TWO SOUTHERN PETRELS IN THE NORTH PACIFIC

BY JAMES MOFFITT

MATERIAL in the ornithological collection of the California Academy of Sciences indicates that two petrels, heretofore regarded as almost exclusively of South Pacific oceanic distribution, occasionally range so far north as to occur off the coasts of California and of Lower California. Since the localities of the birds' capture are situated approximately 685 and 175 miles west of the respective coasts, they may be considered to lie within the scope of the American Ornithologists' Union 'Check-list of North American Birds.' Hence, the forms are entitled to recognition in the 'Check-list,' to which they constitute additions as follows:

PTERODROMA LEUCOPTERA MASAFUERAE Lönnberg

Five examples of this bird were collected by R. H. Beck in latitude 33° 6′ N., longitude 134° W., and in 35° 40′ N., 133° 10′ and 14′ W., on November 14 and 19, 1906, respectively. The last locality is about 685 statute miles west of Piedras Blancas, San Luis Obispo County, California. Loomis (Proc. California Acad. Sci., ser. 4, vol. 2, p. 92, 1918) provisionally referred these birds to *Pterodroma longirostris* (= *Pterodroma leucoptera longirostris*) (Stejneger) because he lacked comparative material. Since the Academy still lacks adequate examples of the races of this species, three of the specimens were recently sent for subspecific identification to Dr. R. C. Murphy of the American Museum of Natural History, at the instigation of Dr. Joseph Grinnell, who desired this information for his work on a revised list of the birds of California. Grateful acknowledgment is hereby made of Dr. Murphy's kindness in providing his authoritative determination of the specimens, by his letter of March 19, 1937, as follows: "Your birds represent *P. l. masafuerae* which is known to breed only at Mas Afuera Island, Juan Fernandez group, Chile. The specimens therefore establish a great extension of range, for I had hitherto been able to find examples of this race only from waters close to the Juan Fernandez group ('Oceanic Birds of South America,' p. 720, 1936). The only way in which your three birds differ from examples in our Mas Afuera series is that all three of the North Pacific examples, which were taken in November, have fresh and not fully grown primaries. For this reason the white wedge on the outermost quill seems a little less extensive than among examples from the breeding grounds, but I believe that the difference is entirely due to state of plumage. . . . I have compared your specimens very carefully with all of the five known races of *leucoptera*, and it is quite evident that they can represent only *masafuerae*."

Loomis (loc. cit.) lists museum numbers, sexes and measurements of the five Academy specimens. No. 1145 was recently exchanged with the American Museum of Natural History for a male *P. l. masafuerae* collected February 9, 1914, by R. H. Beck, off Mas Atierra Island, Juan Fernandez group, Chile, which is now no. 42583, C. A. S. Comparison of this bird with the remaining four Academy examples of the race confirms Dr. Murphy's contentions. The five specimens are practically identical, save for the exception already noted by Murphy and for the slightly deeper shade of the mantle in the near-topotypical bird, a difference which also is doubtless only seasonal. Average measurements of C. A. S. nos. 1141–1144 as contrasted with those of the Mas Atierra specimen follow and the first agree fairly well with Loomis's tabulation, save as regards tarsus, a difference probably due to technique. As Gifford did for Loomis, the wing measurements here provided were made with the primaries flattened on a rule, hence they are greater than the customary 'chord' dimension.

	Wing	*Tail*	*Culmen*	*Tarsus*	*Mid-toe + claw*
Nos. 1141–4.....	211	90.5	24.8	28.1	33.5
No. 42583.....	213	95	24.2	28.8	34.1

All measurements of the last specimen are within the ranges of variation for equivalent dimensions of the first four birds. The above measurements, except those of the tarsus, are less than the averages for this race provided by Murphy (loc. cit.) and the wing and tail dimensions are below his minima. The discrepancies are perhaps best explicable by reason of different workers and technique, but incomplete growth may in part account for the small dimensions of wings and tails in the North Pacific specimens.

Murphy (loc. cit.) gives the much higher extension of white on the forehead of *masafuerae* as a character distinguishing the race from the typical form, *leucoptera*, stating that the extreme breadth of white forehead, measured from base of culminicorn, is from 12 to 13 mm. in the latter against an average of 23 mm. in *masafuerae*. In the first four specimens tabulated above, it averages 21.5 mm. and in no. 42583 it is 23 mm.

OCEANODROMA TETHYS KELSALLI (Lowe)

In the course of routine curatorial work on the Academy's bird collection, there were lately noted among the large series of Galapagos Storm Petrels (*Oceanodroma tethys tethys*), thirteen skins of conspicuously small size. Measurements of the entire series indicated that the small ones were of appreciably less dimensions than any of the remaining seventy-four specimens. Measurements of these thirteen birds, with a single exception, agree closely with those claimed for the race *kelsalli* by its describer Lowe (Bull.

British Ornith. Club, **46**: 6–7, 1925) and with the more ample ones provided by Murphy (loc. cit., p. 731). The exception, C. A. S. no. 371, has a wing length of 135 mm. which is well within the range of that of the typical form, but its other dimensions are those of the smaller race, to which all are here referred. This specimen's wing length is omitted from the table of measurements below, but its other dimensions are included. Also omitted, are wing lengths of seven of the remaining twelve small birds, because the molting condition of their wings prevents obtaining maximum measurements.

Twelve of the examples referred to *kelsalli* were collected by the Academy's Galapagos Expedition on July 22, 1905. Nos. 365, 415, 420 and 426, males, and nos. 358 and 372, females, were secured in latitude 22° 30′ N., longitude 112° 39′ W.; while nos. 367 and 419, males, and nos. 362, 364, 366 and 371, females, were taken five minutes south and one minute west of the above position, which is approximately 175 land miles west of the tip of the peninsula of Lower California. The Academy's thirteenth representative of this race, no. 38403, female, was secured in latitude 16° 45′ N., longitude 100° 28′ W. (about forty statute miles west-southwest of Acapulco, Mexico), on September 22, 1933, by Captain W. A. Card of the S. S. 'Antigua,' who presented the bird to the museum. This petrel is in complete fresh plumage and its greatest wing length is 126 mm. In view of the Galapagos Expedition examples of *kelsalli*, its capture suggests that the form may range regularly north to Mexican offshore waters.

Measurements (average, minimum and maximum in millimeters) of the Academy's six male and seven female specimens of *kelsalli*, with wing exceptions noted above, follow. In this race, culmen averages are based on but eleven skins, since two have defective bills. For comparison, dimensions of ten male and ten female examples of the typical race are provided from Academy specimens taken close to the Galapagos Islands.

	O. t. kelsalli	*O. t. tethys*
Wing	124 (119–126) mm.	136.2 (130–143) mm.
Tail	58 (55–61)	59.8 (56–65)
Culmen	11.46 (11–11.8)	12.45 (11.2–13.2)
Tarsus	20.8 (20.4–22)	22.2 (21–23.7)
Mid-toe + claw	18.1 (17.2–19)	19.2 (18–20.8)

It seems odd that neither Loomis nor Swarth commented upon these small skins among the series of *Oceanodroma tethys*. Loomis (loc. cit., p. 154) provides measurements derived from seventy-one of the Academy's ninety-two Galapagos Expedition specimens of the species (six have since been disposed of by exchange). While the writer has in this paper already shown that Gifford's and his own measurements do not conform, the dis-

crepancies in wing lengths of the small petrels under consideration are too great to be so explained. It appears likely that Loomis discarded measurements of the small skins from his table, presumably on account of the state of molt in which most of these birds are engaged. Thus, all, or most of the twelve small ones may have been among the twenty-one skins omitted from his table of measurements. This supposition is further strengthened by the fact that of the specimens here referred to *kelsalli*, only no. 371, the individual with extremely long wings, is included in Loomis's detailed measurements of twenty-six specimens (loc. cit., p. 155).

Loomis (loc. cit., p. 151) mentions (fide E. W. Gifford, field notes) that the southbound expedition first observed Galapagos Petrels on July 21, 1905, in latitude 23° 32′ N., longitude 113° 4′ W. Since all of the birds secured on the following day are here referred to *kelsalli*, it appears that those first seen were also of this kind and that the position marks their northernmost locality of record. The Academy specimens extend the known range of this small petrel northward about thirteen degrees of latitude, the previous northernmost locality being off Panama (Lowe, loc. cit.).

Gifford's notes aver that petrels of this species were frequently encountered by the southbound expedition subsequent to July 22, 1905, but since no specimens were taken until three days later, in latitude 19° N., longitude 112° W. (nos. 357, 395 and 403), and are clearly birds of the typical form, it is impossible to determine where examples of the small race ceased to be encountered and were replaced by *tethys*. That the position in which the species was first noted may mark approximately its northern limit in this latitude is suggested by Gifford's observation (Loomis, loc. cit.) that Black-footed Albatrosses here ceased to be seen, a fact which indicates that a change in oceanic environment probably occurs in the locality. After July 25, 1905, all examples of the species preserved by the Galapagos Expedition are of the typical form, the last one having been collected on the homeward voyage, October 12, 1906, in latitude 15° 40′ N., longitude 110° 12′ W. It is a source of regret that no example of the series of *Oceanodroma tethys* collected by Beck for the Academy at Banderas Bay, Mexico, in June 1903 (Loomis, loc. cit., p. 152), is known to exist, since all were presumably destroyed by fire in 1906; for in view of our present information some of these would seem more likely referable to *kelsalli* than to the typical form.

In order to substantiate the writer's identification of the small petrels as belonging to the form *kelsalli*, C. A. S. no. 362 was sent to Dr. Murphy for comparison with examples of the race in the American Museum of Natural History from the coasts of Ecuador and Peru. We are again indebted to Dr. Murphy for his cooperation and conclusions afforded by letter as follows:

"I have now measured and compared this specimen (No. 362) and find that it certainly represents the race *kelsalli* as you had already concluded. My measurements prove to agree almost exactly with those in your letter, the length of the wing coming out 123 mm. instead of 122."

The case of *Oceanodroma tethys* would seem to add a form to Swarth's (Biol. Rev., **9**: 213–234, 1934) meager list of South American species with representatives in the Galapagos Islands, but whether this bird is to be considered endemic to the continental west coast or to the Islands, is problematical.

In summary, material in the California Academy of Sciences extends the known pelagic range of *Pterodroma leucoptera masafuerae* north to latitude 33 degrees in the Pacific Ocean, and that of *Oceanodroma tethys kelsalli* probably regularly northward to off the west coast of Mexico, at least occasionally north to 23° 32′ N. latitude; and further it indicates that *Oceanodroma tethys tethys* is not known to range farther north than latitude 19° 42′ N.

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