

A NESTING POPULATION OF CASSIN'S SPARROWS IN THE SANDHILLS OF NEBRASKA

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Abstract.—In 1993 a small population of Cassin's Sparrows (*Aimophila cassinii*) was found nesting in the sandhills of Nebraska. There were at least six pairs, and three nests, one with five eggs and two with five young, were found. As singing males may not indicate nesting in this species, numerous earlier sightings have not clarified the breeding status of the Cassin's Sparrow in the central and northern Great Plains. These findings suggest that Cassin's Sparrows nest locally and periodically in this region, especially in substantial grasslands with high densities of grasshoppers.

POBLACIÓN RESIDENTE DE *AIMOPHILA CASSINII* EN NEBRASKA

Sinopsis.—En el 1993 se encontró una pequeña población del gorrión *Aimophila cassinii* en Nebraska. En la localidad se encontraron un mínimo de seis parejas y tres nidos de estas aves. Uno de los nidos contenía cinco huevos y los otros dos cinco pichones cada uno. Avistamientos anteriores no habían demostrado que el ave fuera residente de las Grandes Planicies, ya que el oír a machos de la especie cantando no es sinónimo de reproducción. Nuestro informe sugiere que este gorrión anida localmente y periódicamente en esta región, particularmente en yerbasales con densidades altas de saltamontes.

The Cassin's Sparrow (*Aimophila cassinii*) is a North American grassland endemic, whose breeding range has proven difficult to define. Plainly colored and usually secretive, these birds become conspicuous only when males are singing and performing their characteristic song-flights (Schnase and Maxwell 1989). Field workers who have observed singing males, however, often have found no evidence of subsequent nesting (e.g., Phillips 1944). This has led to speculation that Cassin's Sparrows may wander opportunistically in summer, maintain a state of reproductive readiness, and then breed only under particular (and largely unknown) circumstances (Hubbard 1977).

Cassin's Sparrows nest regularly, if sporadically, from southeastern Colorado and southwestern Kansas, south through Texas, parts of southern New Mexico and southeastern Arizona, and into northern Mexico (Williams and LeSassier 1968, Wolf 1977). Breeding habitat consistently is grassland with scattered shrubs (Hubbard 1977).

Faanes et al. (1979) and Labeledz (1986) described and reviewed more northerly records of singing male Cassin's Sparrows, including a single bird in central Wyoming, another in southwestern South Dakota, and numerous sightings from shrub-grasslands in northeastern Colorado,

western Nebraska, and southwestern Nebraska. There apparently is only one record of an actual breeding attempt in this entire region, however, a nest with eggs from Perkins County in southwestern Nebraska (Williams 1974).

In June 1993, we discovered a small nesting population of Cassin's Sparrows in the sandhills prairie of western Nebraska, about 55 km north of the 1974 Perkins County record. The locality was along an abandoned road, about 5 km north of Lake McConaughy, in Keith County. There were a minimum of six males performing song-flights, and we discovered three nests.

Perennial mid-height native grasses were the predominant ground cover where the Cassin's Sparrows were nesting. Common species were needle-and-thread grass (*Stipa comata*), western wheatgrass (*Agropyron smithii*), little bluestem (*Andropogon scoparius*), and various grammas (*Bouteloua* spp.). Scattered *Yucca glauca* were conspicuous in the grazed pastures along both sides of the road. The Cassin's Sparrows appeared to spend a disproportionate amount of time in ungrazed taller and denser vegetation between the fences and the abandoned roadway, where the grasslands included a higher proportion of weedy plants, especially prickly poppy (*Argemone polyanthemos*). Grasshoppers, which are the major summer food of Cassin's Sparrows (Bock et al. 1992), also appeared to be very common in this roadside habitat, although we did not quantify their abundance. Other bird species nesting along the roadside were Lark Sparrow (*Chondestes grammacus*), Grasshopper Sparrow (*Ammodramus saviannarum*), and Western Meadowlark (*Sturnella neglecta*).

We spent about 20 h over 9 d at the site, between 17 June and 12 July, and made the following observations.

17 June. At least four males were giving song-flights, each in the presence of a non-singing bird we assumed to be a female; two birds of unknown sex were seen carrying nest material.

29 June. At least three pairs were feeding together along roadsides; singing continued, but less actively than before.

30 June. Nest #1 discovered, with five eggs being incubated. The nest was built on the ground, about 2 m from the road, with its sides supported by dead stalks of a prickly poppy.

1 July. At least six males were performing song-flights in the area, four along the road and two about 100 m out into adjacent grazed pastures.

7 July. Nest #1 was still being incubated.

8 July. One newly-hatched young and four eggs were in nest #1. We also discovered two new nests; each held five downy young, whose flight feathers were still completely sheathed. Nest #2 was built about 10 cm off the ground, deep in a yucca plant, about 50 m out into a grazed pasture. Nest #3 was built on the ground next to the roadside fence, supported and partially covered by stalks of a small sandhill sage (*Artemisia filifolia*).

9 July. Nest #2 was empty, whereas nests #1 and #3 were still occupied.

11 July. Nest #1 was empty; nest #3 still had five young, nearly fully feathered, with primaries about 40% grown.

12 July. Nest #3 was empty.

All nestlings were too young to have fledged by the dates we found their nests to be empty. Unknown predators may have caused the nests to fail, but it seems equally likely that they were abandoned by the adults because of human interference. On 9 July, a road construction crew occupied the abandoned road as a site for mixing blacktop and for parking heavy equipment. Human activity was intense for the subsequent 2 wk, and we saw no more birds after the final nest was lost on 12 July. Whatever caused the nests to fail, their potential productivity (clutches and broods of five) was as high as has been found elsewhere (e.g., Johnsgard 1979, Maurer et al. 1989), suggesting that sandhills prairie can be suitable nesting habitat.

The mystery surrounding the geographical ecology of the Cassin's Sparrow may be somewhat overrated. Certainly these birds are patchily distributed, and much remains to be learned about factors affecting their breeding range and reproductive success. The presence of males performing song-flights (skylarking), however, probably does indicate nesting in most cases. Schnase et al. (1991) found that unmated males rarely sing in flight, so observations of skylarking at least should be evidence of paired birds. Furthermore, Cassin's Sparrows are so wary and secretive that brief observations of these birds, without using blinds, are unlikely to reveal the presence of either nests or nesting behavior (Johnson 1956).

Breeding Bird Survey data indicate that the Cassin's Sparrow is declining in abundance throughout its range (Knopf 1994). The causes of this decline are unknown, but Cassin's Sparrows were negatively affected by livestock grazing in southeastern Arizona (Bock and Bock 1988), apparently because they require the vegetative cover and grasshoppers associated with ungrazed habitat. It is noteworthy that the birds we found nesting in Nebraska were concentrated along an abandoned ungrazed roadside, where both vegetation cover and grasshopper densities appeared to be much higher than in adjacent grazed pastures.

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