Recent Expansion of the Breeding Range of Say's Phoebe (*Sayornis saya*) in California's Central Valley

Chris Dunford, 243 Cortez Ave., Davis, CA 95616. christopher.j.dunford@gmail.com

Frank Fogarty, Wickson Hall, University of California, Davis, 1 Shields Ave., Davis, CA 95616. fogartyfa@gmail.com

Jeff Davis, Colibri Ecological Consulting, 9493 N Ft. Washington Rd., Ste. 108, Fresno, CA 93730. jdavis@colibri-ecology.com

Joan M. Humphrey, 733 M St., Davis, CA 95616. joan.humphrey@ymail.com

Tim Mangum, 2200 Muller Pl., Woodland, CA 95776. runinshoes@gmail.com

Viola Saima-Barklow, 300 American Falls Dr., Rio Vista, CA 94571. barklow.94571@frontier.com

Andrew Engilis, Jr., Museum of Wildlife and Fish Biology, Department of Wildlife, Fish, and Conservation Biology, University of California, 1 Shields Ave., Davis, CA 95616. aengilisjr@ucdavis.edu

Peer-Reviewed

ABSTRACT

Say's Phoebes (*Sayornis saya*), nest regularly in the dry grassland fringes of the San Joaquin Valley in California. Historical records of breeding or other summer occurrences in the agricultural and residential flatlands of the Central Valley and adjacent Sacramento-San Joaquin Delta are scarce and widely scattered geographically and across past decades. In summer 2018, observers documented Say's Phoebes nesting at multiple sites in lowland areas within Yolo, Solano, Sacramento, San Joaquin, Fresno, and Tulare counties. We summarize the records of this 2018 breeding and explore evidence for historical expansion or other factors that may explain the apparent sudden increase of breeding on the valley floor. Databases, archives, and museum specimens spanning several decades provided only a few scattered observations of Say's Phoebe breeding in the flatlands of the Delta and the Central Valley. eBird records of Say's Phoebe presence in all of California from mid-May to the end of July showed an apparent increase in the past four years (2015-2018) into the counties that include parts of the Delta. The number and geographic spread of the 2018 observations of nests, eggs, and feeding nestlings and fledglings

in several counties seem to reflect a real and unprecedented surge of Say's Phoebe breeding on the valley floor. The mechanisms driving this apparent expansion of the Say's Phoebe breeding range are unclear. The proximity of most recent summer records to relatively new housing development and the location of almost all nests on buildings or other structures suggests that the expansion is correlated with increased housing development in the Central Valley and Delta, coupled with the species' high capacity for dispersal and nuances of life history, such as the requirement that nests be close to open space and a possible coexistence with mud-nesting swallows.

Say's Phoebe (*Sayornis saya*), a bird of grasslands, pastures, and other open spaces, is a regular winter resident of California's Central Valley, Delta, and surrounding regions. The breeding season range lies primarily east of the Sierra Nevada and in the southern deserts, but breeding is also well documented on the Pacific slopes of the southern Sierra Nevada and the dry margins of the San Joaquin Valley (Grinnell and Miller 1944, Schukman and Wolf 1998). A long-recognized breeding population occupies coastal valleys from San Diego northward to Livermore, Alameda County (Dawson 1923, Grinnell and Miller 1944, Small 1994). Historical records of breeding or other summer occurrences on the Central Valley floor and in the Delta are scarce and widely scattered geographically and across past decades. In 2018, however, a spate of Say's Phoebe breeding observations were reported in flatlands of Yolo, Sacramento, Solano, San Joaquin, Fresno, and Tulare counties during the hot, dry summer season, where a breeding record is considered worthy of a report to the birding community.

These observations raised several questions. Is this apparent increase of Say's Phoebe nesting in the Central Valley and Delta a new phenomenon, or have Say's Phoebes nested throughout the Central Valley sporadically for decades and only now are being detected and reported? Could this upsurge of nesting records be an artifact of the increase of birders and their reporting behavior? To address these questions, we detail the unusually high number of nesting records in 2018, then examine multiple modern data sets as well as some historical records to find patterns and records of nesting Say's Phoebes in the Central Valley and Delta.

STUDY AREA

The study area includes the entire valley floor of the Sacramento and San Joaquin valleys and the Delta where the Sacramento and San Joaquin rivers converge from the north and the south. The area supports mostly mixed agriculture and human settlement, with some annual grassland habitat.

METHODS

In 2018, members of the Central Valley Bird Club's Central Valley (CV) Birds listserv first became aware of Say's Phoebe breeding in Yolo County with a series of reports from a recently constructed residential neighborhood on the southeastern outskirts of Woodland and from a barn adjacent to a golf course on the edge of residential northeast Davis. Posts on CV Birds elicited new reports of breeding in residential neighborhoods of north Stockton, San Joaquin County, and northeast Fresno, Fresno County. The ensuing online conversations led us to additional 2018 records.

We augmented these direct reports by examining all eBird checklists that included one or more Say's Phoebes in the study area during April-July (eBird.org/map). We examined the map location of each checklist and searched for any evidence of breeding provided in the comments about each Say's Phoebe sighting. We searched the records of the American Birding Association's *North American Birds* journal, the database of the North American Breeding Bird Survey of the U.S. Geological Survey, and the archives of the CV Birds listserv. We also searched museum specimen records, queried via VertNet (VertNet.org), specific museum collection databases, and historical Central Valley bird archives maintained at the Museum of Wildlife and Fish Biology (MWFB) (Engilis 2013).

The Breeding Bird Survey (BBS) proved to be of limited value, even though many of its 64-km (40-mi) routes have been surveyed since the late 1960s, because only a few of the routes are confined to the valley floor. Most routes transect both valley floor and adjacent foothills, and the data for individual stops along the routes cannot be separated. Therefore, we have used only the 22 routes that are entirely or mostly on the valley floor.

To assess trends in summer presence of Say's Phoebe, we examined checklists posted to eBird from 15 May to 31 July, representing the period when Say's Phoebes are most likely to be breeding and least likely to be migrating or dispersing after breeding. We downloaded from the eBird Basic Dataset (https://ebird.org/data/download) all eBird checklists that recorded Say's Phoebe in California during the years 2003-2018. We chose 2003 as the start of our date range because it corresponds to the launch of the eBird public project. Next, to filter out repeat reports of the same individuals, we overlaid a ~1km grid over the entire state of California and computed a score for each grid cell. Each grid cell was scored as "1" if at least one observation of Say's Phoebe occurred in that cell or "0" if not. For each year from 2015 to 2018, we calculated a value for each county equal to the sum of the score of all of its grid cells.

Table 1. Say's Phoebe breeding records in the Central Valley flatlands during 2018 by county (listed from north to south).

County (Record No.)	Nest Site Location (Coordinates)	Habitat Conditions
Yolo (1)	N Davis – Wildhorse Golf Course (38.5739669, -121.7132297)	Barn 50 m west of agricultural buffer trail next to golf course and farmland
Yolo (2)	SE Woodland – Jones Street (38.6573802, -121.7580231)	Residential neighborhood near open space
Yolo (3)	SE Woodland – Village Lane (38.64655, -121.733255)	New residential neighborhood with vacant lots; near open space
Yolo (4)	SE Woodland – Banks Drive (38.642561, -121.73289)	New residential neighborhood with vacant lots; near open space
Yolo (5)	SE Woodland – Sweeney Drive (38.643379, -121.730424)	New residential neighborhood with vacant lots; near open space
Yolo (6)	SE Woodland – Russell Circle (address unidentified) (38.643525, -121.737996)	New residential neighborhood with vacant lots; near open space
Sacramento (1)	SW Elk Grove (near Stephenson Family Park) (38.3806403, -121.4419806)	Residential neighborhood bordering farmland
Solano (1)	N Rio Vista – American Falls Drive (38.1806971, -121.7027042)	Residential neighborhood bordering open space
Solano (2)	N Rio Vista – Airport Road (Airport Road Self-Storage) (38.1775654, -121.6917586)	Industrial area bordering open space
Solano (3)	Sulphur Springs Creek, (S. of Hiddenbrooke Golf Club) (38.1363794, -122.1696317)	Old bridge surrounded by rolling grassland adjacent to golf course
San Joaquin (1)	N Stockton – Davis Road (between Elkhorn Country Club & Elkhorn Elementary School) (38.0508202, -121.3325636)	House between school and golf course
San Joaquin (2)	N Stockton – Caywood Drive Westwood Elementary School (38.0364191, -121.2897571)	School buildings adjacent to farm-land
Fresno (1)	NE Fresno – E. Via Corsica Pl. (36.898839, -119.760196)	Residential neighborhood adjacent to undeveloped lot; near San Joaquin River and farmland
Tulare (1)	W Porterville – W. Porter Creek Avenue (36.0827441, -119.07461)	Residential neighborhood bordering Porter Slough and farmland beyond

Table 1. (Continued)

County (Record No.)	2018 Dates (Breeding activity observed)[1]	Evidence	Source[2]
Yolo (1)	25, 28 April (CF)	Ad. repeatedly carrying food inside barn – neither nest nor fledglings observed	M. Perrone
Yolo (2)	2 May (FY)	Ad. carried food to nest on ledge under covered porch with 3 nestlings	J. Humphrey
Yolo (3)	30 April (FY); 1-3, 8, 14, 16 June (NY, FY)	2 ad. fed 4 fledglings in April; nest found at same site in June fledged 4 young	T. Mangum, J. Humphrey
Yolo (4)	8, 14 June (NY, FY)	Ad. fed nestlings; 3 fledglings	T. Mangum
Yolo (5)	14, 15, 18, 24 May; 19 June (NY, FY)	Homeowner reported nest with nestlings; Ad. fed $\geq$2 fledglings; later saw 4 fledglings	T. Mangum, J. Humphrey
Yolo (6)	14, 16, 19, 21 June (CF, FY)	2 ad. fed $\geq$2 fledglings	T. Mangum
Sacramento (1)	15 July (CF)	2 ad. flew from field to houses; one carried food	O. Carmi: S47246763
Solano (1)	18 March to 30 April: 20+ obs. (NY, FY)	2 ad. built nest on ledge under porch, laid eggs; fed 4 nestlings that fledged	V. Saima-Barklow & R. Barklow
Solano (2)	18 July to 1 August: 3 obs. (FY)	Nest on light fixture in storage shed; 2 ad. fed 3 nestlings; 2 fledged	V. Saima-Barklow & R. Barklow
Solano (3)	9 July (FY)	Nest under old bridge; 2 ad. fed 3 nestlings	M. Berner: S47109616
San Joaquin (1)	2 May (NY)	Nest under front porch eaves; 2 nestlings	K. Mize
San Joaquin (2)	2 May (ON)	Nesting observed at the school – no further details	J. Rexroth via J. Davis
Fresno (1)	19 June (CF)	Ad. carried food to a probable backyard nest; 2 ad. flew there regularly, late May - 3 July.	J. Davis
Tulare (1)	24 May; 1, 17, 18 June (ON, FY)	Nest on electrical panel box under a corrugated metal roof; 2 ad. repeatedly fed 3 nestlings.	S. Summers: S45986961, S46210826, S46613796, S46638796.

[1] ON = on nest, CF = carrying food, FY = feeding young, NY = nest with young.
[2] eBird checklists numbers.

RESULTS

We identified a total of 14 Say's Phoebe nesting sites in six Central Valley counties in 2018, based on observations of, for example, an adult carrying food repeatedly to an undiscovered nest, or one to two adults feeding nestlings or fledglings, or an adult accompanied by juveniles (Table 1; Figure 1). All nest sites were adjacent to open space (fallow crop fields, pasture, grassland, or golf course). Eight of the 14 nests were discovered, and each was built on a ledge under an overhanging structure of a house, barn, bridge, storage shed, or free-standing electrical panel box. At least five of the houses hosting Say's Phoebe nests were of similar architectural style, with stucco siding and roofs overhanging ledges that provide protected nesting sites (Figure 2).

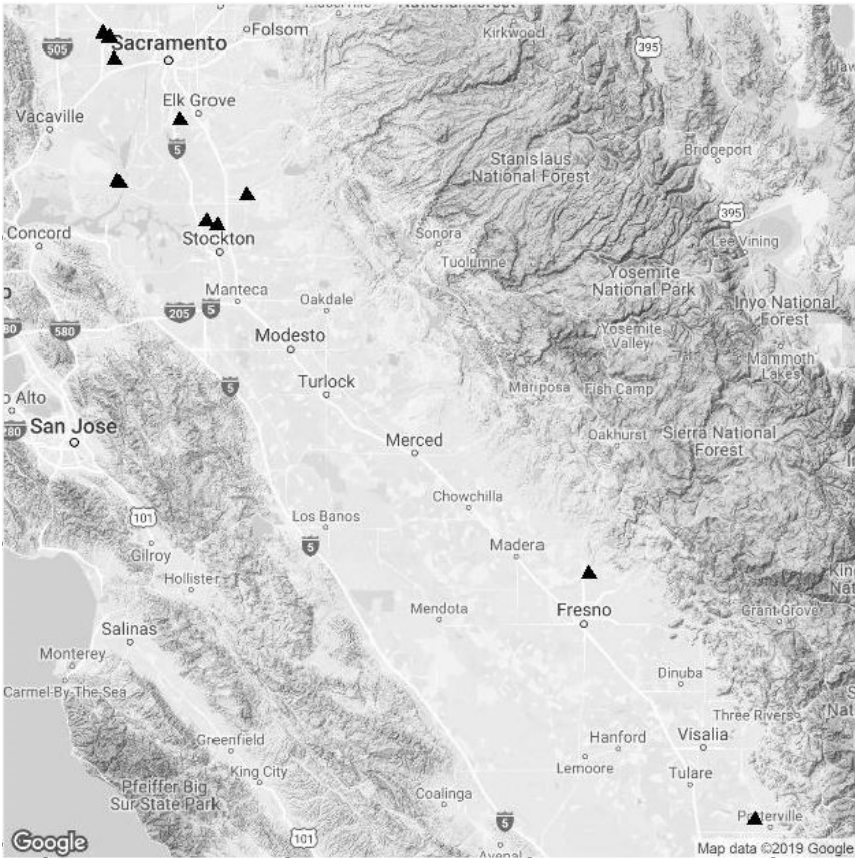

Figure 1. Say's Phoebe breeding in the Central Valley during 2018 - map locations of the 14 nest sites detailed in Table 1.

Figure 2a. Say's Phoebe nest site May 2018. Woodland, Yolo Co., California.

Photo © Joan Humphrey

Figure 2b. Say's Phoebe nest with nestlings. 8 June 2018. Woodland, Yolo Co., California.

Photo © Tim Mangum

Reports in Prior Years at Sites Active in 2018

Say's Phoebes had nested and fledged young in prior years at or near four of the known 2018 breeding locations.

In the same southeast Woodland neighborhood in Yolo County where nesting was documented in 2018, a single Say's Phoebe in late June 2014 was singing and repeatedly flying to an old Barn Swallow (*Hirundo rustica*) nest on a sheltered ledge of a house—probably the same bird that had been seen in early June singing from rooftops (Lief Gallagher, eBird checklists S18694703 and S18934289). This neighborhood was not monitored in 2015-2016, but the residents of the houses on Russell Circle, Sweeney Drive, and Village Lane reported birds nesting on these houses in 2017.

In Solano County, nesting or juveniles with adults were observed every year from 2007 to 2013 at locations within 1.6 km (1 mi) of the 2018 Sulphur Springs Creek location (Ken Poerner and Jamie Ross, starting with eBird checklists S5127057 and S5175192). Moreover, in 2014–2015 and 2017–2018, adults carried food into a dense residential neighborhood from the adjacent Newell Open Space and associated with juveniles in this open space, just across the Napa County line and within five miles of Sulphur Springs Creek (Murray Berner and others, starting with eBird checklists S19008704 and S19132888).

Also in Solano County, an adult Say's Phoebe with four immatures was reported on 5 July 2014 north of the Cement Hill Ponds on Portland Drive east of a dense housing development (Roger Muskat, eBird checklist S19329021). The birds remained there throughout July. This location is on the opposite side of Fairfield and >20 km (13 mi) from the Sulphur Springs Creek area; therefore, it is likely that these birds represent a second breeding location in the county. However, no further records of summer presence were made at this location after 2014.

In north Rio Vista, Solano County, the pair of Say's Phoebes that nested on American Falls Drive from mid-March to late April 2018 probably also nested at the same location from late May to late June 2017. This pair used a small wooden shelf placed over a motion-detection light. The 2017 nesting effort fledged four young. In 2018, the birds reused this nest and again produced four fledglings.

In Clovis, Fresno County, adult Say's Phoebes, occasionally with juveniles, were reported in June-July 2012 and 2014-2018 on the campus of California State University, Fresno (starting with eBird checklist S11243307 by Tom Zimoski); along the Enterprise Trail in a Clovis residential area (starting with eBird checklist S18787998 by Rick Saxton); and in 2017-2018 just north of a Clovis residential neighborhood along DeWolf Avenue (starting with eBird checklist S37451718 by Rick Saxton). These sites are all close to open grassland and within 10 km (6 mi) of the 2018 nest on Via Corsica Place in northeast Fresno.

Other Reports Prior to 2018

Our examination of several relevant databases revealed only a handful of documented sightings and nesting attempts of Say's Phoebes in the Central Valley from mid-May to the end of July. The source with the earliest reports is *North American Birds*. These reports range from 1957 to 2018 (Table 2) and show no discernible trend.

Of the 22 BBS routes that are entirely or mostly on the valley floor, six routes contained a total of seven records of Say's Phoebe from 1971 to 2017 (Table 3). The BBS shows few breeding birds at various Central Valley

locations in the past with long periods of absence, especially a gap between 1983 to 2005.

The CVBirds listserv provided another database for the years 1999-2018. We found no records prior to those from the 2018 breeding season (Table 1).

Archives maintained at the MWFB yielded three breeding season observations, all from the 1960s (Table 4). In addition, the results of the museum specimen query documented three Say's Phoebe breeding records from much earlier years in the Central Valley.

Table 2. Mid-May to July reports of Say's Phoebes in the Central Valley in *North American Birds*.

Year	County	Report Details
1957	Stanislaus	26 May (nest with 4 nestlings under bridge)
1968	Stanislaus	28 May
1980	Contra Costa	9 May (2 nests, one with 3 eggs)
1982-1983	Tehama, Glenn, San Joaquin, Stanislaus	24 May-29 July - 6 reports
2006	Sacramento	25 June
2009	Fresno	25-27 May
2018	San Joaquin, Fresno	see Table 1

Table 3. Years and BBS routes in which one or more Say's Phoebes were detected on the Central Valley floor from late May to early July. All records are of single birds except two birds at Ora Loma.

Year	Route	Location
1971	149	Atwater, Merced County
1975	187	Zamora, Yolo County
1978	149	Atwater, Merced County
1981	21	Hughson, Stanislaus County
1983	196	Ora Loma, Fresno County
2005	26	Huron, Fresno County
2017	33	Bakersfield, Kern County

Table 4. Breeding records and breeding season observations from museum specimens and archives in or potentially within the Central Valley study area.

Record Type	Date	County	Location	Source
Observed	11 April–06 Jun 1964	Yuba	Beale AFB	M. Perrone, MWFB Archives
Nesting	18 April 1965	Yolo	Phillip's Ranch, west of Woodland	M. Phillips, MWFB Archives
Observed	14 May 1967	Yolo	Capay Valley	E. and M. Warner, MWFB Archives
Eggs collected	10 May 1889	Yolo	No exact locality	FMNH[1]-9261, VertNet
Eggs collected	05 May 1895	San Joaquin	20 miles from Stockton (no direction given)	R.S. Wheeler, DMNS-338, VertNet
Egg collected	23 May 1947	Stanislaus	West of Patterson (not specific, possibly outside study area)	P.T. Burtis, Jr., MVZ-14364, VertNet

[1]Field Museum of Natural History

The lack of any Say's Phoebe observations from the Yolo Breeding Bird Atlas (BBA) project from 2008 through 2014 (https://www.pwrc.usgs.gov/bba/index.cfm?fa=explore.ProjectHome&BBA_ID=CA-Yol2009) or from the old Sacramento BBA (unpublished but conducted from the late 1980s to the 1990s; E. Pandolfino, pers. comm.) supports the unusual nature of the 2018 observations.

Figure 3 compares the distribution of eBird records showing presence of Say's Phoebes during the 2015 and 2018 breeding seasons (15 May to 31 July), indicating a northward expansion of summer records of Say's Phoebe in the foothills of the Sierra Nevada and in the Delta counties.

Evidence of actual Say's Phoebe breeding was found in several eBird checklists from the Central Valley floor and Delta during June and July. The numbers of confirmed and highly probable breeding pairs are shown by year and by county in Table 5. Solano County has the earliest eBird records of nesting in the study area, starting in 2009, followed by adjacent Napa and Yolo counties in 2014. In 2018, there was a dramatic increase to 14 nesting pairs across six counties (Table 5).

The modern and historical records and literature confirm that, as of 2018, Say's Phoebe has expanded its breeding range into mixed agricultural/residential flatlands of the San Joaquin Valley floor (Fresno and Tulare counties) and into similar mixed agricultural/residential areas of the counties around the California Delta (Yolo, Sacramento, Solano, and San Joaquin). The species remains absent as a breeder in the Sacramento Valley north of Yolo

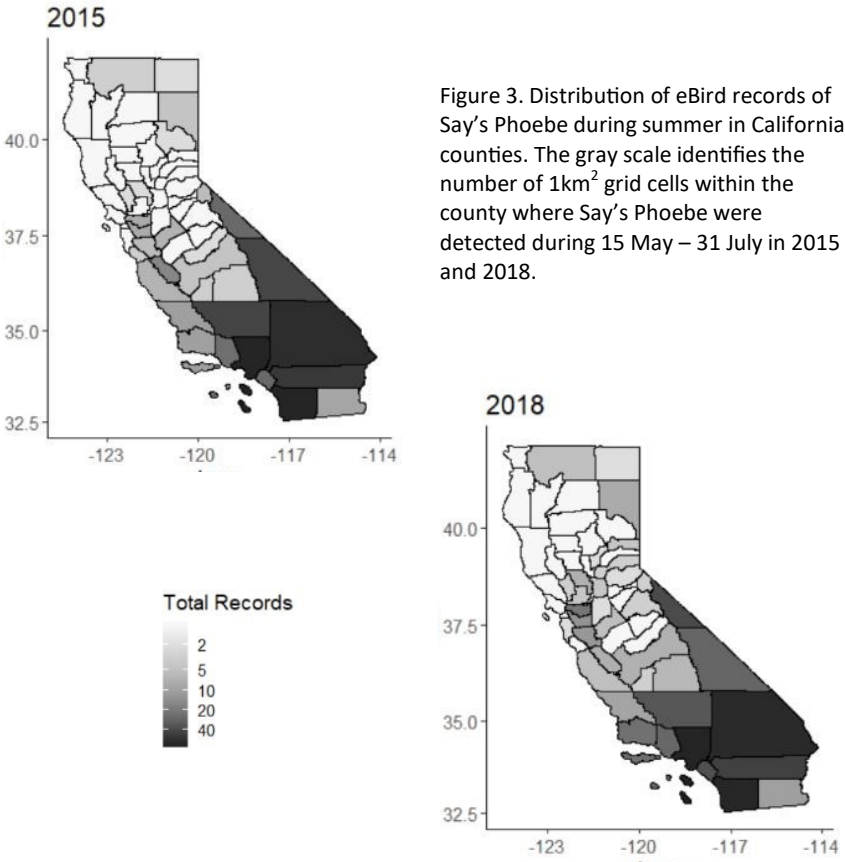

Figure 3. Distribution of eBird records of Say's Phoebe during summer in California counties. The gray scale identifies the number of 1km^2 grid cells within the county where Say's Phoebe were detected during 15 May – 31 July in 2015 and 2018.

Table 5. Number of confirmed and highly probable Say's Phoebe breeding pairs recorded on eBird. No Say's Phoebe breeding pairs were recorded from 2005 to 2008 or during 2010, 2013, and 2016.

	Year						
County	**2009**	**2011**	**2012**	**2014**	**2015**	**2017**	**2018**
Yolo				1			6
Solano	1	2	1	1		1	3
Napa				1	1		
Sacramento							1
San Joaquin							2
Fresno							1
Tulare							1
TOTAL	1	2	1	3	1	1	14

County. However there are two summer observations of Say's Phoebe on the valley floor of Placer County (15 Jun 2018 south of Lincoln, eBird checklist S46566678; and 2 Jul 2018 west of Roseville, eBird checklist S46944852), each located near a dense residential area adjacent to open space. These are the first summer observations for Placer County, perhaps indicating expansion in the valley north of Yolo County.

DISCUSSION

The Say's Phoebe is a good colonizer, having spread northward in recent decades as far north as the Arctic Slope (Cade and White 1973). In stark contrast with other grassland/open country specialists, Say's Phoebe shows a significant positive breeding population trend across its range (Sauer et al. 2017) and a positive winter population trend in the Central Valley Christmas Bird Counts (Pandolfino and Handel 2013).

All three North American species of *Sayornis*—Say's, Black (*S. nigricans*), and Eastern (*S. phoebe*) phoebe—have expanded their breeding season ranges, probably due to their abilities to exploit anthropogenic changes on the landscape. All three have adapted to nesting on or under human-made structures including bridges, culverts, barns, and houses with ledges under overhanging roofs (Schukman and Wolf 1998). In addition, the Say's Phoebe nest sites are always adjacent to grasslands or other herbaceous habitats, and not associated with highly modified agricultural lands (Schukman et al. 2011).

The spread of Say's Phoebe also may be linked to the spread of mud-nesting Barn and Cliff swallows (*Petrochelidon pyrrhonota*). Throughout western North America, mud-nesting swallows have adapted to nesting on human structures and have spread as a result (Brown et al. 2017, Brown and Brown 2019). In Texas and New Mexico, Say's Phoebes nest in association with Cliff and Barn swallows, often ejecting the latter species from their own nests (Ohlendorf 1976, Kozma and Mathews 1995). They will build their platform nests on old and broken Cliff Swallow nests.

The spread of Say's Phoebe into agricultural valleys of western North America seems limited to the Central Valley of California. As of 2018, there are no breeding records for the Willamette or Columbia river valleys of Oregon and Washington (D. Robinson, pers. comm.).

The Black Phoebe has similarly spread its range in the Central Valley, likely because of adaptation to nesting on human structures. In the late 1800s, there were consistent reports that Black Phoebes were uncommon and restricted to riparian zones of the valley. They were not reported as widely using human structures at that time (Belding 1890). Robert Ridgway listed the species as "rare" in Sacramento in June 1867 and collected no specimens (Harris 2018). By the 1940s, Black Phoebes were still considered uncommon but were reported to nest widely in culverts, on bridges, and on buildings (Grinnell and Miller 1944). Today the species is a permanent

resident in the Central Valley wherever water is present, including residential areas.

We have considered the possibility of bias associated with an increased level of observation effort, recognizing that more and more birders use state-of-the-art optical equipment and modern field guides to improve their identification skills and employ sophisticated communication networks to find birds. They spend hundreds of hours weekly in the field throughout the state. Coupled with this effort is the development of numerous regional and local databases capturing and archiving bird observations (Sullivan et al. 2009). Thus, reports have increased in number, comprehensiveness, and usage since the 1990s. This raises the possibility that the increase in Say's Phoebe breeding reports is an artifact of increasing birder activity in the field and engagement with these databases, especially eBird.

Nonetheless, the increase in Say's Phoebe nesting records in 2017 and 2018 is unlikely the result of increased level of birding effort. More likely, the increase is due to the species' dispersal and colonizing tendencies, coupled with adaptation to nesting on human-made structures, which have proliferated across the Central Valley. Corroboration is provided by the paucity of historical records as evidenced by the few museum specimens and old reports and the memories of birders with long experience in these parts of California. These birders state that they have not seen Say's Phoebes in these areas during breeding months until recently ("Unusual for this time of year" is a typical comment on eBird checklists).

The pattern of recent records indicates that Say's Phoebe expansion into the Delta counties originated in Solano County (Table 5). The same examination of eBird checklists also showed an increase in records of summer presence in areas of Contra Costa County north and east of Mount Diablo (margins of the Delta), including hatch-year birds, but so far there has been no direct evidence reported of nesting in these areas. Therefore, it seems less likely that Contra Costa is a source for Solano nesting and expansion into the Delta. In the case of 2018 nesting in Fresno and Tulare counties, the source population of Say's Phoebes is more likely the foothills of the southern Sierra Nevada.

The expansion pattern of the Common Raven (*Corvus corax*) may suggest an alternative origin of the Say's Phoebes nesting in the Central Valley and Delta. The Common Raven shares with Say's Phoebe a similar historical distribution in California and recent expansion into the Central Valley involving use of human-made structures for nesting. Recent genetic studies showed that these new residents of the Central Valley are more closely related to Great Basin ravens than to coastal California ravens (Fleischer et al. 2008). It is possible, therefore, that Say's Phoebes wintering in the Central Valley, but hatched as far away as Nevada, may have stayed beyond normal departure in April and nested successfully in the Central Valley.

Time will tell if Say's Phoebes continue nesting and further expand their breeding season range in the Central Valley. If Say's Phoebes do establish a small breeding population in the Delta counties and Yolo County, this area may become a new source of post-breeding dispersal in coming years, perhaps leading to spread into northern Sacramento Valley counties.

ACKNOWLEDGMENTS

We thank Keith Bailey, Ronald Barklow, Murray Berner, Ore Carmi, Lief Gallagher, Steve Hampton, Sami LaRocca, Sarah Mayhew, Kurt Mize, Roger Muscat, Ed Pandolfino, Michael Perrone, Ken Poerner, James Rexroth, John Robinson, Jamie Ross, Rick Saxton, Steve Summers, Ed Whisler, Tom Zimoski, and Joe Zinkl for contributing key field observations and photographs. We also thank David Robinson (Oregon State University) and Ben Marks (Field Museum of Natural History) for access to specimen records and Irene Engilis (Museum of Wildlife and Fish Biology) for access to specimen records, archives, and nests. Finally, we thank editor Dan Airola for suggesting this topic and assistance throughout.

LITERATURE CITED

Belding, L. 1890. Land Birds of the Pacific District. Occasional Papers of the California Academy of Sciences, No. 11. San Francisco, CA.

Brown, C.R., M.B. Brown, P. Pyle, and M.A. Patten. 2017. Cliff Swallow (*Petrochelidon pyrrhonota*), version 3.0. *In* The Birds of North America (P.G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca, NY. https://doi.org/10.2173/bna.cliswa.03.

Brown, M.B. and C.R. Brown. 2019. Barn Swallow (*Hirundo rustica*), version 2.0. *In* The Birds of North America (P.G. Rodewald, editor). Cornell Lab of Ornithology, Ithaca, NY. https://doi.org/10.2173/bna.barswa.02.

Cade, T.J. and C.M. White. 1973. Breeding of Say's Phoebe in Arctic Alaska. Condor 75:360-361.

Cooper, D.S. 2002. Geographic associations of breeding bird distribution in an urban open space. Biological Conservation 104:205–210.

Dawson, W.L. 1923. Birds of California, Volume 2. South Moulton Company, San Francisco, CA.

Engilis, A., Jr. 2013. The Kimball Journals: An archive of historical bird observations from the Sacramento Valley, California. Central Valley Bird Club Bulletin 16:64-69.

Fleischer, R.C., W.I. Boarman, E.G. Gonzalez, A. Godinez, K.E. Omland, S. Young, L. Helgen, G. Syed, and C.E. McIntosh. 2008. As the raven flies: using genetic data to infer the history of invasive common raven (*Corvus corax*) populations in the Mojave Desert. Molecular Ecology 17:464–474.

Grinnell, J. and A.H. Miller. 1944. The Distribution of the Birds of California. Cooper Ornithological Club, Berkeley, CA.

Harris, J.H. 2018. Robert Ridgway and the 40th parallel survey at Sacramento, 1867. Central Valley Bird Club Bulletin 20:91-100.

Kozma, J.M. and N.E. Mathews. 1995. Interspecific cooperative nesting between Barn Swallows and Say's Phoebe in South-Central New Mexico. Auk 112:515-517.

Ohlendorf, H.M. 1976. Comparative breeding ecology of phoebes in Trans-Pecos Texas. Wilson Bulletin 88:255-271.

Pandolfino, E.R. and C.M. Handel. 2018. Population trends of birds wintering in the Central Valley of California. *In* Trends and Traditions: Avifaunal Change in Western North America (W.D. Shuford, R.E. Gill, Jr., and C.M. Handel, eds.), pp. 215-235. Studies of Western Birds 3. Western Field Ornithologists, Camarillo, CA.

Sauer, J.R., D.K. Niven, J.E. Hines, D.J. Ziolkowski, Jr., K.L. Pardieck, J.E. Fallon, and W.A. Link. 2017. The North American Breeding Bird Survey, Results and Analysis 1966-2015, version 2.07.2017. USGS Patuxent Wildlife Research Center, Laurel, MD. www.mbr-pwrc.usgs.gov/bbs/trend/tf15.html.

Schukman, J.M. and B.O. Wolf. 1998. Say's Phoebe (*Sayornis saya*), version 2.0. *In* The Birds of North America (A.F. Poole and F.B. Gill, editors). Cornell Lab of Ornithology, Ithaca, NY. https://doi.org/10.2173/bna.374.

Schukman, J.M., A. Lira-Noriega, and A. Townsend Peterson. 2011. Multiscalar ecological characterization of Say's and Eastern phoebes and their zone of contact in the Great Plains. Condor 113:372-384.

Small, A. 1994. California Birds: Their Status and Distribution. Ibis Publishing Company, Vista, CA.

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling. 2009. eBird: A citizen-based bird observation network in the biological sciences. Biological Conservation 142:2282-2292.