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AN INLAND RACE OF *STERNA ALBIFRONS*

By THOMAS D. BURLEIGH AND GEORGE H. LOWERY, JR.

In 1938 Oberholser¹ assigned examples of the Least Tern from certain interior portions of Louisiana to the California race, *Sterna albifrons browni* Mearns.² This extended the range of *browni* several thousand miles from the coast of California to the Mississippi River Valley. At the time it seemed strange to us that the terns of the California coast should be the same as those inhabiting the fresh water lakes and the numerous sand-bars and battures along the Mississippi River and certain of its tributaries. However, we did not then have sufficient material to review this taxonomic problem. Now that several nesting seasons have elapsed, during which we have obtained specimens from inland breeding colonies, an adequate series is before us. It becomes obvious that Oberholser was in error in considering birds from this area as *browni*. Moreover, it is clearly evident that inland breeding birds are separable from both *browni* and *antillarum*³ and thus constitute an unnamed race, which we propose to call

*STERNA ALBIFRONS ATHALASSOS*⁴ new subspecies

INTERIOR LEAST TERN

Type.—Male, adult; no. 5443, Louisiana State University Museum of Zoölogy; St. Francisville, West Feliciana Parish, Louisiana; May 27, 1941; Thomas D. Burleigh; original number 10,599.

¹ "Bird Life of Louisiana," *La. Dept. of Conservation*, Bull. 28, 1938: 299-300.

² *Sterna antillarum browni* Mearns, *Proc. Biol. Soc. Wash.*, 29, 1916: 71.

³ *Sternula antillarum* Lesson, *Compl. Oeuvres Buffon*, 20, 1847: 256.

⁴ *Athalassos* = not by the sea.

Subspecific characters.—Resembling *S. a. staebleri*,⁵ of Chiapas, Mexico, more closely than any other form, but lacking the extensive suffusion of pearl gray on the under parts and having the bill less extensively tipped with black. Similar also to *S. a. mexicana*,⁶ but in addition to differing therefrom in the same characteristics as from *staebleri*, it is decidedly larger. From *S. a. antillarum*, *athalassos* is separable on the basis of the much darker coloration of the upper parts, and there is little or no distinction between the color of the back and that of the hind neck, whereas in *antillarum* the hind neck is usually distinctly paler in color.

*Measurements*⁷ (in millimeters).—Adult male (fifteen specimens): wing, 163-177 (average, 168.5); tail, 70-85 (74.6); exposed culmen, 26.0-29.3 (27.7). Adult female (six specimens): wing, 163-174 (average, 168.5); tail, 69-84.8 (73.5); exposed culmen, 24.4-27.2 (25.3).

Distribution.—The Lower Mississippi River Valley from at least Baton Rouge, Louisiana, northward along the Mississippi and Missouri river systems to Iowa and Ohio and, at least formerly, to southwestern Kansas and northern Nebraska.

Material examined.—*S. A. ATHALASSOS* (In all, 26 specimens, including six migrants). MISSISSIPPI.—Rosedale, 5; Vicksburg (Eagle Lake), 3; Greenville, 2; Deer Island, 1 (August migrant); Gulfport, 1 (May migrant). TENNESSEE.—Mississippi-Tennessee state line at Mud Lake below Memphis, 1 (immature). LOUISIANA.—St. Francisville, 3; Baines, 1; Baton Rouge, 3; Southwest Pass, 1 (August migrant); New Orleans, 1 (May migrant); Timbalier Island, 1 (August migrant); Pass a Loutre, 2 (August migrants). OHIO.—Lucas County, 1 (immature).

S. A. ANTILLARUM (In all, 59 specimens). WEST INDIES.—Little Cayman Island, 1; St. Croix, 1; Bahamas, near Hopetown, 1; Antigua, 1; Guadeloupe (?), 2. FLORIDA.—Key Largo, 1. TEXAS.—Cameron County, 1. LOUISIANA.—Isle au Pitre, 2; New Orleans (Fort Pike), 1;

⁵ *Sterna albifrons staebleri* Brodtkorb, Auk, vol. 57, 1940: 542.

⁶ *Sterna albifrons mexicana* van Rossem and Hachisuka, Trans. San Diego Soc. Nat. Hist., vol. 8, no. 23, 1937: 333-334.

⁷ Aside from the length of the exposed culmen, which is easily measured in Least Terns, we consider that the other measurements constitute little more than an indication of size. The wing is particularly difficult to measure and varies to a large degree depending on how the manus was allowed to dry in making the skin. The outer tail feathers are frequently abraded or broken, rendering that measurement unreliable.

Grand Isle, 4; Timbalier Island, 1; Southwest Pass, 1. MISSISSIPPI.—Deer Island, 9; Gulfport, 5. ALABAMA.—Mobile, 1. SOUTH CAROLINA.—Charleston, 1. VIRGINIA.—Cobb's Island, 2. MASSACHUSETTS.—Tuckermuck Island, 1; Cape Cod, 1; Chatham, 2; Ipswich, 2. CALIFORNIA.—Long Beach, 4; Orange County, unspecified, 2; Sunset Beach, 2; New Port, 5; U. S.-Mexican Boundary Monument No. 258, San Diego County, 2; Point Mugu, 3.

S. A. STAEBLERI. CHIAPAS.—Mouth of Rio Cahuacan, 5.

S. A. MEXICANA. SONORA.—Mascari Island, Tobarí Bay, 2.

Remarks.—In working out the taxonomic relationships of the Least Terns of the Mississippi Valley, it became necessary first for us to understand thoroughly the position of *S. a. browni*, especially since birds of this area had at one time been referred to that race. After carefully reviewing the alleged characters of *browni* there appears to be little ground for maintaining it as a valid race, an opinion which has long been adhered to by certain authorities on West Coast bird life (Willett, Grinnell, Bishop, etc.). We have not been able to discover a single character in *browni* which is sufficiently constant to distinguish it from *antillarum*. Although the birds of the Gulf Coast and West Indies are the same as those breeding far away on the Pacific Coast, this fact certainly is not sufficient justification for giving the latter nomenclatural recognition.

Mearns, in the original description of *browni*, and later Ridgway⁸ separated *browni* from *antillarum* by the following characters: (1) under parts distinctly tinged with pale gray; (2) gray of upper parts slightly deeper in *browni*; (3) black of the pileum extending farther down the median portion of the nape; (4) bill frequently without blackish tip (wholly yellow); (5) usually *three* rather than *two* outer primaries dusky. These are in general the same set of characters used by other authors in defining other races, although van Rossem and Hachisuka, and later Brodkorb, relied on size as a character in describing *mexicana* and *staebleri*, respectively. In *mexicana*, the small size is apparently diagnostic, and this character alone is sufficient to distinguish that race from *staebleri* and so-called *browni*.

As to the extent of the black on the bill, in eighteen specimens of *browni* before us, fifteen (83 per cent.) have some black and nine (50 per cent.) are distinctly tipped with black. Thus, the statement cannot

⁸ "Birds of North and Middle America," *Bull. U. S. Nat. Mus.*, 50, pt. 7, 1919: 525.

be made that the bill in Pacific Coast birds is "frequently without a black tip." In the case of *staebleri*, however, the bill does seem to be consistently and broadly tipped with black, a character which in itself serves to distinguish it. But, only ten specimens of *staebleri* have been collected, too few to determine the degree of variability of this particular character in that race.

The distance which the black on the pileum extends down on the hind neck is apparently due entirely to the "make" of the skin and therefore of no taxonomic value.

As to the color of the upper parts, *browni* seems identical with *antillarum*. We have repeatedly placed specimens from the Pacific Coast among our series of *antillarum* from the Gulf Coast and in no instance have we been able to detect the slightest degree of difference except that which is attributable to "museum age" or dirt. The same holds true for the under parts. We have been unable to detect that *browni* is suffused with pearl gray on the under parts, at least any more so than *antillarum*. This character is, however, clearly evident in the case of *mexicana* and especially in *staebleri*.

With respect to the number of black primaries in the various races, we have endeavored to obtain a count on a sufficiently large series of specimens so as to render the results conclusive. Accordingly, we prevailed upon the kindness of several workers in the larger museums to tabulate the distribution of this character among the specimens in their care. In consequence of this help we have the data on 261 specimens of Least Terns representing all of the North American races. The results are indicated in the following table:

TABLE I

	Number of Specimens	Number of primaries black (dusky) ⁹			
		1	2	3	4
<i>S. a. athalassos</i>	21		18	3	
<i>S. a. antillarum</i>	142	4	106	33	1
<i>S. a. browni</i>	86		42	44	
<i>S. a. staebleri</i>	10		7	3	
<i>S. a. mexicana</i>	2		1	1	

⁹ Some specimens show a variation between wings, i. e., one wing will have two primaries black, the other, three black. In not all cases is this due to a primary being lost. Nevertheless, in such cases, we have employed the larger number which are black in making the count.

It is thus evident that *browni* cannot be distinguished with certainty from *antillarum* by this character. Moreover, if in 86 specimens of *browni* selected at random, 48.8 per cent. have two primaries black, previous authors were in error in stating that Pacific Coast birds usually have three so colored.

After carefully analyzing the various races, we advance the following conclusions:

(1) *browni* is too poorly defined to be considered valid; the breeding birds of the California coast should be referred to *S. a. antillarum*, notwithstanding the fact that they represent a widely discontinuous population.

(2) *mexicana* is the smallest of the races; it is further distinguished from *antillarum* by its darker coloration and from *athalassos* by the suffusion of pearly gray on the under parts.

(3) *staebleri* is the darkest of all races; from *mexicana* it differs by way of its larger size and by having the bill more extensively tipped with black. From *antillarum* and *athalassos*, it differs by having the strong suffusion of pearly gray on the under parts.

(4) *athalassos* is a medium sized race with upper parts dark and undifferentiated on the hind neck, thus differing from *antillarum*, but with immaculate under parts, in which respect it is clearly separable from *mexicana* and *staebleri*.

We are greatly indebted to the following individuals and institutions both for the loan of comparative material and for other data pertaining to specimens in their care which we have not seen in the present connection: James L. Peters and Norman Hill and the Museum of Comparative Zoölogy of Harvard; Pierce Brodkorb and the Museum of Zoölogy of the University of Michigan; George Willett and the Los Angeles Museum; and, A. J. van Rossem and the Donald R. Dickey Collection at Los Angeles.