

Sage Sparrow *Amphispiza belli*

Two subspecies of the Sage Sparrow occur in San Diego County, so well differentiated in plumage, habitat, and seasonal status that they are more easily discussed separately. Bell's Sparrow, the dark form, is a year-round resident in chaparral and sage scrub. The habitat must not be too dense or too encumbered by leaf litter to favor this bird that spends most of its time running on the ground. Thus chaparral partly recovered from a fire, stunted by growing on magnesium-laden gabbro soil, or growing on mesa tops or south-facing slopes most frequently offers the Sage Sparrow habitat. Though broad areas of its habitat persist in south-central San Diego County, it has been eliminated from most coastal areas—it is the shrubland bird most sensitive to habitat fragmentation. The pale subspecies, the Sage Sparrow proper, is a winter visitor to the Anza-Borrego Desert, where it seeks halophytic scrub on the valley floors.

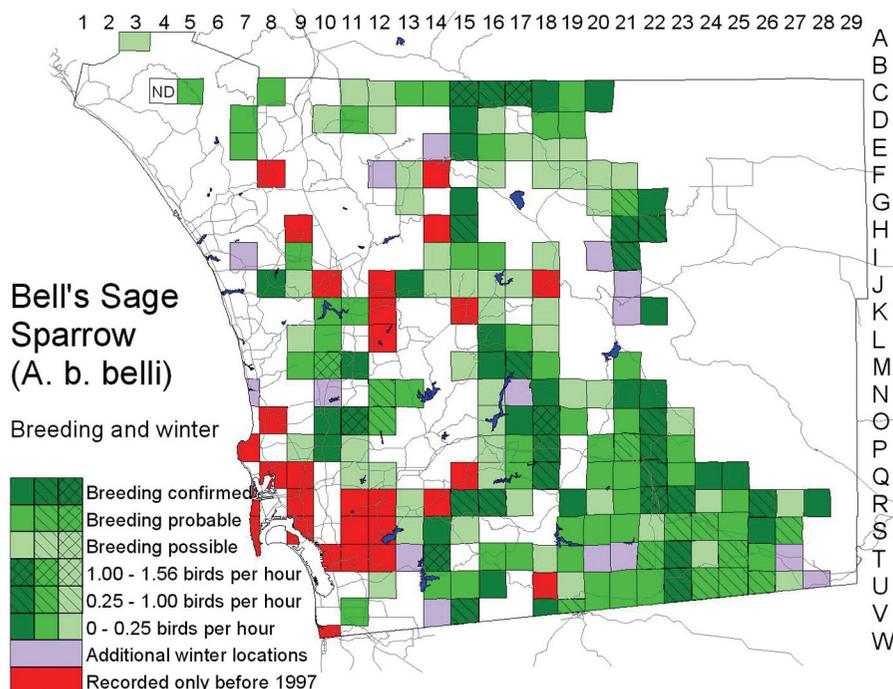
Breeding distribution: The distribution of Bell's Sage Sparrow follows a unique pattern, though that pattern



Photo by Anthony Mercieca

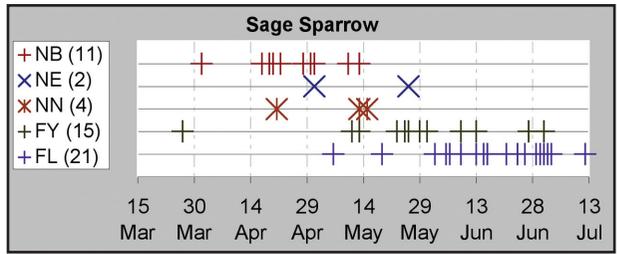
is now partly obscured by urbanization. Because its low, open habitat is rather specialized, and shifts with fire, it is naturally patchy. Even during the breeding season territories seem clumped, perhaps because of social interaction. The distribution is most continuous in the extensive chaparral of the Campo Plateau, north into the south-facing slopes of the Laguna Mountains. Farther to the northwest, it becomes progressively more localized, but

there are sites of concentrated populations. Some of these correspond to peaks or outcrops of gabbro-based soil, as on Otay (V15), McGinty (R15), Sycuan (R16), Viejas (O17), and Guatay (P20) mountains. In north-central San Diego County, semidesert climates as well as recovering burns and gabbro soils appear to be responsible for the more open chaparral attracting concentrations of Sage Sparrows around Ranchita (H21/H22) and in Dameron and Oak Grove valleys (C16/C17). Near Ranchita, subspecies *belli* nests in stands of the big sagebrush, the same habitat as subspecies *nevadensis* in the Great Basin. Along the crest of the mountains, the edge of the Sage Sparrow's range follows the edge of the chaparral.



In the wet spring of 1998, a pair edged slightly into the desert, seen with a fledgling at 2040 feet elevation 0.35 mile north-northeast of Indian Hill (R28) 6 May (J. O. Zimmer). Elevationally, the Sage Sparrow is not limited in San Diego County, breeding up to at least 5600 feet near High Point, Palomar Mountain (D15; pair with fledglings 12 July 2000, K. L. Weaver).

Toward the coast, Sage Sparrows are now localized. In the south county, west of Sweetwater and Otay reservoirs, where the species was once widespread, the only birds found 1997–2002 were one pair on the hill just east of San Ysidro Junior High School (V11, 10 April 1999, P. Unitt). There is a small number on Cowles Mountain (Q11/Q12), then a population in Mission Trails Regional Park merges with that in Marine Corps Air Station Miramar. The mesa of Miramar, its chaparral broken by vernal pools, supports the largest concentration of Sage Sparrows remaining near the coast. Urban sprawl has now broken the connection between this core and other sites to the north, where the sparrows survive in scattered undeveloped patches. The largest of these is on Black Mountain (M10), where Kirsten Winter counted 18, many paired, 18 April 1999 and estimated at least 50 pairs in the atlas square on the basis of the extent of burned chaparral. The vicinity of Lake Hodges (K10) offers substantial habitat and one of the few remaining sites where the Sage Sparrow occurs in sage scrub rather than chaparral (maximum count eight on 28 May 1999, R. L. Barber). A pair feeding young about 0.7 mile southwest of the San Marcos landfill (J8) 31 May 1997, a pair just southeast of Fuerte Park, Carlsbad (J8) 15 May 1999 (J. O. Zimmer), and six, including four singing males, in black sage just northeast of Palomar College, San Marcos (I9) 2 April 1997 (K. L. Weaver) were our northernmost in coastal San Diego County during the breeding season. Farther north, the Sage Sparrow is scarce, local, and

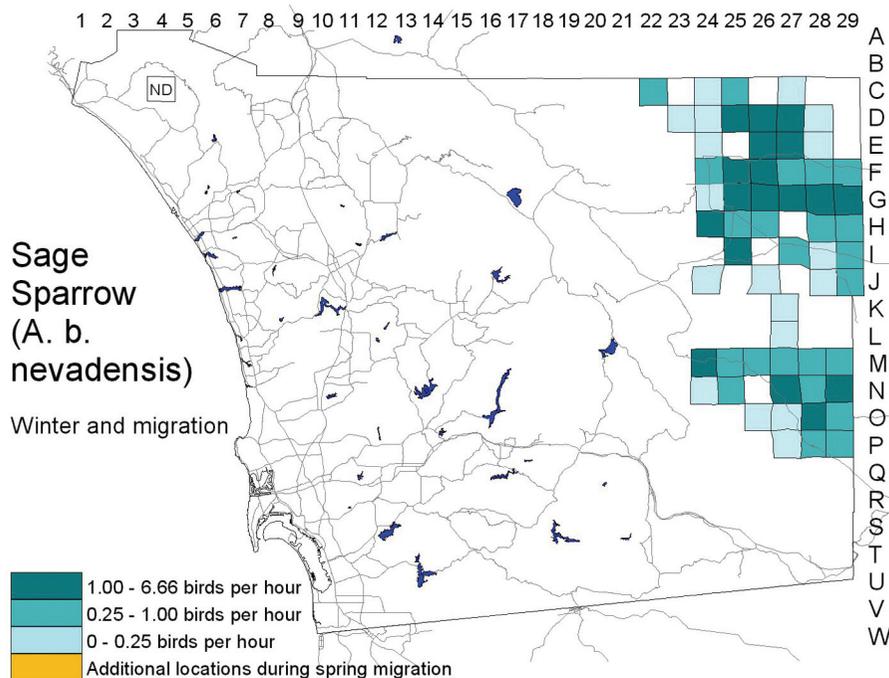


restricted to the Fallbrook Naval Weapons Station (D7/E7) and foothills of the Santa Margarita Mountains, well away from the coast.

Nesting: Sage Sparrows nest typically in shrubs, well below the canopy, occasionally on the ground. Nest sites atlas observers noted were chamise, Cleveland sage, big sagebrush, and on the ground amid broken-down branches of big sagebrush. Our observations of breeding activity were consistent with the 25 March–18 June spread of known San Diego County egg dates, except for nest building 1 March 1997 and feeding young 27 March 1997 in Dameron Valley (C15/C16, K. L. Weaver). The habitat here resembles that in western Riverside County, where Martin and Carlson (1998) reported nest building beginning in mid February and egg laying beginning 11 March.

Migration: Bell's Sage Sparrow is sedentary, though in the nonbreeding season the birds cease maintaining their territories and often form loose flocks. A juvenile in residential Fallbrook (D7) in early October 1992, at least 1 mile from breeding habitat in the naval weapons station, demonstrates some dispersal across unsuitable terrain by young birds (K. L. Weaver).

Subspecies *nevadensis*, by contrast, is largely migratory. Most arrive in San Diego County probably in September (earliest date around the Salton Sea 27 August, Patten et al. 2003) and depart around the first of March. The latest date is 17 March (2000, one south of Clark Dry Lake, E26, K. L. Weaver).



earliest date is 17 March (2000, one south of Clark Dry Lake, E26, K. L. Weaver).

Winter: The few squares on the coastal slope and desert edge where we recorded Bell's Sage Sparrow in winter but not the breeding season are presumably sites where the species is resident in small numbers but was missed during the spring and summer. A probable exception is at Torrey Pines State Reserve (N7; one on 7 February 1998, K. Estey), a site well isolated from known populations and well covered during the breeding season. One near Agua Hedionda Creek at the east edge of Carlsbad (I7) 22 December 2001 (E. Garnica, S. Walens) may represent another small remnant population in north coastal San Diego County.

The winter range of subspecies *nevadensis* is completely separated from the year-round range of *belli* by steep mountain slopes. Stands of saltbush and iodine bush on valley floors and in sinks are the Sage Sparrow's most typical winter habitat, but the birds can also be common in broad sandy washes with more diverse shrubs. Unexpectedly, we found the Sage Sparrow as a rare winter visitor in the open pinyon woodland of the Santa Rosa Mountains (C27/D28; maximum count two, 20–21 January 2000, L. J. Hargrove). The blackbush, though, is more numerous than the pinyons on these mountains, and forms stands of a low open scrub recalling the Great Basin. The highest counts of *nevadensis* recorded during the atlas period, 127 in San Felipe Creek near San Felipe Narrows (I25) 10 January 1998 (A. Mauro) and 72 in the Borrego Sink (G25) 9 February 1998 (R. Thériault), coincided with rain in a wet year. Overall numbers of the Sage Sparrow in the Anza–Borrego Desert, though, varied less dramatically in response to rain than those of some other wintering sparrows. They remained fairly steady from 1997 to 2001 and plummeted only in the record dry winter of 2001–02.

Conservation: Lovio (1996) found Bell's Sparrow to be the most sensitive to habitat fragmentation of 31 species nesting in southwestern San Diego County. The smallest tract of habitat in which he found the species was 160 hectares. K. L. Weaver (unpubl. data) had similar results in the north county, though recording the species in one patch of only 13 hectares. He has found the birds persisting over time in a 26-hectare patch near Palomar College (I9). On the basis of a study ranging from Tecolote and

Rose canyons to Miramar, Bolger et al. (1997) also found Bell's Sparrow highly sensitive to fragmentation. On the Fallbrook Naval Weapons Station Bell's Sparrows occupy rather small patches of sage scrub amid a mosaic of grassland and weeds, so apparently they do not perceive the grassy areas between the scrub patches to be barriers like housing developments. In the coastal lowland they are now restricted to the last large blocks of brushland, and their prospects in this area are dubious since many of these areas are subject to further development. Smaller tracts may not accommodate enough opportunity for the birds to shift among recovering burned chaparral and older stands that have become too dense for them. Away from the Santa Margarita Mountains, Bell's Sparrow could easily be eliminated west of Interstate 15. Even farther inland extensive habitat degradation through fragmentation is possible. Fire-management practices that lead to infrequent colossal fires instead of frequent small ones also likely disfavor the Sage Sparrow.

Taxonomy: Patten and Unitt (2002) found too much overlap between *A. b. nevadensis* (Ridgway, 1873) and *A. b. canescens* (Grinnell, 1905) for the latter to be distinguished. Synonymizing *canescens* leaves only one pale migratory subspecies and eliminates the apparent but unlikely scenario that these two subspecies have the same winter range. We found no significant difference in bill length between *A. b. belli* (Cassin, 1850) and the supposedly longer-billed *A. b. clementae* Ridgway, 1898, of San Clemente Island, so we synonymized the latter, leaving only one dark subspecies of the Sage Sparrow.