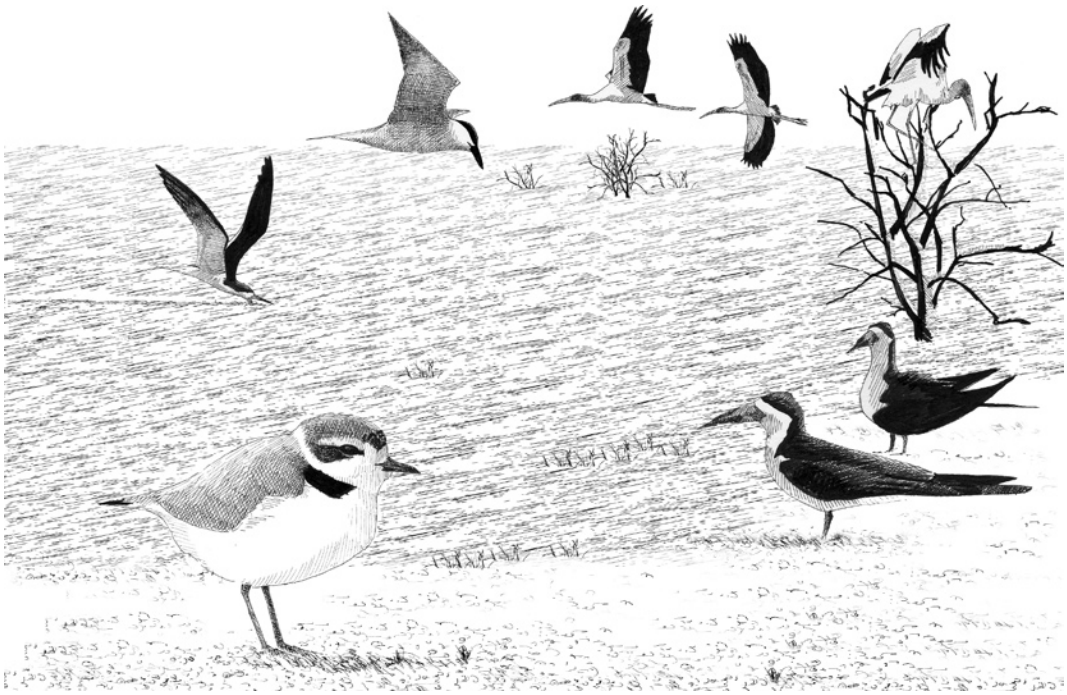
II

Species Accounts



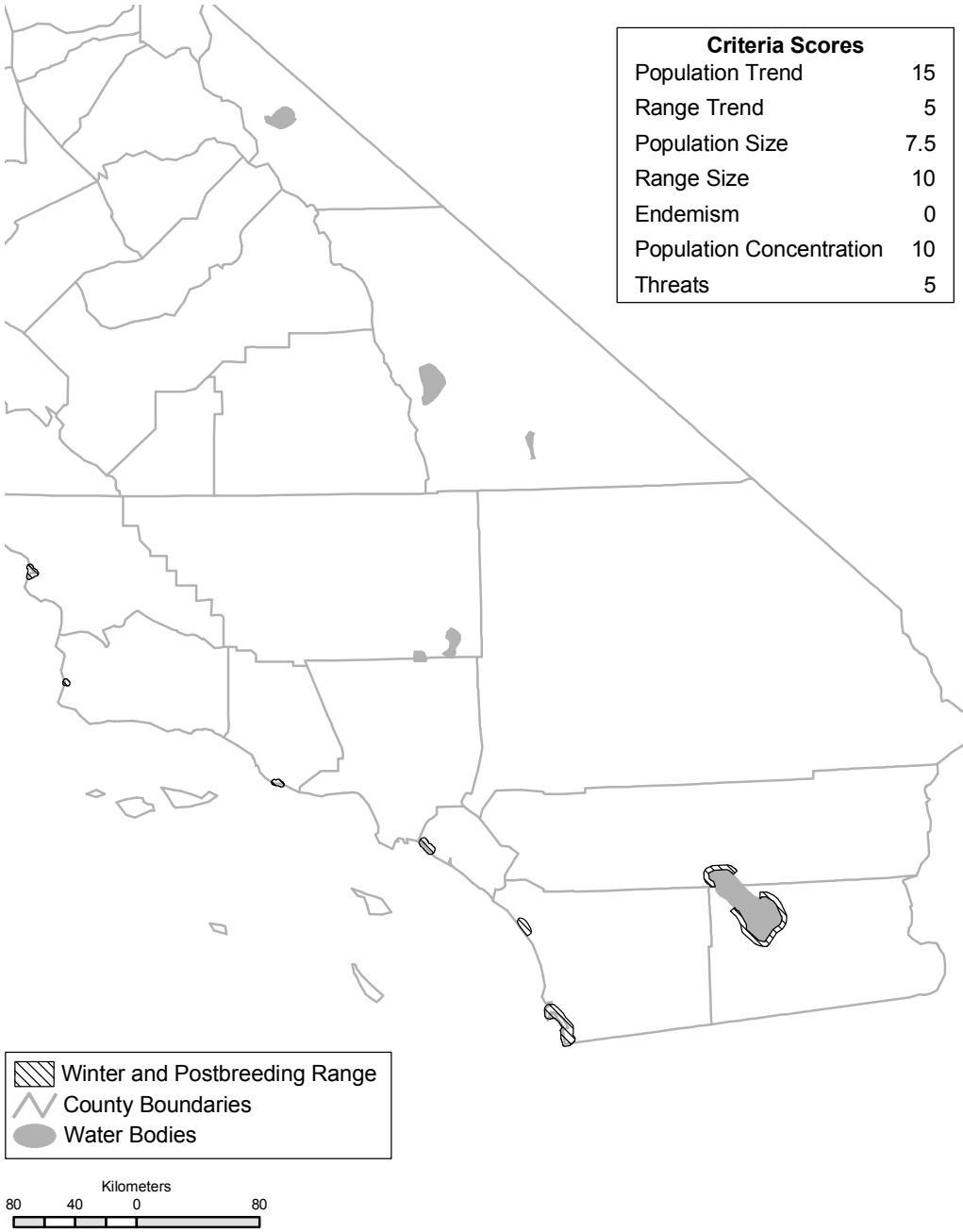
Andy Birch

PDF of Large-billed Savannah 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.

LARGE-BILLED SAVANNAH SPARROW
(*Passerculus sandwichensis rostratus*)

Kimball L. Garrett



The localized postbreeding and winter range of the Large-billed Savannah Sparrow in California; mapped polygons show areas of regular nonbreeding occurrence by multiple birds. On the coast, formerly occurred rarely north to Santa Cruz (not depicted); historical status along the lower Colorado River of California is uncertain. In the mid 20th century, overall numbers declined sharply and the range retracted along the coast and at the Salton Sea; since the 1980s, numbers have increased somewhat and much of the former range has been reoccupied.

Special Concern Priority

Currently considered a Bird Species of Special Concern (nonbreeding), priority 2. Not included on prior special concern lists (Remsen 1978, CDFG 1992).

Breeding Bird Survey Statistics for California

Does not breed in California.

General Range and Abundance

The Savannah Sparrow (*Passerculus sandwichensis*) breeds widely across northern and central North America and winters primarily in the southern United States, Baja California, and mainland Mexico south to Guatemala and northern Honduras; resident populations occur mainly on the Pacific coast from central California to Baja California and on the northwestern coast and in the central highlands of mainland Mexico (Wheelwright and Rising 1993).

One of 17 subspecies currently recognized, the Large-billed Savannah Sparrow (*P. s. rostratus*) breeds mainly in the delta of the Colorado River and adjacent coasts of the Gulf of California in northeastern Baja California (perhaps south to San Felipe) and south to about latitude 30° N in northwestern Sonora, Mexico (AOU 1957, Miller et al. 1957, Wheelwright and Rising 1993). The core breeding area of *P. s. rostratus* is the delta of the Colorado River, such as Isla Montague, Baja California (where considered "abundant"; Peresbarbosa and Mellink 1994). It has recently bred, at least sporadically, at the Cerro Prieto geothermal pond complex south of Mexicali, Baja California (Molina and Garrett 2001). In fall and winter, it disperses southward, westward, and northward to occupy a range from coastal southern California and the Salton Sea south to northern Sinaloa and the Cape District of Baja California (AOU 1957). Formerly quite numerous, but numbers much reduced since about 1940 to 1950.

Cassin (1852) described this form as a new species, and its breeding range was still unknown into the 20th century (Grinnell 1905, Anthony 1906). Along with related subspecies in southern Sonora and central and southern Baja California, *rostratus* was recognized as a full species by the AOU (1931) and Grinnell (1939), but subsequently it has generally been considered a subspecies of the Savannah Sparrow (Grinnell and Miller 1944, van Rossem 1947). According to van Rossem (1947), *rostratus* is part of a group of large-billed subspecies generally confined to salt marshes and halophytic scrub. Molecular studies by Zink et al. (1991, 2005) found mitochondrial DNA divergence that suggested full species status for *rostratus*. Still, further analysis is warranted of the relationship between *rostratus* and other large-billed Baja California and Sonora subspecies, of the sister-group relationship between the large-billed subspecies and the coastal California salt marsh subspecies, and of the relationships between this clade and the remaining continental subspecies.

Seasonal Status in California

A nonbreeding visitor occurring primarily from late August to early March (Grinnell and Miller 1944, Garrett and Dunn 1981) along the southern coast and from late July to mid-February (peak numbers Nov through Jan) at the Salton Sea (Patten et al. 2003).

Historic Range and Abundance in California

Large-billed Savannah Sparrows occurred along the coast of California from San Luis Obispo County south to the Mexican border; a few were recorded north to Santa Cruz County (Grinnell and Miller 1944). This subspecies was considered "common" in coastal marshes and beaches from Los Angeles County southward (Grinnell 1898, Willett 1912, Grinnell and Miller 1944), several hundred specimens having been collected from the vicinities of Ballona and San Pedro, Los Angeles County, south through Orange and San Diego counties (CAS, LACM, MVZ, SDNHM, and other collections). Smaller numbers occurred north to Santa Barbara, where it was considered "common" in 1909–1911; tallies on the local Christmas Bird Count (CBC) were 12 birds in 1912 but only 1–3 birds per year from 1917 to 1939 (Lehman 1994). *Rostratus* also occurred at Morro Bay, San Luis Obispo County, early in the 20th century (Grinnell and Miller 1944), but no quantitative information is available for this area. Some were found at least rarely in fall and winter on the Channel Islands, as indicated by specimens from San Clemente, Santa Barbara, and San Miguel islands (LACM, MVZ). This subspecies has not been recorded inland on the coastal slope. Anthony (1906) reported possible nesting in San Diego and Oceanside, California, but this was never confirmed, despite special efforts by egg collectors to locate nests of this taxon (Unitt 1984).

In the interior, *rostratus* was found regularly only at the Salton Sea, from the vicinity of Mecca, Riverside County, south to the southern end in Imperial County (Grinnell and Miller 1944). This subspecies perhaps occurred regularly in the California portion of the lower Colorado River valley, but the only certain record for that region is a specimen taken in Yuma in August 1902 (Rosenberg et al. 1991).

Recent Range and Abundance in California

A major drop in the numbers of Large-billed Savannah Sparrows wintering in California occurred around the time of publication of Grinnell and Miller (1944). From 1944 until around 1990, these sparrows were almost entirely restricted in California to the Salton Sea, where they wintered annually in small numbers. Patten et al. (2003) noted an increase in numbers at the Salton Sea since the mid-1980s, with a recent peak count of >100 birds at the south end of the Salton Sea 22 November 1989 (AB 44:165). Extrapolations from focused surveys in the early 2000s suggest that a minimum of several hundred *rostratus* likely winter along the shore of the Salton Sea, with the great majority concentrated in the southern half (S. J. Peterson and W. Hayes unpubl. data). The largest numbers at the Salton Sea have recently been found at Obsidian Butte and the vicinity of the mouth of the New River. A probable sighting was made in the Bill Williams River delta on the Arizona side of the lower Colorado River in January 1977 (Rosenberg et al. 1991), but no recent records exist for the California side.

Since around 1990, there has been a reappearance of some birds in coastal marshes from San Diego north to San Luis Obispo County (see map); none have been recorded north of there since early in the 20th century. In San Diego County, small numbers winter, primarily at the Tijuana River estuary. After a long hiatus, *rostratus* was first noted there in 1977 (Unitt 1984), and one to five individuals were tallied annually on San Diego CBCs through the 1990s. More recent winter surveys have tallied from 6 to 9 birds at the Del Mar Jetty at Camp Pendleton, North Island, south San Diego Bay, and Imperial Beach, and fewer at the San Luis Rey River mouth and San Diego River flood-control channel (Unitt 2004). In Orange County, small numbers (up to 11 in Nov 1994) have been recorded at the Seal Beach NWR in fall and winter annually since the late 1980s or early 1990s, and a few have also been found during this period at Bolsa Chica Reserve and Upper Newport Bay (Hamilton and Willick 1996). In Los Angeles County, one or two individuals have occurred along the Ballona Creek jetties in Playa del Rey in fall and early winter annually since 1999, and another was on the Los Angeles Harbor breakwater in fall 2001 (LACM files). In Ventura County, small numbers are regular in salt marshes at Point Mugu in fall and winter, but no quantitative or temporal data are available. In Santa Barbara County, *rostratus* was unrecorded from the 1940s until 1990, when one was at the mouth of the Santa Ynez River; there have been several subsequent winter records for that locality (Lehman 1994). In San Luis Obispo County, *rostratus* is currently a scarce winter visitor to salt marshes at Morro Bay; this subspecies was not mentioned by Marantz (1986), so the reestablishment of a small wintering population probably occurred within the past 15 years.

Ecological Requirements

Breeding habitat of *rostratus* is specialized. It is nearly limited to open, low salt marsh vegetation, including grasses (*Spartina*, *Distichlis*), pickleweed (*Salicornia* spp.), and iodine bush (*Allenrolfea* spp.), around the mouth of the Colorado River and adjacent coastlines of the uppermost Gulf of California; less typical breeding habitat is *Frankenia*-dominated scrub on the inland borders of beaches (Wheelwright and Rising 1993, Russell and Monson 1998). *Rostratus* nests mainly in March and April in Sonora, but nest building there has been noted as late as 20 June.

Rostratus is almost entirely restricted to shorelines within its California nonbreeding range. Accounts of wintering birds in coastal southern California from days of former abundance emphasized use of salt marshes, beaches, kelp wracks, wharves, docks, and city streets (Grinnell and Miller 1944, Unitt 2004). There are few coastal records away from salt marshes or the immediate shoreline. Apparent transients include one at a freshwater marsh at San Joaquin Marsh, Irvine, Orange County, on 28 August 1994 (Hamilton and Willick 1996) and one photographed in annual growth and coastal sage on the Palos Verdes Peninsula on 27 August 1995 (D. M. Heindel; LACM files).

At the Salton Sea, *rostratus* occurs just back from the shoreline in low halophytic scrub, dominated by Iodine Bush (*Allenrolfea occidentalis*) and saltbush (*Atriplex* spp.), and in introduced *Bassia hyssopifolia* and stands of young tamarisk (*Tamarix*

ramosissima). This sparrow also forages on barnacle beaches on the immediate shore and can be especially numerous along constructed seawalls and rocky shoreline outcroppings.

Threats

The steep decline in the global population of this subspecies is almost certainly tied to massive habitat changes in the delta of the Colorado River after construction of upstream dams and subsequent reduction of freshwater flow to the river's mouth. However, no quantitative assessment of the extent of suitable salt marsh habitat exists for pre- or post-dam construction eras, so the role of habitat loss or modification can only be speculated upon. Major dam building along the lower Colorado River began with the construction of Laguna Dam in 1907 and reached a peak with the completion of Hoover Dam in 1936, Parker and Imperial dams two years later, and Davis Dam in 1954 (Rosenberg et al. 1991). The period of steep decline of Large-billed Savannah Sparrows closely matched this dam-building era. Nesting attempts have been destroyed by high tides on Isla Montague in the delta of the Colorado River (Peresbarbosa and Mellink 1994), and such events may be more frequent since dam building reduced the amount of sediment deposited at the Colorado River mouth (Glenn et al. 1995). The recent slight resurgence in numbers of Large-billed Savannah Sparrows reaching California may be the result of increased habitat quality and breeding success following several years of above average releases of fresh water to the delta in the 1980s and 1990s.

Given the overriding importance of breeding habitat loss to the decline of this subspecies, potential population impacts from modification of winter habitats are probably slight. The cumulative loss of about 75% of historic salt marsh habitat in coastal southern California by 1970, extensive disturbance of remaining marshes, and surrounding extensive urban development (Zedler 1982) has limited potential winter habitat for these sparrows. A possible factor in declining habitat quality on the southern California coast is the thorough daily raking of large stretches of beaches by county and state maintenance workers; in the process, kelp and associated food resources for the sparrows are not allowed to accumulate. Urbanization adjacent to the inland limit of beaches also eliminates weedy growth and tracts of salt grass (*Distichlis*), which formerly provided an abundant food source for these sparrows. The period of former abundance of Large-billed Savannah Sparrows in coastal towns and wharves in southern California preceded the extensive urbanization that has "sterilized" these beach areas.

Management and Research Recommendations

- Increase protection and restoration of southern and central California coastal marshes.
- Work with agencies, nonprofits, and stakeholders in the southwestern United States and northwestern Mexico to assure a greater flow of freshwater to the mouth of the Colorado River to replenish marsh habitats; more generally, address the larger issue of profligate water use and human population increases in the entire region.
- Assess the status of breeding populations. An understanding of the population dynamics and conservation concerns of this species must begin with a thorough assessment of population sizes, habitats, and trends in the delta of the Colorado River and other marshlands in coastal northwestern Sonora and northeastern Baja California.
- Conduct more detailed studies of the winter ecology of this subspecies at the Salton Sea and at important coastal wintering localities in California; in particular, investigate specific habitat relationships and appropriate physiological and demographic data that might address habitat quality (such as age and sex ratios, winter return rates, and individual physical condition).
- Determine subspecies limits within the Large-billed Savannah Sparrow and resolve taxonomic issues surrounding this complex. For example, is *rostratus* separable from *atratus* of the central and southern Sonora coast and adjacent Sinaloa? And what is the relationship between these two taxa and the relatively large-billed populations of the west coast of Baja California Sur as well as *sanctorum* on the Islas San Benitos? As a corollary, genetic markers and other techniques should be used to confirm that the Colorado River delta region is the source of California wintering populations.

Monitoring Needs

Coastal salt marsh surveys, perhaps best accomplished at high tides, should be conducted to determine winter numbers and assess population trends. Similarly, surveys of the shoreline of the

Salton Sea, at least from Salton City counterclockwise around the south end to Bombay Beach, should be undertaken annually to examine population trends and interannual variation in numbers. Additional monitoring (e.g., of breeding populations) would have to take place outside of California.

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