

THE RUFOUS-WINGED SPARROW, ITS LEGENDS AND TAXONOMIC STATUS

By ROBERT T. MOORE

Few species have suffered so much from conjecture and inspired guessing as the Rufous-winged Sparrow, *Aimophila carpalis*. Discovered by Bendire in 1872 (Ornith. and OöL., 7, 1882:121), it was so abundant near Rillito Creek, Arizona, that forty-three nests with eggs, besides a number containing young, were found by him "in a strip of country scarcely a mile long" and yet about two decades later it was reported "extinct." Since my name has been associated to some extent with this species for the past thirteen years and because certain of my conclusions have been questioned by van Rossem in his distributional survey of the birds of Sonora (Occas. Pap. Mus. Zool., Louisiana State Univ., No. 21, 1945:274-275), I may be pardoned for attempting to dispell a few of the legends which have shrouded the Rufous-wing by bringing out some factual data. Here are the legends:

(1) It was declared "extinct," at least in the United States. Yet in June, 1932, at Fresnal, Arizona, in the Papago Indian Reservation, it was readily encountered. Within one hour after our tent was raised on June 22, I collected my first specimen of *Aimophila carpalis*. Three more were obtained within the next twenty-four hours. Success was due chiefly to the habit of using field-glasses.

(2) The decrease and final extinction of the Rufous-wing was said to be correlated with the decrease of the sacaton grass, the bird requiring this association to survive. On the contrary, so far as the southern representatives of this species are concerned, the sacaton grass by no means determines the habitat of the bird. In the Moore Collection are forty-nine specimens of this species from Sinaloa alone taken at fourteen collecting stations scattered over the Tropical and Upper Tropical zones, from sea level to 3000 feet, and from as far south as Elota, only fifty-five miles north of Mazatlan. They were obtained in many localities where sacaton grass does not grow.

(3) It was declared to have emigrated en masse to Mexico. This is so preposterous, it needs no refutation.

To the foregoing van Rossem (*loc. cit.*) has now added further generalizations which, if they are carelessly repeated by other authors, will give an exceedingly inaccurate picture of the habits and characteristics of the Rufous-wing. These new generalizations are:

(a) The southern race, "*bangsi*," is simply *carpalis* on its "winter range"; in other words all the individuals found in southern Sonora and the host in Sinaloa are migrants from the northern form. In the literature on *Aimophila carpalis* can be found warnings from keen observers of the past which should lead an investigator to assemble all possible data before suggesting so profound a change in the concept of habits. Bendire (*loc. cit.*), the discoverer of the species, called it a "resident" in the vicinity of Tucson and found it "abundant both Summer and Winter!" Furthermore, Baird, Brewer and Ridgway (N. Amer. Birds, Land Birds, 3, 1875:515) mentioned a "female, in winter plumage" taken near "Tucson, January 10, 1873," and winter birds were taken by others across the Mexican border. Swarth (Pac. Coast Avif. No. 10, 1914:57), obviously believed Bendire's statement to be true, stating: "Probably resident, as specimens have been taken in January as well as in midsummer." Regarding these authors as reliable reporters, I made a special trip to Fresnal, Arizona, in January of 1933 and found the Rufous-wings actually *abundant*, and yet just as well concealed by their association

with Chipping Sparrows as they had been the previous June. I collected a series. What is the evidence from individuals taken in Sinaloa? The Moore Collection has specimens obtained in *every* month of the year. Can a species "winter" the *entire year* five hundred miles south of its nesting-area? This group of fifty-two individuals was taken for the most part far south of the previously known range of *bangsi* of southern Sonora. The species is common in Sinaloa throughout the year. Furthermore, not one of the specimens appears to be true *carpalis*. The evidence indicates that the species is not truly migratory; it probably moves only short distances during the winter months in search of new areas of food.

(b) The next claim, referring to *bangsi*, states that the "chief character supposed to distinguish it (slightly smaller average size) results from a preponderance of first-year birds in the southern series." This statement is generally true of the series in the Dickey Collection, but the description of *bangsi* and its published measurements were not based on that series (except for a few unquestioned adults forming a small percentage of the whole aggregation), but on the series of fully adult birds in the Moore Collection as well as the large array of adults in the museums of the East and Midwest. Furthermore, measurements of new adult specimens, taken later than the date of the description (Moore, Proc. Biol. Soc. Wash., 45, 1932:231-234) from near the type locality, confirm the smaller size as well as the other characters, including the "more rounded wing," disregarded by van Rossem.

(c) Van Rossem further states categorically: "There is a complete absence of southern records between June 22 and November 5." The employment of the word "records" was properly cautious. The very collector who supplied many of the specimens to the Dickey Collection, J. T. Wright, was aware that the Rufous-wings are resident during July, August and September in the region of the type locality of *bangsi*, namely, at Guirocoba and at Colmoa, less than ten miles from Guirocoba. Furthermore, Wright has supplied the Moore Collection with eighteen birds taken by him in this area between July 25 and September 11. In addition four other individuals were secured by Chester C. Lamb in northeastern Sinaloa (Guamuchil) between September 18 and October 4, 1933.

(d) Continuing, he adds: "It may be noted that specimens personally collected in southern Sonora between May 6 and June 22, 1937, showed only the beginning of sexual activity" and "none were paired." On the other hand Lamb's field notes prove that late April and May are definitely periods of "sexual activity." A pair taken by him (nos. 9434 and 9436, Moore Coll.) at Reforma, Sinaloa, May 3, 1934, had sex organs noted as "well developed" and "full size," and may have been nesting.

(e) Van Rossem states further concerning the "specimens personally collected" by him that "all were in various stages of the complete prenuptial body and tail moult. The type of '*bangsi*' is in the midst of this moult." It is clear he believes that molting individuals could not be in a state of full "sexual activity." The facts prove the contrary to be true. As in other species that breed in the Tropical Zone, some individuals of *Aimophila carpalis* present feathers in process of molt in every month of the year, as amply shown by our specimens, but this in nowise proves they were not breeding. A bird taken on February 27, as well as January specimens, have short new rectrices still in their sheaths, and yet many March individuals have completed their prenuptial molt. On the other hand some July and August birds are in the midst of molt, whereas a bird of September 18 has all of its old tail feathers and most of its primaries and secondaries badly worn while a new secondary in the right wing is tiny and in its sheath. This last individual is an adult, no. 7914, collected by Chester C. Lamb at Guamuchil,

Sinaloa, and was recorded in his journal as follows: "singing from the top of a cardon . . . it had *fully developed testes* and swollen anus." An adult male, collected at the same place on October 2 (no. 7916 Moore Coll.) is in almost the same condition (old, badly worn rectrices, secondaries and remiges, except for inner ones) and is noted as having "enlarged testes." An adult female (no. 7915 Moore Coll.), taken at Guamuchil by Lamb on October 2, 1933, has almost all its old feathers badly worn, but one or two of the inner remiges are short and freshly molted. The type of *bangsi* is a bird of large measurements for its race and larger throughout than the average measurements of the 32 adult males, which were measured for the original description. The question whether it was in molt or not is irrelevant.



Fig. 25. Locality near Fresnal, Arizona, where Rufous-winged Sparrow was rediscovered; Baboquivari Peak in the distance.

(f) Finally in refutation of van Rossem's statement that "the species has never been shown to breed in southern Sonora" there are several specific instances of nesting. J. T. Wright, in his journal writes under date of August 31, 1933, at Colmoa (less than ten miles from Guirocoba, Sonora), the following: "Noted Rufous wing sparrow getting material for nest" and under date of September 11, 1933, at the same place: "Collected eggs of R. W. Sparrow [Rufous-winged Sparrow], nest of sticks lined with horse hair, in brush about 3 feet above ground." As it is one of the most abundant birds of Sinaloa, none of our collectors had been urged by me to find nests. But they could not help happening on some. For example, on October 2 of the same year Chester Lamb shot a female as it flew from its nest to the ground and the nest contained "three heavily incubated eggs." This was found at Guamuchil, Sinaloa, one hundred miles to the southwest of Colmoa. The specimen is no. 7915, mentioned above as having barely begun its molt with only a few inner remiges bursting through their still clinging sheaths.

Aimophila carpalis, when its shroud of misconceptions is dispelled, emerges as a rather normal species. Its known nesting localities indicate the species probably breeds from Arizona to Sinaloa. It does not "migrate" in the ordinary sense of the word. It does not do so solely to obtain seeds of "sacaton." Like many desert forms with tropical representatives, the northern elements may move a short distance in search of larger food areas—more than the southern ones, which reside where supplies are greater. Until January, 1933, it was still a common winter resident near Fresnal. Undoubtedly

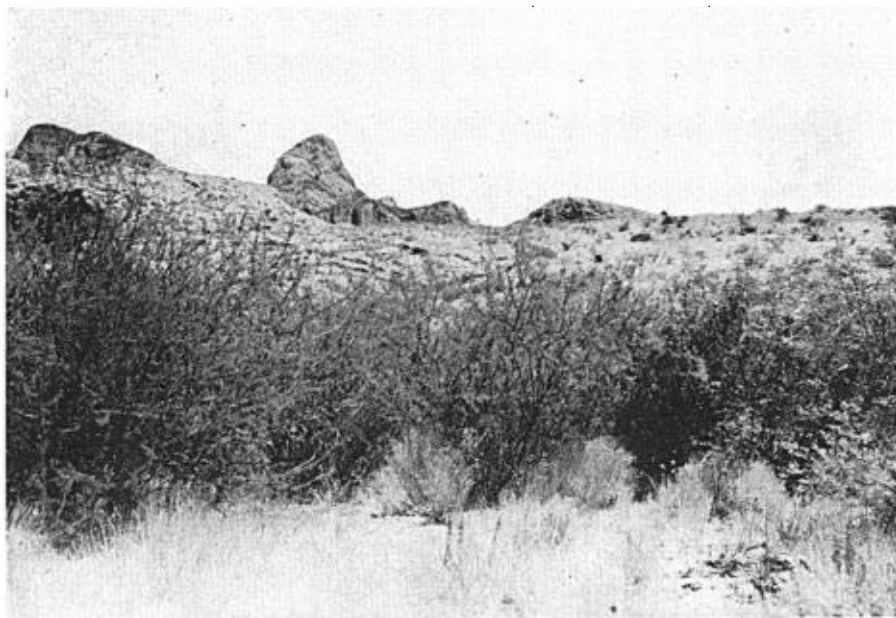


Fig. 26. Rufous-winged Sparrows were taken among grasses in foreground where they were feeding; near Fresnal, Arizona.

it still breeds in favored localities in near-by parts of Arizona. On all three occasions when I visited Fresnal (June, 1932, January, 1933, and April, 1933) I obtained specimens. Whereas it was uncommon in April, and only four were observed and collected in June, it was actually abundant in January. My experience with it confirms much that has been written about it by observers of seven decades ago, particularly the account by Bendire (*op. cit.*). It is certainly resident and gregarious, probably "at all times" of the year, for all my observed birds in late April, June, and January were found in mixed company. Whether searching for seeds under the mesquites and cacti, or sitting on the former, or taking off in flight, they were invariably accompanied by Chipping Sparrows. Generally they proved to be the shyest members of mixed flocks of Black-throated, Chipping, White-crowned and Lark sparrows. In contrast with their tameness in Mexico, they flew long distances when approached. Perhaps the use of sling-shots by the young Indians of the Agricultural Station accounted for this difference.

Concerning the "rediscovery," my journal, typewritten each night in camp, contains the following information. The first bird I collected this afternoon proved to be one of them—a Rufous-wing. It was one of an apparent pair (male and female) skulking

in a mesquite a short distance east of the water tank of the Indian Agricultural Station, where we were camped. I called to my assistant, Waddell Austin, to collect the other bird of the pair, and he promptly complied. When we shot the first two, I had identified two other birds by their flight-pattern moving north with the Chipping Sparrows to the plateau rim of our shallow arroyo a mile away, and I now followed them. I found the pair among some Black-throated Sparrows and quickly obtained one of them. It had run on the ground out of a clump of mesquite and, like all others, was extremely shy, in great contrast with the Black-throats, which sought the highest twigs of the bushes and ocatillos to observe my approach. The Rufous-wing's companion escaped, but the following morning, slightly west along the mesa rim, toward which it had flown, I located and collected him. Not one of these four Rufous-wings was heard making any sound, not even a call-note.

The field marks of this form in Arizona, distinguishing it from the Chipping Sparrows, consist of three: At close range, if a binocular can be used or the bird's wing is raised, one catches the flash of rufous on the bend of the wing. I identified my first one in this way. At medium range, the upper parts show paler gray, less brown. In the air the flight has a slight, but perceptible periodic dip, a definite contrast to that of the Chipping Sparrow. This never failed me for correct identification.

It seems almost certain that Bendire is correct that this northern form has two broods each year, since he found nests in Arizona from June 14 to September 1, the last with "fresh eggs." Baird, Brewer and Ridgway (*loc. cit.*) record that "one nest with four eggs was found September 11, 1872." That the southern representatives may also be double-brooded, or nest irregularly over a long period as frequently occurs with tropical forms, is indicated by our data. Nests were discovered between August 31 and October 2, and several specimens were collected in April and May, with sex organs "fully developed."

I have examined all the sixty-three new specimens that have come into the Moore Collection since the original description of *bangsi*, have measured all the adults, and have compared them with my enlarged series from Fresnal, Arizona (April, June, and January), taken a little more than fifty miles from the type locality of the nominate race. In addition, on different occasions, I have re-examined some of the extensive series employed in my original paper. These efforts confirm the characters given in the original description. It should be pointed out that the lighter color of mandible and tarsi in *bangsi* is obvious only when one has before him freshly dried specimens of both *carpalis* and *bangsi*, which fortunately I possessed when the original description was written. The other two characters, smaller size and more rounded wing are attested by the new material. The measurement difference is an average of seven-plus per cent for the total average of wing and tail length of both sexes, the tail differences being greater.

The re-examination of our new material has revealed a more important matter. The thirty-six specimens, taken in central and southern Sinaloa from Rancho El Padre at about latitude 26 degrees, south to Elota, at about latitude 24 degrees, have dimensions even smaller than in *bangsi* and in addition there are color characters. This large series is so uniform and so well differentiated that it is herewith given a name.

***Aimophila carpalis cohaerens*, new subspecies**
Sinaloa Rufous-winged Sparrow

Type.—Adult male in prenuptial plumage, no. 18157, collection of Robert T. Moore, taken at Elota, southern Sinaloa, Mexico, March 25, 1937; collected by Chester C. Lamb.

Subspecific characters.—Nearest to *Aimophila carpalis bangsi*, but in all plumages dark streaks of back wider and more prominent; lower throat and flanks darker gray; in postnuptial plumage

margins of feathers of back browner (less gray) and back much darker; chestnut of pileum darker; wing-tip much shorter. Compared with *Aimophila carpalis carpalis*, *cohaerens* shows the same differences, but to much greater degree; in addition wing and tail average nine per cent smaller, wing-tip fifty per cent smaller and wing much more rounded.

Range.—Apparently confined to the Sinaloa and Tebaca faunal districts from Elota just north of latitude 24 degrees in south-central Sinaloa north to Sinaloa River in northern Sinaloa and altitudinally from sea level to 3000 feet at Rancho El Padre.

Average and extreme measurements of races of *Aimophila carpalis*

	Adult Males		
	Wing	Tail	Wing-tip
16 ad. <i>cohaerens</i>	57.2 (54.4-59.1)	59.1 (53.8-61.9)	3.4 (1.8-5.3)
16 ad. <i>carpalis</i>	63.0 (59.9-64.8)	63.2 (61.5-65.6)	7.2 (4.7-9.5)
32 ad. <i>bangsi</i>	58.1 (55.3-61.2)	57.8 (52.1-61.8)	6.3
	Adult Females		
13 ad. <i>cohaerens</i>	54.6 (53.2-56.4)	57.5 (52.2-60.9)	3.0 (1.6-4.3)
9 ad. <i>carpalis</i>	59.7 (57.1-61.5)	61.8 (59.9-64.2)	7.3 (4.3-9.5)
10 ad. <i>bangsi</i>	56.8 (55.7-58.1)	56.7 (54.1-60.9)	7.2

Cohaerens, meaning "adjoining," refers to the continuity of the habitat of the species southward.

Aimophila carpalis bangsi is a proved breeding bird of the southeastern Sonora area and *cohaerens* of central and south-central Sinaloa. Therefore, to prove the validity of *bangsi* we need consider chiefly its characters, which still hold true.

One important thing seems to have been clarified by our large accession of new specimens, namely, that the races of *carpalis* are almost certainly resident and do not migrate in the strict sense of the term. Of the sixty-three specimens of the species taken since the description of *bangsi*, six are from Guirocoba, Sonora, two others from other localities in that state and some are from Arizona. Of forty-nine specimens taken in the state of Sinaloa, thirteen of them were secured close to the Sonora line north of the Fuerte River and the balance of thirty-six were obtained from the Sinaloa River south. The former are *bangsi* and the latter *cohaerens*. A single male from El Fuerte, Sinaloa, is an intergrade and lies geographically exactly between these two races.

Cohaerens has the wing and wing-tip shorter in males and in females than in *A. c. carpalis*. The more rounded wing of *cohaerens*, as compared with the nominate race, is even more marked than in *bangsi*. The wings of *cohaerens* are only slightly shorter than those of *bangsi*, the tails differ little. On the contrary in length of wing-tips, *cohaerens* and *bangsi* differ greatly in both sexes, while *bangsi* and *carpalis* differ little. In the original description of *bangsi*, I did not have space in the table to give the comparative length of wing-tips, which is, of course, different than the difference in length of longest primary and longest secondary from *base*. In choosing birds to measure I have eliminated all specimens in which the primaries and secondaries show a different amount of wear. In this species new secondaries almost invariably develop before the new primaries. When comparing coloration, I have been most careful to compare fresh plumages with fresh plumages, and worn with worn.

Since we have very large general collections taken from extreme southern Sinaloa south through Nayarit and Colima and from east of the Sierra Madre Occidental and since from these areas there is not a single specimen of *A. carpalis*, it seems clear that *cohaerens* represents the southernmost representative of the species. This is the first time that anyone has had the opportunity of inspecting a large freshly-taken series of *A. carpalis* from Sinaloa. From the examination it becomes clear that the birds of southeastern Sonora and those north of the Fuerte River in Sinaloa (*bangsi*) are a uniform series of intermediates. They are differentiated from *Aimophila carpalis carpalis*

of Arizona and northern Sonora by smaller size, especially wing and tail, paler mandibles and tarsi and more rounded wings. Two courses lay open for the taxonomist, either to recognize *bangsi* as a well-marked intermediate between true *carpalis* and *cohaerens*, or permit it to sink into the synonymy of *carpalis*. The decision will be influenced by the individual attitude of the taxonomist, based upon his predilection for or against the recognition of uniform intermediates. It has been my policy not to describe intermediates even when uniform in characters. This time I did it, unconscious of the existence of an "end-race" farther to the south. Therefore, this matter of recognition of *bangsi* is immaterial to me, but, if the race is finally reduced to synonymy, similar action should be taken to synonymize many other recently proposed races from Mexico based solely on intermediate characters less trenchant than those of *bangsi*.

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