DISTRIBUTION OF *MOLOTHRUS ATER* IN CALIFORNIA WITH THE DESCRIPTION OF A NEW RACE

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DURING the late spring and summer of 1920, the writers took a series of cowbirds at Buena Vista Lake, Kern County, California. Pressure of other work prevented careful diagnosis at the time, and since birds of that region had previously been referred to *Molothrus ater obscurus*, that name was tentatively applied to these specimens. On further examination this series showed such a definite departure in characters from those exhibited by a large collection of *obscurus* from the Colorado Desert and adjacent regions, as to make a thorough analysis of the status of cowbirds in California seem advisable.

With this end in view, we have assembled or examined all of the material available in the Museum of Vertebrate Zoology and the Museum of History, Science and Art, together with many individual specimens gathered from private sources. Our thanks are due not only to those in charge of the ornithological collections of the institutions mentioned above, but also to the several private collectors who have so courteously placed their material at our disposal.

The resultant data has served to emphasize the fact that much remains to be done in the way of systematic collecting even in a State that has been as thoroughly canvassed as California. In the present instance there is adequate material from southern California, north to Mono Lake on the east, to Merced County in the San Joaquin Valley, and to Oxnard, Ventura County, on the Pacific Slope. North of these points we have been able to trace only a single specimen from the Modoc region, a stray migrant from the Farallon Islands, and two non-breeding birds from Santa Barbara County. Cowbirds are known to occur in fair numbers at various intermediate points, but specific records seem unexpectedly scarce and specimens lacking.

A general impression seems to have sprung up that cowbirds have only recently invaded California. It is unquestionably true that their numbers have increased greatly during the past few years, but in our belief this is due simply to natural increment rather than influx, and is adequately explained by the increasingly favorable conditions that have inevitably resulted from the present extensive development of dairying, truck-gardening, and irrigation projects in general. So far as we can determine there is no reason to suppose that Cowbirds, in small numbers, have not always been residents of the area. J. Grinnell(1) and Edward Wall(2) have already made some very pertinent remarks on this subject.

Molothrus ater obscurus (Gmelin)

Dwarf Cowbird

Range in California: Southern California, from the Arizona line west to San Diego; north over the Colorado and Mojave deserts to Death Valley, the Panamint Mountains, and Independence, Inyo County; north through the San Diegan district to the vicinity of Ventura and, in winter at least, to Goleta, Santa Barbara County. Specimens examined (approximately 150) from the

(1) Univ. Calif. Publ. Zool., **5**, 1909, pp. 275-281.
(2) Condor, **21**, 1919, p. 209.

following localities: Imperial County: Calexico, Bard, Lano, Potholes, Pilot Knob; Riverside County: Mecca, Neighbors, Riverside; San Bernardino County: Lavic, Yermo, Victorville, Colton; Inyo County: Death Valley, Panamint Mountains, Independence, Shoshone; San Diego County: San Diego, National City, Borego Springs, Vallecito; Orange County: Anaheim Landing; Los Angeles County: Baker, Los Angeles, El Monte, Pasadena; Ventura County: Oxnard; Santa Barbara County: Goleta.

REMARKS: Broadly speaking, the life zone occupied by *obscurus* is Sonoran, with centers of abundance in the Lower Sonoran Zone along the Colorado River, at desert oases, such as Mecca, and in the irrigated sections of the Imperial Valley. The race is probably resident over its entire California range; certainly so in the southern part of the State. Specimens from the northern part of the San Diegan District are intermediate toward *californicus*.

Molothrus ater artemisiae Grinnell

Nevada Cowbird

Range in California: In summer, the east-central section of the State, from Death Valley, the Panamint Mountains, and Independence, north to Mono Lake; also the northeastern section, in the Modoc region. In migration, and in winter, widely distributed over most of the State. Record stations outside the normal breeding range are: Los Coronados Islands (Lower California), September 5; Farallon Islands, June 2; Borego Springs, April 30; Neighbors, October 14; Yermo, June 7; and Mount Bullion, December 27. The record from the Sacramento Valley cited by Baird(1) may pertain to this form or to *californicus*. Of the 49 specimens examined, 26 are from the following California localities: Los Coronados Islands (Lower California); San Diego County: Borego Springs; Riverside County: Neighbors; San Bernardino County: Yermo; Inyo County: Furnace Creek Ranch, Death Valley, Panamint Mountains, Independence, Laws; Mono County: White Mountains, Mono Lake, Oasis; Modoc County: Alturas; Mariposa County: Mount Bullion.

REMARKS: As a breeding bird, the Nevada Cowbird is much more widely distributed zonally than either of the other forms occurring in California, since it ranges from Transition (Alturas), through Upper Sonoran (Mono Lake and Owens Valley), to extreme Lower Sonoran in Death Valley. Moreover, this race is distinctly migratory, whereas *obscurus* and *californicus* appear to be nearly or entirely resident. The sporadic occurrences during the summer at Yermo and on the Farallones can be most logically accounted for by considering these individuals as late or strayed migrants.

A certain amount of intergradation takes place between *artemisiae* and *obscurus* in Death Valley, the Panamint Mountains, and Owens Valley, particularly in the southern part. In addition, certain rather small examples of *artemisiae* from Mono Lake are undoubtedly accounted for by an infusion of *obscurus* blood. However, the blending of the two races is by no means the gradual one which is generally found in the intermediate area between two subspecies. This very imperfect fusion of the two forms probably indicates either a recent invasion of the range of one form by the other, or else a recent simultaneous occupation by both forms of an area formerly uninhabited by the spe-

(1) Reports of Explorations and Surveys from the Mississippi River to the Pacific Ocean, 1853-56, vol. 9, pt. 2, pp. 524-525.

cies. Breeding specimens typical of both *artemisiae* and *obscurus* are at hand from Death Valley, the Panamint Mountains, and Independence. To add to the complexity of the material from this region, several of the intergrades (possibly hybrids would be a better term) are practically indistinguishable from *californicus*, and were they taken in the San Joaquin Valley, would pass as examples of that form. In this regard the present case is clarified, however, by the exact analogy detected some years ago among the horned larks by Dr. H. C. Oberholser(1). Briefly, the case may be summed up as follows: Where the two forms come together, a combination of their characters has resulted in a more or less typical reduplication, in certain individuals, of the characters of a third well-defined race occupying a distant and delimited area.

Molothrus ater californicus, subsp. nov.

California Cowbird

DIAGNOSTIC CHARACTERS: FEMALES: Compared with *Molothrus ater obscurus*, size larger, tail proportionately shorter, and tarsi and feet much heavier; coloration darker, especially below (more slaty), and streaking sharper and more conspicuous. Compared with *Molothrus ater artemisiae*, size smaller; streaking of under parts narrower. MALES: The proportion of wing to tail is practically the same in the males of all three races, but the larger size, heavier tarsi and feet, together with the greater bill size of *californicus* will serve as distinguishing characters when compared with *obscurus;* the smaller size, particularly of these parts, will differentiate the race with equal facility from *artemisiae*.

TYPE: Female adult, H 707, collection of Donald R. Dickey; Buena Vista Lake, Kern County, California; May 20, 1920; collected by Donald R Dickey and A. J. van Rossem; original number A. J. van R. 5366.

RANGE: In summer, the San Joaquin Valley of California, from the extreme southern end north at least to northern Merced County, and possibly north to include the Sacramento Valley; also east in favorable localities to the Sierra foothills, as at Weldon, Kern County, and Snelling, Merced County. Wandering west and south in the fall to Ventura County (Oxnard), and Santa Barbara County (Carpinteria), and in spring at least to Los Angeles County (El Monte). Specimens examined from the following localities: Kern County: Buena Vista Lake, Bakersfield, Weldon; Merced County: Snelling; Fresno County: Mendota; Santa Barbara County: Carpinteria; Ventura County: Oxnard; Los Angeles County: El Monte.

REMARKS: We have selected a female as the type because the differences between the several forms are (as is the case with certain races of *Agelaius*) more pronounced and uniform among individuals of this sex than among the males.

This form is apparently resident in the southern San Joaquin at all seasons of the year. In September, 1921, and in January, 1922, the junior writer found cowbirds almost, if not quite, as common in the vicinity of Buena Vista Lake as during the summer. No specimens were taken at these times, because for some reason the birds were extremely shy. A large series of fall, winter, and spring specimens taken outside the San Joaquin Valley fails to disclose any birds referable to this race, except those mentioned above. Intergradation with *obscurus* takes place in the northern part of the San Diegan District, for breeding birds

(1) Proc. U. S. Nat. Mus., **24**, 1902, pp. 802-803.

from Los Angeles and Ventura counties are clearly intermediate in size and color. To the east, the Sierra Nevada Range forms an effective barrier to the interbreeding of *californicus* with either *artemisiae* or *obscurus*. Future collecting in the Sacramento Valley may disclose an intergradation with *artemisiae* in that region.

In working over the series of the present subspecies, it has particularly interested the authors to find this race apparently reaching its maximum development in wing length and in attenuation of bill on the South Fork of the Kern River. It is this same mountain valley which has produced *Agelaius phoeniceus aciculatus*, and it is of further interest to note that the distinctions which serve to separate *Agelaius p. neutralis*, of the San Diegan district, from *Agelaius p. aciculatus*, are paralleled in many respects by those which differentiate *Molothrus a. obscurus* from *Molothrus a. californicus*.

MEASUREMENTS

Molothrus ater californicus

FEMALES (all from California):

Coll. No.[1]	Locality	Date	Wing	Tail	Tarsus	Culmen	Depth Bill at Base
H 707*	Buena Vista Lake	May 20, 1920	93.3	64.6	23.0	15.1	9.9
H 708	Buena Vista Lake	May 20, 1920	94.2	63.4	23.4	15.0	9.2
H 709	Buena Vista Lake	May 20, 1920	96.0	65.4	24.3	14.7	9.2
H 719	Buena Vista Lake	May 21, 1920	95.3	65.8	23.4	15.2	9.9
H 720	Buena Vista Lake	May 21, 1920	94.0	64.4	23.2	14.5	9.4
H 721	Buena Vista Lake	May 21, 1920	94.1	62.2	22.8	16.1	9.2
H 722	Buena Vista Lake	May 21, 1920	93.8	64.4	22.8	14.6	9.6
J 798	Buena Vista Lake	June 13, 1921	94.0	63.4	23.3	14.7	9.3
J 905	Buena Vista Lake	July 8, 1921	94.4	59.5	23.2	15.0	10.0
J 906	Buena Vista Lake	July 8, 1921	98.3	61.4	24.5	14.4	10.5
20101[2]	Weldon	July 6, 1911	100.0	68.3	24.5	17.0	10.3
20102[2]	Weldon	July 6, 1911	96.0	66.7	23.0	16.4	9.7
21547[2]	Bakersfield	April 21, 1912	93.5	65.0	22.8	14.8	9.3
29186[2]	Mendota	June 12, 1918	93.2	63.5	23.4	15.8	10.0
		Minimum:	93.2	59.5	22.8	14.4	9.2
		Maximum:	100.0	68.3	24.5	17.0	10.5
		Average:	95.0	64.1	23.4	15.2	9.7

*Type
[1]Collection of Donald R. Dickey, unless otherwise specified.
[2]Univ. Calif. Mus. Vert. Zool.

Molothrus ater obscurus

Eleven breeding females from Imperial Valley, and five from the San Diegan District.

	Wing	Tail	Tarsus	Culmen	Depth Bill at Base
Minimum:	90.0	61.0	21.2	13.7	8.5
Maximum:	97.5	68.3	24.0	14.8	9.8
Average:	92.8	64.6	22.5	14.2	9.3

Molothrus ater artemisiae

One breeding adult female from Humboldt County, Nevada, and six from Harney County, Oregon.

Minimum:	96.0	64.3	25.0	15.6	10.3
Maximum:	104.5	70.4	26.8	16.6	10.8
Average:	101.0	67.2	25.9	15.9	10.5

Average of eight breeding females from Death Valley, Mono Lake, and Independence, selected as showing that *artemisiae* in nearly typical form occurs at these southern points (intergrades with *obscurus* being excluded):

100.4	67.8	25.3	15.8	10.3

Molothrus ater californicus

MALES (all from California):

Coll. No.[1]	Locality	Date	Wing	Tail	Tarsus	Culmen	Depth Bill at Base
H 702	Buena Vista Lake	May 20, 1920	107.8	75.2	25.5	17.6	10.4
H 703	Buena Vista Lake	May 20, 1920	108.5	75.4	25.4	17.4	10.0
H 704	Buena Vista Lake	May 20, 1920	103.0	72.4	24.0	18.1	10.0
H 705	Buena Vista Lake	May 20, 1920	105.1	73.0	25.0	17.0	10.5
H 706	Buena Vista Lake	May 20, 1920	105.4	73.8	24.6	17.5	10.1
H 710	Buena Vista Lake	May 21, 1920	100.0	73.0	25.0	17.8	10.6
H 711	Buena Vista Lake	May 21, 1920	103.5	71.2	25.3	17.4	10.8
H 712	Buena Vista Lake	May 21, 1920	100.5	68.5	23.8	17.1	9.4
H 718	Buena Vista Lake	May 21, 1920	102.0	70.0	25.5	18.0	10.4
H 728	Buena Vista Lake	May 23, 1920	105.0	72.4	24.0	17.7	10.0
H 825	Buena Vista Lake	June 2, 1920	102.2	68.7	26.2	17.1	10.1
H 826	Buena Vista Lake	June 3, 1920	106.2	73.1	25.7	17.6	10.4
J 816	Buena Vista Lake	June 19, 1921	102.4	72.3	25.4	16.6	10.1
19515[2]	Bakersfield	May 10, 1911	100.0	69.4	24.4	17.3	11.0
19516[2]	Bakersfield	May 10, 1911	106.4	78.1	25.4	17.6	10.7
20100[2]	Weldon	July 6, 1911	103.0	71.4	25.0	18.2	11.0
25623[2]	Snelling	May 29, 1915	100.0	69.0	24.3	15.7	10.0
29187[2]	Mendota	June 15, 1918	102.5	72.0	25.3	16.5	10.5
		Minimum:	100.0	68.5	23.8	15.7	9.4
		Maximum:	108.5	78.1	26.2	18.2	11.0
		Average:	103.5	72.2	25.0	17.3	10.3

[1]Collection of Donald R. Dickey, unless otherwise specified.
[2]Univ. Calif. Mus. Vert. Zool.

Molothrus ater obscurus

Twenty breeding males from Imperial Valley, and two from the San Diegan District.

	Wing	Tail	Tarsus	Culmen	Depth Bill at Base
Minimum:	97.5	66.3	21.0	15.6	9.3
Maximum:	106.5	77.0	25.0	17.0	10.9
Average:	102.1	71.0	23.7	16.5	10.0

Molothrus ater artemisiae

Ten breeding males from Humboldt County, Nevada.

Minimum:	111.3	73.6	26.0	17.0	10.6
Maximum:	118.4	82.4	29.0	19.5	11.6
Average:	114.3	77.6	28.0	18.0	11.2

Average of five males from Independence, selected as showing that *artemisiae* in nearly typical form occurs at these southern points (intergrades with *obscurus* being excluded):

110.3	75.4	27.3	18.4	10.8

Pasadena, California, September 22, 1922.