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Distribution and Abundance of Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) at the Hansen Dam Basin, Los Angeles County, California—2025 Data Summary

Data Report 1222

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

Cover. Photograph of Hansen Dam basin showing flooded riparian habitat. Photograph by Alexandra Houston, U.S. Geological Survey, April 17, 2025.

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U.S. Geological Survey, Reston, Virginia: 2026

Suggested citation:
Lynn, S., and Kus, B.E., 2026, Distribution and abundance of Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) at the Hansen Dam Basin, Los Angeles County, California—2025 data summary: U.S. Geological Survey Data Report 1222, 12 p., https://doi.org/10.3133/dr1222.

ISSN 2771-9448 (online)

Acknowledgments

This work was funded by the U.S. Army Corps of Engineers. Data either are not available or have limited availability owing to restrictions of the funding entity (U.S. Army Corps of Engineers). Please contact Hanna Weyland, Operations Division, Los Angeles District, U.S. Army Corps of Engineers, for more information. The authors thank the U.S. Geological Survey biologists who assisted in data collection for this project: Scarlett Howell and Alexandra Houston. Helpful review comments were provided by Samantha Padilla and Austin Parker. All activities were conducted under Federal 10(a)1(A) Recovery Permit ESPER0004080_0.3. Parts of this report were written following a previously developed template to maintain consistent presentation of results.

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Multiply	By	To obtain
	Length	
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Abbreviations

USFWS U.S. Fish and Wildlife Service

USGS U.S. Geological Survey

Distribution and Abundance of Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) at the Hansen Dam Basin, Los Angeles County, California—2025 Data Summary

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Executive Summary

We surveyed for Least Bell's Vireos (*Vireo bellii pusillus*; vireo) and Southwestern Willow Flycatchers (*Empidonax traillii extimus*; flycatcher) along Big Tujunga Creek in the Hansen Dam Basin in Los Angeles County, California, in 2025. Four vireo surveys were completed between April 17 and July 2, 2025, and three flycatcher surveys were completed between May 20 and July 2, 2025. We detected 62 territorial male vireos, 51 of which were confirmed as paired, and 2 transient vireos. Additionally, we detected 32 juvenile vireos during surveys. Seventy-seven percent of vireos were detected in habitat characterized as mixed willow, and 95 percent of vireos were detected in habitat with greater than 50-percent native plant cover. Most vireo territories were dominated by Goodding's black willow (*Salix gooddingii*).

On May 20, 2025, we detected 18 transient Willow Flycatchers of unknown subspecies, none of which were confirmed to be paired, and no juveniles were detected. Mixed willow habitat was used by 78 percent of Willow Flycatchers, and all Willow Flycatchers were detected in habitat with greater than 50-percent native plant cover. Most Willow Flycatchers were detected in locations dominated by Goodding's black willow.

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 (Kus and others, 2020). 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, 2020). By 1986, the vireo population in California had declined to just 300 territorial males (U.S. Fish and Wildlife Service, 1986).

In response to the considerable decline in numbers 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 (USFWS) 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 approximately 2,500–3,000 territories (U.S. Fish and Wildlife Service, 2006).

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 and Utah, and western Texas (Hubbard, 1987; Unitt, 1987; Browning, 1993). Restricted to riparian habitat for breeding, the flycatcher has declined over the past five decades in response to widespread habitat loss throughout its range and, possibly, brood-parasitism by cowbirds (Wheelock, 1912; Willett, 1912, 1933; Grinnell and Miller, 1944; Remson, 1978; Garrett and Dunn, 1981; Unitt, 1984, 1987; Gaines, 1988; Schlorff, 1990; Whitfield and Sogge, 1999). By 1993, the species was believed to number approximately 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 USFWS in 1995. After listing, population estimates for flycatchers in California increased to 256 territories, with the increase largely attributed to expanded survey efforts rather than population growth at known sites (U.S. Fish and Wildlife Service, 2002). In the 2014 5-year status review, estimates of California flycatcher territories decreased to 172, with declines occurring statewide (Durst and others, 2008; U.S. Fish and Wildlife Service, 2014).

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 these threats (U.S. Fish and Wildlife Service, 2006), the number of flycatchers has remained low. As of 2023, most of the Southwestern Willow Flycatchers in California were concentrated at two known sites: (1) the Owens River valley in Inyo County (approximately 56 territories; M. Whitfield, Southern Sierra Research Station, written commun., 2023) and (2) the upper San Luis Rey River at Lake Henshaw in San Diego County (approximately 51 territories; Howell and Kus, 2024). Outside of these sites, flycatchers occur as small, isolated populations of one to six pairs.

The Hansen Dam Basin contains suitable breeding habitat for the vireo and is within USFWS-designated critical habitat for the flycatcher (U.S. Fish and Wildlife Service, 2025). Breeding vireos have been documented in the Hansen Dam Basin over the past two decades (Griffith Wildlife Biology, 2009; Pottinger and Kus, 2019; R. Fisher, U.S. Geological Survey, unpub. data, 2020). Managed by the U.S. Army Corps of Engineers for flood control, the Hansen Dam requires regular operational maintenance, including debris, sediment, and vegetation removal and management. As mandated by the USFWS, the U.S. Army Corps of Engineers is required to perform surveys and assess activities that might have adverse effects on these federally endangered bird species. The purpose of this report is to summarize the results of vireo and flycatcher surveys completed by the U.S. Geological Survey (USGS) along a 4-kilometer stretch of the Big Tujunga Creek upstream from Hansen Dam (Hansen Dam Basin) in Los Angeles County, California (fig. 1). These data will inform natural resource managers about the status of these endangered species in the Hansen Dam Basin and guide land use and management practices as appropriate to support the species' survival.

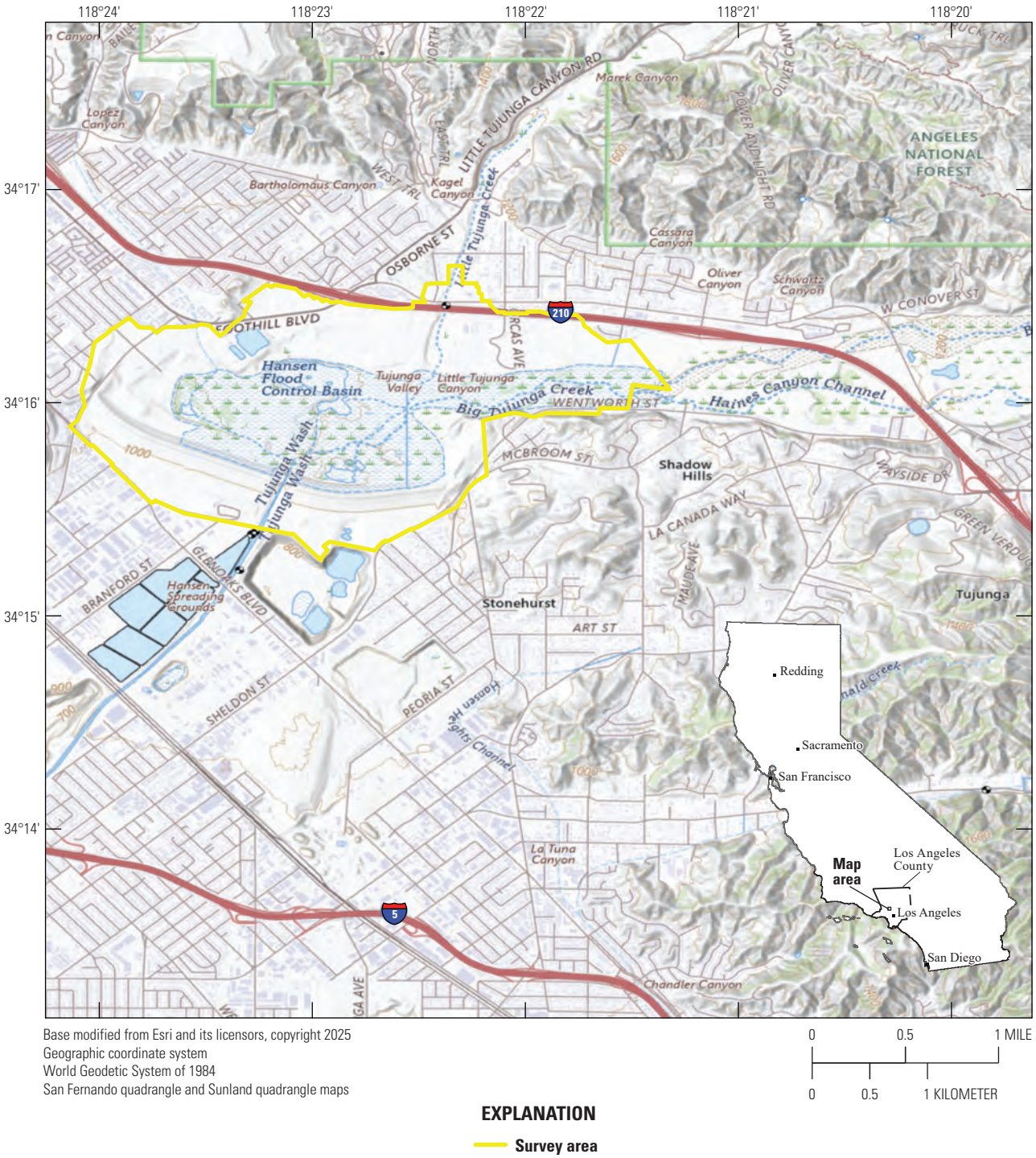

Figure 1. Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) survey area at Hansen Dam Basin, Los Angeles County, California, 2025.

Methods

Biologists from the USGS surveyed for vireos and flycatchers in the Hansen Dam Basin and Big Tujunga Creek following standard survey techniques (U.S. Fish and Wildlife Service, 2001; Sogge and others, 2010). Four vireo surveys were completed between April 17 and July 2, 2025, and three flycatcher surveys were completed between May 20 and July 2, 2025. Observers walked slowly through or adjacent to suitable riparian habitat, listening and searching for vireos and flycatchers, systematically playing a recording of a vireo or flycatcher song to elicit a territorial response. Surveys typically began at sunrise and were completed by early afternoon, depending on wind and weather conditions. Vireo and flycatcher surveys were completed by USGS biologists Alexandra Houston, Scarlett Howell, and Suellen Lynn under Federal 10(a)1(A) Recovery Permit ESPER0004050_0.3.

For each vireo or flycatcher encountered, observers recorded age (adult or juvenile), sex, breeding status (paired or undetermined), and whether or not the bird was banded. A male was considered paired if a female was detected visually with the male, by hearing vocalizations unique to mated birds, or by observing breeding behavior (for example, food carry, a nest, or dependent juveniles in the territory). A vireo or flycatcher was considered transient if detected only once. Vireo and flycatcher locations were recorded using Esri Field Maps (Esri, 2025) on mobile phones with built-in Global Positioning System to determine geographic coordinates (World Geodetic System of 1984). 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.

Dominant native and exotic plants were recorded, and percent cover of exotic vegetation was estimated using categories of less than 5 percent, 5–50 percent, 51–95 percent, and greater than 95 percent. The overall habitat type within the territory was specified according to the following categories:

Mixed willow riparian: Habitat dominated by one or more willow species, including Goodding's black willow (*Salix gooddingii*), arroyo willow (*Salix lasiolepis*), and red willow (*Salix laevigata*), with mule fat (*Baccharis salicifolia*) as a frequent co-dominant.

Willow-cottonwood: Willow riparian habitat in which Fremont cottonwood (*Populus fremontii*) is a co-dominant.

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

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

Upland scrub: Coastal sage scrub adjacent to riparian habitat.

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

Results

A total of 62 territorial male vireos were detected in 2025 (table 1; fig. 2). Of the 62 males, 51 were confirmed as paired, and 32 juveniles were detected. We also detected two transient adult vireos. No banded birds were detected.

Least Bell's Vireos were found in five habitat types with 77 percent of vireo locations in mixed willow riparian habitat (table 2). Seventeen percent of vireos were detected in riparian scrub, 3 percent were in willow-cottonwood habitat, 2 percent were in willow-sycamore habitat, and 2 percent were in upland scrub. Most vireos (95 percent) used habitat largely composed of native vegetation (greater than 50-percent native vegetation). Willows were the dominant plants at 84 percent of vireo locations, with Goodding's black willow dominant at 66 percent of locations (table 3).

We detected 18 transient Willow Flycatcher of unknown subspecies in the Hansen Dam Basin (fig. 3; table 4). All flycatchers were detected on May 20, 2025, and not the following day where survey areas overlapped. No flycatchers remained to breed at the site. Most transient Willow Flycatchers (78 percent) used mixed willow riparian habitat (table 5), and all Willow Flycatchers were detected in habitat comprised of greater than 50-percent native plant cover. Willows were the dominant species at most flycatcher locations (94 percent of locations; table 6).

Table 1. Location, breeding status, and band status of Least Bell's Vireos (*Vireo bellii pusillus*) detected in the Hansen Dam Basin, Los Angeles County, California, 2025.

[ID, identification; —, no data]

Territory ID	Latitude	Longitude	Breeding status	Male banded	Female banded
HA01	34.26681	−118.37011	Pair	No	Undetermined
HA02	34.26708	−118.37360	Pair	No	Undetermined
HA03	34.26621	−118.37522	Pair	No	Undetermined
HA04	34.26790	−118.37429	Transient	No	—
HA05	34.26950	−118.36260	Pair	No	Undetermined
HA06	34.26909	−118.37857	Pair	No	No
HA07	34.26941	−118.37735	Pair	No	No
HA08	34.26853	−118.37536	Pair	No	No
HA09	34.26975	−118.38243	Pair	No	No
HA10	34.26893	−118.36566	Pair	No	No
HA11	34.26711	−118.36844	Pair	No	No
HA12	34.26659	−118.37134	Pair	No	Undetermined
HA13	34.26767	−118.37609	Undetermined	No	—
HA14	34.26732	−118.37903	Pair	No	No
HA15	34.26896	−118.38010	Pair	No	Undetermined
HA16	34.26386	−118.37454	Pair	No	Undetermined
HA17	34.26287	−118.37565	Pair	No	No
HA18	34.26341	−118.37244	Transient	No	—
HA19	34.26349	−118.37355	Pair	No	No
HA20	34.26871	−118.35868	Undetermined	No	—
HA21	34.26720	−118.36709	Undetermined	No	—
HA22	34.26685	−118.38176	Pair	No	No
HA23	34.26526	−118.39012	Pair	No	Undetermined
HA24	34.26177	−118.37701	Undetermined	No	—
HA31	34.26652	−118.39067	Undetermined	No	—
HA32	34.26692	−118.38264	Pair	No	No
HA33	34.27022	−118.38521	Pair	No	No
HA34	34.27029	−118.38694	Pair	No	No
HA35	34.26826	−118.39147	Pair	No	Undetermined
HA36	34.26705	−118.39053	Pair	No	Undetermined
HA37	34.26468	−118.38958	Pair	No	No
HA38	34.26402	−118.39126	Pair	No	No
HA39	34.26678	−118.39417	Pair	No	No
HA40	34.26827	−118.39385	Pair	No	No
HA41	34.26828	−118.38622	Pair	No	No
HA42	34.26605	−118.38806	Pair	No	Undetermined
HA43	34.26584	−118.38801	Pair	No	No
HA44	34.26459	−118.38688	Pair	No	No
HA45	34.26227	−118.38775	Undetermined	No	—
HA46	34.26310	−118.38363	Pair	No	No

Table 1. Location, breeding status, and band status of Least Bell's Vireos (*Vireo bellii pusillus*) detected in the Hansen Dam Basin, Los Angeles County, California, 2025.—Continued

[ID, identification; —, no data]

Territory ID	Latitude	Longitude	Breeding status	Male banded	Female banded
HA47	34.26670	−118.38064	Pair	No	Undetermined
HA48	34.26551	−118.38063	Pair	No	Undetermined
HA49	34.26395	−118.37925	Pair	No	No
HA50	34.26413	−118.37799	Pair	No	Undetermined
HA51	34.26138	−118.37908	Undetermined	No	—
HA52	34.26094	−118.37851	Pair	No	Undetermined
HA53	34.26220	−118.37967	Pair	No	No
HA54	34.26252	−118.37834	Pair	No	No
HA55	34.26046	−118.37774	Pair	No	No
HA56	34.26917	−118.37867	Pair	No	No
HA57	34.26879	−118.37814	Undetermined	No	—
HA58	34.26840	−118.38843	Undetermined	No	—
HA59	34.26229	−118.38076	Pair	No	No
HA60	34.26490	−118.37982	Pair	No	No
HA61	34.26650	−118.37820	Pair	No	No
HA62	34.26710	−118.37664	Undetermined	No	—
HA63	34.26591	−118.37696	Undetermined	No	—
HA64	34.26586	−118.37609	Pair	No	No
HA65	34.26510	−118.37582	Pair	No	No
HA66	34.26446	−118.37476	Pair	No	No
HA67	34.26119	−118.37507	Pair	No	No
HA68	34.26191	−118.37326	Pair	No	Undetermined
HA69	34.26467	−118.37843	Pair	No	No
HA70	34.26516	−118.37801	Pair	No	No

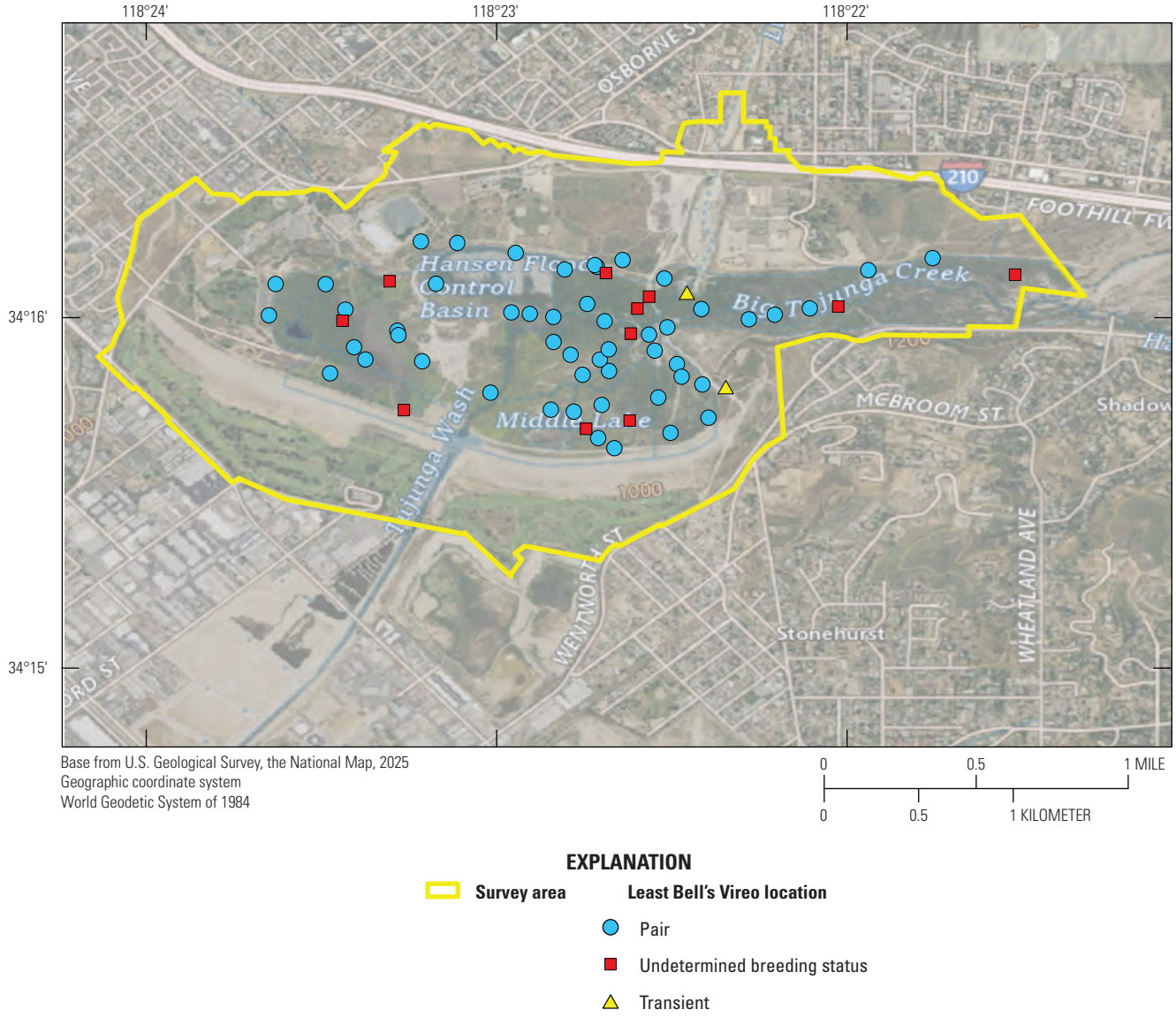

Figure 2. Locations of Least Bell's Vireo (*Vireo bellii pusillus*) territories at Hansen Dam Basin, Los Angeles County, California, 2025.

Table 2. Habitat types used by Least Bell's Vireo (*Vireo bellii pusillus*) in the Hansen Dam Basin, Los Angeles County, California, 2025.

[>, greater than; <, less than]

Habitat type	Number of vireo locations				
	>95-percent native vegetation	51–95-percent native vegetation	5–50-percent native vegetation	<5-percent native vegetation	Total
Mixed willow riparian	[1]22	26	1	0	49
Riparian scrub	[1]2	7	2	0	11
Willow-cottonwood	2	0	0	0	2
Willow-sycamore	0	1	0	0	1
Upland scrub	0	1	0	0	1
Total	**26**	**35**	**3**	**0**	**64**

[1]Includes one transient vireo.

Table 3. Dominant plant species at Least Bell's Vireo (*Vireo bellii pusillus*) territories in the Hansen Dam Basin, Los Angeles County, California, 2025.

Dominant plant species	Latin name	Number of vireo locations
Goodding's black willow	*Salix gooddingii*	[1]42
Red/arroyo willow	*Salix laevigata/Salix lasiolepis*	9
Sandbar willow	*Salix exigua*	3
Blue elderberry	*Sambucus mexicana*	[1]5
Mule fat	*Baccharis salicifolia*	5
Grand total		**64**

[1]Includes one transient vireo.

Table 4. Location, breeding status, and band status of Willow Flycatchers (*Empidonax traillii*) detected in the Hansen Dam Basin, Los Angeles County, California, 2025.

[ID, identification]

Territory ID	Latitude	Longitude	Breeding status	Band status
HA01F	34.26923	−118.38068	Transient	Undetermined
HA02F	34.26774	−118.39205	Transient	No
HA03F	34.26892	−118.37940	Transient	No
HA04F	34.26468	−118.38320	Transient	No
HA05F	34.26829	−118.37522	Transient	No
HA06F	34.26480	−118.38329	Transient	No
HA07F	34.26799	−118.37410	Transient	No
HA08F	34.26555	−118.38315	Transient	No
HA09F	34.26885	−118.36740	Transient	Undetermined
HA11F	34.26893	−118.36522	Transient	No
HA13F	34.26939	−118.36137	Transient	No
HA15F	34.26847	−118.36405	Transient	No
HA17F	34.26650	−118.37349	Transient	No
HA19F	34.26635	−118.37497	Transient	Undetermined
HA21F	34.26641	−118.37523	Transient	No
HA23F	34.26572	−118.37647	Transient	No
HA25F	34.26657	−118.37698	Transient	No
HA27F	34.26694	−118.37855	Transient	No

Table 5. Habitat types used by Willow Flycatchers (*Empidonax traillii*) in the Hansen Dam Basin, Los Angeles County, California, 2025.

Habitat type	Number of flycatcher locations
Mixed willow riparian	14
Willow-cottonwood	3
Upland scrub	1
Total	**18**

Table 6. Dominant plant species at Willow Flycatcher (*Empidonax traillii*) locations in the Hansen Dam Basin, Los Angeles County, California, 2025.

Dominant plant species	Number of flycatcher locations
Goodding's black willow (*Salix gooddingii*)	12
Red/arroyo willow (*Salix laevigata*/*Salix lasiolepis*)	5
Laurel sumac (*Malosma laurina*)	1
Total	**18**

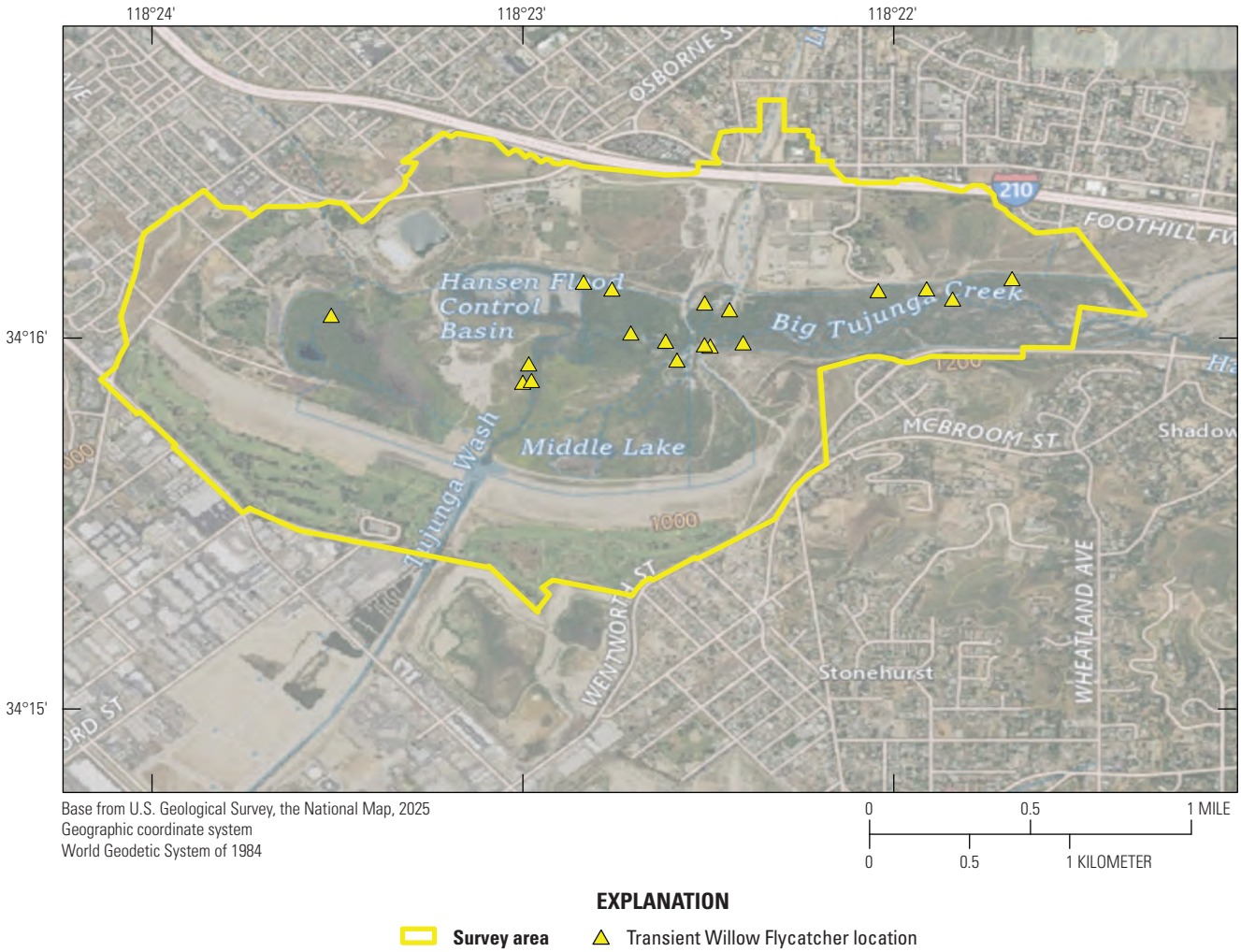

Figure 3. Locations of transient Willow Flycatcher (*Empidonax traillii*) detections at Hansen Dam Basin, Los Angeles County, California, 2025.

Summary

In 2025, we documented 62 resident vireo territories in the Hansen Dam Basin study area. The population of vireos in the Hansen Dam Basin has declined since surveys in 2018 (77 territories; Pottinger and Kus, 2019) and 2020 (73 territories; R. Fisher, U.S. Geological Survey, unpub. data, 2020). Although the number of vireo territories has remained stable in the central (37–38 territories) and eastern (11–13 territories) sections, vireo numbers have dropped 55 percent in the western section, from 29 in 2018, to 23 in 2020, and 13 in 2025. At least three brush fires have been documented within the Hansen Dam Basin since surveys were completed in 2018, all of which were in the western section (August 2018 and May 2022 [National Interagency Fire Center, 2025] and May or June 2025 [S. Howell, U.S. Geological Survey, oral commun., 2025]). Additionally, the western section was notably drier in 2025 than in 2018. In 2018, parts of the western section were inundated with water and impassable during surveys, whereas these areas were easily navigable and dry in 2025 (S. Howell, U.S. Geological Survey, oral commun., 2025). Although the riparian vegetation in the Hansen Dam Basin has been altered by brush fires, encampments, and recreation (hiking, bicycling, and horse trails), the confirmation of nests and juveniles during our surveys indicates that the Hansen Dam Basin retains suitable vireo breeding habitat.

Although no territorial flycatchers were detected in 2025, several transient flycatchers were detected during one survey at Hansen Dam. In 2025, we also surveyed for flycatchers at three other U.S. Army Corps of Engineers sites (Carbon Canyon Dam, Mojave Dam, and Sepulveda Basin, B. Kus, U.S. Geological Survey, unpub. data, 2025), and we only detected one transient flycatcher (at Mojave Dam). The detection of several transient flycatchers indicates that the habitat in the Hansen Dam Basin provides suitable habitat for migrating flycatchers.

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Publishing support provided by the USGS Science Publishing Network,
Sacramento Publishing Service Center

ISSN 2771-9448 (online)
https://doi.org/10.3133/dr1222