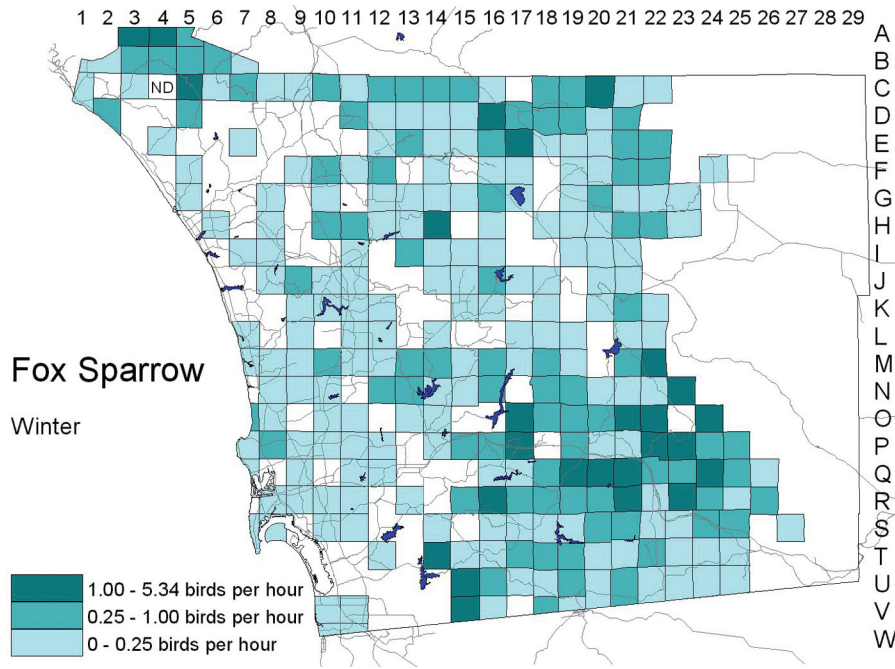


### **Fox Sparrow *Passerella iliaca***

The Fox Sparrow is a common winter visitor in the chaparral that blankets San Diego County's foothills and mountains—one of the most common winter birds in this habitat. Yet it easily passes unnoticed, foraging quietly on the ground, screened from view by dense shrubbery. Only when the birder “squeaks” or “pishes” to stimulate the birds’ curiosity do Fox Sparrows reveal their true abundance, rising to the tops of the shrubs to look around and call, “smack” or “chink.” San Diego County appears central to the winter range of two or three subspecies of the Fox Sparrow, and it hosts at least eight subspecies—more than of any other species of bird. The county is mar-



*Photo by Anthony Mercieca*



**Migration:** Wintering Fox Sparrows depart gradually through March and April. No peaks or concentrations of migrants are known or expected, given that northwestern Baja California marks the southern end of the species' winter range. By 1 May the Fox Sparrow is rare. The only records of spring migrants after 3 May during the atlas period were of one at Yaqui Well (I24) 24 May 1999 (P. K. Nelson) and one at Camp Horno, Camp Pendleton (D3), 27 May 2000 (P. A. Ginsburg), and these appear to be the latest ever. Fall migrants begin returning in the third week of September.

The migration schedule of the Fox Sparrows nesting in San Diego County's mountains is still not known. The birds have been

ginal, though, to the Fox Sparrow's breeding range. Only a few birds summer, near the summit of the county's highest mountains.

**Breeding distribution:** Cuyamaca Peak (M20) is the Fox Sparrow's principal breeding site in San Diego County, occupied annually since D. W. Povey first discovered the species there in 1978. Thickets of bracken fern and Palmer's ceanothus between Deer Spring and Cherry Flat, 5600 to 6200 feet elevation, are the birds' habitat. The maximum count in this area, 1997–2002, was five on 13 July 2000 (J. R. Barth), less than the high of 16 reported in 1980 (AB 34:931, 1980). Fox Sparrows have also colonized the west slope of nearby Middle Peak (M20), where R. E. Webster had two singing males 11 June 2000 and an adult with a fledgling 2 July 2000.

During the first opportunity for an ornithologist to visit Volcan Mountain (I20) in many years, I found Fox Sparrows in small numbers (five singing males) 30–31 May 1993. During the atlas period, only a single individual was found there, 22 July 1999 (L. J. Hargrove). Summering Fox Sparrows were found for the first time in the Laguna Mountains in 2000. C. H. Reiser reported one on Garnet Peak (N23) 26 June 2000, then G. L. Rogers reported another near Pine Mountain (N22) 30 June 2001. Roger Higson located three or four pairs around the Palomar Observatory (D15) in summer 1979 (AB 33:898, 1979), but the birds have not returned there since.

**Nesting:** No nests of the Fox Sparrow have yet been found in San Diego County, and the observations of fledglings on Middle Peak 2 July 2000 (R. E. Webster) and on Cuyamaca Peak 8 and 13 July 2000 (G. L. Rogers, J. R. Barth) appear to be the first confirmation of the species' nesting here. The nest may be either in or under dense shrubs; of eight nests Pierce (1921) described in the San Bernardino Mountains, three were on the ground, five were in ceanothus bushes.

reported on Cuyamaca Peak only from 23 May to 6 August. Data from elsewhere in California suggest arrival in April and departure in September or early October.

**Winter:** The Fox Sparrow is widespread over the coastal slope of San Diego County, most concentrated in extensive stands of mature chaparral. In northern San Diego County the Santa Margarita Mountains, the north slope of Palomar Mountain, and the Indian Flats/Bucksnot Mountain region emerge as regions of greatest abundance. In central and southern San Diego County the Fox Sparrow is common almost continuously from Viejas (O17), McGinty (R15), and Sycuan (R16) mountains east to the Lagunas. Our high counts, of up to 70 near Thing Valley (Q24) 7 January 2001 (J. R. Barth) and 55 along Miner's Road (O21) 5 January 1999 (P. Unitt), could be duplicated easily in this region by an observer focusing his effort on Fox Sparrows.

The Fox Sparrow occurs in coastal sage scrub and riparian scrub but is uncommon in those habitats, and it is lacking in grassland and developed areas, making its distribution patchy. It can still be fairly common even right along the coast, though, where conditions are suitable, as around Onofre Hill (D2; 12 on 21 January 2002, P. Unitt) and Torrey Pines City Park (O7; 10 on 16 January 2002, D. G. Seay). At the desert's edge, the Fox Sparrow drops out quickly as the chaparral begins to break up. On the desert floor the Fox Sparrow is very rare, recorded twice in Borrego Springs (G24, one on 14 January 1991, A. G. Morley; F24, one on 20 December 1998, R. Thériault) and seven times at Yaqui Well and Tamarisk Grove (I24; ABDSP database).

**Conservation:** Whether the small numbers of Fox Sparrows in San Diego County's mountains represent a recent range extension or a discovery (as a result of better coverage) of birds long present remains unknown.

Because the numbers are so small, the population is vulnerable to disruptions like fire or prolonged drought, but the Fox Sparrow's chaparral habitat regenerates quickly after fire. Broad-scale climate change, though, could push the birds' preferred habitat to an elevation zone above the county's highest peaks. Urbanization has rendered a chunk of the Fox Sparrow's winter range unusable, but the core of this range is inland from the coastal regions where the cities are spreading. The Cleveland National Forest encloses the areas of the Fox Sparrow's greatest winter density, so it seems likely the species will remain common in winter indefinitely.

**Taxonomy:** The Fox Sparrow offers one of the prime examples of the application of subspecies, because its subspecies enable us to identify the regions where these winter visitors originate. The largest numbers come from the Sierra Nevada and Cascade Range, but other major sources are southwestern and/or south-central Alaska and the Rocky Mountains, in both Canada and the contiguous United States.

Swarth (1920) divided the Fox Sparrow into three groups of subspecies: the gray or *schistacea* group, with plain gray crown and back, the brown or *unalaschcensis* group, with plain brown crown and back, and the red or *iliaca* group, with a red-streaked gray crown and back. This arrangement has been supported by genetic studies, leading to the proposal that each group be considered a species in its own right (Zink 1986, 1994, Rising 1996). Nevertheless, there are specimens intermediate between the groups, whole subspecies intermediate between the gray and red groups, and no known differences in the birds' winter ecology. The Fox Sparrows most common in San Diego County are of the *schistacea* group, having gray heads and backs contrasting with more rufous wings and tails and black spots on the underparts. This group can be divided into three subspecies on the basis of bill thickness. The heaviest-billed birds, the subspecies *P. i. stephensi* Anthony, 1895, are those breeding in the high mountains of southern California, including San Diego County. No specimens of the local breeding population, however, have been collected yet. Mailliard (1918) named the large-billed Fox Sparrows breeding in the inner Coast Ranges of northwestern California from the Trinity River to Snow Mountain as *P. i. brevicauda*, and Swarth (1920) supported this, distinguishing *brevicauda* from *stephensi* by its supposedly browner color, shorter tail, and more bulbous bill. The color difference is not evident in specimens now so was presumably based on comparison of specimens of different ages—the Fox Sparrow is a prime exemplar of foxing, the tendency of feather color to drift from gray to brown to rusty as a bird skin sits in the museum. The shorter tail is a poor character because these ground-dwelling birds' tails wear so quickly; hardly any specimens collected during the breeding season have a tail intact enough to yield a valid measurement. There is a slight average difference, insufficient to diagnose a subspecies (male *brevicauda* mean 85.0,  $n = 20$  in MVZ and CAS, standard deviation 4.01; male *stephensi* mean 89.2,  $n = 5$  in MVZ and SDNHM, standard deviation

2.93). Zink (1986) found no difference between the populations in the length of the outermost rectrix. Bill shape varies much among individuals, and the width of the maxilla of *stephensi* actually averages greater than that of *brevicauda* (male *brevicauda* mean 9.47,  $n = 60$ ; male *stephensi* mean 9.58,  $n = 38$ ). Therefore, despite the two populations' ranges being so disjunct, *brevicauda* cannot be distinguished from *stephensi* and must be considered a synonym of it. Including *brevicauda*, *stephensi* is uncommon as a winter visitor in San Diego, with six specimens (4 miles southwest of Ramona, L14; Old Mission Dam, P11; Flinn Springs, P15; 3 miles south of Alpine, Q17; Otay Mountain, V12).

The Fox Sparrows breeding in the southern Cascade Range and northern and central Sierra Nevada, *P. i. megarhynchus* Baird, 1858, are gray like *stephensi* but have a smaller bill, though the bill is still larger than in the remaining subspecies of the Fox Sparrow. The difference in bill thickness is adequate to support *megarhynchus* and *stephensi* as subspecies by the criteria of Patten and Unitt (2002) (Table 8). Fox Sparrows averaging smaller billed, intermediate toward the small-billed birds of the Great Basin, occur on the east slope of the Cascade Range in Oregon, on northeastern California's Modoc Plateau (*P. i. fulva* Swarth, 1918), and in and near Mono County, California (*P. i. monoensis* Grinnell and Storer, 1917). These populations' differences from *megarhynchus*, though, are insufficient to support their recognition as subspecies; both must be synonymized with *megarhynchus* (Table 8). Zink (1986) made the same recommendation. He proposed merging *stephensi* and *brevicauda* with *megarhynchus* as well, while saying "there might be a basis for recognizing two groups, *stephensi* plus *brevicauda* vs the other three" (i.e., *megarhynchus*, *fulva*, and *monoensis*). Data in Table 8 show that the Fox Sparrows in the largest-billed subspecies' core ranges are adequately differentiated to merit another name. Defined to include *fulva* and *monoensis*, *megarhynchus* is the most numerous subspecies of the Fox Sparrow in San Diego County, represented by 83 of 124 SDNHM specimens (67%). These specimens range from La Jolla (P7) and Point Loma (S7) on the coast east to Oriflamme Canyon (M22) and the Laguna Mountains (P23), on dates extending from 7 October to 11 April.

*Passerella i. schistacea* Baird, 1858, the Fox Sparrow of the Great Basin and Rocky Mountains north to southwest-

**Table 8** Bill depths of males of gray subspecies of the Fox Sparrow<sup>a</sup>

Nominal subspecies	N	Mean	Range	Standard deviation
<i>stephensi</i>	50	14.14	12.8–15.2	0.53
<i>brevicauda</i>	59	13.65	12.5–14.5	0.44
<i>megarhynchus</i>	53	11.90	11.3–13.0	0.41
<i>monoensis</i>	25	11.72	10.8–12.6	0.49
<i>fulva</i>	98	10.83	9.1–12.2	0.59
<i>schistacea</i>	51	9.53	8.7–10.6	0.41

<sup>a</sup>All specimens from the breeding range; bill depth measured by Swarth's (1920:83) technique.

ern Alberta, is gray too but has a small bill, like that of the brown and rusty subspecies. It includes as synonyms *P. i. canescens* Swarth, 1918, and *P. i. swarthi* Behle and Selander, 1951. Specimens of *schistacea* from eastern Nevada are well differentiated from those of *megarhynchus* on the west slope of the Sierra Nevada (Table 8). *P. i. schistacea* is much less common than *megarhynchus* but appears more prevalent in semidesert chaparral. Of the 15 SDNHM specimens from San Diego County eight are from the east slope of the mountains at the edge of Fox Sparrow habitat. Others, though, are from as close to the coast as 4 miles north of San Marcos (H9) and Escondido (J10).

The Fox Sparrows of the Washington Cascades and south-central British Columbia are an intermediate step between *schistacea* and the browner subspecies *altivagans* to the north. This subspecies, *P. i. olivacea* Aldrich, 1943, appears to reach San Diego County in small numbers. Four specimens from San Diego County meet the description of *olivacea* or intergrades between *olivacea* and *altivagans*: Point Loma, 16 December 1970 (SDNHM 37751), Highland Valley (K12), 9 October 1950 (SDNHM 29877), 1 mile north of Cibbets Flat (Q23), 11 December 1989 (SDNHM 46484), and 0.95 mile north of Los Pinos Mountain (R20), 13 March 1984 (SDNHM 42942).

All along the Pacific coast from Unalaska Island in the Aleutians to the Olympic Peninsula of Washington nest the seven brown or sooty subspecies of the Fox Sparrow. These subspecies have the entire upperparts almost uniform, the wings and tail hardly more rufous than the back, brown spots on the underparts, and a distinctly yellow base to the mandible. These subspecies are famed for their leapfrog pattern of migration: the southernmost migrating little or none, the northernmost migrating the farthest, that is, to San Diego. The three northernmost subspecies, *P. i. unalaschcensis* (Gmelin, 1789), breeding in the eastern Aleutian Islands and Alaska Peninsula, *P. i. insularis* Ridgway, 1901, breeding on Kodiak Island, and *P. i. sinuosa* Grinnell, 1910, breeding in south-central Alaska, are closely similar. Willett (1933) implied that they are better combined, but Gibson and Kessel (1997), with specimens from the breeding range, continued to recognize them. With 22 of 124 SDNHM specimens, *unalaschcensis* is less numerous in San Diego County than *megarhynchus*, but it is still common and widespread. The specimens range from Point Loma to the Cottonwood Campground in the In-Ko-Pah Mountains (Q25), near the east edge of the chaparral.

Coastal Fox Sparrows from farther southeast in Alaska reach San Diego County only rarely. Bishop (1905)

reported that H. C. Oberholser identified three of 13 Fox Sparrows taken at Witch Creek (J18) on 12 December 1904 as *P. i. annectens* Ridgway, 1900, a somewhat darker brown subspecies breeding in the Yakutat area of Alaska. There is only one county specimen of *annectens* in the SDNHM collection (46485), from 1 mile north of Cibbets Flat 11 December 1989 (T. Ijichi). Still darker birds, sooty brown on the upperparts and very thickly spotted on the underparts, breed in southeastern Alaska and on the Queen Charlotte Islands—*P. i. townsendi* (Audubon, 1838). One specimen of *townsendi* has been collected in San Diego County, 2 miles east of Descanso (P20) 16 November 1924 (SDNHM 34697). These are the southernmost specimens known of both *annectens* and *townsendi*—their main winter ranges lie farther north.

In interior British Columbia and the northern Rocky Mountains of Alberta breed Fox Sparrows that bridge the *schistacea* and *iliaca* groups, the subspecies *P. i. altivagans* Riley, 1911. It has brown spots on the underparts and brown upperparts, often with a hint of the rufous streaking characteristic of the *iliaca* group. Swarth grouped *altivagans* with *iliaca*; Zink (1994) and Rising (1996) grouped it with *schistacea*. Toward the coast of British Columbia it apparently intergrades with the dark subspecies of the *unalaschcensis* group as well (Swarth 1920). Specimens of *altivagans* lacking any back streaking resemble the geographically disjunct *sinuosa*, differing most clearly in their brighter rufous, more contrasting uppertail coverts. Distinguishing *altivagans* in the field from the paler subspecies of the *unalaschcensis* group may not be possible unless there are differences in calls or bill color, still inadequately explored. *P. i. altivagans* is an uncommon or fairly common winter visitor in San Diego County, with 13 SDNHM specimens scattered from Point Loma to the Laguna Mountains. Another specimen from Ames Valley in the Laguna Mountains (P23) 14 November 1983 (SDNHM 42692) appears to be an intergrade between *altivagans* and *P. i. fuliginosa* Ridgway, 1899, the darkest subspecies of the brown group.

Finally, *P. i. zaboria* Oberholser, 1946, the western representative of the boldly patterned rufous-and-gray *iliaca* group, reaches San Diego County very rarely. There is one specimen of *zaboria*, from Point Loma 18 November 1968 (SBCM 4423), and four sight records, from Agua Caliente Springs (M26) 25 February 1973 (G. McCaskie), Tijuana River valley 8 March 1974 (G. McCaskie), near Green Valley Falls Campground (N20) 11 January 1992 (K. L. Weaver), and Santee (P12) 12 February 2002 (M. B. Mulrooney, NAB 56:225, 2002).