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THE SUBSPECIES OF THE SONG SPARROW ON SOUTHEAST FARALLON ISLAND AND IN CENTRAL CALIFORNIA

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The Song Sparrow (*Melospiza melodia*) is one of the most morphologically variable birds of North America. As many as 52 subspecies have been named, 39 of which were recognized by the American Ornithologists' Union (AOU 1957) and Paynter (1970) from Canada, the United States, Baja California, and central Mexico. In the latest taxonomic revision of the Song Sparrow, Patten and Pruett (2009) recognized 25 subspecies. The subspecies vary from small and pale in the desert Southwest (*fallax*) to large and dark in the Aleutian Islands (*maxima*), with a wide range of intermediates and other variations. Although the Song Sparrow has little or no prealternate molt, the appearance of the basic plumage, especially in subspecies of more open and drier habitats, is affected by wear. The upperparts generally become paler (gray or browner) and less distinctly streaked from fall to spring, while the underparts become whiter (less buff or brownish) and more distinctly streaked in spring. The subspecies are migratory to various degrees, with some being resident, while others are short-distance or medium-distance migrants (AOU 1957, Arcese et al. 2002).

Grinnell and Miller (1944) detailed the distribution of 18 subspecies of the Song Sparrow in California, including 12 characterized as "permanent residents," four found only in winter, and two that breed in California and show at least some evidence of seasonal movement. Subspecies *santaecrucis* was synonymized with *gouldii* in the fifth edition of the AOU checklist (1957) and by Pyle (1997), on the basis of information from Aldrich (1984) and other sources. Pyle (1997) categorized the remaining 17 subspecies into four subspecies groups, the northwest coastal Pacific (*rufina*) group, the California mainland (*gouldii*) group, the California island (*clementae*) group, and the interior western (*montana*) group. Two other subspecies groups occurring north of Mexico, the Alaska island (*insignis*) and eastern (*melodia*) groups, contain subspecies without records in California at the time. Arcese et al. (2002) and Patten and Pruett (2009) synonymized five additional subspecies recognized in California by Grinnell and Miller (1944), realigned some of the subspecies according to subspecies groups, and recognized just five groups overall. Here we follow the subspecies taxonomy of Patten and Pruett (2009) with the exception of recognizing *fisherella* (see below). We also maintain the interior western subspecies group of Pyle (1997), which was lumped with the eastern group by Patten and Pruett.

Finding and identifying wintering or migrant subspecies of the Song Sparrow in California can be confounded by the presence and variability of local resident subspecies. Southeast Farallon Island, part of the Farallon National Wildlife Refuge, located 32 km off the coast of Marin County, lacks a resident population of the Song Sparrow and thus provides a unique opportunity for investigation of its migration and identification along the central California coast. PRBO Conservation Science (formerly known as the Point Reyes Bird Observatory) has censused birds and operated a banding station on the island since 1967 (DeSante and Ainley 1980, Richardson et al. 2003), allow-

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ing banders to obtain detailed data on many of the migrant Song Sparrows reaching the island, including measurements and photographs. From 1967 to 2012, 97 Song Sparrows were recorded on the island, with 70 of those arriving from August to November, 25 from February to June, and one each in December and January. Four fall migrants remained through the winter, but none has overwintered. Of these 97 individuals, attempts were made to identify 36 to subspecies, either by biologists in the field or retrospectively by us from photographs and banding data. Twenty-five Song Sparrows were caught and banded, of which nine were photographed in hand, and two additional birds were preserved as specimens. We have used photographs and measurements of Song Sparrows from the island and compared them to series of specimens, published measurements, and morphological descriptions. We have also reviewed all specimens of the Song Sparrow collected in central California and housed at the California Academy of Sciences (CAS) and the Museum of Vertebrate Zoology (MVZ). Here we summarize the subspecies of the Song Sparrow on Southeast Farallon Island and in central California on the basis of our best identifications.

Subspecies of the northwest coastal Pacific group breed from coastal Alaska to Oregon, migrate to coastal northwestern and central California (Grinnell and Miller 1944, Patten and Pruett 2009), and were reported by DeSante and Ainley (1980) to be the most common subspecies group to reach the island. *M. m. morphna* breeds from coastal southwestern British Columbia to central western Oregon (Swarth 1923, Patten and Pruett 2009). Grinnell and Miller (1944) characterized *morphna* as a fairly common winter visitant to California, primarily to the northern half of the state west of the Sierra Nevada, with records as far south as San Bernardino and Los Angeles counties. Patten and Pruett (2009), however, indicated *morphna* to be less migratory, with only a few individuals moving into northwestern California. It appears that Patten and Pruett (2009) referred most of the birds identified as *morphna* by Grinnell and Miller (1944) to *merrilli*, which breeds primarily from mainland southeastern Alaska and interior central British Columbia south to eastern Washington and northern Idaho and occurs in winter as far south as southern California and Arizona (Phillips et al. 1964, Patten et al. 2003).

M. m. morphna is characterized by its medium size, rufous upperparts with indistinct darker streaks on the back, and heavy diffuse rufous streaking on the breast; its appearance does not vary as much between fall and spring as does that of some other subspecies, perhaps because of its preference for shaded habitats. *M. m. merrilli* is a variable subspecies and may represent an intergrade swarm among the northwest coastal Pacific (where placed by Patten and Pruett 2009), interior western (where placed by Pyle 1997), and eastern subspecies groups, similar to subspecies *Passerella iliaca altivagans* of the Fox Sparrow and *Junco hyemalis cismontanus* of the Dark-eyed Junco, which breed in this same region of British Columbia (Pyle 1997). Along the western boundary of its range, *merrilli* appears to grade into *morphna* (Patten and Pruett 2009), having the upperparts reddish but slightly grayer than in *morphna* (toward the interior western group; see below) and with the dark streaks more distinct (toward the eastern group; see below). The underpart streaking of *merrilli* tends to be finer than that of *morphna*, toward the interior western group. Seasonally, *merrilli* appears to wear from redder in fall to grayer in spring, so it could be more easily confused with *morphna* when in fresher fall and winter plumage.

At Southeast Farallon Island, 31 Song Sparrows were identified at the time of observation as of the northwest coastal Pacific group, and 19 of the 31 were identified as *morphna*. Our examination, however, indicates that only three records from the island have been satisfactorily documented as *morphna*, including a specimen collected 11 October 1969 (PRBO 330; Figure 1) and individuals photographed on 21 September 1983 and 20 September 2010 (see the lower photo on this issue's back cover). Several Song Sparrow records from Southeast Farallon that have been referred to *morphna* appear instead to represent *merrilli*. These include a specimen collected 12 October

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Figure 1. Specimens of two Song Sparrows collected on Southeast Farallon Island, 11 October 1969, *Melospiza melodia morphna* (PRBO 330; above) and 12 October 1969, *M. m. merrilli* or intergrade *merrilli* × *morphna* (PRBO 331; below). Note especially the grayer nape and face of PRBO 331.

Photo by Peter Pyle



Figure 2. Song Sparrow of the subspecies *merrilli* banded on Southeast Farallon Island, 29 November 2008. In comparison to *morphna*, this *merrilli* has more gray on the face, finer streaks below, and more prominent streaks on the back.

Photo by Jim Tietz

1969 (PRBO 331; Figure 1) and individuals photographed 21–22 September 1989, 30 March 1990, and 22 October 2008–12 April 2009 (Figure 2).

In a review of 107 specimens collected in California and labeled “*morphna*” at CAS and MVZ, Pyle found that only 15 individuals appeared to fit pure *morphna*; these were collected along the coast south to Santa Cruz County (MVZ 92895) and east to Yolo (CAS 51542) and Alameda (CAS 51569) counties. The remainder appeared



Figure 3. Song Sparrow banded on Southeast Farallon Island, 26 September 1980. The dark coloration with reddish tones suggests *rufina*.

Photo by Phil Henderson



Figure 4. Song Sparrow at Buena Vista Park, San Francisco County, 10 February 2011. The long bill and dark plumage without reddish tones indicate *caurina*.

Photo by Dominik Mosur

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Figure 5. A large and reddish Song Sparrow suggestive of *rufina* at the mouth of the Little River, Mendocino County, 25 January 2013.

Photo by Ron LeValley

to be either pure *merrilli*, intergrades between *morphna* and *merrilli*, or in one case, an intergrade between *morphna* and *rufina* (see below). A specimen collected at Carmel, Monterey County (CAS 21554), was either *morphna* or a *morphna* × *merrilli* intergrade. Thus, on the basis of records from Southeast Farallon Island and this review of specimens, we agree with Patten and Pruett (2009) that *merrilli* rather than *morphna* is the more common migratory subspecies reaching most of California and that the winter range of *morphna* is restricted primarily to moister coastal habitats



Figure 6. Song Sparrow banded on Southeast Farallon Island, 31 March 1991. The gray face, rufous wings and crown, and fine black streaks on a white underside lacking any buff appear closest to *gouldii* or possibly an intergrade with *fisherella*. See also upper photo on this issue's inside back cover.

Photo by Peter Pyle



Figure 7. Song Sparrow photographed on Southeast Farallon Island, 11 November 2012. The reddish coloration with distinct blackish and rufous streaking both above and below is intermediate between *morphna* and *gouldii* and thus the bird appears to be *cleonensis* of coastal northwestern California.

Photo by Lukas Musher

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of northwestern California, south to Santa Cruz and perhaps Monterey counties. We suspect that many of the Song Sparrows on Southeast Farallon identified as *morphna* may in fact have been *merrilli*.

Pyle (1997) and Patten and Pruett (2009) placed three additional subspecies of the Song Sparrow in the northwest coastal Pacific group. These include *kenaiensis*, which breeds on the Kenai Peninsula of the south coast of Alaska, *caurina*, which breeds on the northern coast of the Gulf of Alaska, and *rufina*, which breeds in coastal British Columbia and southeastern Alaska. Some individuals of all three of these subspecies migrate south along the coast for the winter (Patten and Pruett 2009) and could show up in central California, though Grinnell and Miller (1944) recorded only *caurina* in California and primarily along the immediate coast in Del Norte and Humboldt counties. A specimen from Alameda County reported by Grinnell and Wythe (1927; Univ. Calif. Los Angeles 12148) as *caurina* is *merrilli*, as we confirmed by examining photos of the specimen.

The subspecies *caurina* is very dark, larger and longer-billed than *morphna*, with colder gray-brown rather than rufous upperparts and darker and browner underparts; it also has a shorter bill than the otherwise similar *kenaiensis*. In fall, the darker back streaking of *caurina* is even less distinct than that of *morphna*, and it practically disappears in spring, at which point the upperparts become duskier. Although similar to *caurina*, *rufina* is slightly smaller with an equally long bill and with more rufous tones to the plumage; *rufina* appears intermediate between *caurina* and *morphna* and intergrades with each.

On Southeast Farallon Island, DeSante and Ainley (1980) identified two fall migrants as “cf. *caurina*,” one banded on 16 October 1970 and another observed 23–24 October 1972, but no photographs or descriptions were recorded to assess the identifications, and the wing chord of the former (64 mm) is small for *caurina* (Pyle 1997). We have identified two large and dark Song Sparrows from the island as either *caurina* or *rufina*. An individual banded and photographed on 4 October 1986 (see the lower photo on this issue’s inside back cover) was dark dusky brown above, suggestive of *caurina*, but had some reddish tones below and a short wing chord (63 mm), both suggesting *rufina*, and is thus probably best identified as *caurina/rufina*. Another individual banded and photographed 26–27 September 1980 was similarly dark overall but showed significant reddish tones both above and below, and its small size (wing chord 63 mm) is more suggestive of *rufina* (Figure 3). A large individual banded on 13 September 1987 was likely *caurina* on the basis of a combination of the relatively long wing chord (73 mm; see Pyle 1997) and large mass (33.2 g), but no plumage characters were noted.

Review of specimens from California at CAS and MVZ revealed only one individual closest to *caurina*, collected in Humboldt County (MVZ 87445), one individual closest to *rufina*, collected 14 December 1904 in Alameda County (CAS 60331), and one individual that appeared to be an intergrade *rufina* × *morphna*, collected 8 December 1901 in San Benito County (CAS 51580). In addition, we have examined photographs of individuals closest to *caurina* from San Francisco County (Figure 4), and closest to *rufina* from Mendocino County (Figure 5). Although Grinnell and Miller (1944) did not record *rufina* in California, records for coastal Oregon (Marshall et al. 2006) and the evidence we report here suggest it regularly, if rarely, reaches Southeast Farallon and coastal northern California in fall and winter, expected since both *caurina* and *morphna* do so. It should be noted, however, that the systematic relationships and morphological variation of the subspecies in this group are particularly poorly known (L. DeCicco pers. comm.), so any identification of these three subspecies out of range should be regarded as provisional.

In central California, the subspecies *gouldii* of the California mainland group breeds in upland habitats along the California coast opposite Southeast Farallon from Lake and coastal southern Mendocino counties through Santa Cruz County. Grinnell and

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Miller (1944) considered it a permanent resident, although Patten and Pruett (2009) reported a single vagrant *gouldii* south of its normal range, on Santa Cruz Island, Santa Barbara County, 31 October 1988 (San Diego Natural History Museum 45418); we agree with this identification after examining photos of the specimen. To the north of *gouldii* the subspecies *cleonensis* breeds from coastal southwest Oregon to central Mendocino County. Although Grinnell and Miller (1944) considered it essentially a resident, they noted an individual of *cleonensis* collected at Olema, Marin County, 17 September 1909 (Grinnell and Wythe 1927; MVZ 10570); we have examined this specimen and agree that it is *cleonensis*. Another individual at Bolinas, Marin County, November–December 2010 was identified in the field by Pyle as closest to *cleonensis*. The remaining five resident California subspecies in this group (*heermanni*, *pusillula*, *maxillaris*, *samuelis*, and *graminea*) noted by Grinnell and Miller (1944) and recognized by Patten and Pruett (2009) occur as residents in specific bioregions such as San Francisco Bay marshes and in southern California, including on the Channel Islands. We consider these subspecies unlikely to reach Southeast Farallon Island and do not consider them further here.

The subspecies *gouldii* has olive-brown upperparts with distinct dark brown back streaks in fall, becoming grayer on the face and redder on the wings with wear through spring. Its underpart streaking is darker brown and more distinct than in subspecies of the northwest coastal Pacific group. *M. m. cleonensis* is intermediate between *morphna* and *gouldii* in most respects, with more gray on the face and more distinct back streaks than in *morphna* but with more rufous in the plumage than in *gouldii*. It was considered part of the California mainland group by Pyle (1997) and part of the northwest coastal Pacific group by Patten and Pruett (2009), but given that it is intermediate between the two groups it could reasonably be placed with either.

We have identified as closest to *gouldii* a Song Sparrow present on Southeast Farallon Island 31 March–1 April 1991 (see the upper photo on the inside of this issue's back cover and Figure 6). Another individual on 17 October 1974 was described at the time of observation as representing a California coastal subspecies (i.e., *gouldii*), but was not photographed or measured extensively enough to confirm the subspecies. A Song Sparrow photographed on the island 11 November 2012 (Figure 7) was small, tinged brownish, and more heavily streaked on the back and underparts than *merrilli*. We have tentatively identified it as *cleonensis*, and it is possible that some of the other individuals on the island identified as *morphna* or *gouldii* were actually *cleonensis*. Thus, despite *gouldii* and *cleonensis* being considered resident or nearly so by Grinnell and Miller (1944), there does appear to be some propensity for these two subspecies to disperse or migrate. We suggest that *gouldii* is like some resident coastal species thought unlikely to reach the island by DeSante and Ainley (1980:77), including the American Crow (*Corvus brachyrhynchos*), Bewick's Wren (*Thryomanes bewickii*), and Western Bluebird (*Sialia mexicana*), that have been recorded since.

The interior western group, including *merrilli* (see above), *fisherella*, and *montana*, breeds in drier inland habitats from central British Columbia south to northern California and east through the Great Basin; it can be distinguished from other groups by relatively pale grayish upperparts and muted pale reddish to brownish streaking on the upperparts and underparts. Grinnell and Miller (1944) separated *fisherella* as occurring in inland northern California south to Tehama and Inyo counties, whereas Patten and Pruett (2009) synonymized it with *montana* of the Great Basin. On the basis of our examination of specimens we recognize *fisherella* but suspect its boundary with *montana* might be better defined biogeographically (see Pyle 1997:28) as along the crest of the Cascade Range and Sierra Nevada, rather than to the east of Oregon and California as considered by Grinnell and Miller (1944). *M. m. fisherella* is darker and browner above and has darker and browner (less reddish) and more distinct upperpart and underpart streaking than *montana*; like *merrilli*, it appears to be heavily influenced by intergradation with surrounding subspecies *montana*,

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merrilli, *cleonensis*, *gouldii*, and *heermanni*, showing characters of each of these subspecies where ranges approach one another (cf. Grinnell and Miller 1944). The pale reddish *fallax*, a resident of the desert Southwest (Grinnell and Miller 1944, Patten and Pruett 2009), could also be considered part of this group.

Both *fisherella* and *montana* are migratory and have been recorded in winter as far south in California as Los Angeles and Imperial counties (Grinnell and Miller 1944, Patten et al. 2003). In the eastern San Francisco Bay region, specimens of *fisherella* have been taken in Sonoma, Napa, and eastern Alameda counties (Grinnell and Wythe 1927, Grinnell and Miller 1944), and it appears to be regular in winter along the east flank of the coastal range south at least to Monterey County (CAS and MVZ specimens; D. Roberson pers. comm.). In coastal central California, a specimen closest to *fisherella* was collected at Berkeley, Alameda County (MVZ 124699) and a specimen that appears closest to *montana* was collected at Santa Cruz, Santa Cruz County (MVZ 95042), although Grinnell and Miller (1944:543) cautioned that such individuals may represent variants of *fisherella* or intergrades between *fisherella* and *montana*. We have identified from Southeast Farallon Island no Song Sparrows as *fisherella* or *montana* (but see Figure 6); however, these other records from the San Francisco Bay area and elsewhere suggest a potential for these two subspecies to occur there.

The eastern group of the Song Sparrow contains two subspecies: the highly migratory nominate *melodia*, including several subspecies synonymized by Patten and Pruett (2009), and *atlantica*, which is largely resident in salt marshes on the middle Atlantic coast and is not expected to reach the West. Nominate *melodia* breeds across much of eastern North America, west to northeastern British Columbia, and winters across much of the eastern United States east of the Rocky Mountains (AOU 1957, Arcese et al. 2002, Patten and Pruett 2009). Vagrants have occurred in Washington, where a specimen was collected in King County, 27 February 1978 (Paulson 1992), and twice in Arizona (Phillips et al. 1964). *M. m. melodia* is characterized by small to medium size, a short thick bill, medium brownish dorsal coloration largely lacking gray or reddish tones, heavy dusky dorsal streaking, a broad dark malar stripe, heavy and distinct dark brown ventral streaking, and a buff wash across the chest when fresh.

Song Sparrows banded on Southeast Farallon Island on 3 November 1993 (see upper photo on this issue's back cover; wing 70 mm, weight 19.5 g) and 15–16 October 1995 (Figure 8; identified by Richardson et al. 2003 as *kenaiensis*; wing 70 mm, weight 19.7 g) match nominate *melodia*. Both individuals had distinct black streaking both dorsally and ventrally that contrasted strikingly with the ground color, much buff in the supercilium and chest, a contrasting dark malar stripe, and a short conical bill; both were on the large end for *melodia* and so may have come from western populations (i.e., *juddi*, synonymized with *melodia* by Patten and Pruett 2009). Moreover, these individuals lacked the gray face of the somewhat similar California mainland group and were darker and more heavily streaked than *montana* of the interior western group (see above). A third individual on the island, photographed at a distance on 6 November 1992, also appears closest to nominate *melodia*, but the photograph is not detailed enough for us to be certain. We have also examined photographs of a Song Sparrow at Clatsop County, Oregon, 23 November 2010 (M. Patterson pers. comm., Figure 9) that represents nominate *melodia*. To our knowledge, these individuals represent the first records of the eastern subspecies group for California and Oregon. Given these records, others documented from Washington and Arizona, and the regularity with which many migratory eastern passerines occur on Southeast Farallon Island and the Pacific coast, we suggest that *melodia* may occur rarely but regularly in California and Oregon in fall and winter.

Our analysis indicates that Song Sparrows can reach Southeast Farallon Island from a broad range of areas, representing at least seven subspecies: at least three records of *morphna*; three of *caurina/rufina*, possibly including at least one each of

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Figure 8. Although published by Richardson et al. (2003) as *kenaiensis*, this Song Sparrow banded on Southeast Farallon Island, 15 October 1995 represents nominate *melodia*, perhaps of the western populations or an intergrade with *merrilli* or *montana*. The very contrasting plumage, buff wash on the chest, and short conical bill are typical of *melodia*. The gray dorsum, however, is unusual for at least the eastern populations of *melodia* (D. A. Sibley pers. comm.).

Photo by Peter Pyle

caurina and *rufina*; at least four of *merrilli*; one of *cleonensis*; one closest to *gouldii*; and at least two of *melodia*. Our records of *rufina* and *melodia* from Southeast Farallon and elsewhere in coastal central California represent the first records of these subspecies from the state. Although no individuals of *fisherella* or *montana* have been documented from Southeast Farallon, *fisherella*, at least, appears to be uncommon in fall and winter in the eastern San Francisco Bay area and should be expected to occur on the island. The uncertainty evident in the identification of many



Figure 9. Song Sparrow of subspecies *M. m. melodia* photographed at Warrenton, Clatsop County, Oregon, 23 November 2010. Note the contrasting plumage, thick bill, and broad dark malar stripe typical of *melodia*.

Photo by Mike Patterson

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of the birds we discuss underscores the fact that identification of subspecies can be difficult and it may not be realistic to identify all individuals to subspecies with certainty, particularly those outside of their normal range. The unique situation on Southeast Farallon Island has provided insight into the movements of the Song Sparrow, and we hope that this analysis will help others locate and document migratory subspecies in coastal central California.

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“Featured Photos” of Song Sparrows (*Melospiza melodia*) on Southeast Farallon Island, San Francisco Co., California. Upper by © Peter Pyle, Point Reyes Station, California: subspecies *melodia*, 3 November 1993. Lower by © Oscar Johnson of Santa Barbara, California: subspecies *morphna*, 20 September 2010.