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Least Bell's Vireo (*Vireo bellii pusillus*) and Southwestern Willow Flycatcher (*Empidonax traillii extimus*) Surveys in the Sepulveda Dam Basin, Los Angeles County, California—2018 Data Summary

Data Series 1105

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

COVER: Photograph showing the Sepulveda Dam Basin. Photograph by Ryan Pottinger, U.S. Geological Survey, April 2018.

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Conversion Factors

International System of Units to U.S. customary units

Multiply	By	To obtain
	Length	
kilometer (km)	0.6214	mile (mi)
meter (m)	3.281	foot (ft)
meter (m)	1.094	yard (yd)

Datum

Horizontal coordinate information is referenced to the World Geodetic System of 1984 (WGS 84).

Abbreviations

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey

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By Ryan E. Pottinger and Barbara E. Kus

Executive Summary

We surveyed for Least Bell's Vireos (*Vireo bellii pusillus*; vireo) and Southwestern Willow Flycatchers (*Empidonax traillii extimus*; flycatcher) in cooperation with the U.S. Army Corps of Engineers along Bull Creek, Haskell Creek, and the Los Angeles River (Sepulveda Dam project area) in Los Angeles County, California, in 2018. Four vireo surveys were conducted between April 27 and July 18, 2018, and three flycatcher surveys were conducted between May 24 and July 18, 2018. We found 14 territorial male vireos, 7 of which were confirmed as paired. Sixty-four percent of vireos were detected along the Los Angeles River, 21 percent along Haskell Creek, and 14 percent along Bull Creek. Eighty-six percent of vireos were detected in habitat characterized as mixed willow, and all vireos were detected in habitat with greater than 50 percent native plant cover. No flycatchers were observed in the survey area in 2018.

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 (Kus and others, 2010), from April through July. 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). By 1986, the vireo population in California numbered just 300 territorial males (U.S. Fish and Wildlife Service, 1986).

In response to the considerable decline in numbers of vireo 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). 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 (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.

Flycatchers in southern California co-occur with vireos. However, unlike the vireo, which has increased 10-fold 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. Currently, most flycatchers in California are concentrated in two sites—the Owens River Valley in Inyo County (Lacey Greene, California Department of Fish and Wildlife, written commun., 2015) and the Upper San Luis Rey River, including a part of the Cleveland National Forest in San Diego County (Clark and others, 2014). Outside of these sites, flycatchers occur as small, isolated populations of one to six pairs. Data on the distribution and demography of the flycatcher, as well as identification of factors limiting the species, are critical information needs during the current stage of recovery planning (Kus and others, 2003; Kus and Whitfield, 2005).

The purpose of this study, in cooperation with the U.S. Army Corps of Engineers, was to document the status of vireos and flycatchers along a 4-kilometer (km) stretch of the Los Angeles River, 2-km stretch of Haskell Creek, and 1-km stretch along the Bull River (Sepulveda Dam project area) in Los Angeles County, California (fig. 1). The goal was to determine the abundance and distribution of vireos and flycatchers in the Sepulveda Dam project area.

Methods

Biologists from the U.S. Geological Survey (USGS) surveyed for vireos and flycatchers along Bull Creek, Haskell Creek, and the Los Angeles River following standard survey techniques (U.S. Fish and Wildlife Service, 2001; Sogge and others, 2010). Four vireo surveys were conducted between April 27 and July 18, 2018, and three flycatcher surveys were conducted between May 24 and July 18, 2018. 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. 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. Vireo and flycatcher locations were recorded using ESRI Collector (ESRI, 2018) on an Android phone with 1- to 15-meter positioning accuracy to determine geographic coordinates (WGS 84). 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:

Figure 1. Locations of Least Bell's Vireo (*Vireo bellii pusillus*) survey sites at Sepulveda Dam project area, Los Angeles County, California, 2018.

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 cottonwood (*Populus fremontii*) 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 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: Sites vegetated exclusively with non-native species such as giant reed (*Arundo donax*) and salt cedar (*Tamarix ramosissima*).

Results

A total of 14 territorial male vireos were detected in 2018 (table 1 and fig. 2–6). Seven males were confirmed as paired, and seven males were of unknown status. No banded birds were detected.

Vireos were found in two different habitat types, with 86 percent of vireo locations occurring in mixed willow riparian habitat and the remaining 14 percent of vireo occurring in riparian scrub habitat (table 2). All vireo territories occurred in habitat comprised of greater than 50 percent native plant cover. One hundred percent of vireo territories had willow as a dominant species (table 3). Several willow species were dominant at the site level (table 4).

No flycatchers were detected during the three surveys.

Table 1. Total number of Least Bell's Vireo (*Vireo bellii pusillus*) territories detected and breeding status in the Sepulveda Dam project area, Los Angeles County, California, 2018.

Subarea	Total number of territorial males	Number of pairs	Number of birds with undetermined status	Number of fledglings
Bull Creek	2	0	2	0
Haskell Creek	3	1	2	0
Los Angeles River	9	6	3	1
Total	14	7	7	1

Figure 2. Locations of Least Bell's Vireo (*Vireo bellii pusillus*) territories at Bull Creek, Sepulveda Dam project area, Los Angeles County, California, 2018.

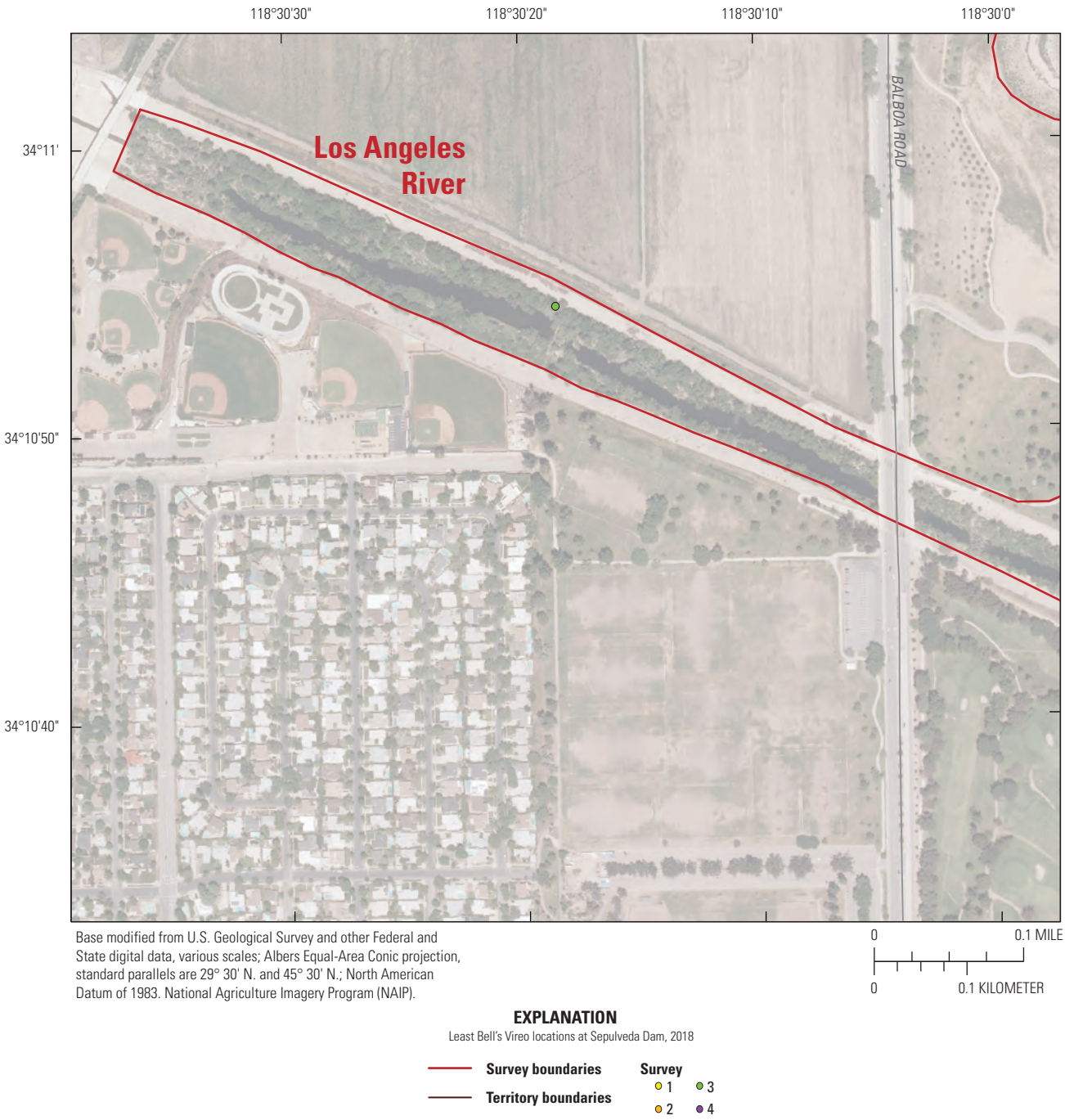

Figure 3. Locations of Least Bell's Vireo (*Vireo bellii pusillus*) territories on the west end of the Los Angeles River, Sepulveda Dam project area, Los Angeles County, California, 2018.

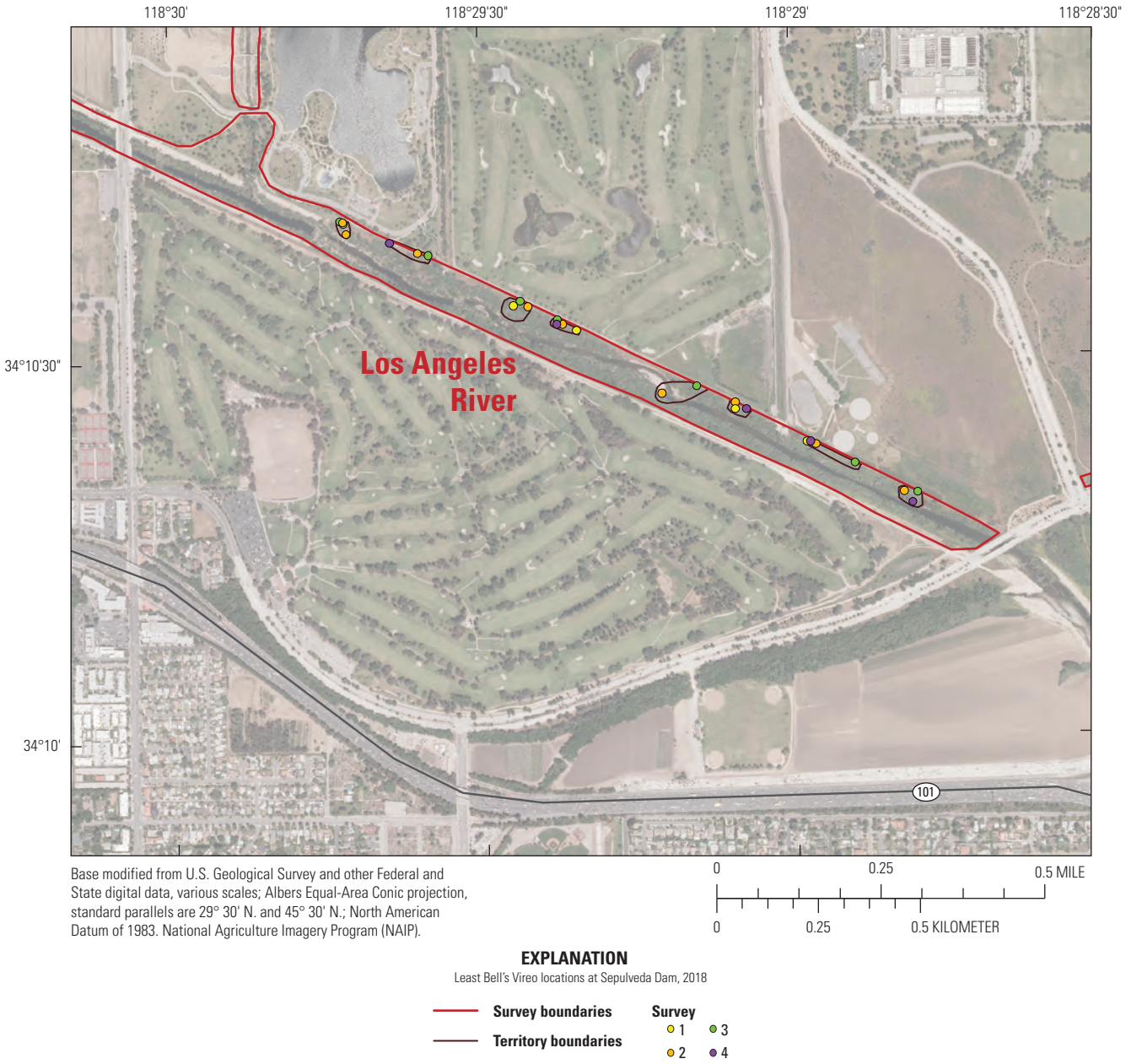

Figure 4. Locations of Least Bell's Vireo (*Vireo bellii pusillus*) territories on the west end of the Los Angeles River, Sepulveda Dam project area, Los Angeles County, California, 2018.

Figure 5. Locations of Least Bell's Vireo (Vireo bellii pusillus) territories on the south end of Haskell Creek, Sepulveda Dam project area, Los Angeles County, California, 2018.

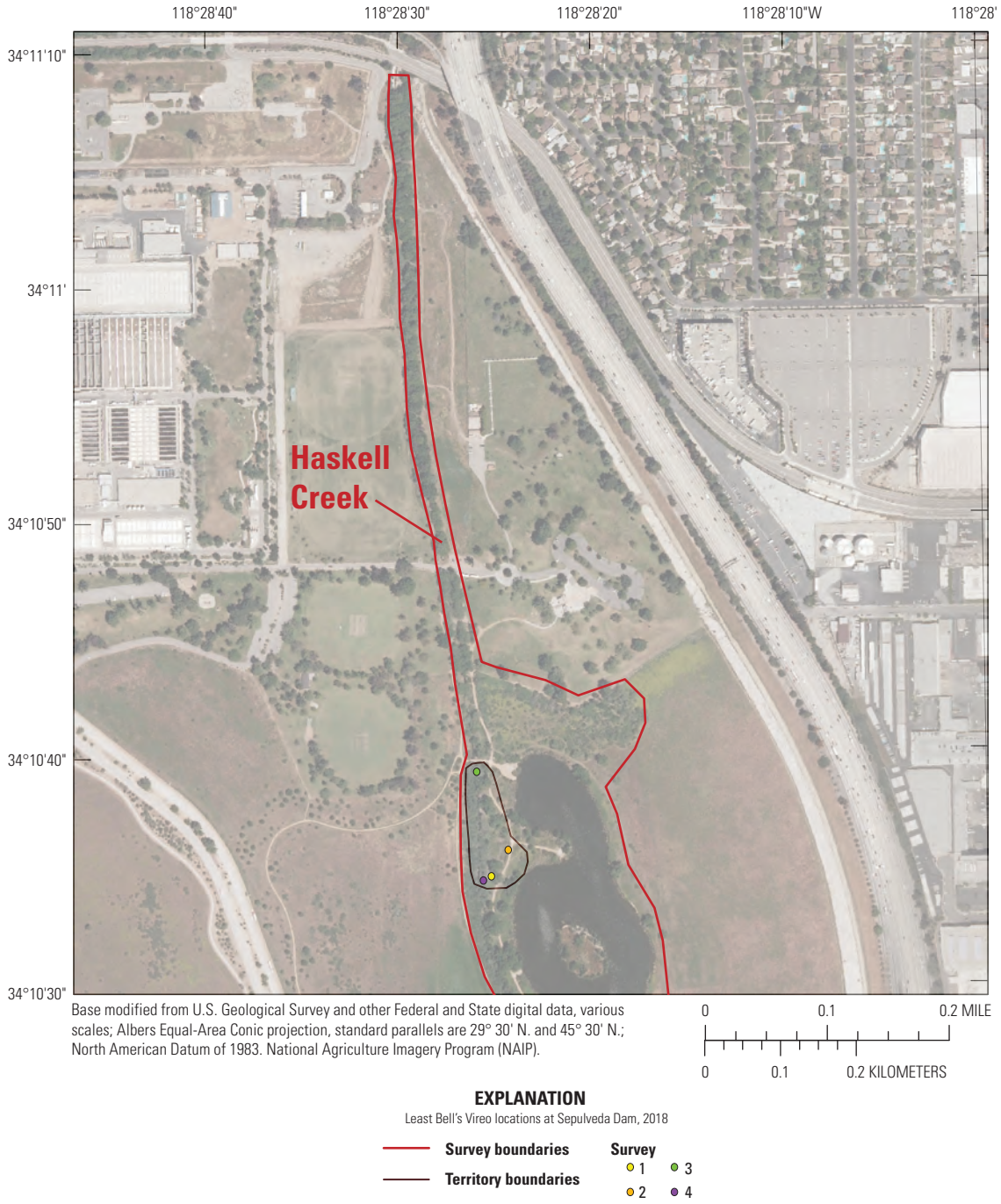

Figure 6. Locations of Least Bell's Vireo (Vireo bellii pusillus) territories on the north end of Haskell Creek, Sepulveda Dam project area, Los Angeles County, California, 2018.

Table 2. Habitat types used by Least Bell's Vireo (*Vireo bellii pusillus*) in the Sepulveda Dam project area, Los Angeles County, California, 2018.

[**Habitat type**: ***Mixed willow riparian***: Habitat dominated by one or more willow species, including black willow, arroyo willow, and red willow, with mule fat as frequent co-dominant. ***Riparian scrub***: Dry and/or sandy habitat dominated by sandbar willow or mule fat, with few other woody species. **Abbreviations**: <, less than; >, greater than]

Habitat type	Number of territories				
	<5 percent exotic vegetation	5–50 percent exotic vegetation	51–95 percent exotic vegetation	>95 percent exotic vegetation	Total
Mixed willow riparian	5	7	0	0	12
Riparian scrub	1	1	0	0	2
Total	6	8	0	0	14

Table 3. Least Bell's Vireo (*Vireo bellii pusillus*) vegetation composition at the territory level in the Sepulveda Dam project area, Los Angeles County, California, 2018.

[—, not applicable; <, less than; >, greater than; =, equal to]

Territory	Habitat quality	Habitat type	Dominant plant species	Exotic plant species composition[1]	Dominant exotic plant species
SB01	Good	Mixed willow	*Salix lasiolepis/laevigata*	2	*Brassica nigra*
SB02	Good	Mixed willow	*Salix lasiolepis/laevigata*	1	—
SB03	Good	Mixed willow	*Rosa californica, Salix lasiolepis/laevigata*	1	—
SB04	Good	Riparian scrub	*Baccharis salicifolia, Salix lasiolepis/laevigata*	1	*Brassica nigra*
SB05	Good	Mixed willow	*Rosa californica, Salix lasiolepis/laevigate*	1	—
SB06	Good	Riparian scrub	*Baccharis salicifolia, Salix exigua, Juglans californica*	2	*Conium maculatum, Brassica nigra*
SB07	Good	Mixed willow	*Salix lasiolepis/laevigata*	2	*Brassica nigra*
SB08	Good	Mixed willow	*Salix lasiolepis/laevigata, Baccharis salicifolia*	2	*Brassica nigra*
SB09	Good	Mixed willow	*Salix lasiolepis/laevigata*	2	*Brassica nigra*
SB10	Good	Mixed willow	*Salix lasiolepis/laevigata*	1	—
SB12	Good	Mixed willow	*Salix exigua*	2	*Brassica nigra*
SB14	Excellent	Mixed willow	*Salix exigua, Salix lasiolepis/laevigata*	2	*Arundo donax*
SB16	Good	Mixed willow	*Salix lasiolepis/laevigata*	1	*Brassica nigra*
SB18	Good	Mixed willow	*Salix gooddingii*	2	—

[1]Exotic plant species composition: 1 = <5 percent exotic vegetation, 2 = 5–50 percent exotic vegetation, 3 = 51–95 percent exotic vegetation, 4 = >95 percent exotic vegetation.

Table 4. Sepulveda Dam project area vegetation composition at the site level, Los Angeles County, California, 2018.

Dominant plant species	Exotic plant species composition	Dominant exotic plant species	Surrounding land use	Site disturbance	Notes
Salix laevigata, Salix lasiolepis	2	*Brassica nigra*	Recreational trails, recreational multipurpose fields.	Homeless encampments.	Riparian habitat has been removed or altered along Bull Creek and northern Haskell Creek, where many homeless encampments and large amounts of trash were present.

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