

FIVE-YEAR STATUS REPORT

I. COMMON NAME: Belding's Savannah Sparrow
SCIENTIFIC NAME: Passerculus sandwichensis beldingi
CURRENT CLASSIFICATION: Endangered

II. RECOMMENDED ACTION:

Retain Endangered classification

III. SUMMARY OF REASONS FOR RECOMMENDED ACTION:

Retention of the Endangered classification for the Belding's Savannah Sparrow (BSS) is warranted, based on the current knowledge of the continuing loss of wetland habitat within the range of the species.

IV. NATURE AND DEGREE OF THREAT:

The only known threat to the continued existence of the BSS in California continues to be the destruction or degradation of its salt-marsh habitat, of which the BSS is a resident. Habitat includes the mudflats and saltflats associated with the marsh. Salt-marshes have been destroyed by draining and filling, and have been degraded by the cutting off of tidal action, loss of the upper marsh, human foot traffic, filling, dumping, and use of recreational vehicles.

Since the higher elevations of the marsh are the easiest and first to be filled, appropriate habitat for the BSS has been disproportionately lost. Upper marsh is poorly represented even in existing protected wetlands due to past encroachments (R. Zembal pers. commun.).

It has been suggested that the exotic lowland Red Fox, which has invaded many salt-marshes within the range of the BSS, may disrupt BSS nesting by raiding nests and taking eggs. The impact of Red Foxes on the BSS is unknown.

V. HISTORIC AND CURRENT DISTRIBUTION:

The BSS is resident in coastal southern California and coastal northern Baja California. It is found from Goleta in Santa Barbara County to Mexico. "Geography is the main basis for the classification of the Belding's Sparrow as a subspecies. The large gaps north of Goleta and south of San Quintin, coupled with their sedentary ways, keep them geographically isolated" (Massey 1979).

There is no information which would suggest that the geographic range is currently smaller than it was historically. However, the distribution is certainly more spotty, with the known disappearance of several

populations. R. Zembal (pers. commun.) states that breeding populations apparently have been extirpated from Santa Barbara County at Carefoot Slough and Isla Vista; from Ventura County at Ventura, Hueneme, and McGrath State Beach; from Los Angeles County at Zuma Beach, Santa Monica, Malibu Lagoon, Harbor Lake-Bixby Slough, and Los Angeles and Long Beach harbors; from Orange County at Sunset Aquatic Park and the Santa Ana River mouth marsh; and from San Diego County at Beacon Island.

The BSS currently is found at 27 marshes within California (Zembal et al. 1986).

VI. HISTORIC AND CURRENT ABUNDANCE:

There is no estimate of the historic population. There have been three censuses of the BSS within the past 15 years, those of Bradley (1973), Massey (1977), and Zembal et al. (1986). The Bradley (1973) census was incomplete in that it did not sample about half of the wetlands which might have had the BSS. In 1973 approximately 1,059 breeding pairs of the BSS were found in 11 marshes in California, and an additional 1,070-2,070 pairs were found in Baja California (Bradley 1973).

Massey (1977) found approximately 1,610 pairs of the BSS breeding at 28 locations in California in 1977. Three of these marshes (Anaheim Bay, Mugu Lagoon, and Bolsa Chica) had 44% of the state's population (267, 250, and 186 pairs respectively).

Zembal et al. (1986) found 2,274 pairs breeding at 27 locations in California in 1986. Two of these sites were not censused by Massey (1977), but three sites which had the BSS in 1977 did not have the species in 1986. In 1986 the largest populations were at Mugu Lagoon, Upper Newport Bay, Anaheim Bay, Tijuana Marsh, and Bolsa Chica (446, 245, 244, 225, and 163 pairs respectively) (Zembal et al. 1986).

VII. SPECIES DESCRIPTION AND BIOLOGY:

The BSS is a member of the avian Family Emberizidae, a large family which includes wood-warblers, bananaquits, tanagers, cardinals and grosbeaks, certain finches, sparrows, towhees, and blackbirds. The particular Subfamily (Emberizinae) to which the sparrows belong also includes various cardinals, some finches, towhees, seedeaters, juncos, and longspurs.

The BSS is one of 16 subspecies of the Savannah Sparrow, which breeds from northern Alaska and northern Canada south to southern Mexico and Guatemala and east to Ohio, West Virginia, western Maryland, and western Pennsylvania. In winter the Savannah Sparrow is found from southern British Columbia south to Honduras and east across the southern half of the United States to the Atlantic coast and Cuba. It is a bird of "[o]pen areas, especially grasslands, tundra, meadows, bogs, farmlands, grassy areas with scattered bushes, and marshes, including salt marshes in [several subspecies]" (Amer. Ornithol. Union 1983).

Six of the subspecies of the Savannah Sparrow, including the BSS, have geographic ranges (breeding and/or wintering) entirely or partly in California. Four of the subspecies actually breed in the state.

The BSS, like other Savannah Sparrows, is predominantly brown and beige, with fine streaking on the head and face. It is distinguished from most other subspecies by its darker coloration, lack of a distinct crown stripe, and heavy streaking on the breast and sides. "The bird is very inconspicuous in appearance, as befits a ground-dwelling bird. It blends so well with the vegetation of the saltmarsh in which it resides, that often one cannot readily sight a stationary bird, even though it is singing steadily" (Massey 1979).

"The nest is a round, fairly shallow cup, with an inner diameter of about 7 mm. The outer shell is a lacework of dried Salicornia twigs and the lining is some softer material. Dried grasses are often used, or a very fine, wiry black filament that appears to be horsehair. The final touch is a few feathers" (Massey 1979). "Nests built in Salicornia virginica bushes in the upper littoral zone are usually up a few inches off the ground. Although the vegetation in this region is safe from inundation, the ground is wet (sic) by high tides and the nests stay dry only if slightly elevated" (Massey 1979). Nests are also found in the maritime zone, usually built right on the ground. "The usual clutch size is three although two and four egg clutches are regularly seen" (Massey 1979).

Massey (1979) found that the BSS forages "extensively on the ground and in all three littoral subzones [see discussion of these subzones in VIII. HABITAT REQUIREMENTS]. They also feed upland of the marsh and on beaches and rock jetties close to marshes. They do not appear to venture farther inland than the maritime zone." She further states that the BSS forages at all times of year on mudflats, saltflats, and rock jetties. In winter "they often forage in small flocks on the ground in the upper portion of the marsh. They appear to be gleaning insects.... They also forage through the saltmarsh vegetation, picking off insects...."

VIII. HABITAT REQUIREMENTS:

A undisturbed coastal salt-marsh of southern California has two major zones. One is the "littoral, or intertidal, zone covering the reach between the lowest tide lines; the other is the maritime zone, above the reach of the highest tides. The littoral can be subdivided into three sections, according to both vegetation and tidal influence. The lowest in elevation is the lower littoral, a sub-zone dominated by cordgrass (Spartina foliosa) and partially submerged by tidewaters every day. The middle littoral has a more diverse flora with four species often found in abundance. Two are pickleweeds, the perennial Salicornia virginica, and an annual, S. bigelovii. Saltwort (Batis maritima) and a composite with a small yellow flower and no common name (Jaumea carnosa) are also abundant in the middle littoral. This sub-zone undergoes saturation of the soil by high tide every day, but the vegetation is not inundated except at spring tides. The uppermost portion of the littoral has the

most diverse flora, but one species dominates this region--Salicornia virginica. Only during unusually high spring tides is this region inundated" (Massey 1979).

"The Belding's Sparrow has a particular affinity for the upper littoral region of the marsh. There are 6-8 major plant species in this sub-zone. The dominant species, Salicornia virginica, is one of three pickleweeds that grows in the saltmarsh, and by far the most common. It grows in all three littoral zones and dominates the upper and very often the middle zones. Other major plants in the upper littoral zone are seablite and saltwort, both succulent-leaved, mini-flowered species. Two grasses are common in this zone -- Distichlis spicata, the saltgrass that grows in dense mats, and Monanthochloe littoralis whose common name is salt cedar [the usual common name is Shore Grass], a creeping grass with clusters of short leaves on long, wiry stems. Two other major plants are unusual in having more visible and attractive flowers -- alkali heath (Frankenia grandiflora) with its small pink blossoms, and sea lavender (Limonium californicum), a plant with a basal tuft of leaves and a spike of handsome purple flowers" (Massey 1979).

Recent field work has shown that the distribution of plant species across a salt-marsh is influenced by many factors and that individual species do not separate well into the three littoral zones described by Massey (1979). Vegetational patterns in a southern California salt-marsh occur in a gradient from low marsh to high marsh. According to the most recent definitions of high marsh, Salicornia virginica is not found in or is scarce in the high marsh (R. Zembal pers. commun.).

"The Belding's Sparrow nests preferentially in the upper littoral sub-zone, and its preferred site is in pickleweed. The nest must be above the reach of the highest spring tide, hence must be placed in the upper region of the marsh. The sparrows also nest in the maritime zone" (Massey 1979).

"The sparrow has a very close association with S. virginica. Not only is it the preferred plant in which to build the nest, but the birds often eat the succulent growing tips of its branches. Females use dried twigs from the plant in building their nests. The males use the highest branches of the plants as song perches, when establishing breeding territories" (Massey 1979).

IX. CURRENT AND RECOMMENDED MANAGEMENT:

The primary management need in conservation of the BSS is protection and restoration of salt-marsh habitat in as many marshes as possible. Although a large percentage of the BSS population in California is resident in only a handful of marshes, it is important to maintain a large number of sites in order to preserve genetic diversity and to provide a hedge against human-caused or natural catastrophe.

"About 63% of the marshes currently occupied by Belding's Savannah Sparrows are privately owned, at least in large part. Some of the most secure of the existing colonies are those found on lands owned by the U.S. Navy, totaling about 740.5 ha (34.4% of the occupied marshlands)

plus portions of the 157 ha Tijuana Estuary National Wildlife Refuge. These lands currently hold about 45.2% of the Belding's (sic) detected in the state. Other secure sites include those owned and managed, at least in part, by the California Department of Fish and Game and the University of California" (Zemba *et al.* 1986).

Appropriate salt-marsh habitat is protected on military properties such as at Mugu Lagoon and Camp Pendleton. A cooperative program of management on these important marshes is necessary between the Department of Fish and Game (DFG) and the military.

Other habitat has been preserved on state ecological reserves, such as at Bolsa Chica and Upper Newport Bay, and on a property of the University of California reserve system. The DFG must be alert to opportunities to obtain through fee-purchase additional salt-marsh habitat within the range of the BSS.

Even those marshes which are protected on public lands must be guarded against degradation by human ingress, either through foot traffic or vehicles. Foot paths, horse trails, and roads constructed in salt-marshes may have significant negative impacts on marsh dependent species like the BSS.

Degraded marshes should be restored, in terms of restoring full tidal action, removing of dumped materials, and restoring the complete littoral and maritime zones.

A complete survey of the California population should be repeated at least every five years, in order to determine population status on a marsh-by-marsh basis.

A current survey of the BSS in Baja California is needed, in order to determine the health of that population, to determine the relative importance of the California population to the survival of the BSS, and to support a federal listing package (see discussion below).

The BSS is listed as a Candidate 2 species on the latest federal notice of review of vertebrate species. This listing means that the U.S. Fish and Wildlife Service (FWS) considers that the BSS may be eligible for classification as an Endangered or Threatened species. The DFG believes that sufficient information on the California population is available to justify a federal listing package. The FWS will probably wish to have information on the Baja California population before considering whether a listing package should be prepared.

The advantage of a federal classification of Endangered or Threatened for the BSS is that federal agencies which permit, finance, or undertake projects would be required to avoid or compensate for impacts to the BSS and its habitat. In addition, the habitat on non-federal lands would have a measure of protection under the federal Endangered Species Act, if an action to destroy or alter BSS habitat on these lands required federal approval, funding, or a permit. No such habitat protection is available under the California Endangered Species Act.

An investigation of the impact of the exotic lowland Red Fox on the breeding effort of the BSS is needed. It is known that the Red Fox disrupts breeding Light-footed Clapper Rails and California Least Terns in marsh areas which also have the BSS.

A recovery plan which would incorporate elements of the management needs discussed herein should be prepared.

In summary, the management needs of the BSS in priority are as follows:

1. Protection of salt-marshes at many sites through establishment in public ownership, or through cooperative programs.
2. Restoration of degraded marshes through prohibition of dumping, removal of dumps, prohibiting foot and vehicle traffic, restoration of tidal action, and restoration of upper marsh zones.
3. Determination of the status of the BSS population in Mexico.
4. Preparation of a recovery plan which would incorporate the elements of protection and restoration of habitat, and of periodic surveys and studies.
5. Investigation of the impact of Red Foxes on the BSS.
6. Classification of the BSS as Endangered or Threatened by the Secretary of the Interior.
7. Periodic surveys (at least every five years) to determine the status of the BSS in California, in terms of distribution and size of population.

X. SOURCES OF INFORMATION:

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- Massey, B. W. 1977. A census of the breeding population of the Belding's Savannah Sparrow in California, 1977. Calif. Dep. Fish Game, Nongame Wildl. Investigations Final Rep., Proj. E-1-1, Job IV-1.2.
- Massey, B. W. 1979. The Belding's Savannah Sparrow. So. Calif. Ocean Studies Consortium of the Calif. State Univ. and Colleges Rep. submitted to the U.S. Army Corps of Engin. (Los Angeles) under contract no. DACW09-78-C-0008.

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