Warbling Vireo *Vireo gilvus*

The Warbling Vireo is a common migrant through San Diego County but rare as a breeding bird and very rare as a winter visitor. Migrants stop in any tree, but breeding birds seek mature riparian and oak woodland. Of any California bird, the Warbling Vireo is perhaps the most susceptible to cowbird parasitism. Cowbird trapping intended to benefit Bell's Vireo is likely responsible for bringing the Warbling Vireo back—just barely—from the brink of extirpation as a breeding species in San Diego County. Atlas participants observed only two Warbling Vireo nests, but female cowbirds were scrutinizing or entering both of them while the vireos were building them and birders were watching them.

Photo by Anthony Mercieca

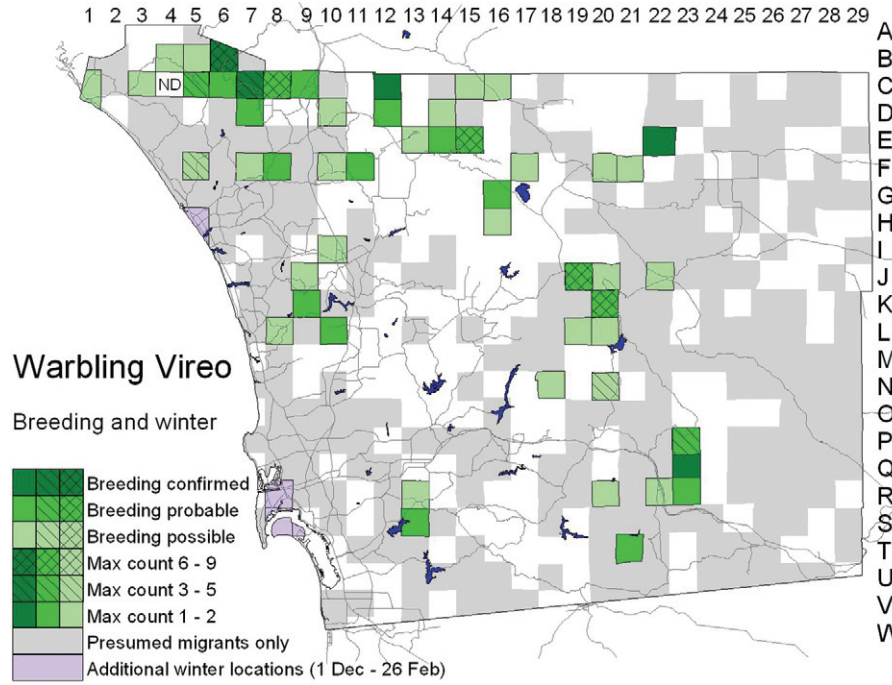
Breeding distribution: In San Diego County the breeding population of Warbling Vireos is now concentrated in the riparian woodlands in the county's northwest, especially in the area of De Luz and Fallbrook. The largest number of breeding birds found, nine singing males 20 June 2000, was along De Luz and Cottonwood creeks north of the De Luz school (B6; K. L. Weaver). The Santa Margarita River near Fallbrook also supports several Warbling Vireo territories, with four singing males west of Sandia Creek Road (C7) 25 April 1998 and six east of that road (C8) 24 May 2001 (K. L. Weaver). Elsewhere in northwestern San Diego County, however, breeding Warbling Vireos are still uncommon to rare. At low elevations in southern San Diego County, the only area where the Warbling Vireo seems likely to breed is the Sweetwater River, with a singing male and a pair near the upper end of Sweetwater Reservoir (S13) 24 May 2000 (P. Famolaro) and one near Highway 94 (R13) 24 June 1998 (M. and D. Hastings).

A few breeding Warbling Vireos are also scattered through the county's mountains. High numbers in this area are of six (all singing males) around Palomar Mountain (E15) 18 June 1999 (C. R. Mahrdt, E. C. Hall), nine (including three singing males and a courting pair) at Wynola (J19) 22 May 1999 (S. E. Smith), and four (including a pair) near Wooded Hill, Laguna Mountains (P23) 3 June 1999 (E. C. Hall, J. O. Zimmer). There is one summer record of the Warbling Vireo from riparian woodland at the desert's edge: two, including a singing male, along San Felipe Creek 1.2 miles west northwest of Scissors Crossing (J22) 13 July 2001 (P. Unitt et al.). The species' use of this site is evidently irregular; thorough surveys of the Scissors Crossing area in 2002 did not reveal any summering Warbling Vireos.

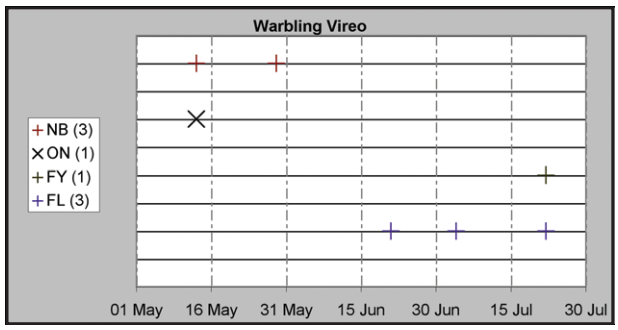
Determining the Warbling Vireo's precise breeding distribution, however, is difficult. Spring migrants are still moving through late in the spring (see Migration), long after the local population has begun nesting. Ideally, any assessment of whether Warbling Vireos are territorial or paired would be followed up with observations after the last of the migrants are gone. This was not possible in every instance; a few squares where the species is shown as possibly breeding are based on observations of apparently territorial singing males during the spring migration period only. Nevertheless, none of these locations lies more than 8 miles from locations where the species occurred in midsummer.

Nesting: We confirmed nesting of the Warbling Vireo only five times from 1997 to 2001, on the basis of an adult feeding a fledgling near De Luz (B6) 22 July 2000 (K. L. Weaver), a fledgling along the Santa Margarita River northwest of Fallbrook (C7) 4 July 1998 (K. L. Weaver), a pair adding to a nearly completed nest at 1900 feet eleva-

tion in Castro Canyon (C12) 13 May 2000 (J. Determan, P. Unitt), a singing male with a fledgling at 4550 feet elevation 1 mile north of San Ignacio on the northeast flank of Hot Springs Mountain (E22) 21 June 2001 (J. R. Barth), and a bird building a nearly completed nest (that later failed) at Cibbets Flat (Q23) 29 May 1999 (A. Lazere, J. R. Barth). The nests in Castro Canyon and at Cibbets Flat were both in the outer canopy of coast live oaks. These sites are typical for the species, which commonly builds its nests in the middle to upper levels of tall trees. Dates of eight egg sets collected in San Diego County 1900–21 range from 13 May to 16 June, and none of the recent observations augments this interval.



Migration: In spring migration,



the Warbling Vireo occurs throughout San Diego County, but, as with many other species, the largest numbers are seen along the east base of the mountains (25 at Vallecito, M25, 29 April 1997, M. C. Jorgensen; 23 at Agua Caliente Springs, M26, 12 May 1997, E. C. Hall). It begins arriving by late March, but occasional birds show up earlier. From 1997 to 2001, the first spring report varied from 27 February to 29 March. Occurrences before 15 March, though, are rare, with only six reported during the atlas period. The two sightings that coincided on 27 February 1999, of two in upper San Felipe Valley (H20; A. P. and T. E. Keenan) and one at Yaqui Well (I24; P. D. Jorgensen), are the earliest recorded in San Diego County. Spring migration peaks in late April and early May. The Warbling Vireo is not only an early migrant but a late one, seen regularly into the first week of June. The latest apparent migrant reported 1997–2001 was one in Tecolote Canyon (Q9) 15 June 2000 (T. Plunkett); previous records extend to 22 June (1977, Point Loma, S7, P. Unitt).

Fall migration extends from August through October at least, peaking in September. Nearly all Warbling Vireos passing through San Diego County in September and October are immatures.

Winter: The Warbling Vireo is rare in winter, occurring in urban trees in a narrow strip along the coast. Four were noted during the atlas period, at Buena Vista Lagoon (H5) 22 December 2001 (J. Determan, NAB 56:224, 2002), at the Marine Corps Recruit Depot (R8) 15 December 1998 (P. A. Ginsburg, NAB 53:210, 1999), at North Island Naval Air Station (S8) 20 December 1997 (R. T. Patton), and at Coronado (S9) 16 December 2000 (E. Copper). Most of the approximately 20 winter records of the Warbling Vireo are from metropolitan San Diego; only three are from the north county. Most are for December, in part an artifact of the scheduling of Christmas bird counts, but suggesting that most of these stragglers do not remain or survive the entire winter. There are only two records from San Diego after 10 January, of one that remained to 24 January 1984 (P. E. Lehman, AB 38:358, 1984) and another 11 February 1985 (R. E. Webster, AB 39:211, 1985).

Conservation: Early in the 20th century, the Warbling Vireo was considerably more common in San Diego County. Sharp (1907) said that, as a breeding bird, it was "not uncommon around upper end of Escondido Valley." Stephens (1919a) called it a "common summer resident" in San Diego County's mountains. Willett (1912) wrote that it was a "common summer resident, locally" on the coastal slope of southern California generally. Sites of eggs collected 1900–20 included Descanso (P19), Lakeside (O14), El Monte (O15), and Dulzura (T16), where the species is now absent. However tenuous these data may be, they suggest that the Warbling Vireo had declined precipitously by the late 1970s, when the breeding population was on the verge of extirpation from San Diego County (Unitt 1984). Parasitism by the Brown-headed Cowbird is almost certainly the major factor responsible for this decrease. The vireo's decline followed the cowbird's invasion about 1915. The success of para-

sitized nests is low to none (Rothstein et al. 1980). And, in the Sierra Nevada, vireo and cowbird abundances are related inversely (Verner and Ritter 1983). Low success of even unparasitized nests may make the Warbling Vireo unusually susceptible to the cowbird (Ward and Smith 2000). Evidence is mounting that the decline is spreading from San Diego County north into the core of the range of subspecies *swainsonii* (Gardali and Jaramillo 2001).

A minor rebound in the number of breeding Warbling Vireos in northwestern San Diego County, at least, has followed the widespread trapping of cowbirds since the mid 1980s. But the rebound is far less than that of the Blue-gray Gnatcatcher or Bell's Vireo.

Taxonomy: Only the Pacific coast subspecies of the Warbling Vireo, *V. g. swainsonii* Baird, 1858, has been collected in California. Differences between *swainsonii* and nominate *gilvus* in molt schedule (Voelker and Rohwer 1998) and response to cowbird parasitism (Sealy et al. 2000) imply that the distinction between the eastern and western Warbling Vireos is more profound than the minor differences in size, plumage color, and bill shape suggest.