Ecology and taxonomy of Savannah Sparrow
*Passerculus sandwichensis* in Nuevo León, Mexico

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El 1 de julio de 1996, observamos una poblacion de la cría del Gorrión Sabanero Común *Passerculus sandwichensis*, cerca el pueblo de Las Esperanzas, Nuevo León, México. Se lo discute la ecologia y las systematicas, y presentamos fotos y sonagramos.

**Introduction**

The Savannah Sparrow *Passerculus sandwichensis* is a remarkably widespread species, nesting from the Alaska to Mexico15. It has been noted at a number of sites on the Mexican plateau, although its precise breeding distribution there is poorly understood. Savannah Sparrow nests in Durango and Chihuahua8, but there are few confirmed breeding records in north-east Mexico. In Coahuila and Nuevo León, the subspecies *anthinus, brunnescens, nevadensis*, and *oblitus* are known to winter1,7,9,12,14, but breeding appears to be undocumented. Statements that the species is resident in southern Coahuila2,6, may be based upon a 13 April specimen of *brunnescens* taken outside Saltillo by Burleigh & Lowrey4. That bird was collected with two other wintering subspecies and breeding condition was not indicated. More tangible evidence of breeding in north-east Mexico comes from at least nine specimens at the Museum of Natural Science, Louisiana State University. All were collected in San Luis Potosí between 16 May and 13 August, some with a brood patch or enlarged testes (J. V. Remsen in litt. 1996).

On 1 July 1996, at c.13h00, we encountered singing male Savannah Sparrows in irrigated croplands 1.1 km south of the village of Las Esperanzas, Nuevo León at an elevation of c.1,815 m (see previous article for mapped location). Most birds were in a large potato field, but we heard others in alfalfa and wheat fields. In all, we estimated a total of c.15–20 males. The number of birds, their spacing, and their reaction to recordings and each other’s presence suggested a nesting population. Due to the lack of supporting records, we are unable to state whether these birds represent a range extension, a relict colony, or part of a large, thinly dispersed population; nor, can we say with any certainty where the closest neighbouring population might be.

**Ecology**

Adjacent to Las Esperanzas, no native grasslands or scrub remain; any that might have existed, and portions of the surrounding desert, have been irrigated for crops and grazing. Prior to extensive habitat modification, Savannah Sparrows may have been patchily distributed in this area, nesting in native vegetation. Now, small remnant populations may be wholly dependent on irrigated cropland for their nesting habitat. By 6 October 1996, the potato fields had already been harvested and planted with carrots, and Savannah Sparrows were not in evidence (A. Garza and A. M. Sada in litt. 1996). Although Byers et al.6 state that Mexican races of the species are sedentary, habitat changes may provoke local movements within some populations. Other birds observed in the vicinity, including adjacent desert “hardpan” flats supporting a thin growth of alkali-tolerant plants (e.g. saltbushes *Atriplex* spp.), were: Prairie Falcon *Falco mexicanus*, Scaled Quail *Callipepla squamata*, Burrowing Owl *Speotyto cunicularia*, Horned Lark *Eremophila alpestris*, Chihuahuan Raven *Corvus cryptoleucus*, Blue Grosbeak *Passerina caerulea*, Botteri’s Sparrow *Aimophila botterii*, Worthen’s Sparrow *Spizella wortheni*, Western Meadowlark *Sturnella neglecta*, Great-tailed Grackle *Quiscalus mexicanus* and Lesser Goldfinch *Carduelis psaltria*.

**Relationships**

The breeding form of Savannah Sparrow on the Mexican plateau is *A. s. brunnescens*6,15. Northern populations of *brunnescens* from central-east Arizona and northern New Mexico, and southern populations from Puebla are pale, averaging more greyish brown above. Birds from Mexico’s northern plateau are darkest and richest brown above with more contrasting streaking, especially on the crown; and below, with stronger streaks and, in breeding plumage, without buff. The name *A. s. rufouscus*, sometimes also applied to *brunnescens* from the south-west USA, was first used for Chihuahuan specimens exhibiting a brighter dorsum and described by Camras as the Chihuahua Savannah Sparrow13. Birds from the southern portion of the plateau south to Guerrero and Oaxaca are moderately dark to dark6,9. Wintering forms are not thoroughly documented, but include anthinus, which breeds in north Alaska and Yukon to west North-west Territories and south to British Columbia; *nevadensis* which breeds from central British Columbia and east California east to western Manitoba.
and North Dakota; oblitus which breeds from east North-west Territories to west Ontario and south to Michigan and Wisconsin; questionably brooksi, which breeds from British Columbia to north-west California, and may represent an intermediate between anthinus and nevadensis, and brunnescens1,6,9,12,14.

Without making extensive comparisons, Butler5 described the dark subspecies brunnescens from the Valley of Mexico (Distrito Federal), separating it from three farflung conspecifics (alaudinus, bryanti =alaudinus and nominate sandwichensis, a larger race breeding in much of Alaska) by its browner plumage and larger bill. Later, Peters & Griscom10 determined Butler’s type-series contained a mix of several taxa including northern migrants, a conclusion also reached by Hubbard8 during his examination of sandwichensis from south-west USA, Mexico and Guatemala. Hubbard’s sample from Mexico’s Northern Plateau extended south as far as Nayarit and east to Durango and Chihuahua. Based on plumage characteristics and a lack of significant mensural features, he included the Northern Plateau specimens and those from the Distrito Federal, Mexico, Hidalgo, Michoacán, Guanajuato, Jalisco, and tentatively Puebla, Tlaxcala, and Veracruz in brunnescens.

We doubt that sufficient study material exists to document the distribution, or plumage and morphometric variation of brunnescens at the perimeter of its range, or to clarify its relationship with forms of the south-west USA.

Plumage
RAB examined a large series of sandwichensis, including most of the described subspecies, at the Field Museum of Natural History. Specimens 13,073–13,075, collected 15 June 1902 by G. F. Breninger, at Babicora, Chihuahua, represent the subspecies rufouscus, later merged by Hubbard and others in brunnescens (but see Hubbard8 for a discussion of “rufouscus” in the south-west USA). These specimens, a female and two males, were examined alongside our series of slides, and bore a striking resemblance to the Las Esperanzas birds, more so than did any other forms present in the collection.

On the birds we photographed, we consider the following plumage characteristics relevant: a long, broad pale supercilium rich yellow in the supraloral area, pale yellow above and just behind the eye, and whitish above the rear of the post-ocular stripe. The anterior part of the supercilium is bordered above with dark brown. The crown has a mixture of light and dark feathers forming streaks that do not appear to be as well developed as in some other subspecies. There is only a suggestion of a pale mid-crown streak. The feathers below the post-ocular stripe and between the dark moustachial and malar stripes are whitish. The rear portion of the post-ocular stripe spreads into a bold brown spot. The median and greater coverts and primaries have dark brown to black centres with buff margins. The rounded tips of the median coverts are strongly contrasting pale whitish. There are white streaks on the mantle but not the well developed “braces” of some subspecies. The rectrices are dark brown with pale edges and tips. The chin, breast and belly are very white, with thick, dark brown streaks on the breast and flanks, several of which coalesced into a central breast spot. Overall, the plumage is dark brown, not buffy or gray as in many other subspecies. Based on plumage, location, and the conclusions of Hubbard8 we tentatively assign these birds to the subspecies brunnescens, which has not previously been illustrated (Fig. 1).

Vocalisations
Despite its large range containing at least 17 recognized subspecies breeding in a variety of open country habitats from the Aleutian Islands to the tropics, comparatively little attention has been paid to the songs of sandwichensis15. Two descriptions illustrate this variability. The north-east Canada and USA, P. s. savanna delivers several variations; generally, 1–7 (typically three) short, high-pitched notes are followed by two buzzes on different pitches, e.g. tiptiptip seeeeee saaaay (Saunders2). Songs usually last c.2.3 seconds, depending to an extent on the number of introductory notes. Rising11 describes typical sandwichensis song as tzip-tzip-tzip streeeewwww-ip. At a distance, the introductory notes may be inaudible, and occasionally, the lower-pitched terminal syllable is not uttered. Individuals in the same population may end their songs differently11,15. The loud, characteristic central buzz or trill is the best known part of a song and has been described as buzzy, insect-like, shrilly musical, or, in Baird’s own words, “utilitarian”2. The most comprehensive study of sandwichensis is Bradley’s analysis of the songs of beldingi in southern California, USA. Within populations he studied, males sang songs with several characteristic patterns, and a population’s patterns differed from those typical of other populations.

Sonagrams of individuals recorded on the west coast of Baja California, Mexico; northern Canada; and coastal central California are reproduced from Wheelwright & Rising15. They illustrate the range of variation in the number, frequency and form of the notes preceeding the central buzz, the form of the
final flourish, and whether it ends with a short, lower-pitched buzz.

Apparently, songs of *brunnescens* from the Mexican plateau have not been published. Songs of two presumed *brunnescens* recorded at Las Esperanzas are presented for comparison. They began with a series of 5–6 introductory notes of approximately equal pitch; however, the pitch of the series differed between two individuals (Fig. 4). Two songs had durations of 2.60 and 2.96 seconds, and spanned a range of c.8.7 kHz. Songs with only two introductory notes were also recorded. On one song, up to three transitional or modified introductory notes precedes the loud central buzz of c.0.5 seconds. Last, are three variable notes, followed by a lower-pitched terminal buzz of c.0.3–0.5 seconds. When compared to songs of other populations\(^\text{15}\), these last notes and the terminal buzz are perhaps the most characteristic element of the delivery of the song of the Nuevo León population.

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