

## THE CRAVERI MURRELET IN CALIFORNIA

WITH ONE ILLUSTRATION

By A. J. VAN ROSSEM

SOME years ago the writer recorded (Condor, xvii, 1915, pp. 74-78) the presence of what he believed to be Craveri Murrelets from the vicinity of Los Coronados Islands, off San Diego, California. The occurrence so far north of birds exhibiting the characters ascribed to *Brachyramphus craverii* (Salvadori) led Dr. Joseph Grinnell to suggest (Pac. Coast Avifauna, no. 11, 1915, p. 175) that this supposed species might prove to be merely an age variation of *Brachyramphus hypoleucus* Xantus, the species breeding on the Pacific coast of northern Lower California and southern California.

Recently a series of breeding *craverii* has become available for study. In April, 1925, the writer collected sixteen adults and eight downy young of this species in the northern part of the Gulf of California. There are also at hand four adults and one downy young from the southern part of the Gulf, taken by Mr. Chester C. Lamb, and now in the collection of Dr. Louis B. Bishop.

In view of the confusion caused by the northern occurrence of *craverii*, a review of all the murrelets of the *Endomychura* group in California collections seemed advisable. A total of 152 specimens was assembled from the following sources: Dr. Louis B. Bishop, 18; California Academy of Sciences, 35; Donald R. Dickey, 48; Laurence M. Huey, 16; Los Angeles Museum of History, Science and Art, 2; Museum of Vertebrate Zoology, 30; San Diego Museum of Natural History, 1; L. E. Wyman, 2.

The only sex difference in either species proved to be the slightly larger average size of the females. As to age, there is no apparent difference between birds of the year, subsequent to the post-juvinal molt, and fresh fall adults. In many of the molting specimens of *hypoleucus* enough of the old plumage remains definitely to establish their ages. In the case of *craverii*, most of the available birds had finished molting at the time of capture, but in 42 out of a total of 86 examined, sufficient evidence remained to give at least a clue as to age. Since no difference was discernible between the definitely known post-juvinal and adult plumages of either species, it seemed permissible to use birds of undeterminable age for purposes of comparison.

The two species are perfectly distinct. The three primary characters which distinguish them are the bill shape, the color of the wing lining, the exposed parts of which are always pure white in *hypoleucus*, and grayish white with a variable amount of darker mottling in *craverii* (see Condor, xvii, 1915, pp. 74-78), and the color of the inner webs of the distal primaries, which are white in *hypoleucus* and light brown in *craverii*. In addition, three other characters are diagnostic in most cases, and may be called positive characters if birds of similar age and wear are compared. *Craverii* is much browner than *hypoleucus* in fresh plumage. In very worn plumage, this difference is somewhat obscured, but it is usually noticeable even in this stage. The lateral outline between the dorsal and ventral plumage usually furnishes an additional distinction, as indicated in the accompanying illustration. This difference is probably constant in life, but the distortion of made-up skins occasionally minimizes or exaggerates this difference. *Hypoleucus* in fresh fall plumage has the feathers of the sides broadly tipped with white. The best-marked specimens never lose this character altogether, but as a rule it nearly or quite disappears in worn breeding birds. Juveniles of *hypoleucus* do not possess this white tipping at all. Specimen no. 15,820 of the

collection of the California Academy of Sciences, mentioned by Beck (Proc. Calif. Acad. Sci., 4th Series, III, 1910, p. 60) as showing the combined characters of the two species, proves to be a perfectly normal juvenal specimen of *hypoleucus*, with the white-

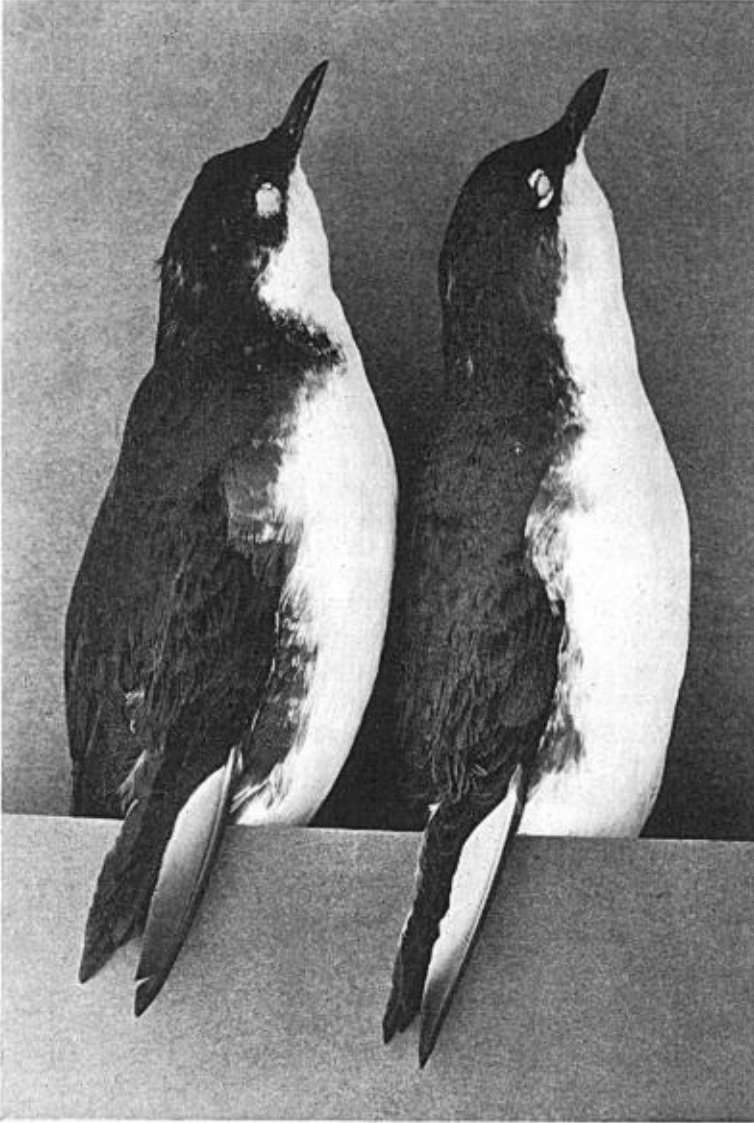


Fig. 30. *Brachyramphus craverii* (left) and *Brachyramphus hypoleucus* (right). Illustrating certain of the specific differences, such as bill shape, coloration of inner web of distal primaries, and lateral demarcation between dark dorsal and light ventral plumages.

tipped plumage of the first fall just appearing. Ordinarily, *craverii* does not exhibit white-tipping on the sides and flanks, but occasional birds in very fresh plumage show faint traces of it.

It may be well to call attention to the statements made by Dawson on page 1489, and by Bancroft on page 1490, of the "Birds of California" (Students' Edition, 1923) relative to intergradation of the two species. Dawson, on the basis of the material in the Museum of Vertebrate Zoology, states that the wing lining of "*E. hypoleucus* exhibits every degree of gradation from pure white to pure smoky." This assertion is not supported by the facts. There is no overlap in this character either in the specimens in the Museum of Vertebrate Zoology or in any other specimens examined. The second writer states that "intergradation . . . probably occurs . . . in the vicinity of Cedros Island." We are at present aware of no evidence to support such an assertion. There is reason to suppose that murrelets of some species do breed on the islands off the central and southern Pacific coast of Lower California, but the only specimen available from this area is a male *hypoleucus*, taken May 18, 1892, on Guadalupe Island. The date of capture indicates that it was a breeding bird. Whether *hypoleucus* breeds south to the Cape, or whether *craverii* breeds on the Pacific side of the peninsula at all, are questions which only future field work can determine. Meantime, no intergrades among the many winter-taken specimens have so far come to light.

The newly hatched chick of *craverii* does not seem to have been described. The following description is based on five downy young which were hatched from pipped eggs taken on George Island, in the Gulf of California, from April 20 to April 22, 1925.

Plumage in general identical with that of *hypoleucus* of similar age, but entire dorsal surface, except head, with a variable amount of diffused grayish-white mottling or spotting. The darkest specimen is nearly uniform blackish slate, with gray spotting scarcely discernible. The lightest is almost as white as a downy young Ancient Murrelet (*Synthliboramphus antiquus*). White markings on upper and lower eyelids more restricted than in *hypoleucus*, sometimes obsolete. Bill differences parallel the differences in adults. As the young become older, the down assumes a more rusty hue. In a half-grown bird, no. 3715, collection of Dr. Louis B. Bishop, it is dark mouse gray, darker posteriorly, but with gray spotting on back still very prominent. *Craverii* is thus seen to be a highly variable species, in the case of newly hatched young as well as in adults, while *hypoleucus* is stable and exhibits little or no variation.

Following is a list of the specimens examined. Breeding stations are marked with an asterisk.

*Brachyramphus hypoleucus*: 66

California, Monterey Bay:	14. April 25, July 29, August 19, 31, September 20, October 13, 19, 28, November 1, 6, December 26.
Santa Cruz Id.:	1. November 28.
Anacapa Island*:	1. May 21.
Sta. Catalina Id.:	2. February 18.
Huntington Beach, Orange County:	1. May 6.
Pacific Beach, San Diego County:	1. January 11.
Lower California,	
Los Coronados Islands*:	45. April 8, 11, May 12, 15, 18, 24, 25, 26, 28, 29, June 1, 2, 5, 15, 16, 17, 21, 22, July 1, August 13.
Guadalupe Island (*?):	1. May 18.

*Brachyramphus craverii*: 86

California, Monterey Bay:	52. August 14, 16, 30, September 2, 6, 8, 19, 21, 23, 28, 30, October 3, 6.
Lower California,	
vic. Los Coronados Ids.:	4. August 13.
Gulf of California, vic.	
Coronados Island*:	2. April 30.
Gulf of California, vic.	
Ildefonso Islands*:	3. April 25, 27, 28.
Gulf of California, Lat.	
29°, 5 mi. W. Tiburon	
Island:	13. April 19.
Gulf of California,	
George Island*:	6. April 20, 21, 22.
Gulf Coast, Angeles Bay*:	6. April 16.

Summary: *Brachyramphus hypoleucus* and *Brachyramphus craverii* are specifically distinct by reason of several differences in which no intergradation has thus far been demonstrated. Both species occur at sea as far north as Monterey Bay, *hypoleucus* practically throughout the year and *craverii* during the months of August, September and October. Beck (Proc. Calif. Acad. Sci., 4th Series, III, 1910, p. 60) states that murrelets of this group were common off Monterey Bay from November 24, 1904, to February 4, 1905. Unfortunately, the specimens taken were destroyed in the San Francisco fire. So far as is known at present, *craverii* is confined to the Gulf of California during the breeding season, and *hypoleucus* to the Pacific Coast.

*Pasadena, California, June 30, 1925.*