

A HISTORICAL SKETCH OF BOTTERI'S SPARROW.

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Plate X.

ALTHOUGH nature has endowed *Peucaea botteri* with little enough of intrinsic distinction in the way of plumage, form, habits, or song, there inevitably attaches to it the fascination of a *rara avis*. It was described by P. L. Sclater (1858, p. 214) as *Zonotrichia botteri*, the type coming from the vicinity of Orizaba, in the State of Vera Cruz, Mexico. It was named in honor of Signor Matteo Botteri, to whom Sclater referred as 'the well-known Dalmatian botanist and traveller,' and who had made a considerable collection of birds in the vicinity of Orizaba. Within the United States the species has been found only in southern Arizona and in the lower Rio Grande Valley of Texas. Southward its range extends through the length of Mexico. The only other members of its genus in our country are the Pine-woods, Bachman's and Cassin's Sparrows. Each has a breeding range distinct from that of the others, except that Cassin's and Botteri's Sparrows overlap along the Mexican boundary.

A single specimen taken by Dr. C. B. R. Kennerly in June, 1855, at or near Los Nogales, Sonora, on the Arizona border, was listed by Baird (1858, p. 486) as *Peucaea cassinii*, and later became the type of *Peucaea aestivalis* var. *arizonae* Ridgway (1873, p. 615). In spite of the bestowal of this name, there is nothing in the record to show that the species had been actually taken or observed in Arizona up to that time. Thus it apparently remained for H. W. Henshaw (1874, p. 118) to record the first specimen from the United States. His experience with the species in September of two successive years, 1873 and 1874, when he collected 14 specimens at Camp Grant, Camp Crittenden, and Cienaga, Arizona, also enabled him to present (1875, p. 285-287) the most comprehensive account of its habits that has hitherto appeared. In fact, very little of significance except the finding of the nest and eggs by Merrill (1878, p. 127) seems to have been added to our knowledge of its life-history in the succeeding 54 years.

In Henshaw's experience, Botteri's Sparrow differed entirely from Cassin's 'in choice of habitat, habits, and especially in song.' Instead of frequenting the open plains, it was found in the valleys, either among rank, high grass or in dense willow thickets, always in close proximity to water. It was quite exclusively terrestrial, and when flushed, would usually drop down into the covert after flying a few yards. Specimens could be collected only on the wing. The males always sang from the top of some bush. 'The song begins with a faint trill, followed by a succession of disjointed syllables, which may be expressed by the syllables *cha, chewee, wee, wee, wee, wir*, the whole delivered in a rather monotonous, listless manner, and remarkable for little else save its extreme oddity, it being entirely different from any song I have ever heard.' Young in nestling plumage were taken in September, and apparently some of the females had not then finished incubation.

On August 8 and 9, 1884, Stephens (1885, p. 226) found a number of individuals in the Altar Valley, southern Arizona. During the latter part of June, 1891, in the vicinity of Oracle, Pinal County, Arizona, Rhoads (1892, p. 121) found this species frequenting 'the thick bunches of bear-grass just below the lower edge of the oak belt.' The birds 'were breeding and were very shy At no time did they leave the ground save to perch on the lowly bear-grass stems and utter a rather sweet song. Four individuals were seen' and 'three were secured.' One of these specimens is now in the collection of the Philadelphia Academy.

Rhoads's record is apparently the last one that has been published for the species in Arizona, although J. A. Weber informs me that the Dwight Collection at the American Museum of Natural History contains a specimen collected at Fairbank on August 18, 1893. Swarth (1929, pp. 281, 328) is inclined to ascribe the disappearance of the birds to the over-grazing of the grass-grown lowlands which they formerly frequented. 'When years of drought came every vestige of their natural cover was destroyed.'

The history of Botteri's Sparrow in Texas up to 1929 may be chronicled quite briefly. Merrill (1878, p. 127) found it 'in some abundance on a salt prairie about nine miles from Fort Brown [Brownsville] Its notes were frequently heard, and are quite pleasing.' On June 16, 1877, he discovered a nest with four eggs,

which were 'unspotted white, strongly tinged with greenish blue,' and measured $.82 \times .63$ inches. These eggs, which were apparently deposited in the U. S. National Museum, seem to constitute the only ones on record. According to Griscom and Crosby (1926, p. 25), 'Sennett's collectors sent him two specimens [skins], collected May 24, 1889, and Aug. 25, 1888. It has not been rediscovered by recent collectors.' There is a specimen in the collection of the Philadelphia Academy, taken on August 16, 1893, and received from F. B. Armstrong, of Brownsville, but unfortunately there seems to be no definite assurance as to the exact locality of Armstrong's specimens of that period. In 1908, however, just across the river at Matamoros, Mexico, he collected nine specimens between August 13 and September 13, as reported by Phillips (1911, p. 88).

Since the beginning of the century the remarkable avifauna of the Brownsville region has attracted many other collectors and observers, including Mr. and Mrs. Bailey, R. D. Camp,¹ Austin Paul Smith, Pearson, Pemberton, Bent, Eifrig, Griscom, Crosby, Arthur A. Allen, Friedmann, J. A. Weber, and Major Brooks, but none have reported Botteri's Sparrow in Texas. This is all the more surprising in view of its status in 1929. There is very likely some periodic fluctuation in the numbers of this species, and it may have reached one of the peaks of its abundance in 1929. It would be very difficult to conceive, however, of its being altogether absent from Texas during the preceding 36 years or more. Its close similarity to the much better-known Cassin's Sparrow is a very probable factor in its being overlooked. No such condition of overgrazing, as reported by Swarth in Arizona, exists in the Brownsville region at the present time, and I am not aware that it has existed in the past.

The present lack of winter dates among the comparatively few records for Arizona and Texas, at the northern limits of its range, does not, of course, prove that the species is migratory. Swarth (1914, p. 56) considers it 'possibly resident.' Cooke remarks (1914, p. 177) that it is 'scarcely, if at all, migratory.'

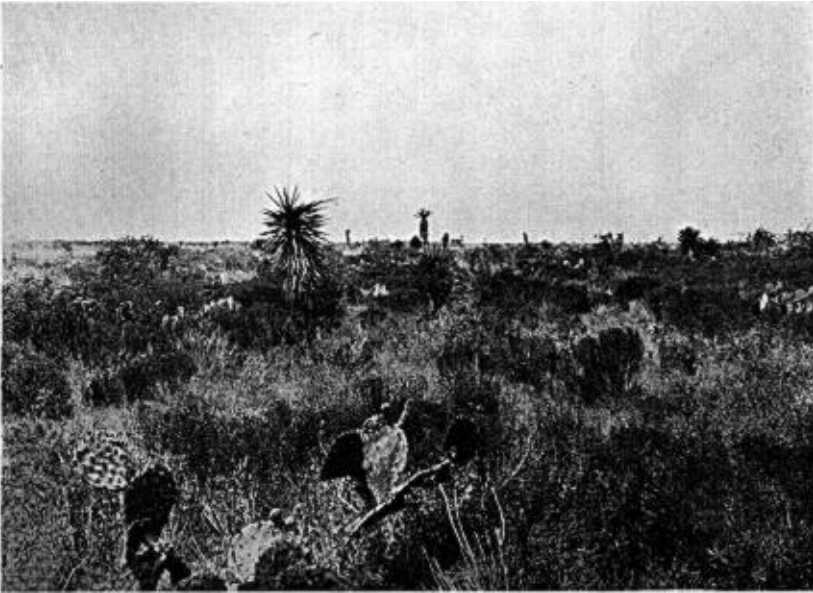
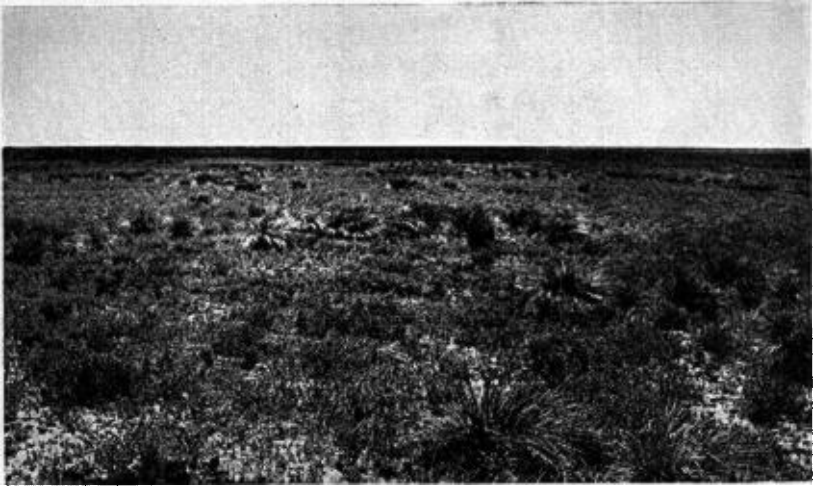
¹ When this paper was presented in abbreviated form at the A. O. U. meeting in Philadelphia, 1929, Rev. C. W. G. Eifrig quoted the late Mr. Camp as remarking a few years ago that he had not found Botteri's Sparrow during all the years of his experience in the region.

A colored plate by Fuertes, accompanying Cooke's article, represents the bird perched upon a prickly pear (*Opuntia*), which is certainly a characteristic plant in its Texas haunts.

I am indebted to C. Brooke Worth, of St. Davids, Pa., for the first clue to the exact whereabouts of this species. On July 17, 1929, he discovered a sparrow on its nest in a salt prairie midway between Brownsville and Point Isabel. He even succeeded in capturing the bird on the nest with a butterfly net and in banding it. With the live bird in one hand and a bird manual in the other, he endeavored to identify it positively, but the rather slight differences between this species and Cassin's Sparrow were not very clearly set forth in the manual. Thus Mr. Worth is not so certain of the identity of his bird as he would like to be. His experience and directions, however, led me to the same area on August 26, during the course of some field work for the Academy of Natural Sciences of Philadelphia.

This area (Pl. X, fig. 1) was a wide salt prairie, perfectly flat, and covered with such low vegetation as salt grass (*Distichlis spicata*), sea lavender (*Limonium carolinianum*), sea oxeye (*Borrichia frutescens*), *Lycium carolinianum*, and *Monanthochloë littoralis*,¹ together with a few prickly pears (*Opuntia*) and small mesquite bushes. Near by was a recently constructed irrigation ditch. Otherwise the prairie was dry and parched in the intense heat of the summer sun. By beating back and forth over an area not more than half a mile square for a period of three hours, I managed to discover seven or eight sparrows and to secure five of them. One proved to be Cassin's, but the other four were Botteri's—three adult males and one adult female. The birds were quite shy and would seldom allow me to approach within fair range of a singing perch. Most of them had to be shot on the wing, after being flushed from the ground where they were feeding, so that I had the uncomfortable alternative of damaging them with No. 10's or risking a miss with the 'aux.' Although it was late in the season and young birds were full-grown, the males still sang occasionally in the bright heat, and somewhat more actively after a cooling shower. Here no natural singing perch was available more than two or

¹ Prof. A. S. Hitchcock and Dr. F. W. Pennell have kindly determined some of these plants.



HAUNTS OF BOTTERI'S SPARROW.

UPPER.—A SALT PRAIRIE ABOUT MIDWAY BETWEEN POINT ISABEL AND BROWNSVILLE, CAMERON CO., TEXAS. AUGUST 26, 1929.

LOWER.—A DRY SLIGHTLY ROLLING PRAIRIE, ABOUT SEVEN MILES NORTHWEST OF POINT ISABEL. AUGUST 29, 1929.

three feet high. For the most part the birds had to content themselves with a tuft of salt grass or a low mesquite bush, though one made use of an old fence stake about four feet high. I observed no such flight song as that given by its near relative, Cassin's Sparrow, which goes up on fluttering wings to a height of about ten feet and then returns to the same perch. But apparently at least one Botteri's Sparrow sang as it flew along in a direct course low over the salt grass.

The song is composed of clear, sweet notes, slightly canarylike in quality. It is exceedingly variable, and seems to be given scarcely twice alike in succession. It begins in a somewhat halting fashion, gradually increases to a trill, and often winds up with a few notes as slow as those at the beginning. One rendering that I put down goes as follows: *psit, psit, psitta, psitta, tseoo, tseoo, wit-wit-wit-wit-wit-t-t-t-t-t, tseoo, wit, wit*. The distance at which the song can be heard is probably at least 100, and possibly 200, yards. The call-note is like the beginning of the song: *psit, psit, or tsit, tsit*. Its similarity to the call-notes of the Pine-woods and Bachman's Sparrows is very marked.

Two days later, on August 28, I spent most of the morning in this same area, but found only two sparrows and secured neither. A mile away, however, I was attracted by the song to another small colony, where I found about five birds and secured three—two adult females and one immature female. This area was a slightly higher and drier prairie than the first, with a corresponding change in the vegetation. The mesquite bushes were taller and more numerous, there were more prickly pears, and a new element appeared in the shape of yuccas. There was still an abundance of salt grass, whose constant presence in the bird's habitats suggests that it may be at least locally an ecological requirement of the species. Here the birds fed over the ground, and when flushed, they generally flew to a mesquite bush.

On the following day more birds were found in two other localities, respectively six and seven miles northwest of Point Isabel. One of these (Pl. X, fig. 2) was quite similar to the last-described area; the other differed very little except in the presence of some narrow thickets of huisache. Each of five specimens secured on this day turned out to be a bird of the year. Several other indi-

viduals were noted, either singing or calling. Altogether, I have little hesitation in considering this species the commonest breeding sparrow (during 1929, at least) over a good many square miles of dry prairie country between Brownsville and Point Isabel.

The distance to which the birds fly on being flushed seems to have a direct relation to the kind of cover available. On the open salt prairie they generally go far, sometimes practically out of sight, before dropping down again into the low ground cover. On the drier prairies, where there are scattered groups of low mesquites, they alight in these bushes after a less protracted flight. Finally, wherever a huisache thicket adjoins their haunts among salt grass and other low prairie vegetation, they habitually seek refuge in the thicket, sometimes by a flight of only a few yards. In this last case they may be approached and collected with comparative ease. Experience in the past has probably given the species a greater sense of security from natural enemies in bushes or thickets than in the lower vegetation of the prairie; hence the less need of putting a great distance between themselves and their enemies when a thicket is used for cover.

The principal avian associates of Botteri's Sparrow on the open salt prairie were: Rio Grande Meadowlark, Cassin's Sparrow, Texas Horned Lark, Long-billed Curlew, and Bartramian Sandpiper. On the drier prairies, with a considerable shrubby growth of yuccas, prickly pears, and low mesquites, there were Cassin's and Black-throated Sparrows. In the huisache thickets were a considerable variety of birds, including Texas Sparrow, Texas Bobwhite, Vermilion Flycatcher, White-winged Dove, and such migrants as the Canadian and Yellow Warblers.

From the foregoing notes it would appear that the habits of Arizona birds differ somewhat from those of Texas birds. Contrary to Henshaw's experience, I found Botteri's Sparrow associating closely with Cassin's Sparrow. It occurred on the open prairies as well as among thickets, and generally at a very considerable distance from water. In Texas the trill, instead of forming the introductory part of the song, comes nearer the end than the beginning. As to the species in its Mexican range, practically no information on habits appears to be available, the literature consisting merely of taxonomic and distributional data.

Perhaps the best field character (aside from the song) for distinguishing Botteri's Sparrow from Cassin's Sparrow is its more buffy appearance, which can be detected even in flight. Another character, though not one for differentiating live birds, is its slightly greater weight. Three adult males averaged 22.5 grams; three adult females, 21.4 grams; three immature males, 21.9 grams; two immature females, 22.1 grams. The average weight of local specimens of Cassin's Sparrow was about 4 grams less.

There was very little variation in the colors of the 'soft parts' of adult and immature specimens of both sexes, as noted at the time of collecting. In general, they were as follows: maxilla dark olive, its tomium and the mandible plumbeous or horn color; iris olive-brown or light chocolate-brown; legs, toes, and nails brownish flesh color.

A tick (a nymph of *Ixodes* sp., as determined by Dr. H. E. Ewing) was collected from an adult female.

A few words may be added on the subject of taxonomy and nomenclature. The combination *Aimophila botterii botterii*, first proposed by Ridgway (1901, p. 257), was disregarded in the A. O. U. Check-List of 1910 in favor of *Peucaea botterii*. This use of a binomial, for which I have found no published explanation, would appear to indicate on the part of the Check-List Committee one or the other of the following opinions: (1) that the subspecies *sartorii* and *petenica* are invalid, or (2) that, even if the forms are valid, subspecific relationship with *botterii* has not been established. On the other hand, certain later authors (Phillips, 1911, p. 88; Bangs and Peters, 1928, p. 402) still employ Ridgway's nomenclature of 1901. Whether they do so merely as a matter of convenience, or because they believe that the generic distinctness of *Aimophila* and *Peucaea* can not be maintained, and that *botterii* is subspecifically related to *sartorii* or *petenica*, or to both, is not made clear.

At first glance the geographic relationship of *botterii* and *sartorii* might appear to argue for their specific distinctness. The Mexican range of the former extends from Sonora and Tamaulipas to Colima, Puebla, Vera Cruz, Oaxaca, and Chiapas. Not only does the latter's range extend through two of the same states (Vera Cruz and Chiapas), but its type locality at Huatusco, Vera Cruz, is only about 25 or 30 miles distant from the type locality of *botterii* near

Orizaba. In spite of this close geographical relationship, it is possible that the ranges of the two are quite distinct: *botterii* may be more or less exclusively a Lower Sonoran form, while *sartorii* may be confined to some subdivision of the Tropical Zone, such as the arid tropical deciduous forest. In that case the birds could be either specifically or merely subspecifically distinct. If their breeding ranges overlapped, they would necessarily be specifically (or not at all) distinct. Since Ridgway points out fairly decided differences between the two forms in both color and measurements, and since intergradation does not appear to have been established, a simple and perhaps logical course, pending further investigations, is to follow the A. O. U. Check-List of 1910 in employing a binomial designation.

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