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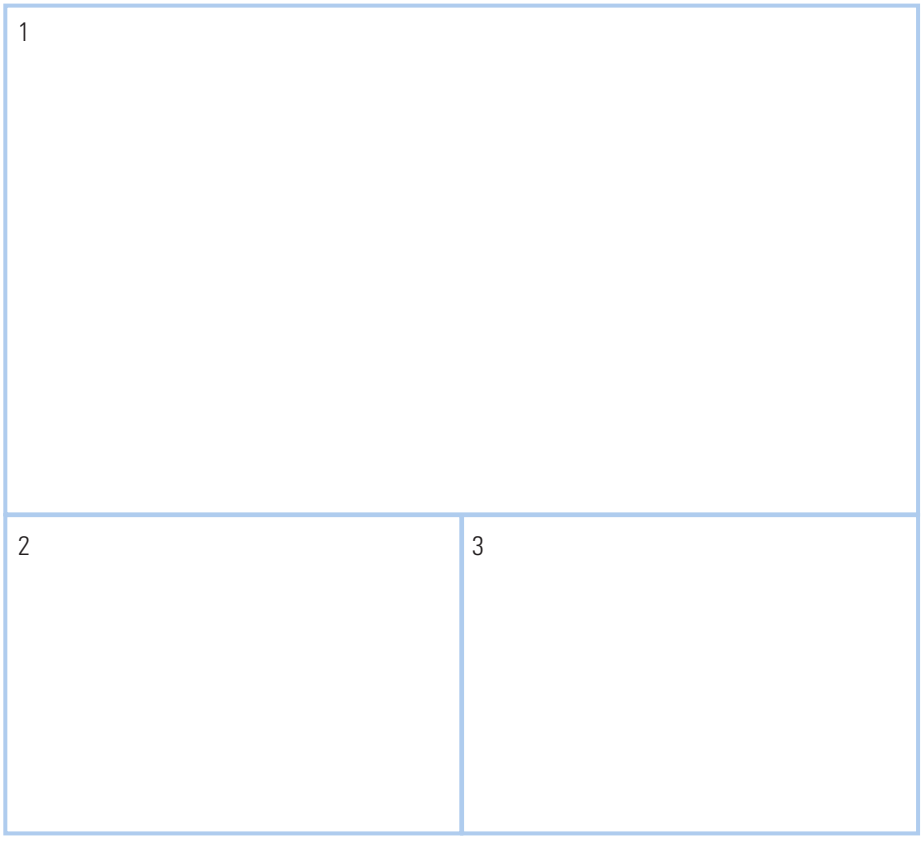
# Distribution and Abundance of Least Bell's Vireos (*Vireo bellii pusillus*), Southwestern Willow Flycatchers (*Empidonax traillii extimus*), and Coastal California Gnatcatchers (*Polioptila californica californica*) at the Santa Fe Dam, Los Angeles County, California—2022 Data Summary

Data Report 1171

U.S. Department of the Interior
U.S. Geological Survey




**Cover**. (1) Bike path, levee, and scrubby vegetation in the Santa Fe Dam drop structure approach channel. Photograph by S. Howell, U.S. Geological Survey, April 2022. (2) Burned riparian habitat at the Santa Fe Dam. Photograph by A. Houston, U.S. Geological Survey, May 2022. (3) Pond and riparian vegetation at a drop structure at the Santa Fe Dam approach channel. Photograph by S. Howell, U.S. Geological Survey, July 2022.

# Distribution and Abundance of Least Bell's Vireos (*Vireo bellii pusillus*), Southwestern Willow Flycatchers (*Empidonax traillii extimus*), and Coastal California Gnatcatchers (*Polioptila californica californica*) at the Santa Fe Dam, Los Angeles County, California—2022 Data Summary

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We thank the biologists of the U.S. Geological Survey who assisted in data collection for this project: Alexandra Houston, Scarlett Howell, Shannon Mendia, and Michelle Treadwell. Data either are not available or have limited availability owing to restrictions of the funding entity (U.S. Army Corps of Engineers). Please contact Jon Rishi, Operations Division, Los Angeles District, U.S. Army Corps of Engineers, for more information.

# Contents



## Figures



## Tables

# Conversion Factors

International System of Units to U.S. customary units

| Multiply | By | To obtain |
|---|---|---|
| | Length | |
| meter (m) | 3.281 | foot (ft) |
| kilometer (km) | 0.6214 | mile (mi) |
| meter (m) | 1.094 | yard (yd) |
| | Area | |
| hectare (ha) | 2.471 | acre |
| hectare (ha) | 0.003861 | square mile ($mi^2$ |

# Datums

Horizontal coordinate information is referenced to the World Geographic System of 1984 (WGS84).

# Supplemental Information

Note to USGS users: Use of hectare (ha) as an alternative name for square hectometer ($hm^2$) is restricted to the measurement of small land or water areas.

# Distribution and Abundance of Least Bell's Vireos (*Vireo bellii pusillus*), Southwestern Willow Flycatchers (*Empidonax traillii extimus*), and Coastal California Gnatcatchers (*Polioptila californica californica*) at the Santa Fe Dam, Los Angeles County, California—2022 Data Summary

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## Executive Summary

In 2022, we surveyed for Least Bell's Vireos (*Vireo bellii pusillus*; vireo), Southwestern Willow Flycatchers (*Empidonax traillii extimus*; flycatcher), and Coastal California Gnatcatchers (*Polioptila californica californica*; gnatcatcher) in the Santa Fe Dam detention basin and along the San Gabriel River upstream from the Santa Fe Dam near Irwindale, California. Four vireo surveys were completed between April 21 and July 13, 2022; three flycatcher surveys were completed between May 18 and July 13, 2022; and four gnatcatcher surveys were completed between April 21 and July 13, 2022.

We detected seven territorial male vireos, including four that were paired and three with undetermined breeding status. We also detected one transient vireo. Two juvenile vireos were observed during surveys. Vireo territories were found in riparian scrub, willow (*Salix* spp.)-cottonwood (*Populus* spp.), and mixed willow habitat, with mixed willow the most commonly-recorded habitat type. Black willow (*S. gooddingii*) was the dominant plant species in most vireo territories.

We detected 10 transient flycatchers in riparian scrub (5 individuals), mixed willow (4 individuals), and non-native vegetation (1 individual). Black willow and mule fat (*Baccharis salicifolia*) were the predominant plant species in flycatcher locations.

We detected four territorial male gnatcatchers, two of which were paired and two of undetermined breeding status. We also detected one territorial female gnatcatcher. One juvenile gnatcatcher was observed during surveys. All gnatcatchers were detected in coastal sage scrub. The dominant shrub species at gnatcatcher locations were California sagebrush (*Artemisia californica*) and scale broom (*Lepidospartum squamatum*).

## Introduction

The Least Bell's Vireo (*Vireo bellii pusillus*; vireo) is a small, migratory songbird that breeds in southern California and northwestern Baja California, Mexico, from April through July (fig. 1). Historically abundant within lowland riparian ecosystems, vireo populations began declining in the late 1900s as a result of multiple anthropogenic factors, including habitat loss and alteration associated with urbanization and agricultural conversion of land adjacent to rivers, the expansion in range of the brood-parasitic Brown-headed Cowbird (*Molothrus ater*; cowbird), and the introduction of invasive exotic plant species, such as giant reed (*Arundo donax*), into riparian systems (U.S. Fish and Wildlife Service, 1986, 1998; Franzreb, 1989; Kus, 1998, 1999; Riparian Habitat Joint Venture, 2004; Kus and others, 2022). By 1986, the vireo population in California numbered just 300 territorial males (U.S. Fish and Wildlife Service, 1986).

In response to the dramatic numeric decline of vireos in California, the California Fish and Game Commission listed the species as endangered in 1980, and the U.S. Fish and Wildlife Service followed suit in 1986. Since listing, the vireo population in southern California has rebounded, largely in response to cowbird control and habitat restoration and preservation (Kus and Whitfield, 2005). As of 2006, the statewide vireo population was estimated to be about 2,500–3,000 territories (U.S. Fish and Wildlife Service, 2006).

Male vireos arrive on breeding grounds in southern California in mid-March. Male vireos are territorial and vocally conspicuous, frequently singing their diagnostic primary song from exposed perches throughout the breeding season. Females arrive about 1–2 weeks after males and are more secretive, but they are often seen early in the season traveling through habitat with the males.

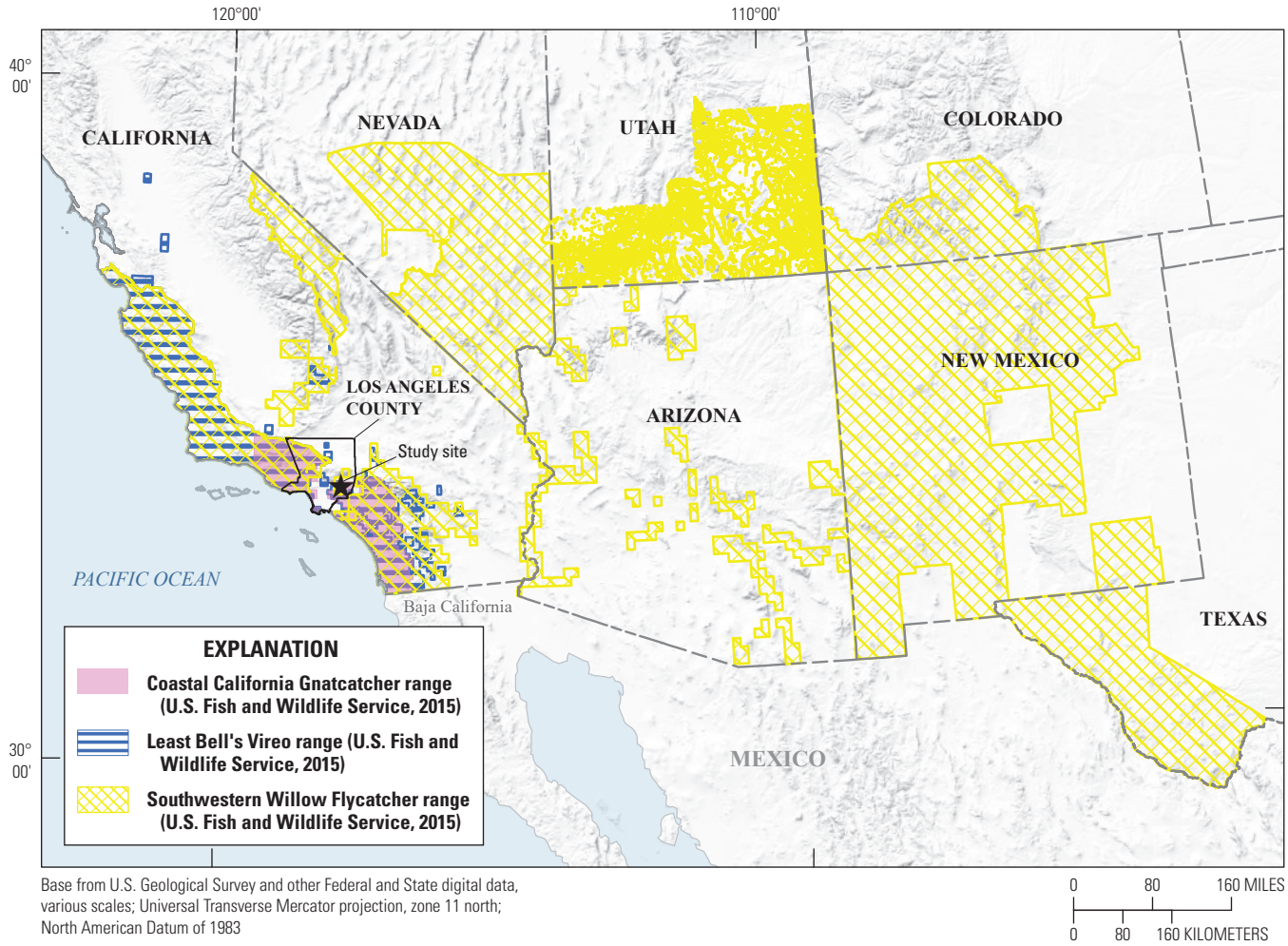


**Figure 1.** Range map of Least Bell's Vireo (*Vireo bellii pusillus*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), and Coastal California Gnatcatcher (*Polioptila californica californica*) within the continental United States, in relation to the Santa Fe Dam detention basin and channel study area, Los Angeles County, California, 2022.

The female, with the male's help, builds an open cup nest in dense vegetation about 1 meter (m) above the ground. Nesting occurs from early April through July, but adults and juvenile birds remain on the breeding grounds into late September and early October before migrating to their wintering grounds in southern Baja California, Mexico.

Vireo breeding habitat consists of dense, shrubby vegetation characteristic of early successional stage, usually near river channels or other water (Kus and others, 2022). Nests are placed in a wide variety of small trees, shrubs, and, infrequently, tall annual herbaceous vegetation (Houston and others, 2021).

The Southwestern Willow Flycatcher (*Empidonax traillii extimus;* flycatcher) is one of four subspecies of Willow Flycatcher in the United States, with a breeding range including southern California, Arizona, New Mexico, extreme southern parts of Nevada, Colorado, and Utah, and far western Texas (fig. 1; Unitt, 1987; U.S. Fish and Wildlife Service, 2002; Sedgwick, 2020). Restricted to riparian habitat for breeding, the flycatcher has declined in recent decades in response to widespread habitat loss throughout its range and, possibly, brood parasitism by cowbirds (Remsen, 1978; Unitt, 1987; Schlorff, 1990; Whitfield and Sogge, 1999; U.S. Fish and Wildlife Service, 2002; Sedgwick, 2020). By 1993, the species was believed to number about 70 pairs in California (U.S. Fish and Wildlife Service, 1993), in small, disjunct populations. The flycatcher was listed as endangered by the State of California in 1992 and by the U.S. Fish and Wildlife Service in 1995.

Flycatchers in southern California co-occur with vireos. However, unlike the vireo, which has increased tenfold since the mid-1980s in response to management practices alleviating threats (U.S. Fish and Wildlife Service, 2006), the number of flycatchers has remained low. Currently, most flycatchers in California are concentrated at one site, the upper San Luis Rey River near Lake Henshaw in San Diego County (Howell and Kus, 2022). Outside of this site, flycatchers occur as small, isolated populations of one to six pairs.

Male flycatchers begin arriving in southern California at the end of April, whereas females arrive about 1 week later. Territorial males (and sometimes females) sing their diagnostic song repeatedly from exposed perches while on the breeding grounds. Once the pair bond is established, the female builds an open cup nest, usually placed in a branch fork of a willow (*Salix* spp.) or plant with a similar branching structure about 1–3 m above the ground. Adults usually depart from their breeding territory in mid-August and early September to their wintering grounds in central America and northern South America.

Flycatcher breeding habitat is characterized as patches of dense riparian vegetation along rivers and streams, interspersed with small openings, open water, or areas of sparse vegetation. Vegetation species composition varies across the range, but most breeding habitats include tree or shrub cover that is at least 3 m tall, with patches of dense vegetation within 3–4 m of the ground. In addition, flycatchers typically nest near areas of standing water or saturated soil (U.S. Fish and Wildlife Service, 2002; Sogge and others, 2010).

The Coastal California Gnatcatcher (*Polioptila californica californica*; gnatcatcher) is a small gray songbird restricted to low stands of coastal and inland sage scrub on arid hillsides, mesas, and washes. Gnatcatchers are year-round residents throughout southern California from just north of Los Angeles County southward into Baja California, Mexico (fig. 1). Limited naturally by the patchy distribution of its habitat, gnatcatcher populations have become further fragmented in recent decades by urbanization, habitat degradation, and stochastic events, such as wildfire (U.S. Fish and Wildlife Service, 2019a). As a result, gnatcatcher populations have diminished in size and distribution and occur largely as islands in a matrix of generally unsuitable habitat. The gnatcatcher was listed as federally threatened in 1993 (U.S. Fish and Wildlife Service, 2019a).

Gnatcatcher breeding season begins mid-February and lasts through the end of August, with peak nesting activity from mid-March through mid-May (U.S. Fish and Wildlife Service, 2019a). Territorial males often sing or call from exposed perches (Atwood and Bontrager, 2020). Males select nest sites, usually just below 1 m above the ground, in plant species in proportion to their availability in the habitat, typically California sagebrush (*Artemisia californica*) or California buckwheat (*Eriogonum fasciculatum*). Both sexes participate in nest-building, although males initiate and perform most of the construction (Atwood and Bontrager, 2020). Similar to vireos and flycatchers, gnatcatchers are subject to brood parasitism by Brown-headed Cowbirds (Braden and others, 1997).

The Santa Fe Dam detention basin (basin) and the drop structure channel of the San Gabriel River upstream from the basin (channel) are within the breeding range of the vireo and gnatcatcher and within the breeding range and U.S. Fish and Wildlife Service-designated critical habitat for the flycatcher (figs. 1, 2; U.S. Fish and Wildlife Service, 2019a). The dam was built by the U.S. Army Corps of Engineers for the primary purposes of flood risk management and groundwater recharge and is managed secondarily by the Los Angeles County for recreation. The purpose of this report is to summarize the results of vireo, flycatcher, and gnatcatcher surveys completed by the U.S. Geological Survey at the basin and channel in 2022. These data will inform natural resource managers about the status of these listed species and ensure that dam operations are compatible with conservation of these species.


**Figure 2.** Least Bell's Vireo (*Vireo bellii pusillus*), Southwestern Willow Flycatcher (*Empidonax traillii extimus*), and Coastal California Gnatcatcher (*Polioptila californica californica*) study area at the Santa Fe Dam detention basin and channel, Los Angeles County, California, 2022.

# Methods

## Study Area

The study area is along the San Gabriel River in Los Angeles County, California, and is comprised of two distinct sections: (1) the detention basin created by the Santa Fe Dam south of Interstate 210 (about 564 hectares [ha]) and (2) the channel north of Interstate 210 and upstream about 5 kilometers (km; about 270 ha; fig. 2). The basin and channel are adjacent to the cities of Irwindale, Azusa, and Duarte, north of Arrow Highway and east of Interstate 605, in Los Angeles County, California. The dam was completed in 1949 for the purpose of flood risk management and groundwater recharge (U.S. Army Corps of Engineers, 2011). The channel was completed in 1947 and modified to add the drop structures (check dams) in 1969. The basin is typically dry but can fill temporarily after heavy rains. About half of the study area has been developed for recreational use (Santa Fe Dam Recreation Area), which includes conserved natural areas, maintained hiking and bicycling trails in the basin and on the southeast side of the channel, and a 28-ha lake in the basin.

We surveyed for vireos and flycatchers within all riparian vegetation considered likely to be used (suitable) by breeding vireos or flycatchers in the basin and the channel. Suitable riparian vegetation consisted mainly of willow, Fremont cottonwood (*Populus fremontii*), mule fat (*Baccharis salicifolia*), blue elderberry (*Sambucus nigra caerulea*), and non-native woody species, such as salt cedar (*Tamarix ramosissima*) and tree of heaven (*Ailanthus altissima*). This riparian vegetation occurred within the basin in a wide band extending from the dam's outlet gates to about 1-km upstream. Patches of suitable riparian vegetation also occurred at each of the drop structures in the channel. Less suitable, sparse, scrubby riparian vegetation occurred south of Interstate 210 and between the drop structures in the channel. This less suitable vegetation was surveyed at least once during 2022. A large section of riparian habitat in the basin burned in May 2019 and again in June 2021, leaving little canopy foliage within the fire perimeter, although many trees were beginning to re-sprout from burned stumps by April 2022. A few remnant, unburned trees persisted at the margins of the fire, and sparse understory vegetation developed within the fire perimeter as the survey season progressed. Trash and disturbance from homeless encampments were abundant under the remnant unburned trees. Aside from a small pool at the outlet gates, the basin riparian section was dry throughout the survey season. Much of the riparian habitat in the channel was degraded by invasive plant species (mostly salt cedar, tree of heaven, and black mustard [*Brassica nigra*]), trash, and disturbance from homeless encampments. The channel contained flowing water at the beginning of the survey season, which dried up to pools behind the drop structures by the end of the survey season.

We surveyed for gnatcatchers in all suitable coastal sage scrub habitat in the northern and northwestern section of the basin and along the entire channel, including the eastern margins outside of the channel. Large areas of coastal sage scrub have burned annually in the north-central section of the basin as recently as August 2021, leaving virtually no sage scrub vegetation within the fire perimeters. High-quality coastal sage scrub habitat remained outside of the fire perimeters, although the margins of this vegetation were degraded by trash and disturbance from homeless encampments. Coastal sage scrub was comprised largely of California sagebrush, scale broom (*Lepidospartum squamatum*), and buckwheat.

## Surveys

Monthly surveys were performed on April 21, May 18, June 15, and July 13, 2022, and they followed standard survey techniques for vireos (U.S. Fish and Wildlife Service, 2001), flycatchers (Sogge and others, 2010), and gnatcatchers (U.S. Fish and Wildlife Service, 2019b). Four surveys were completed for vireos and gnatcatchers, and three surveys were completed for flycatchers (starting May 18). Observers walked slowly through or adjacent to suitable riparian (for vireos and flycatchers) or coastal sage scrub (for gnatcatchers) habitat, listening and searching for vireos, flycatchers, and gnatcatchers. If individuals were not detected passively, observers broadcasted a recording of a vireo, flycatcher, or gnatcatcher song to elicit a territorial response. Surveys typically began at sunrise and were completed by early afternoon, avoiding conditions of high winds and extreme heat that can reduce bird activity and detectability. Some areas were not surveyed completely because of homeless encampments. Surveys were performed by U.S. Geological Survey biologists Alexandra Houston, Scarlett Howell, Suellen Lynn, Shannon Mendia, and Michelle Treadwell under U.S. Fish and Wildlife Service permit ESPER0004080_0.1.

For each vireo, flycatcher, or gnatcatcher encountered, observers recorded age (adult or juvenile), sex, breeding status (paired, undetermined, or transient), and banding status. A male was considered paired if a female was also visually detected, by hearing vocalizations unique to mated birds, or by observing breeding behavior (for example, food carry, a nest, or dependent juveniles within the territory). Both male and female flycatchers can sing the diagnostic song, so the sex of flycatchers was not determined unless breeding behavior unique to each sex was observed (for instance, females incubate eggs, and males do not). Because multiple subspecies of flycatchers may be encountered during surveys, we refer to flycatchers in tables and figures as Willow Flycatchers (*Empidonax traillii*) to include all subspecies.

An individual vireo or flycatcher was considered transient if detected only once. Because gnatcatchers are not migratory, we assumed that all detections were residents and therefore did not consider any gnatcatchers transient. The locations for each detection were mapped using the Environmental Systems Research Institute Field Maps application (Environmental Systems Research Institute, 2022) on an Android phone with 1- to 15-m accuracy to determine geographic coordinates (World Geodetic System of 1984, WGS84). Dominant native and exotic plants were recorded at each location where a bird was detected, and cover of native vegetation was estimated using categories of less than 5 percent, 5–50 percent, 51–95 percent, and greater than 95 percent. Overall habitat type was specified according to the following categories:

***Mixed willow***: Habitat dominated by one or more willow species, including black willow (*S. gooddingii*), arroyo willow (*S. lasiolepis*), and red willow (*S. laevigata*), with mule fat as a frequent co-dominant. Arroyo and red willow were functionally similar and difficult to distinguish; therefore, the two species were combined as "arroyo or red willow."

***Willow-cottonwood***: Willow riparian habitat in which Fremont cottonwood is a co-dominant.

***Willow-sycamore***: Willow riparian habitat in which California sycamore (*Platanus racemosa*) is a co-dominant.

***Sycamore-oak***: Woodlands in which California sycamore and coast live oak (*Quercus agrifolia*) occur as co-dominants.

***Riparian scrub***: Dry or sandy habitat dominated by sandbar willow (*S. exigua*) or mule fat, with few other woody species.

***Coastal sage scrub***: Scrub adjacent to riparian habitat dominated by California sagebrush, buckwheat, and other upland shrubs.

***Non-native***: Areas vegetated primarily with non-native species, such as giant reed and tamarisk.

# Results

In total, eight male Least Bell's Vireos were detected in the Santa Fe Dam study area in 2022. Seven of the eight vireos were territorial males (four paired, three of undetermined breeding status), and one was a transient (table 1; fig. 3). Two pairs were detected in the channel, and the remaining two pairs, three vireos of undetermined breeding status, and one transient were detected in the basin. Two juvenile vireos were detected in the basin. No banded vireos were confirmed; however, we were unable to resight one male, so his band status was unknown (table 1).

Vireos used three habitat types within the study area: (1) mixed willow, (2) riparian scrub, and (3) willow-cottonwood. Most of the vireo territories (5) were in mixed willow habitat (table 2). Dominant plant species within vireo territories were arroyo or red willow, blue elderberry, and black willow. Most vireo territories (5) had greater than 50-percent native vegetation.

There were 10 transient Willow Flycatchers detected in the Santa Fe Dam study area in 2022; all were detected on the same day (May 18, table 1; fig. 3). Nine flycatchers were detected in the channel, and one was detected in the basin. No banded flycatchers were confirmed; however, we were unable to resight eight birds, so their band status was unknown (table 1).

Flycatchers used three habitat types within the study area: (1) mixed willow, (2) non-native vegetation, and (3) riparian scrub. Half of the flycatcher locations were in riparian scrub (table 2). Dominant plant species at flycatcher locations were black willow, mule fat, castor bean (*Ricinus communis*), and salt cedar. Half of flycatcher locations had greater than 50-percent native vegetation.

We detected Coastal California Gnatcatchers at five locations in the Santa Fe Dam study area in 2022. Four gnatcatchers were territorial males (two paired, two of undetermined breeding status) and one was a territorial female of undetermined breeding status (table 1; fig. 3). One pair and one male of undetermined breeding status were detected in the basin, and one pair, one male, and one female of undetermined breeding status were detected in the channel. One juvenile gnatcatcher was detected in the basin near the Santa Fe Dam Nature Center. No banded gnatcatchers were confirmed; however, we were unable to resight one male and one female, so their band status was unknown (table 1).

All gnatcatchers used coastal sage scrub habitat (table 2). Dominant plant species at gnatcatcher locations were California sagebrush and scale broom. All gnatcatcher locations were dominated by native vegetation.

**Table 1.** Locations, breeding status, and band status of Least Bell's Vireos (*Vireo bellii pusillus*), Willow Flycatchers (*Empidonax traillii*), and Coastal California Gnatcatchers (*Polioptila californica californica*) detected at the Santa Fe Dam, Los Angeles County, California, 2022.

[Horizontal coordinate information is referenced to the World Geographic System of 1984 (WGS84).
**Abbreviation**: —, no data]

| Territory | Latitude | Longitude | Breeding | Band status | | |
|---|---|---|---|---|---|---|
| | | | | Male | Female | Unknown |
| Least Bell's Vireo | | | | | | |
| SFD01 | 34.14372 | −117.93473 | Pair | No | No | — |
| SFD02 | 34.11978 | −117.96522 | Pair | No | No | — |
| SFD03 | 34.14296 | −117.93577 | Pair | No | No | — |
| SFD04 | 34.12098 | −117.96439 | Undetermined | Unknown | — | — |
| SFD06 | 34.11577 | −117.96162 | Undetermined | No | — | — |
| SFD08 | 34.11508 | −117.96109 | Pair | No | No | — |
| SFD12 | 34.11627 | −117.96577 | Undetermined | No | — | — |
| SFD14 | 34.11685 | −117.96398 | Transient | No | — | — |
| Willow Flycatcher | | | | | | |
| SFD01f | 34.14217 | −117.93678 | Transient | — | — | Unknown |
| SFD02f | 34.11487 | −117.96685 | Transient | — | — | Unknown |
| SFD03f | 34.16008 | −117.90979 | Transient | — | — | Unknown |
| SFD05f | 34.16045 | −117.91023 | Transient | — | — | No |
| SFD07f | 34.16046 | −117.91078 | Transient | — | — | Unknown |
| SFD09f | 34.16093 | −117.91190 | Transient | — | — | No |
| SFD11f | 34.16097 | −117.91387 | Transient | — | — | Unknown |
| SFD13f | 34.16085 | −117.91387 | Transient | — | — | Unknown |
| SFD15f | 34.15964 | −117.91459 | Transient | — | — | Unknown |
| SFD17f | 34.15906 | −117.91597 | Transient | — | — | Unknown |
| Coastal California Gnatcatcher | | | | | | |
| SFD01g | 34.14958 | −117.92478 | Pair | No | No | — |
| SFD02g | 34.11899 | −117.94506 | Pair | No | No | — |
| SFD03g | 34.14769 | −117.92756 | Undetermined | — | Unknown | — |
| SFD04g | 34.11531 | −117.95160 | Undetermined | No | — | — |
| SFD06g | 34.13202 | −117.94326 | Undetermined | Unknown | — | — |

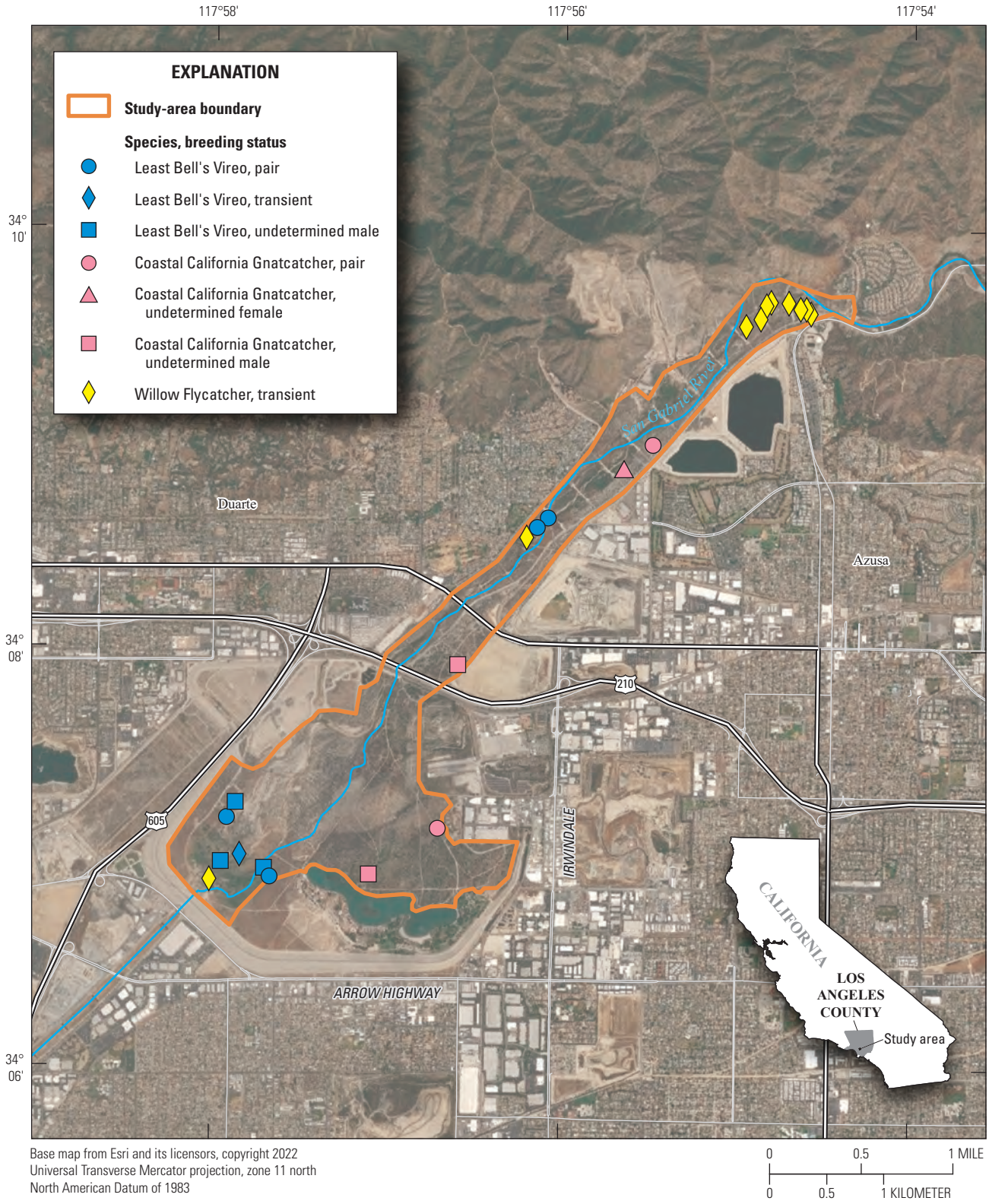


**Figure 3.** Least Bell's Vireo (*Vireo bellii pusillus*), Willow Flycatcher (*Empidonax traillii*), and Coastal California Gnatcatcher (*Polioptila californica californica*) locations at the Santa Fe Dam, Los Angeles County, California, 2022.

**Table 2.** Habitat characteristics of Least Bell's Vireos (*Vireo bellii pusillus*), Willow Flycatchers (*Empidonax traillii*), and Coastal California Gnatcatchers (*Polioptila californica californica*) at the Santa Fe Dam, Los Angeles County, California, 2022.

[*Mixed willow:* Habitat dominated by one or more willow species, including black willow and arroyo or red willow, with mule fat as a frequent co-dominant. *Non-native*: Areas vegetated primarily with non-native species, such as giant reed and tamarisk. *Riparian scrub*: Dry or sandy habitat dominated by sandbar willow or mule fat, with few other woody species. *Coastal sage scrub*: Scrub adjacent to riparian habitat, dominated by California sagebrush, buckwheat, and other upland shrubs. *Willow-cottonwood*: Willow riparian habitat in which Fremont cottonwood is a co-dominant. **Abbreviations**: %, percent; <, less than; >, greater than]

| Territory | Habitat | Dominant | Latin name of | Percentage of |
|---|---|---|---|---|
| Least Bell's Vireo | | | | |
| SFD01 | Mixed willow | Arroyo or red willow | *Salix lasiolepis or S. laevigata* | 5–50% |
| SFD02 | Willow-cottonwood | Black willow | *Salix gooddingii* | 51–95% |
| SFD03 | Mixed willow | Black willow | *Salix gooddingii* | 5–50% |
| SFD04 | Mixed willow | Black willow | *Salix gooddingii* | 51–95% |
| SFD06 | Riparian scrub | Blue elderberry | *Sambucus nigra caerulea* | 51–95% |
| SFD08 | Riparian scrub | Blue elderberry | *Sambucus nigra caerulea* | 5–50% |
| SFD12 | Mixed willow | Black willow | *Salix gooddingii* | 51–95% |
| SFD14 | Mixed willow | Black willow | *Salix gooddingii* | 51–95% |
| Willow Flycatcher | | | | |
| SFD01f | Mixed willow | Black willow | *Salix gooddingii* | 51–95% |
| SFD02f | Riparian scrub | Castor bean | *Ricinus communis* | 5–50% |
| SFD03f | Riparian scrub | Mule fat | *Baccharis salicifolia* | 51–95% |
| SFD05f | Mixed willow | Black willow | *Salix gooddingii* | 51–95% |
| SFD07f | Mixed willow | Black willow | *Salix gooddingii* | 51–95% |
| SFD09f | Mixed willow | Black willow | *Salix gooddingii* | 51–95% |
| SFD11f | Riparian scrub | Mule fat | *Baccharis salicifolia* | 5–50% |
| SFD13f | Riparian scrub | Mule fat | *Baccharis salicifolia* | 5–50% |
| SFD15f | Riparian scrub | Mule fat | *Baccharis salicifolia* | 5–50% |
| SFD17f | Non-native | Salt cedar | *Tamarix ramosissima* | <5% |
| Coastal California Gnatcatcher | | | | |
| SFD01g | Coastal sage scrub | Scale broom | *Lepidospartum squamatum* | >95% |
| SFD02g | Coastal sage scrub | California sagebrush | *Artemisia californica* | >95% |
| SFD03g | Coastal sage scrub | Scale broom | *Lepidospartum squamatum* | >95% |
| SFD04g | Coastal sage scrub | California sagebrush | *Artemisia californica* | >95% |
| SFD06g | Coastal sage scrub | California sagebrush | *Artemisia californica* | >95% |

## Summary

In 2022, we documented seven vireo territories and one transient vireo at the Santa Fe Dam. Five vireo territories were in or near the burned riparian vegetation within the basin. The vireo population in the basin has dropped between 75 and 84 percent since 2016, when between 20 and 31 vireo territories were documented (Jones and Denelsbeck, 2016). We documented two vireo territories in the channel in 2022, which is a 67-percent drop in vireo numbers in that area since 2009 (six territories; Griffith Wildlife Biology, 2009). Frequent fires and disturbance from homeless encampments have degraded or drastically reduced the low-growing, brushy vegetation that typically characterizes high-quality vireo habitat.

Resident flycatchers were not detected at the Santa Fe Dam in 2022, although the drop structures within the channel contained small patches of riparian vegetation (as much as 8 hectares [ha]) that provide habitat for migrating flycatchers. Of the 10 transient flycatchers, 8 were detected in close proximity of each other (within 10 ha) at the northern end of the channel on the same day. Migratory stopover habitat is an important resource for flycatchers, and it is noteworthy that 10 flycatchers were observed using this habitat in only 1 survey day at the Santa Fe Dam.

Five resident gnatcatcher territories were detected at the Santa Fe Dam in 2022. One family (a pair with one fledgling) was observed using the sage scrub east and southeast of the Santa Fe Dam Nature Center. This family and another male (about 750 meters to the southeast) were in a large patch of coastal sage scrub (about 100 ha) that appeared to be suitable gnatcatcher habitat but was otherwise unoccupied. Most of the suitable sage scrub habitat in the channel was also unoccupied by gnatcatchers.

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For more information concerning the research in this report, contact the

Director, Western Ecological Research Center
U.S. Geological Survey
3020 State University Drive East
Sacramento, California 95819
https://www.usgs.gov/centers/werc

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