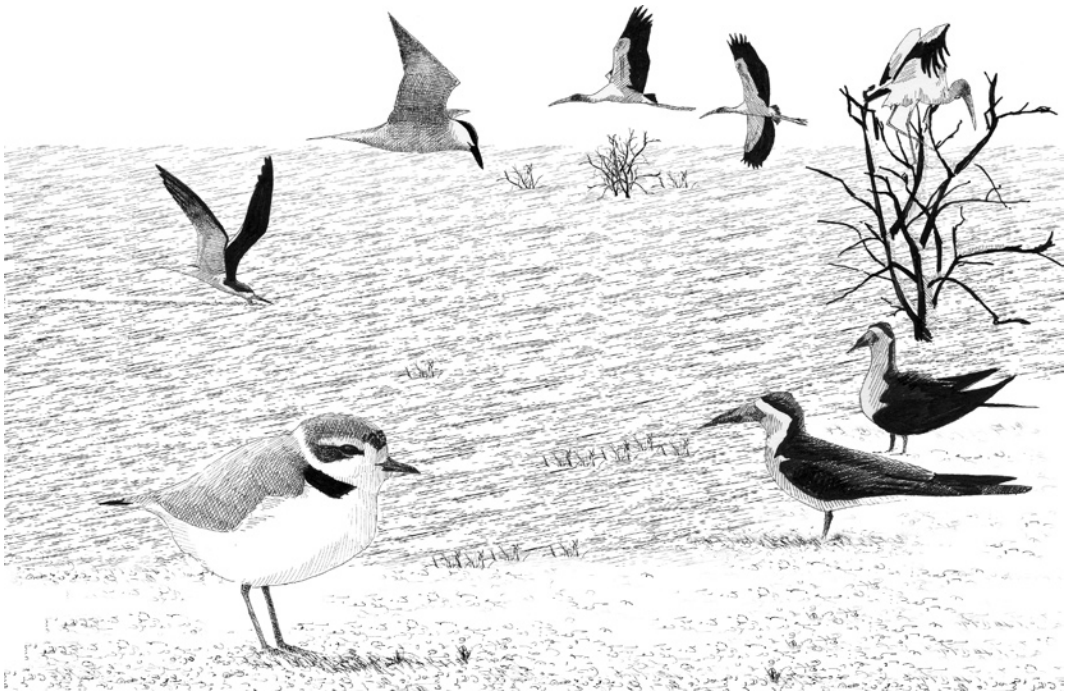
II

Species Accounts



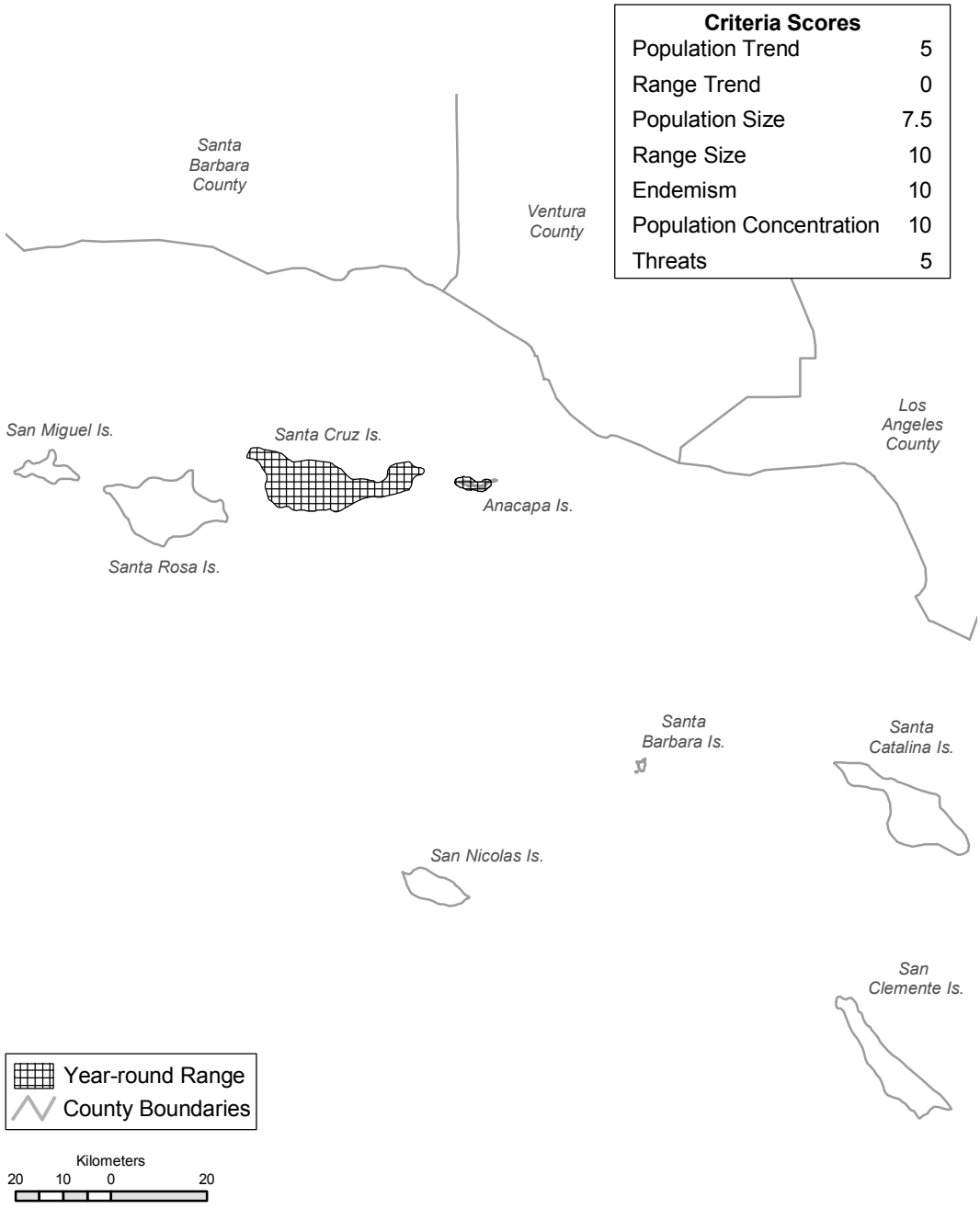
Andy Birch

PDF of Santa Cruz Island Rufous-crowned Sparrow account from:

Shuford, W. D., and Gardali, T., editors. 2008. California Bird Species of Special Concern: A ranked assessment of species, subspecies, and distinct populations of birds of immediate conservation concern in California. Studies of Western Birds 1. Western Field Ornithologists, Camarillo, California, and California Department of Fish and Game, Sacramento.

SANTA CRUZ ISLAND RUFOUS-CROWNED SPARROW (*Aimophila ruficeps obscura*)

Paul W. Collins



Year-round range of the Santa Cruz Island Rufous-crowned Sparrow, a California endemic. Resident on Santa Cruz and (West and Middle) Anacapa islands; reports of former occurrence on Santa Catalina Island are of dubious validity.

Special Concern Priority

Currently considered a Bird Species of Special Concern (year round), priority 2. This subspecies was not included on prior special concern lists (Remsen 1978, CDFG 1992).

Breeding Bird Survey Statistics for California

Data inadequate for trend assessment (Sauer et al. 2005).

General Range and Abundance

Rufous-crowned Sparrows (*Aimophila ruficeps*) are widely, though patchily, distributed throughout much of the southwestern United States and Mexico (AOU 1998, Collins 1999). In California, they are resident on the lower slopes and interior valleys of the Coast, Transverse, and Peninsular ranges from Mendocino and Glenn counties south into northwestern Baja California Norte, in the foothills of the western Cascades and Sierra Nevada mountains from Shasta County to southwestern Kern County, and in several isolated desert mountain ranges to the southeast (Small 1994). Of the 17 subspecies of *A. ruficeps* currently recognized, 4 occur in California (Collins 1999). The Santa Cruz Island Rufous-crowned Sparrow (*A. r. obscura*) is endemic to the California Channel Islands, where it currently is a breeding resident on two islands (Collins 1999, Collins and Jones in press), as described below in detail.

Seasonal Status in California

Occurs year round; breeds from late March to late August (Collins and Jones in press).

Historic Range and Abundance in California

Grinnell and Miller (1944) described *A. r. obscura* as a "permanent resident" on Santa Rosa, Santa Cruz, Anacapa, and Santa Catalina islands and "common" at least on Santa Cruz Island. The occurrence of this species on Santa Rosa and Santa Catalina has been questioned. Miller (1951) suggested that the Rufous-crowned Sparrow observed on 2 April 1927 on Santa Rosa (Pemberton 1928) was probably misidentified. A lack of additional observations of this taxon on Santa Rosa, despite intensive surveys for it (Miller 1951, Rett 1953, P. Collins unpubl. data), supports Miller's contention that it never occurred on this island as a resident. Two specimens assigned to *A. r. obscura* (Dickey and van Rossem 1923) and reported to have been collected at Santa Catalina Island on 19 and 28 June 1863 (Cooper 1870; MVZ #'s 4140, 4141) are of dubious origin. Although it is impossible to verify whether the species has been extirpated from Santa Catalina, a lack of further observations of this species there coupled with Cooper's (1870) report of a number of very suspect bird records (first and only Channel Island sightings) from this island, makes it likely that some mistake was made as to the collection locality for the 1863 *A. ruficeps* specimens.

Santa Cruz Island. Most early reports on the status of this sparrow on Santa Cruz Island list it as "fairly common" or "common" (e.g., Howell 1917, Dickey and van Rossem 1923, Willett 1933, Sheldon 1990), though Dawson (1923) termed it "abundant" there in the spring of 1915.

Anacapa Island. Rufous-crowned Sparrows were first reported from Anacapa on 26 August 1940 (LACM #19783) and next observed in 1963 (Banks 1966). Although Johnson (1972) suggested that the sparrows colonized Anacapa in recent times, it is likely that this secretive species was overlooked by ornithologists who visited Anacapa prior to 1940.

Recent Range and Abundance in California

Except for the possible but doubtful extirpation of a resident population from Santa Catalina Island, the overall outline of the breeding range of *A. r. obscura* today remains unchanged (see map). Vegetation stripping from overgrazing by feral herbivores during the past 150 years undoubtedly reduced suitable coastal sage-grassland breeding habitat on the islands. Van Vuren and Coblentz (1987) recorded 83 birds per km^2 in a lightly (sheep) grazed chaparral-grassland community on Santa Cruz Island but no birds in a similar but moderately grazed habitat. With the removal of feral herbivores from Anacapa in 1937 (Hochberg et al. 1980) and from Santa Cruz in 1989 (Schuyler 1993), however, suitable breeding habitat for this sparrow is now more broadly distributed across these islands than formerly, and *A. ruficeps* numbers appear to be rising (M. A. Holmgren pers. comm., L. Laughrin and R. Klinger unpubl. data).

Santa Cruz Island. Miller (1951) described this sparrow as "somewhat more dense" on Santa Cruz than elsewhere in California. P. Unitt (unpubl. field notes, SDNHM) recorded it as "widespread" on Santa Cruz in the 1980s, and M. A. Holmgren

(unpubl. field notes, UCSB) reported it to be "fairly common" in the 1980s and "extremely common" in the early 1990s.

Recent population monitoring on Santa Cruz suggests that *A. r. obscura* is increasing in abundance and distribution there. Landbird monitoring surveys conducted during the breeding season between 1991 and 1995 recorded an average of 0.76 (range = 0.04–1.20) birds per station and detected *obscura* at an average of 40.9% (range = 3.8%–65.0%) of all stations (R. Klinger unpubl. data). Similar surveys conducted between 1998 and 2000 recorded an average of 0.90 (range = 0.80–1.01) birds per station and detected *obscura* at an average of 49.3% (range = 41%–57%) of all stations (L. Laughrin unpubl. data). Today this subspecies is considered a "local, but generally fairly common to common breeding resident" on Santa Cruz Island (Collins and Jones in press).

Anacapa Island. There are no quantitative data on the distribution and abundance of *A. r. obscura* on this island. Fieldworkers described it as one of the "more common passerine species" encountered in 1963–1964 (Banks 1966), as "common" on Middle and West Anacapa in 1968 (J. Diamond unpubl. field notes, UCLA), and as a "fairly common resident" during the mid-1970s (H. L. Jones unpubl. field notes). Today it is restricted to West and Middle Anacapa for breeding and is occasionally seen on East Anacapa (Collins and Jones in press). That landbird population monitoring on East Anacapa has detected this species on only one fall survey since 1993 (Fancy 2000) probably reflects the placement of survey transects on trails along flat terraces rather than on the steeper slopes that the species apparently prefers.

Ecological Requirements

Throughout their California range, Rufous-crowned Sparrows are typically found on moderate to steep, dry, rocky, south- or west-facing slopes with a low cover of scattered shrubs interspersed with patches of grasses, forbs, and bare ground (Collins 1999). They tend to occupy younger stands of shrubs with a more open aspect and avoid dense continuous stands of single shrub or tree species (Shuford 1993, Collins 1999).

On the islands, the types of open scrub-grassland habitats and slope aspects that *A. r. obscura* occupies are similar to those used by mainland subspecies (P. Collins unpubl. data). Santa Cruz Island Rufous-crowned Sparrows inhabit coastal-bluff, coastal sage, and open coyote-brush scrub. On Santa Cruz, the sparrow's prime habitat includes grassy hill slopes and canyon walls with scattered bushes or clumps of cactus (Grinnell and Miller 1944), thick patches of prickly-pear cactus (*Opuntia* spp.; Dawson 1923), and *Artemisia-Opuntia*-grass associations (Miller 1951). Dominant plants in the sparrow's habitat on Anacapa and Santa Cruz islands include California Sagebrush (*Artemisia californica*), Chaparral Sunflower (*Encelia californica*), Coyote Brush (*Baccharis pilularis*), Giant Rye (*Leymus condensatus*), Wild Buckwheat (*Eriogonum* spp.), prickly-pear (*Opuntia* spp.), Coastal Cholla (*O. prolifera*), Black Sage (*Salvia mellifera*), and Lemonadeberry (*Rhus integrifolia*). There are no data on the characteristics of nest placement by island sparrows, but they probably select settings similar to those used by *A. ruficeps* on the mainland. Their nests generally are in grass or against shrubs or grass tussocks either on or flush with the ground (in a natural depression or hole in the ground) or, infrequently, up to 45 cm off the ground in a low bush (Collins 1999). Pairs will raise two and possibly three broods and will renest following nest failure (Collins 1999). The fall diet of Rufous-crowned Sparrows in California is 88.4% vegetable and 11.6% animal matter, with the latter generally taken in higher proportion during the breeding season (Barlow 1902, Collins 1999). These sparrows forage primarily on the ground, generally under the protective cover of vegetation, and only rarely in open areas, in foliage, or on branches of taller woody vegetation (Collins 1999).

Threats

Currently, the principal threats to the Santa Cruz Island Rufous-crowned Sparrow are the direct and indirect effects of habitat loss, fragmentation, and degradation. Long-term fire suppression is also likely to reduce habitat for *A. r. obscura.* Degradation of native scrub and grassland habitats on both Santa Cruz and Anacapa islands from more than 150 years of intensive grazing by feral herbivores has limited the amount and quality of suitable breeding habitat for *A. r. obscura* and thereby has reduced its densities, at least on Santa Cruz (see above). Moderate to heavy grazing by feral European Mouflon Sheep (*Ovis aries*) on Santa Cruz Island has altered plant community structure by depleting the herbaceous layer, defoliating the lower branches of shrubs, and reducing shrub density (Van Vuren and Coblentz 1987). Such overgrazing also has caused arborescence of chaparral shrubs and has

substantially reduced the distribution of coastal sage scrub on Santa Cruz Island (Brumbaugh 1980). In addition to reducing overall availability of habitat, feral herbivore grazing (historically on both islands) and feral pig (*Sus scrofa*) rooting (historically on Santa Cruz Island) have probably increased the susceptibility of ground nesters such as the Rufous-crowned Sparrow to both native and non-native nest predators. On Santa Cruz Island, Island Scrub-Jays (*Aphelocoma insularis*), Santa Cruz Island Foxes (*Urocyon littoralis santacruzae*), and Island Spotted Skunks (*Spilogale gracilis amphiala*) abound. Feral pigs were eradicated from Santa Cruz Island by early 2007. Predation from feral cats (*Felis catus*) at West Anacapa Island (historically) and Black Rats (*Rattus rattus*) on all three of the Anacapas, until they were eradicated in 2001 and 2002 (Howald et al. 2005), have probably limited *A. r. obscura* populations on Anacapa Island. Nest predation by mammals and reptiles was a primary cause of failure of *A. ruficeps* nests in coastal sage scrub in southern California (Ellison 1998).

The sparrows' preference for short brush suggests they are "short-distance colonizers, adapted to invade areas swept by fire or other disturbances that open up the cover" (Shuford 1993). Controlling or eliminating episodic disturbances, such as fire or light to moderate levels of grazing, will lead to the development on Anacapa and Santa Cruz islands of dense stands of chaparral and coastal sage scrub, which the sparrows are expected to abandon once the brush cover becomes too dense (Collins 1999). On the mainland, Rufous-crowned Sparrows are more abundant in larger patches of suitable coastal scrub habitat than in smaller, more fragmented patches (Bolger et al. 1997).

Brown-headed Cowbird (*Molothrus ater*) parasitism is not currently a factor because cowbirds are not known to breed on any of the Channel Islands (Collins and Jones in press), and *A. ruficeps* is only a rare host of cowbirds on the mainland (Ellison 1998, Collins 1999).

Management and Research Recommendations

- Conduct research to identify specific habitat requirements and ecological needs; in particular, determine demographic rates in various habitat types.
- Initiate studies to examine how fire can be used in chaparral and coastal sage scrub to help maintain open scrub-grassland suitable for this sparrow.
- Gather needed data on poorly studied biological attributes (phenology, ecology, population demography, behavioral ecology) of this subspecies.
- Determine details of the distribution of *A. r. obscura* on Anacapa and Santa Cruz islands and investigate which vegetative and physiographic parameters are correlated with high abundance and reproductive success in this island endemic.
- Implement studies to elucidate the genetics, phylogeny, population genetic structure, and taxonomic validity of this island endemic.

Monitoring Needs

Both current National Park Service landbird monitoring efforts (van Riper et al. 1988, Sogge et al. 1989, Super et al. 1991, Fancy 2000) and Breeding Bird Surveys (Sauer et al. 2005) are inadequate for monitoring population trends of this subspecies. Survey routes typically are along roads or trails on relatively flat to slightly sloping terrain or on islands (East Anacapa) with marginal habitat, but are lacking where most sparrows occur, on moderate to steep, brushy slopes, away from roads and trails. Winter counts (e.g., the Christmas Bird Count) are likely to be inadequate because of this species' cryptic appearance, stealthy behavior, predilection for inaccessible habitat, and quiet demeanor during fall and winter. Annual standardized off-road counts based on variable circular plots (Ralph et al. 1993), including estimation of an index of breeding population size, might be a more suitable method for monitoring populations of *A. r. obscura*. Attempting to estimate annual adult survival and breeding productivity via constant-effort mist-netting (e.g., MAPS program; DeSante et al. 1993) may not be feasible because of the difficulty of mist-netting in the scrub habitats this species prefers and in the high winds and variable weather conditions on the islands.

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