

perhaps a half a mile away, and it was impossible to say where they kept their families. A ditch tender by the name of Reeder, who was among these birds a great deal of the time and was more or less interested in watching them, told us that he had never seen a young curlew, but that he had found a nest containing four eggs about three weeks before we met him, making the date of discovery somewhere between the 20th and 25th of May. The eggs had hatched by the time we reached this place.

In 1924, I was again unfortunate in not securing a specimen of the Ferruginous Rough-leg. None was positively identified in Surprise Valley, although, on one occasion, we passed a hawk that I am fairly certain was of this species, perched on a fence by the roadside close to Eagleville. On June 17, a visit was made to Jess Valley to see if the pair of the previous year had returned to their nest, but we found no sign of the birds. Either the nest had not been occupied this year, or the young had already left the vicinity. The only absolutely positive identification of the Ferruginous Rough-leg in northeastern California this season was made on our return trip, on June 20, when one of these birds arose from the deep gorge of the Pit River as we were rounding the point at the top of the grade from that river up to the Fall River mesa. This hawk soared over our car almost within gunshot range. We stopped and watched it in the hope that it would misjudge the distance. As it circled slowly above us, the distinguishing characters were plainly discernible even with the unaided eye, and good field glasses made assurance doubly sure.

Further details of the field work accomplished on this trip will appear in due course in the Proceedings of the California Academy of Sciences.

San Francisco, August 6, 1924.

A SURVEY OF THE SONG SPARROWS OF THE SANTA BARBARA ISLANDS

WITH TWO FIGURES

By A. J. VAN ROSSEM

THE PRESENT arrangement of the races of song sparrow (*Melospiza melodia*) which inhabit the Santa Barbara Islands (these being here considered as including Los Coronados Islands) is one which reveals several apparent inconsistencies when viewed from a distributional standpoint. Under the grouping until now in vogue, *clementae* occupies the northern and southern extremes, with *graminea* occupying two intermediate stations. In other words, *clementae* has been assigned to Los Coronados, San Clemente, Santa Rosa, and San Miguel islands, and *graminea* to Santa Barbara and Santa Cruz islands. No song sparrows are known to occur on San Nicolas and Santa Catalina islands. In the latter case this condition is difficult to account for. Santa Catalina would appear to offer a favorable habitat, and one much better suited to melospizan requirements than some of the other islands such as San Clemente and Santa Barbara where the birds are plentiful.

No survey of the song sparrows of the islands is comprehensive without consideration of those of the adjacent mainland, particularly those individuals which inhabit the littoral association of Ventura County. Birds from this area show a closer approach to the insular forms than do birds from elsewhere within the California range of *cooperi*; and one is tempted to suppose that the original island stocks (exclusive of *coronatorum*) were derived from here. These Ventura County birds are distinct from any island race in that they possess a darker and browner dorsal

coloration; the streaking on the back is broader and darker, the maxillary streaks are heavier, the individual spots on the breast are broader and less numerous, and the flanks are browner. Individual variants approach *clementae* and *graminea* in some particulars. Possibly the basis of the statement in the Second Edition of the A. O. U. Check-list (1895, p. 242) that *graminea* occurs on the neighboring mainland had its foundation in specimens similar to these. The following is a brief synopsis of the recognizable island races.

***Melospiza melodia coronatorum* Grinnell and Daggett.** Los Coronados Islands Song Sparrow.

Melospiza coronatorum Grinnell and Daggett, Auk, vol. 20, 1908, p. 34.

Range.—Los Coronados Islands, Lower California, Mexico.¹

Differential characters.—Brownest of the island races, and smallest in point of tarsi and feet. Bill much as in *graminea* and therefore smaller than in *clementae* and the mainland *cooperi*. Sixteen specimens examined.

Remarks.—This race was considered by the A. O. U. Committee (Auk, vol. 25, 1908, p. 395) as too close to *clementae* for recognition; but additional material shows it to be a good form. Its relationships would appear to be with *cooperi*, of the nearby mainland, rather than with *clementae*, for in color it is closer to the former. However, it cannot be considered an intermediate; for the bill, tarsi, and feet are smaller than either, and in the last two respects it is the smallest of all. It is to be noted that an insular environment has resulted in a reduction in size of bill, tarsi, and feet (com-

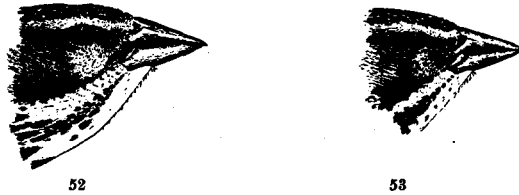


Fig. 52. *Melospiza melodia clementae*, NATURAL SIZE; ♂ NO. C64, COLL. D. R. DICKEY; SAN CLEMENTE ISLAND, MARCH 27, 1915.

Fig. 53. *Melospiza melodia coronatorum*, NATURAL SIZE; ♂ NO. 34, COLL. L. M. HUEY; LOS CORONADOS ISLANDS, APRIL 1, 1913. COMPARE BILLS.

pared with the mainland *cooperi*); also that there is no reduction in wing length nor lengthening of the tail, in this case—characters commonly supposed to occur in island races. *Coronatorum* is a common though not abundant resident of all four islands of Los Coronados group. The extraordinary abundance of mice (*Peromyscus*) will probably act as an effective check on any great increase in numbers.

***Melospiza melodia graminea* Townsend.** Santa Barbara Island Song Sparrow.

Melospiza fasciata graminea Townsend, Proc. U. S. Nat. Mus., vol. 13, 1890, p. 139.

Range.—Santa Barbara Island, California.

Differential characters.—Distinguished from the related races by short wing and

¹ No specimens have been examined from Todos Santos Islands. Song Sparrows are known to occur there and it is possible that they are referable to this race.

tail, and by grayish (least brownish) coloration. Differs also from *clementae* in smaller bill, tarsi and feet; from *cooperi* in smaller bill; and from *coronatorum* in larger tarsi and feet. Twenty-four specimens examined.

Remarks.—This race, in point of color, is the best marked of the three insular forms; for it attains the extreme of pallid grayish coloration with the minimum of brownish wash. It is, furthermore, the only one which can be distinguished by tail length and proportion of wing to tail. In *coronatorum*, *clementae* and *cooperi*, the tail is almost exactly equal to the wing. In *graminea*, the tail is decidedly shorter than the wing, not only as an average character but in every individual examined, with one exception. If degree of differentiation is taken as an indication, then *graminea* has been isolated for a longer period than either *clementae* or *coronatorum*.

Here, again, is a reversal in the matter of certain proportions usually considered applicable to island races; for the bill is smaller and more slender than in *cooperi*, and the tail is proportionately shorter. The tarsi and feet have followed the general reduction in body size only to a degree; they are actually slightly shorter than in mainland birds, but relatively a little longer. Because of the type of vegetation on Santa Barbara Island, song sparrows will probably be able to hold their own there against the feral cats which have become quite numerous on the island. Native predatory animals other than a mouse are not known to occur there.

Melospiza melodia clementae Townsend. San Clemente Song Sparrow.

Melospiza fasciata clementae Townsend, Proc. U. S. Nat. Mus., vol. 13, 1890, p. 139.

Range.—San Clemente, Santa Cruz, Santa Rosa, San Miguel, and probably Anacapa islands.

Differential characters.—Similar in coloration to *graminea*, but browner; slightly grayer than *coronatorum*, and decidedly grayer than *cooperi*. Breast spotting more diffused and narrower than in *cooperi*, and flanks grayer. (This latter character is in varying degree common to all three island forms.) As to size, *clementae* is in all dimensions larger than *cooperi*, *graminea* and *coronatorum*, except that the bill is approximately equal to *cooperi*. Forty-seven specimens examined.

TABLE OF MEASUREMENTS*											
Wing			Tail			Tarsus			Mid. Toe minus Claw		
Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average	Minimum	Maximum	Average
<i>Melospiza melodia cooperi</i> , 24 ♂♂ from coast of Ventura County											
57.5	65.0	61.5	57.0	65.5	61.5	19.6	21.8	20.9	14.0	16.4	15.5
<i>Melospiza melodia coronatorum</i> , 7 ♂♂ from Los Coronados Islands											
60.5	64.5	62.3	60.0	66.0	61.6	18.1	20.4	19.1	13.2	15.7	14.7
<i>Melospiza melodia clementae</i> , 13 ♂♂ from Santa Cruz, Santa Rosa and San Miguel Islands											
60.5	65.5	63.1	60.0	68.5	63.0	20.7	22.5	21.5	14.9	16.3	15.4
<i>Melospiza melodia clementae</i> , 20 ♂♂ from San Clemente Island											
61.0	65.5	63.2	59.0	67.5	63.2	20.1	22.9	21.6	15.2	17.3	16.1
<i>Melospiza melodia graminea</i> , 18 ♂♂ from Santa Barbara Island											
57.0	62.5	60.0	53.0	61.0	57.0	19.3	21.5	20.8	14.6	16.1	15.3

Remarks.—The name *clementae* would appear to be the one best applicable to birds inhabiting the northern group of islands; for in the aggregate of characters they fall nearest to those from San Clemente. They are, however, grayer, and in color occasional individuals approach *graminea* very closely. The individual islands

* Measurements of the females parallel those of the males in all proportions. They average about 5 per cent smaller.

considered, San Miguel specimens are the grayest and those from Santa Cruz the brownest. In other words, those from Santa Cruz most closely resemble the Ventura County coastal birds. In matter of size, they are practically as large as *clementae*, except for the middle toe, and, as before stated, are in general decidedly closer to that form. Were it not for the fact that they are larger than either, they might well be classed as intermediates between *graminea* and *cooperi*.

Whether or not the northern and southern "colonies" of *clementae* are actually related as closely as the general resemblance indicates is a question. At any rate the characters exhibited make the one name applicable to both.

Summary.—Three races of song sparrows inhabit the Santa Barbara and Los Coronados islands. *Melospiza melodia coronatorum* is confined to the four small islands of Los Coronados group. *Melospiza melodia graminea* is confined to Santa Barbara Island. *Melospiza melodia clementae* is found on San Clemente, Santa Cruz, Santa Rosa, San Miguel, and probably Anacapa islands. The colonies inhabiting the last four named islands may or may not be as closely related to the San Clemente "colony" as their resemblances indicate.

Clementae and *graminea* were not improbably derived from the *cooperi* stock now inhabiting the littoral association of Ventura County. *Coronatorum* probably is most closely related to *cooperi* of that portion of the mainland nearest Los Coronados Islands.

Pasadena, California, September 26, 1924.

VARIABILITY IN *BUBO VIRGINIANUS* FROM RANCHO LA BREA WITH FIVE GRAPHS

By RACHEL A. HUSBAND

(Contribution from the Los Angeles Museum of History, Science and Art)

B*BUBO VIRGINIANUS* has already been recorded from Rancho La Brea by Dr. L. H. Miller in his paper "The Owl Remains from Rancho La Brea" (Univ. Calif. Publ. Bull. Geol., vol. 9, 1916, pp. 97-104). Since the appearance of this publication, however, more material has become available for study, and further research made possible. This work has been carried on at the Los Angeles Museum of History, Science, and Art, where the assembled material included the large collection of fossil bones from Rancho La Brea, several modern specimens belonging to the museum, others from the Miller collection, and a number of skeletons and skins kindly loaned by the Smithsonian Institution.

The fossil specimens were taken from a number of excavations in the Rancho La Brea formation, the greatest number coming from Pit 16. Of the three limb elements selected for study, the tarsi were the most numerous, being represented by 201 specimens, the tibiae following with 24, and the humeri with 15 specimens. This more frequent preservation of the tarsus was, perhaps, partially due to the fact that it is a small and dense bone with practically no flesh, making it unattractive to Carnivora. The tibiae and the humeri, on the other hand, suggest by their broken state of preservation that they have more frequently been subject to the depredations of the flesh-eaters.

The statement by Dr. Miller that "the fossil species is distinguished from the Recent by a character not held in common, i. e., great variability in a fixed locality,"