lake in Placer County 3 August (RP) and the Thermalito Afterbay in Butte County 30 September—2 November (LH), as were 16 individuals at Folsom Lake in Sacramento County on 16 November (AL). Two birds were at Clifton Court Forebay beginning 16 November (EMo). A **Red-necked Grebe** photographed at the Yolo Bypass WA on 25 September was a first record there (CB), and additional reports came from the American River Parkway in Sacramento County 13–27 October (BA) and Los Banos Creek Reservoir in Merced County 17 November (PD).

Common Ground Doves continued expanding into the San Joaquin Valley and are now observed consistently in certain areas such as Bravo Lake in

Tulare County. Reports there spanned the fall period with a high count of seven birds on 3 September (DF, SSu, RH). Two **White-winged Doves** along Tule River in Tulare County on 23 August (SSu) were also notable. A **Common Nighthawk** seen on 12 August was unexpected along the American River in Sacramento County (PL). The species is rarely found in the Central Valley away from traditional spots in the northern Sacramento Valley, which hosted a few individuals, with two reports from Shasta County (GH, DN) and single reports from Tehama (TF) and Butte (KSo) counties.

Three **Chimney Swifts** were among a small flock of aerial insectivores at the Kern Water Bank in Kern County after a rain squall on 2 November (TE). This is the first record of the species in the portion of Kern County within the Central Valley. Contra Costa County got its first **Chimney Swift;** a bird photographed at Clifton Court Forebay on 27 September (EMo). It whizzed by the observer but was photographed from multiple angles showing field marks and body proportions consistent with the species. It was an impressive fall for **Costa's Hummingbirds** in the region, with a minimum of 15 individuals reported. This continues a recent increasing trend in the region but vastly exceeds the numbers found in the falls of recent years.

Fall shorebird migration was led by the stunning **Wood Sandpiper** highlighted above but also saw a great diversity of rarities from shorebird habitats throughout the valley. Both Golden-Plovers found during the period were juvenile **American Golden-Plovers**, with one in a flooded field off Highway 162 in Butte County 17–18 September (LH) and another at Private Property H in Kings County 29 September (MSt). Few records of the species exist for either county. With a continued decline of **Mountain Plovers** throughout their range, local wintering locations in the Central Valley have become increasingly rare. **Mountain Plovers** returned to the barren agricultural fields northwest of Knights Landing, Yolo County for the seventh consecutive winter, first reported on 28 November (JG). The usual flock along Flannery Road in Solano County was first seen on 3 November (RM), and a group of four birds was west of Firebaugh, Fresno County on 10 November (DM, MMo). A likely migrant **Mountain Plover**, and second Yuba County record, was at Beale Air Force Base on 8 October (JLau).

Snowy Plovers made a typical fall showing, including at the Newville Road Ponds in Tehama County 11 August (SA); Folsom Lake, Placer County 8 August (RP); Clifton Court Forebay, Contra Costa County 10 September (JB); Lodi WTP in San Joaquin County 23 August (CA); and the Kern County Evaporation Ponds on 21 August (WR). Additionally, there were five records from Yolo County and frequent reports from Kings County, with high counts of six individuals at the Yolo Bypass WA on 1 September (ZP, JJ) and ten individuals at Private Property H on 17 November (MSt).

A **Black Turnstone** at Clifton Court Forebay in Contra Costa County is an exceptional bird in the Central Valley, but surprisingly is the third individual recorded there. All have occurred since 2020 (JB). Another nice find was a striking adult **Red Knot** at Private Property H in Kings County on 2 August (GW). There were three single **Ruffs** reported: in a flooded field northwest of Knights Landing, Yolo County on 4 September (JG), at Tulare WTP in Tulare County 24 August (DF), and at Private Property S in Kings County 9 August (TE). Similarly, there were three single **Stilt Sandpipers**: an adult photographed at the Kern County Evaporation Ponds on 13 August (TE), another that continued from the summer period at the edge of Tulare Lake last reported on 15 August (DF), and a juvenile at the Cosumnes River Preserve 17 August , a nice find for Sacramento County (CCo, JT, KT, PP).

Eight **Sanderling** records were impressive, especially compared to only two reported the previous fall. Four records were single adults in August, at Folsom Lake, Placer County 3 August (RP), the Yolo Bypass WA in Yolo County 9 August (CT, DS), near Bruceville Road, Sacramento County from 11–13 August (AE), and at Private Property S in Kings County 18 August (MSt). A juvenile was at O'Neill Forebay in Merced County 2 October (GW), another was at Clifton Court Forebay 16 September (DM). Two reports were from Private Property H in Kings County, with a single bird on 15 September and a flock of five on 22 September (MSt).

Willets are common fall migrants in the correct habitat through much of the Central Valley, but there are few records from counties in the furthest northern reaches of the Sacramento Valley. Reports at Black Butte Res. in Tehama County 27 August (SA) and Sacramento NWR in Glenn County 21–28 August (LH, MSk, JLu) were notable.

A ragged molting adult **Parasitic Jaeger** at Private Property H was a third Kings County record (MSt). All county records have been from the fall at this location. A juvenile **Parasitic Jaeger** at Thermalito Afterbay 9–12 October (LH) was a first Butte County record. Initially the bird was on the water too far off shore to discern the species. Not to be stopped, the finder boarded an abandoned children's pool float (with optics and camera!) and paddled out into the reservoir to document the bird. The mission was abandoned when the float began losing air but not before the bird was confirmed! Ironically, the bird was found the next day loafing on the beach, offering birders close looks and photos from the comfort of dry land. An adult **Long-tailed Jaeger** at Folsom Lake was a first Sacramento County record and the second record for the reservoir, with the prior record only in Placer (SAb, NA). This individual was observed briefly on 3 September and was observed flying between Sacramento and Placer counties.

Parasitic Jaegar (*Stercorarius parasiticus*). 9 October 2024. Thermalito Afterbay, Butte County, California. *Photo by Liam Huber.*

It was an incredible year for inland **Sabine's Gulls** throughout California and Nevada, and there were at least 12 records from all corners of the Central Valley (Table 1). As expected, the vast majority of these birds were juveniles, but one adult molting out of alternate plumage at White Slough WTP in San Joaquin County on the late date of 13 October was especially noteworthy (CA). So too was a high count of five juveniles together at the Stockton WTP on 27 September, the most ever recorded with documentation in the Central Valley (RRe).

A **Little Gull**, a Eurasian gull and major rarity, spent three days at Stockton WTP 25–27 September (ME, RB). There are few records of this species, but Stockton WTP has hosted multiple individuals in the past. Four **Franklin's Gulls** were found, including an adult at Thermalito Afterbay in Butte County 16 August (LH, MSk), a subadult at Tracy WTP in San Joaquin County 18 August (BM), and juveniles at Sacramento NWR in Glenn County 18 August (BE) and Woodland WTP in Yolo County 12 September (ZP, JJ, EI). **Western Gulls** returned to previous locations at the Thermalito Afterbay in Butte County and Davis Wetlands in Yolo County for their fifth and fourteenth consecutive winters, respectively (LH, JG). A subadult **Lesser Black-backed Gull** at Fresno WTP at the early date of 30 August (GW), a third county record, was last reported 28 September. **Common Terns** were found at Thermalito Afterbay on 7 September (MMu, CCl), at Bravo Lake in Tulare County on 4 October (DF), and at Private Property H in Kings County on 12 October (GW).

Table 1: Sabine's Gull records from the Central Valley in fall 2024.

Location	County	Date(s) Observed	Age	Initial Obs.	Notes
Clifton Ct Forebay	Contra Costa	21-30 Sep	Juvenile	JB	
Clifton Ct Forebay	Contra Costa	29-30 Sep	Juvenile	EMo	Joined bird found 21 Sep
Fresno WTP	Fresno	27 Sep	Juveniles	GW, RRu	Two present; first in Fresno since 2014
Private Property H	Kings	29 Sep	Juvenile	MSt	
Folsom Lake	Placer	26 Sep	Juvenile	SA	
Stockton WTP	San Joaquin	25-29 Sep	Juveniles	CA, RB	Four present
Stockton WTP	San Joaquin	27 Sep	Juvenile	RRe	Joined previous group of four
White Slough WTP	San Joaquin	13 Oct	Adult	CA	
Black Butte Res.	Tehama	28 Sep	Unspecified	GR, BK	Second county record
Woodland WTP	Yolo	21 Sep	Juvenile	EI	
Woodland WTP	Yolo	26 Sep—1 Oct	Juvenile	JG	
Woodland WTP	Yolo	27 Sep—1 Oct	Juvenile	KSw	Joined bird found 26 Sep

A **Red-throated Loon** diving in the Sacramento Deepwater Shipping Channel in Yolo County 22–23 November was the sixth county record (JG). Somewhat more expected was a **Pacific Loon** on Folsom Lake in Sacramento and Placer counties discovered 16 November and continuing into the winter period (AL). Two **Neotropic Cormorants** were present through much of fall 2024 at Fresno WTP, with an adult and juvenile seen together multiple times (GW). They were not reported after 12 October. Another **Neotropic Cormorant** was at Private Property H in Kings County 29 September (MSt), and a handful of reports from the Bakersfield area of Kern County were highlighted by a flock of 12 birds at Grand Island on 28 November (JW). That set a new high count for the species in the Central Valley, continuing the trend of northward range expansion into the region.

Spring and early summer 2024 saw a considerable influx of wayward **Brown Pelicans** into the Central Valley. That pattern had mostly ended by the start of the fall period, but a few individuals were still discovered. One individual continued at Private Property H in Kings County through 2 August (GW). A bird at Stockton WTP on 2 August was likely continuing from summer (DY), but it is hard to know whether the same bird was involved from observations at the end of September (CA, LE, ME). Two **Brown Pelicans** were in Merced County, with one at O'Neill Forebay 12–22 August (KVV) and an out-of-the-blue flyover of Interstate 5 near Erreca Rest Stop on 11 September (HW).

The famous **Roseate Spoonbill**, which has moved about the Central Valley since January 2024, made multiple appearances throughout fall 2024 in both public and private areas. On 3 August, it was photographed at BeeEss Gun Club near Los Banos, the first time it has been observed in Merced County and making for another first county record stopover (PDu, CBRC). On 27 September, it was at Faith Ranch Wetlands, another private area and its second time visiting Stanislaus County (SP, CBRC). Finally, it made intermittent appearances at the San Joaquin River NWR in Stanislaus 25 October and continued through the end of the period (CBRC). It was seen off and on but primarily remained elusive in a closed portion of the refuge. This **Roseate Spoonbill** is now responsible for the first four county records, quite the accomplishment for one bird!

A **Broad-winged Hawk** photographed soaring over Reichmuth Park in Sacramento County on 21 September made for one of few fall records for the Central Valley (ISC). The date is consistent with their known movement on the coast so perhaps keen eyes will discover more in the future. The only **Northern Saw-whet Owl** of the period flew into a window in Clarksburg, Yolo County, during a storm on 22 October (fide MSa). The homeowner briefly brought the bird inside and then released it the same night, and the owl flew off under its own power.

Rare woodpeckers included a **Yellow-bellied Sapsucker** along Putah Creek at the Highway 128 Bridge in Yolo and Solano counties on 14 November (JG) and **Red-naped Sapsuckers** at Deer Creek, El Dorado County on 23 September (SAb, NA) and in Gates Canyon, Solano County on 24 November (RM).

Eastern Wood-Pewee (*Contopus virens)*.
3 August 2024.
Oak Grove Park, Ripon,
San Joaquin County, California.

Photo by Mark Elness.

An **Eastern Wood-Pewee** was a spectacular find at Oak Grove Park in Ripon, San Joaquin County 2–5 August (CM). The bird was photographed and voice-recorded and was approved by the CRBC as the second accepted San Joaquin County record and the fourth for the Central Valley. Interestingly, both San Joaquin records have come from fall while all other Central Valley records are from June. An **Eastern Phoebe** photographed in a closed portion of the Cosumnes River Preserve on 30 November just barely snuck into the fall period and was never seen again (CCo, MMa, LC). This is the third **Eastern Phoebe** to be recorded at the preserve. **Vermilion Flycatchers**, another species showing recent northward expansion into the Central Valley, were recorded at six scattered locations. Three were in Kern County (WR, JW, KE), one in Kings County (MSt), one in Tulare County (CS), and one 30 November at Llano Seco Wildlife Area in Butte County where it is significantly rarer (KSo). **Plumbeous Vireos** were photographed in Porterville, Tulare County 26 September–5 October (SSu), and at Odd Fellows Cemetery in Sacramento County 10 November (AL). A **Red-eyed Vireo** at Private Property H 13–14 October was the first county record in Kings (MSt).

The only **Chestnut-backed Chickadees** were along Putah Creek in Yolo and Solano counties, with three records spanning Winters to Davis in September and early October (AK, MB, ZP, JJ, CT, LH, GS). The first county Pygmy Nuthatch record was at a yard in Citrus Heights, Sacramento County on

7 September (SF, TH). A **Brown Thrasher**, the first record for Kings County, was at Private Property H 13–14 October, in the same grove of trees as the **Red-eyed Vireo** (MSt). **Sage Thrashers** were in eastern Madera County 22 September (GW) and southern Yolo County 16 October (JG).

One of the biggest shockers of the period was a **White Wagtail** at Tracy WTP 29 September (DY). This bird, which disappeared shortly after its discovery, was photographed as a first for San Joaquin County. Rare anywhere in California, **White Wagtail** is a fantastic rarity inland, as there is only one previous unequivocally accepted record for the Central Valley, photographed near Woodlake in Tulare County on 26 April 2003 (CBRC).

Winter finches were mostly rare, but flyover **Red Crossbills** were notable in Brentwood, Contra Costa County (EMo) and at the Sacramento City Cemetery (AB, LB). Both reports were from November. A **Lapland Longspur** flying over Reedly College Ag Farm on 29 November was apparently an overdue first Fresno County record (TB). Another **Lapland Longspur** at Clifton Court Forebay in Contra Costa County 28 October rounded out the only longspurs of the period (DM).

An adult **Black-throated Sparrow** was at Paynes Creek Wetland in Tehama County 14 August (SL), and a juvenile at Uslan Farm, Yolo County 7–12 September (TU) was the seventh county record. **Brewer's Sparrows** were at five locations: two together each at Gibson Ranch County Park in Sacramento County 8 September (KT), along the Madera Canal 22–27 September (GW), and at Woodland WTP in Yolo County 6 October (ZP, JJ, EMa), and single birds at Private Property H in Kings County 15 and 28 September (GW, MSt). A **Harris's Sparrow** at the Sacramento River NWR's Capay Unit was one of few records for Glenn County (DD).

Sagebrush Sparrows were reported intermittently at Lake Yosemite County Park and near the University of California, Merced over 23 September –11 November (DK, ML). Three individuals were together on 21 October, but it is hard to know how many birds were involved. Only one prior eBird record of **Sagebrush Sparrow** exists for Merced County. Four **Swamp Sparrows** were found in late fall, with birds at Twichell Island, Sacramento County 13 November (AE), Buena Vista Rec Area in Kern County 21 November (WR), San Joaquin River NWR in Stanislaus County 24 November (HR), and Yolo Bypass WA 30 November (JG). A low total of three **Green-tailed Towhees** were observed, with two from Sacramento County and one from Fresno County (LP, JWh, CCh).

Fall has increased chances of finding vagrant passerines, and this year was no different. A bobbing **Northern Waterthrush** at the Putah Creek Riparian Reserve in Yolo and Solano counties was seen by many between 15–18 September (SSc). **Black-and-white Warblers** were at Bethel Island,

Contra Costa County on 18 September (EMo), Ione WTP in Amador County on 20 September (TE), and Cosumnes River Preserve in Sacramento County on 13 October (JT). The Amador bird was the first county record for the species. Two locations each had two **Tennessee Warblers** during the period. Reichmuth Park in Sacramento County had single **Tennessee Warblers** on 31 August (JuG) and 27 September (AL), and Putah Creek within Yolo and Solano counties had two individuals simultaneously in mid-September, one a hatch-year and the other an adult (HH, BW, SA). Another **Tennessee Warbler** was at Pine Creek Boat Launch in Butte County 11 September (LH).

Magnolia Warbler (*Setophaga magnolia*). 16 September 2024. Deer Creek, El Dorado County, California.

Photo by Mark Sawyer.

El Dorado County had two first county records in back-to-back days from its narrow sliver of the Central Valley at Deer Creek. The first was a gorgeous hatch-year **Magnolia Warbler**, whose 16–18 September stay allowed many to see it (MSa). Incredibly, a birder chasing the Magnolia found a **Virginia's Warbler** in the same location the following day (EI)! It proved more difficult to relocate but was seen on both 17 and 18 September and photographed. There are few prior records of **Virginia's Warbler** in the Central Valley, and this bird is the furthest north recorded.

Three **American Redstarts** were found, with one near Butte City in Glenn County 10 September (AE) and two at Lake Solano County Park in Solano County. An adult male was photographed 8 September and not seen thereafter (MF), and a female or hatch-year bird was seen 18 September (JA).

Northern Parulas were seen at the American River Parkway in Sacramento County 29 August (JLan), at Elkhorn Regional Park in Yolo County 5 September (ZP, JJ), and at Private Property H in Kings County on 13 October (TE).

Multiple **Chestnut-sided Warblers** were found in mid-September, with one at Ione WTP in Amador County on 21 September (Jlu) and another at Putah Creek Fishing Access #1 in Yolo and Solano counties 18–20 September (ZP, JJ, EMa). Colusa County also got its first county **Chestnut-sided Warbler** just outside the Central Valley at East Park Res. on 15 September (LH, MSk). A male **Summer Tanager** was along Cache Creek in Yolo County on 19 September (RC), and another returned to its traditional wintering location at William Land Park in Sacramento County beginning 1 November (AL). Finally, the **Indigo Bunting** found in the summer period continued until 2 August at the Sacramento County Bufferlands (CCo).

We thank the following observers who reported their significant findings to the Central Valley Bird Club's listserv, eBird, and, where appropriate, the California Bird Records Committee (CBRC): Steve Abbott (SAb), Cavan Allen, Judy Allen, Nicole Allison, Stuart Angerer, Bill Avery, Ralph Baker, Linda Barth, Thomas Baxter, Corey Bernabucci, Jerald Britten, Aidan Brubaker, Maggie Bourda, Russ Carpenter, Corey Chen (CCh), Chris Cline (CCl), Chris Conard (CCo), Lynne Cormack, David Dahnke, Patrick Denice, Pete Dunten (PDu), Todd Easterla, Bob Ellis, Lorna Elness, Mark Elness, Andrew Engilis, Karen Evans, Dane Fagundes, Tobias Felbeck, Stephen Fettig, Mel Frisk, Juan G. (JuG), Josh Greenfield, Richard Hasegawa, Geoffrey Helmbold, Terry Hodapp, Harrison Horn, Liam Huber, Emmett Iverson, Julian Johnson, Amanda Kindel, D. Krajnovich, Jerry Langham (JLan), James Laughlin (JLau), Steve Laymon, Andrew Lee, Moses Lopez, John Luther (JLu), Phil Lutz, David Nickerson, Mark Martucci (MMa), Bruce Mast, Ethan Matsuyama (EMa), Colin Meusel, Ethan Monk (EMo), Dominik Mosur, Megan Mosur (MMo), Mary Muchowski (MMu), Roger Muskat, Stephen Perez, Peter Perrine, Zane Pickus, Linda Pittman, Ron Pozzi, Harold Reeve, Rene Reyes (RRe), William Rockey, Mark Sawyer (MSa), Gregory Schilling, Samuel Schmidt (SSc), Dessi Sieburth, Chad Silva, Mike Skram (MSk), James Smith, Mark Stacy (MSt), Kenneth Sobon, Ian Souza-Cole, Steve Summers (SSu), Cameron Tescher, Kevin Thomas, John Trochet, Tom Uslan, Kent Van Vuren, James White (JWh), Bart Wickel, John Wilson, Henry Witsken, Gary Woods, David Yee.

m.obs. = many observers; NWR = National Wildlife Refuge; Res. = Reservoir; SRA = State Recreation Area; WA = State Wildlife Area; WTP = Wastewater Treatment Plant.

Central Valley Bird Highlights: December 2024 through March 2025

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A **Brant** on 30 December at North Area Drainage Pond in Davis (KO), only the second Yolo County record, stayed only for a few hours and was not associated with a migrant flock of geese. San Joaquin County also had a **Brant** 19 March, the fifth county record away from Staten Island (AM). Three **Trumpeter Swans** were at the Oro-Chico Wetland in Butte County on 27 December (SA), and Tehama County had four on 6 January at Table Mountain (SL, MSw). A hunter harvested the sixth county record of **Long-tailed Duck** at the Yolo Bypass W.A. on 4 December (PC). The Thermalito Afterbay in Butte County had its second-ever sighting of a **Long-tailed Duck** on 29 March (LHu). A smattering of nine observations of **Red-breasted Mergansers** were found from Shasta County to Tulare County. A first **Barrow's Goldeneye** for Kings County was a female at a private section of the Tulare Lake Drainage District on 10 December (LK). A **Red-necked Grebe** was at Clifton Court Forebay in Contra Costa County on 28 January (JB).

A handful of **Common-ground Doves** occurred this winter in the southern Central Valley, often as small flocks. Three reports from Tulare County included a flock of four at Bravo Lake (DF). Kern County had a **Common-ground Dove** from the Buttonwillow rest stop on 31 March (KM). A **White-winged Dove** was seen briefly along the Tulare River in Tulare County on 8 March (DF).

Three new **Costa's Hummingbirds** were found, including a subadult male at Heritage Oak Winery in San Joaquin County on 18 December that was last observed 22 February (KF, RP). A female **Costa's Hummingbird** visited a feeder in a Lemoore neighborhood through the end of March (MSt). A displaying male at Lowell Park in Bakersfield was seen on 10 January (WR). Three other **Costa's Hummingbirds** in Tehama (MSw), Sacramento (LP), and Yolo (JR) counties continued from the previous fall. An **Allen's Hummingbird** near Clarksburg on 8 March (TU) was seen for several days at a private residence. This species has rarely occurred in Yolo County but has been seen regularly in March and April at this residence for the past five years.

A **Pacific Golden-Plover** on Desmond Road near the Cosumnes River Preserve in Sacramento County on 10 February was joined by a second bird the next day before both vanished (PM). Tipton NWR in Tulare County also got in on the **Pacific Golden-Plover** action with a bird seen for a few days in early February (DF) as did Merced NWR with a 22 March bird (DS). A **Pacific Golden-Plover** at Thermalito Afterbay in Butte County, found among a flock of **Black-bellied Plovers** on 29 March, was a one-day wonder (LH). The **Mountain Plovers** north of Knight's Landing in Yolo County were seen for the sixth winter in a row with a high count of 70 birds (JG). The historical **Mountain Plover** flock along Flannery Road in Solano had a high count of 58 birds (RM). Three flocks were further south in Kern County with up to 50 birds, and Manning Road in Fresno County had a flock with 105 individuals. A **Snowy Plover** at Clifton Court Forebay in Contra Costa County on 29 March was the only one for the period (DH). A **Marbled Godwit** was an unusual winter visitor to the Yolo Bypass Wildlife Area from 8–13 January (JG).

A **Western Gull** was along the American River Parkway in Sacramento County on 28 December (EH). A banded **Western Gull** seen at the Davis Wetlands in Yolo County on 30 December (JG) has returned there each winter since at least 2012! Quite the high count was four **Lesser Black-backed Gulls** at the Visalia Landfill in Tulare County on 30 December (TK). Two different **Lesser Black-backed Gulls** were at the Yolo County Landfill in January and February (JG). Yolo County had two **Glaucous Gull** together in late January (ZP, JJ, EMa). Another **Glaucous Gull** was at San Luis Reservoir in Merced County on 9 February (GW).

A **Red-throated Loon** at Little Venice Island in the San Joaquin County portion of the Delta on 10 February was the only one in the valley (JT). Birders learned of an incredible record of a **Wood Stork** at Los Banos NWR in Merced County on 13 March when it was posted to social media (DE). A northerly **Neotropic Cormorant** at Woodward Park in Fresno was present between December and March (CChe), and up to seven were seen together in Bakersfield. This species first appeared in California in 1971 (per CBRC) and has been gradually expanding northward into the Central Valley. A **Brown Pelican** that stayed for 12 days in late December at the Stockton WTP may have been the same immature that was last seen on 29 October (ZP, JJ, EMa, BW). A **Brown Pelican** was at Dos Rios State Park in Stanislaus County in an oxbow of the Tuolumne River with a group of **American White Pelicans** (JM).

A **Barred Owl** in the East Sacramento neighborhood was posted to social media 29 March to the delight of birders who got to see this first Sacramento County record (KH). A **Northern Saw-whet Owl** was at William Land Park in Sacramento County 21 December (AE). A last-minute **Northern Saw-whet Owl** was found on 31 December along Babel Slough in Yolo County (JG). Three **Yellow-bellied Sapsucker** were found this winter, including one outside of

Davis in Yolo County on a CBC 27 December (KS), one the next day at Gibson Park in Sacramento County (KT), and one at Del Lago Park, Tulare County on 27 January (DF). Three **Red-naped Sapsuckers** were seen this winter within Butte, Yolo, and Sacramento counties. The Butte County sapsucker was in a Chico backyard on 21 February (JL) and another was at the West Davis Pond in Yolo County on 22 February (JL, EMa). Another was at Ancil Hoffman Park in Sacramento on 12 January and last seen 8 February (LHi).

Barred Owl (*Strix varia*). 29 March 2025. E Sacramento, Sacramento Couty, California. *Photo by Ed Harper.*

A **Tropical Kingbird** graced birders for three days in early March at Bridgeway Lakes Community Park in Yolo County (AG). A **Cassin's Kingbird** found on the Putah Creek CBC on 15 December remained for a few days in Solano County (ES, ZP, EI, GR). Three **Hammond's Flycatchers** were found during this winter between Butte, Sacramento, and Kern counties. One was at

Gray Lodge Wildlife Area on 17 December in Butte County (LH). Another was seen for a single day at Ancil Hoffman Park in Sacramento County on 23 December (MM), and a third was at Lowell Park in Kern County from 11 December to 15 January (WR). A **Vermilion Flycatcher** was found on the Peace Valley CBC on 17 December in Sutter County (CB, EM, ZP). An immature male **Vermilion Flycatcher** found on a late December CBC at Wild Wings Golf Club in Yolo County was last seen 10 March (BC). A **Plumbeous Vireo** was seen intermittently over the winter at the Odd Fellows Cemetery in Sacramento (GE, AL), and another visited a private residence in Porterville in Tulare County (SS). A **Northern Shrike** on 3 December at the Bufferlands in Sacramento County remained for a few days (CCo). It was a slow winter for the **Red Crossbill** in the Central Valley with only two observations: a flyover on 1 December at O'Connor Woods in San Joaquin County (DY) and a pair on 7 January at the Odd Fellow Cemetery in Sacramento (EJ).

It was a fun February for longspurs in the Central Valley with a mixed flock north of Knight's Landing in Yolo County and another flock a 30-minute drive north in Sutter County. Up to five **Thick-billed Longspur** were seen between 14 January and 26 February along Garmire road in Sutter County and at least two were present in the Knight's Landing flock (LH, AP, ZP, JJ, EMo). Three **Lapland Longspur** were seen in Yolo north of Knight's Landing (SSm), and a single bird was seen in Sutter County (MH). A **Chestnut-collared Longspur** was scoped in the Yolo County flock amongst hundreds of **Horned Larks** on 17 February (SSm, KS).

A **Lark Bunting** was at the Kern Water Bank on 10 January, and another was at Lemoore College in Kings County in mid-March (TE, MSt). A **Sagebrush Sparrow** spent all of December on Road 28 in rural Madera County before it was last seen on 4 January (GW). A **Sagebrush Sparrow**, the first for Contra Costa County, was photographed at the Byron Airport on 11 January and last reported on 24 January (ER, JC). Four **Swamp Sparrow** reports came in from across the valley within Contra Costa, Sacramento, Yolo, and two birds were seen together in Stanislaus counties (JJ, EMa, ZP).

The fifth Butte County **Northern Waterthrush** was found at Gray Lodge Wildlife Area on the Peace Valley CBC on 17 December and stayed until 24 January (LK, EI, CCho). A **Black-and white Warbler** at Swenson Park in San Joaquin County remained from mid-February until 19 March (KF, RP). A **Tennessee Warbler** in San Joaquin County on 28 December was only the second winter record for the county (DY). An **American Redstart** found 10 December at Lowell Park in Kern County stayed through mid-January (WR). **Summer Tanager** had a fair showing this winter with four records including the male at William Land Park in Sacramento County returning for a third year in a row. The Rio Cosumnes CBC had a **Summer Tanager** along Elk Slough in Yolo County on 2 January (ZP, EI). A beautiful male was in Roseville, Placer

County, on 20 March (MMo), and another was at American Legion Park in San Joaquin County on 9 March.

We thank the following observers who reported their significant findings to the Central Valley Bird Club's listserv, eBird, and, where appropriate, the California Bird Records Committee (CBRC): Stuart Angerer, Jerald Britten, Carolyn Brown, Caitlin Chock (CCho), Phil Choi, Bruce Christensen, John Colbert, Chris Conard (CCo), Corry Chen (CChe), David Eagle, Todd Easterla, Dane Fagundes, Kasey Foley, Andrew Engilis, Gil Ewing, Alexandria Ginez, Joshua Greenfield, Kristina Halvorsen, Ed Harper, Derek Heins, Marcel Holyoak, Liam Huber, Emmett Iverson, Eric Johnson, Julian Johnson, Logan Kahle, Tony Kurz, Steve Laymon, Andrew Lee, John Lewis, Mark Martucci, Ethan Matsuyama (EMa), Kai Mills, Paul Miller, Ethan Monk (EMo), Julian Morin, Margaret Morneau (MMo), Andrea Mott, Roger Muskat, Kelli O'Neill, Asher Perla, Richard Petersen, Zane Pickus, Linda Pittman, Jennifer Raven, Grant Rhodes, William Rockey, Erica Rutherford, Elliot Schoenig, Sean Smith (SSm), Mark Stacy (MSt), Steve Summers, Dale Swanberg, Michele Swartout (MSw), Kirk Swenson, Jason Talbott, Kevin Thomas, Tom Uslan, Bart Wickel, Gary Woods, and David Yee.

NWR = National Wildlife Refuge, W.A. = Wildlife Area, WTP = Wastewater Treatment Plant.

The Central Valley Matters for California's First Statewide Breeding Bird Atlas

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California's Central Valley is one of the most important bird landscapes in North America and one of the hardest to fully "see" with the data tools we rely on most. It is a vast, working mosaic of wetlands, riparian corridors, orchards, row crops, rangelands, canals, and remnant native habitats. It is also a region where conditions are changing fast: water availability is shifting, land use is evolving, and bird populations and breeding behaviors are responding in real time. If California is going to make smarter conservation decisions in the years ahead, we need a clearer, more geographically complete picture of which birds are breeding where, when, and under what conditions. That is exactly what California Bird Atlas (CBA), a new independent nonprofit, is coordinating through the state's first-ever statewide Breeding Bird Atlas.

A Breeding Bird Atlas is a structured, statewide effort to document breeding birds using behavior-based evidence, not just presence. Participants record observations tied to breeding activity such as courtship, nest building, feeding young, and fledglings, and those records are mapped across a consistent grid. The result is a powerful baseline that land managers, agencies, and conservation groups can use to detect change, identify priority areas, and track how ecosystems are responding to climate pressure and habitat loss.

Most states have completed at least one statewide Breeding Bird Atlas. In fact, 44 of the 50 U.S. states have done so, and many have completed more than one. California, however, has largely relied on a county-by-county approach. Those county atlases have produced invaluable work, but coverage has been uneven and often difficult to sustain. Only 15 of California's 58 counties have ever completed and published a Breeding Bird Atlas, leaving more than 80 percent of the state without this gold-standard, fine-scale breeding picture. That is now changing. As of January 1, 2026, California officially launched its first statewide Breeding Bird Atlas, using a custom eBird platform designed to support standardized, statewide breeding data collection and long-term data management.

Fieldwork for California's first statewide Breeding Bird Atlas runs year-round through 2030. The aim is straightforward: create the most complete dataset ever assembled on the distribution, status, and breeding behavior of

California's nesting birds. The project combines broad community science participation with targeted surveys in historically under-surveyed regions, including areas where access or low observer density have limited coverage. Participation is open to anyone. Birders across the state are encouraged to join the project and submit their checklists through the dedicated California Bird Atlas portal at ebird.org/AtlasCalifornia.

To make the data consistent statewide, California is divided into approximately 16,500 atlas blocks, derived by subdividing USGS 7.5-minute topographic quadrangles into six equal units, each roughly three miles by three miles. This grid-based structure provides a consistent statewide framework for organizing effort and comparing results across deserts, mountains, rangelands, urban edges, and agricultural landscapes. Observations retain location information suitable for mapping and spatial analysis, and rigorous quality control is applied throughout so the final products are usable for science and decision-making.

For the Central Valley, the opportunity is especially meaningful. This is a region where small shifts in water, vegetation, and timing can translate into big changes for breeding birds. High-quality breeding data can directly inform practical decisions, including restoration priorities along riparian corridors, wetland management strategies, conservation easements, and land protection targeting. A statewide atlas helps ensure the Central Valley is treated not as a blank spot between "better documented" regions, but as a core piece of California's breeding ecology.

If you bird the Central Valley, you already have local knowledge that is incredibly valuable to this effort. The Atlas provides a shared structure and a simple pathway to turn that knowledge into information that can guide conservation decisions statewide.

To get involved, learn the basics and start submitting your checklists through the Atlas at www.californiabirdatlas.org or ebird.org/AtlasCalifornia.

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The Central Valley Bird Club is a not-for-profit organization dedicated to the study of the distribution, status, ecology, and conservation of birds in the Central Valley of California. Membership dues for individuals: **Regular $30/ year; Family $45/year; Contributing $60/year; and Life $350**. Membership includes a subscription to *Central Valley Birds*. Dues and contributions are tax-deductible to the extent allowed by law. To become a member, go to: **https://cvbirds.org/membership/**

The CVBC maintains an internet website for current information about upcoming field trips and other events: **https://www.CVBirds.org**