

## NOTES ON THE GENUS PUFFINUS BRISSON.

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THE genus *Puffinus* Brisson, as currently recognized, has recently been separated by Messrs. Mathews and Iredale into a number of generic groups.<sup>1</sup> The present writer, in connection with other work on the Biological Survey collection, in the United States National Museum, has had occasion to investigate the generic status of the various shearwaters of the genus *Puffinus*, consequently to review the classification adopted by Messrs. Mathews and Iredale; and the results of this study may be worth placing on record, particularly in so far as they affect the species found in North America.

The new genus *Calonectris*,<sup>2</sup> proposed for *Puffinus leucomelas* Temminck and *Puffinus kuhlii* Boie, appears to be well characterized by its large, robust bill, prominent nasal tubes, rather stout and somewhat abbreviated tarsi.

The genus *Ardenna* Reichenbach,<sup>3</sup> revived to include *Puffinus gravis* (O'Reilly) and *Puffinus creatopus* Coues, seems to be sufficiently different from true *Puffinus*, by reason of its more prominent nostrils and relatively, as well as actually, larger and heavier dertrum.

The proposed genus *Hemipuffinus*,<sup>4</sup> with its relatively short, heavy bill and prominent nostrils, looks very different from the typical species of *Ardenna*, but is so intimately connected with *Ardenna gravis* by individual variation of *Ardenna creatopus* that the difference between the two supposed groups is thus completely bridged; and *Hemipuffinus*, with its single species, must be merged with *Ardenna*. It may, however, be retained as a subgeneric group.

The genus *Thyellodroma* Stejneger,<sup>5</sup> revived by Mathews and

<sup>1</sup> Austral Avian Record, II, 1913-1914, pp. 12, 20, 110; Ibis, ser. 10, III, No. 3, July, 1915, pp. 582-604.

<sup>2</sup> Mathews and Iredale, Ibis, ser. 10, III, No. 3, July, 1915, p. 586 (type by designation [p. 592], *Puffinus leucomelas* Temminck).

<sup>3</sup> Natürl. Syst. Vögel, 1852, p. IV (type by monotypy, *Procellaria major* Faber, = *Procellaria gravis* O'Reilly).

<sup>4</sup> Iredale, Austral Avian Record, II, No. 1, August 2, 1913, p. 20 (type, by original designation, *Puffinus carneipes* Gould).

<sup>5</sup> Proc. U. S. Nat. Mus., XI, November 8, 1888, p. 93 (type by original designation, *Puffinus sphenurus* Gould).

Iredale for *Puffinus cuneatus* Salvin, *Puffinus bulleri* Salvin, and *Puffinus chlororhynchus* Lesson, is, by reason of its long, wedge-shaped tail and heavy, anteriorly more truncate nasal tubes, held by us to be sufficiently distinct from typical *Puffinus*.

The genus *Alphapuffinus* was proposed for *Puffinus assimilis* by Mr. Mathews,<sup>1</sup> and later extended to include also *Puffinus lherminieri* Lesson, and *Puffinus persicus* Hume. The characters given for this separation were the slenderer bill and more open nostril of *Alphapuffinus*. Examination of the species thus included and comparison with the species of true *Puffinus* show that these differences are merely individual variations, and do not form a basis for even subgeneric division. It is necessary, therefore, to synonymize *Alphapuffinus* Mathews with *Puffinus* Brisson.

The case of *Neonectris* Mathews<sup>2</sup> is a little different from that of *Alphapuffinus*. Messrs. Mathews and Iredale included in this group *Puffinus tenuirostris tenuirostris* (Temminck), *Puffinus tenuirostris brevicaudus* Gould, and *Puffinus griseus* (Gmelin). Of these forms, *Puffinus tenuirostris brevicaudus* is most different from *Puffinus puffinus*, the type of the genus *Puffinus* Brisson, and at first sight seems to be well differentiated generically; but by individual variation it intergrades completely through *Puffinus tenuirostris tenuirostris* and *Puffinus griseus*; in fact, some specimens of *Puffinus griseus*, in so far as their structural characters are concerned, might be placed either in the *Puffinus tenuirostris brevicaudus* group or with *Puffinus puffinus*. In view of these facts it is quite impossible to recognize the genus *Neonectris* as distinct from *Puffinus*. Indeed, it is unsatisfactory as even a subgeneric division.

### ***Puffinus couesi* Mathews.**

In the treatment of the genus *Puffinus* in Mathews' 'Birds of Australia,' there is an extended discussion of the nomenclature and relationships of *Puffinus opisthomelas* Coues and *Puffinus auricularis* Townsend.<sup>3</sup> The author, from studying the original

<sup>1</sup> Austral Avian Record, II, No. 5, September 24, 1914, p. 110 (type by original designation and monotypy, *Puffinus assimilis* Gould).

<sup>2</sup> Austral Avian Record, II, No. 1, August 2, 1913, p. 12 (type by original designation, *Puffinus brevicaudus* Gould).

<sup>3</sup> Mathews, Birds Australia, II, part 1, May 30, 1912, pp. 65-67.

descriptions of these two species, apparently without examining the type of either, comes to the conclusion that *Puffinus auricularis* and *Puffinus opisthomelas* are identical and that both refer to the bird from the Revillagigedo Islands, Mexico (*Puffinus auricularis* Townsend). He therefore renames the *Puffinus opisthomelas* of Coues and subsequent authors, with the following basis: "the species described but not figured in the *Monograph of the Petrels* (pp. 109 *et. seq.*) under the name of *Puffinus opisthomelas* Coues, and of which Anthony (Auk, Vol. XVII, p. 247, 1900) notes: 'extremely plentiful off the coast of California during the summer months, breeding rather commonly on Guadaloupe [sic], San Benito Islands, and Natividad Island.'"

An examination, however, of the types of *Puffinus opisthomelas* Coues<sup>1</sup> and *Puffinus auricularis* Townsend,<sup>2</sup> as well as a comparison of both with material from Monterey, other parts of California, and from Lower California, at once discloses the fact that these types clearly represent the two distinct species with which current authors have identified them, and that, furthermore, these types typify the characters of the two species. The bird from Clarion Island, Revillagigedo Islands, western Mexico, *Puffinus auricularis* Townsend, differs from *Puffinus opisthomelas* Coues in its much more blackish upper surface, shorter, more blackish bill, smaller feet, and usually pure white axillars. The figure of *Puffinus opisthomelas* in Godman's 'Monograph of the Petrels'<sup>3</sup> does not represent a typical California bird, yet a specimen in the United States National Museum from Monterey Bay, California (No. 191015, U. S. N. M.), very closely matches it in color. While this specimen is unusually dark, there is much individual variation in the coloration of the upper parts, and the type of *Puffinus opisthomelas* Coues, possibly in part on account of its age, is the palest specimen of our series! It is thus very evident that *Puffinus couesi* Mathews becomes a synonym of *Puffinus opisthomelas* Coues, and that the latter name remains the proper designation of this species. Also the name *Puffinus auricularis* Townsend must be continued for the species to which it has always been applied.

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<sup>1</sup> *Puffinus opisthomelas* Coues, Proc. Acad. Nat. Sci. Phila., 1864, p. 139 (Cape San Lucas, Lower California).

<sup>2</sup> *Puffinus auricularis* Townsend, Proc. U. S. Nat. Mus., XIII, Sept. 9, 1890, p. 133 (Clarion Island, Revillagigedo Islands, Colima, Mexico).

<sup>3</sup> Godman, *Monograph Petrels*, part 2, March, 1908, pl. 30.

***Puffinus cuneatus* Salvin.**

Mr. G. M. Mathews, in his 'Birds of Australia',<sup>1</sup> considered *Puffinus cuneatus* Salvin a subspecies of *Puffinus chlororhynchus* Lesson, or, as he calls it, *Puffinus pacificus* (Gmelin). He also described a bird from San Benedicto Island, Revillagigedo Islands, State of Colima, Mexico, as *Puffinus pacificus alleni*,<sup>2</sup> which Dr. Witmer Stone entered in the first annual list of proposed changes in the A. O. U. Check-List of North American Birds as a substitute for the *Puffinus cuneatus* of North America. More recently Messrs. Mathews and Iredale have reverted to the previous view of authors that *Puffinus cuneatus*, the white-breasted bird, and *Puffinus chlororhynchus* (*Puffinus pacificus* [Gmelin]), the dark-bodied bird, are distinct species, instead of mere color phases or geographic races. This view is probably correct, although this difficult question is by no means finally settled. Such an arrangement leaves, according to Mathews and Iredale, only two described subspecies under *Puffinus cuneatus*, viz.: *Puffinus cuneatus cuneatus* Salvin, from the Marshall, Bonin, and Pescadores Islands, and *Puffinus cuneatus laysani* Mathews from Laysan Island in the Hawaiian group. On San Benedicto Island off the western coast of Mexico occur both light and dark birds, and the *Puffinus pacificus alleni* of Mathews belongs to the dark species, *Puffinus pacificus*; while the light bird of this island, if subspecifically distinct from that of the Hawaiian Islands, is apparently unnamed.

Mr. Mathews, in describing his *Puffinus pacificus laysani*,<sup>3</sup> from Laysan Island, Hawaiian Islands, based his distinction on the lighter color of the Laysan birds compared with the typical form from the Marshall Islands. Later Messrs. Mathews and Iredale asserted the absolute identity of birds from Bonin Island with the type of *Puffinus cuneatus* Salvin from Krusenstern Island in the Marshall archipelago.<sup>4</sup> Although the writer has not been able to examine specimens from the Marshall Islands, he has had available birds from the Bonin Islands, and a good series from both Laysan Island and other Hawaiian Islands, including the type of *Puffinus*

<sup>1</sup> Birds Australia, II, part 1, May 30, 1912, pp. 82-84.

<sup>2</sup> Birds Australia, II, part 1, May 30, 1912, p. 83.

<sup>3</sup> Birds Australia, II, part 1, May 30, 1912, p. 83.

<sup>4</sup> Ibis, ser. 10, III, No. 3, July, 1915, pp. 597-599.

*knudseni* Stejneger.<sup>1</sup> A careful comparison of this material reveals no characters for the recognition of a subspecies from the Hawaiian Islands or from Laysan, since the chief difference mentioned by Mr. Mathews as characterizing his *Puffinus pacificus laysani*, its paler upper parts, is not at all borne out by the present specimens, some of the examples from Laysan and the other Hawaiian Islands being much darker than the Bonin Islands bird. Furthermore, there is absolutely no difference between the light-breasted *Puffinus pacificus laysani*, described by Mr. Mathews from Laysan Island, and *Puffinus knudseni* Stejneger, from Kauai Island; hence, were the Hawaiian bird subspecifically distinguishable, it should bear the name *Puffinus cuneatus knudseni* Stejneger. The identity, however, of the Hawaiian Islands bird with true *Puffinus cuneatus* leaves the bird occurring in North America without a distinctive subspecific name, and we must, therefore, revert for its technical designation to *Puffinus cuneatus*; or, rather, since this species is generically different from the typical species of the genus *Puffinus* Brisson, we should call it *Thyellodroma cuneata* (Salvin).

In view of the changes indicated in the present paper, the North American species now included in the genus *Puffinus* will stand as follows:

- Calonectris kuhlii borealis*** (Cory).
- Ardenna carneipes*** (Gould).
- Ardenna creatopus*** (Coues).
- Ardenna gravis*** (O'Reilly).
- Thyellodroma cuneata*** (Salvin).
- Thyellodroma bulleri*** (Salvin).
- Puffinus tenuirostris tenuirostris*** (Temminck).
- Puffinus griseus chilensis*** Bonaparte.
- Puffinus griseus stricklandi*** Ridgway.
- Puffinus puffinus puffinus*** (Brünnich).
- Puffinus puffinus bermudæ*** Nichols and Mobray.
- Puffinus opisthomelas*** Coues.
- Puffinus auricularis*** Townsend.
- Puffinus lherminieri lherminieri*** Lesson.
- Puffinus assimilis baroli*** Bonaparte.

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<sup>1</sup> *Puffinus knudseni* Stejneger, Proc. U. S. Nat. Mus., XI, November 8, 1888, p. 93 (Kauai Island, Hawaiian Islands).