

PETRELS CAST ASHORE BY AUGUST GALES, 1946, WITH SPECIAL REFERENCE TO *PACHYPTILA* *VITTATA*.

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The following account of the broad-billed prion (*Pachyptila vittata*) and other petrels destroyed by rough weather in August, records specimens and information obtained by the Auckland Museum and by local members of the O.S.N.Z. It is hoped that a full account of the effects of the storm will ultimately be compiled for the whole New Zealand area.*

A growing body of information upon the distribution and breeding habits of the petrels is available, but Falla (2) points out, in referring to the prions, that there is still an outstanding lack of accurate information as to winter feeding range.

The destruction of oceanic birds by storm is essentially an incident in the course of an annual breeding and feeding rhythm which is rigidly controlled by the food organisms of clearly marked zones of surface water. As Murphy (1) suggests, strong winds form part of the oceanic environment, and do not prevent petrels from feeding at sea. With stronger gales, however, the birds may be forced to drift down wind. They continue to feed while sufficient food organisms remain near the surface. Except in the case of a prolonged storm, which may eventually cause the plankton organisms to descend out of range, the birds are in no danger unless they reach the neighbourhood of a lee shore. Here they exhaust themselves fighting against the wind, and are finally washed up in the surf or blown inland in a starved or dying condition.

AUGUST WEATHER IN THE SOUTH TASMAN.

It became apparent in the second week in August that large numbers of *P. vittata* were succumbing to the rough weather in the Tasman Sea. Although not abnormally prolonged, the storm produced strong south-westerly winds over the whole of the south Tasman, and severe squalls were experienced in the Auckland district. The following summary of the weather for this period has been furnished by Mr. E. F. Dodson, through the courtesy of the Meteorological Office, Auckland: On August 4 and 5 a very vigorous depression formed to the south of Tasmania and passed to the south-east over Campbell Island. As it passed south-east it caused unusually strong south-westerly gales behind it, and on August 6 there was a very strong south-westerly flow over the whole of the south and south-east Tasman Sea. On August 7, 8 and 9 a second depression followed much the same track. This second storm was not quite so intense as the first, but it served to maintain the south-westerlies over the period. Throughout this period trans-Tasman aircraft reported very strong south-westerly surface winds and seas over the eastern portion of their route, i.e., off the west coast of the North Island.

RECORD OF SPECIMENS.

1.—The Broad-billed Prion (*Pachyptila vittata*).

A glance through the specimens in the Auckland Museum shows that July and August are the months when storm-wrecked *P. vittata* are most

* Mr. J. H. Cunningham has made a request through the Press for information on behalf of the O.S.N.Z.

commonly found on the west coast beaches of Auckland. This year (1946) Mr. H. R. McKenzie covered 4½ miles of Muriwai beach on August 3, when the only petrels ashore he could find were one nelly (*Macronectes giganteus*) and one fairy prion (*Pachyptila turtur*).

On August 9 a broad-billed prion was picked up near Helensville; but the first intimation that as a result of south-westerly gales exceptionally large numbers of this species were perishing was the finding on August 11 of twelve specimens, freshly dead, along some three miles of Manukau Harbour coastline opposite the rather narrow entrance. On the ensuing days broad-billed prions began to reach the Auckland Museum from numerous localities, both inland and on the west coast, between Tahekeroa, North Auckland, and Himatangi Beach, Manawatu.

By August 18, 44 specimens had been recovered from Manukau beaches, and on the same day 68 were found on the southernmost three miles of Muriwai beach. More dead birds were still coming ashore; and the 68 found represent only a fraction of the broad-billed prions that must have been stranded in the Muriwai area during and after the gales. The high wind seems to have blown the birds alive into the sandhills, and the big seas were burying many in the loose sand at the top of the beach.

An observer at Karekare, Mr. E. E. Murfitt, later wrote to the Museum saying that during this week he found two living broad-billed prions in a stream about half a mile inland. When he approached to within five yards they would rise into the air for a few feet and fall back into the water. They were in a weak condition, and were dead the next morning.

Muriwai was again visited on August 23, when over 30 broad-billed prions were found, 20 of which were in the last tide-line. A third visit on August 30 showed that dead *P. vittata* had continued to come ashore for a few more days, but of the 22 found none was very recent.

The following is a detailed list of our records of *Pachyptila vittata*.

Date.	Locality and Collector.	Remarks.
9/8/46	Near Helensville—L. Snell . . .	Adult female.
11/8/46	Mangere—P. C. Bull	Full breeding male.
	Mangere—King's College	Three adult females.
	Mangere—King's College	One full breeding male.
	Ihumatua—King's College	Seven birds; not examined.
12/8/46	Raglan—J. Peart	Breeding male.
13/8/46	Himangi Bay—S. Woodward	Full breeding male.
13/8/46	Kawhia Har.—R. A. Bronland	Non-breeding adult male.
13/8/46	Tahekeroa—P. Lindley	Tail showed full moult; new rectrices 28 millimetres long.
14/8/46	Near Sanson—T. M. Henson	Adult female.
	Waimauku—W. Norton	Non-breeding adult male.
	Mangere—P. C. Bull	Three birds.
	Puhinui—King's College	Eleven birds.
16/8/46	Himatangi Beach—R. A. Wilson	Two full breeding males.
17/8/46	Taipiri—Miss B. Hartles	Full breeding male.
18/8/46	Piha, W. Auckland—E.G.T.	Twelve birds; two adult females.
	Karaka—D. A. Urquhart	Ten birds.
	Pukaki—King's College	Seven birds.
	Muriwai—P. C. Bull & R.B.S.	68 birds in three miles of beach; dead birds still coming ashore.
	Awhitu—D. W. Hamilton	One bird.
21/8/46	Puketutu—King's College	One bird.
23/8/46	Muriwai—T. W. Cox, R. Mann & E.G.T.	30 birds; c. 20 being in last tide mark.
26/8/46	Clevedon—H. R. McKenzie	One decomposed.
30/8/46	Muriwai (3 miles)— D. A. Urquhart & R.B.S.	Twenty-two; none very recent.
30/8/46	Warkworth—W. G. Tucker	One; decomposed.

Large numbers of dead petrels were also reported by observers at Whatipu and Karekare, on the west coast north of Manukau Heads; and on 18/8/46 a decomposed specimen was sent in from Awhitu, on the south shore of Manukau Harbour, by Mr. D. W. Hamilton.

Dissection revealed that most of the males were in full breeding condition, the testes reaching a maximum size of 17x7.5 millimetres, while females were more backward, with only moderately developed ovaries. This condition corresponds closely to the established laying period for this species, which occupies about three weeks, beginning late in August or early in September. (Falla, Richdale.)

Falla (2) gives the following list of the known breeding localities of *P. vittata*:—*P. Vittata vittata* breeds on south-west New Zealand, Stewart Island, Chatham Islands, Tristan da Cunha and Gough Island (and one non-breeding record from the Falkland Islands).

P. vittata macgillivrayi breeds on St. Paul Island. The species is characteristic of northern sub-antarctic waters.

Richdale (4) referring to Whero, Stewart Island, states that *P. vittata* remains in fairly close proximity to its breeding area during the winter. He found the birds completely absent from their breeding grounds only for five or six weeks after the breeding season, returning spasmodically and even occupying their burrows from early February until the pre-laying period in August.

The peak reached by storm-killed *P. vittata* in August, as recorded during this and other storms, suggests some seasonal movement of considerable numbers of this species, rather than the stationary winter distribution in close association with the breeding grounds suggested by Richdale.

The large numbers of *P. vittata* cast up in August could, however, represent birds already occupying southern New Zealand breeding stations, which have been caught feeding to the westward by strong south-westerly gales. In this respect it may prove significant that we have received no records from north of Muriwai Beach. Details of the considerable mortality reported from the west coast of the southern North and South Islands seem likely to be of particular interest.

The measurements of the broad-billed prions killed by the recent storm, as indicated by the following sample, fall within the dimensions of *P. vittata* from New Zealand breeding grounds. (Measurements in millimetres.)

Date.	Locality.	Wing.	Tail.	Tarsus.	Toe.	Culmen.		Remarks.
						Length.	Width.	
Aug.								
11—	Mangere ..	205	106	34	40	33.5	19.5	Full breeding male.
13—	Mairangi ..	208	101	35	43	35	22	Full breeding male.
13—	Kawhia ..	221	109	36	45.5	35		Non-breedg adult male.
13—	Tahereroa ..	229	99	35	42.5	35.5	21.5	Tail showed full moult.
14—	Sanson ..	213	101	34	43	33	21	Adult female.
18—	Piha ..	212	106	35	41	33	21	Decomposed.
18—	Piha ..	219	106	35	43	35	22	Adult female.
18—	Piha ..	223	113	36	45	34	22	Adult female.

2.—Other Prions (*Pachytila* spp).

There is no doubt that broad-billed prions were the birds most affected by the gale and suffered the heaviest mortality. No other

species of petrel, not even *Pachyptila turtur*, had a comparable death roll, the losses being such as may normally be expected in winter. The following prions of other species were recovered:—

Pachyptila salvini.—Two, Muriwai, August 23.

Pachyptila desolata.—One, Manukau, August 14.

Pachyptila belcheri.—One, Manukau, August 14; 1 Muriwai, August 18; 1, Muriwai, August 30.

Pachyptila turtur.—One, Manukau, August 11; 10, Muriwai, August 18; 4, Piha, August 18; 10, Muriwai, August 23; 12, Muriwai, August 30.

In view of Falla's statement that as "winter waifs of the storm," specimens of *Pachyptila salvini* occur "in countless numbers," their almost complete absence on Auckland beaches after this gale is interesting. It is significant that there is not a single August date among those given by Falla for the occurrence of storm-wrecked *P. salvini*, and the two big "disasters" he cites are both in July, e.g., (a) 22/7/18, "Of 17 prions picked up in one field adjoining Manukau Harbour, one was *P. turtur*, one *P. vittata*, and fifteen *P. salvini*"; (b) 1/7/32, Muriwai, "Of 60 prions examined one was *P. vittata*, two *P. desolata*, one *P. belcheri* and eleven *P. turtur*, and the remaining 45 were of the *salvini* assemblage." It may be that by the second week in August, when this gale occurred, the bulk of the *salvini* wintering population of the Tasman Sea has moved away, probably south, from Auckland latitudes. It was not till August 23 that two were found, although a careful watch was kept for them when prion casualties were at their highest.

3.—Other Procellariiformes.

Other members of this order found dead since the gale began (at Muriwai unless otherwise stated) are:—

Diving petrel (*Pelecanoides urinatrix*).—Three on August 18 (fresh); 3 on August 18 (Piha); 7 on August 23 (fresh); 1 on August 30 (fresh).

Blue petrel (*Halobaena caerulea*).—This bird, the fourth in the Auckland Museum collection, is an adult male not yet in breeding condition. It was found lying on the road at Albany, some 15 miles inland from Muriwai, on August 12, by Miss B. Dyson.

Fluttering Shearwater (*Puffinus gavia*).—Seven on August 18 (fresh); 20 on August 23 (quite fresh, one with rigor mortis); 2 on August 20 (fresh).

Grey petrel (*Procellaria cinerea*).—This specimen, an adult non-breeding male, was found not long ashore on August 30. The skin is in the Auckland Museum.

White-headed petrel (*Pterodroma lessoni*).—One just dead on August 22. A few are found every winter.

Mottled petrel (*Pterodroma inexpectata*).—One on August 18.

Royal albatross (*Diomedea epomophora*).—One on August 23, some days old, above high tide mark.

White-capped mollymawk (*Thalassarche cauta*).—One on August 18.

Grey-headed mollymawk (*Thalassarche chrystostoma*).—One on August 18, one on August 30.

4.—Southern Skua (*Catharacta skua lonnbergi*).

The August storm brought to Muriwai beach two individuals of this species, the normal associate of southern petrel breeding colonies. Although numbers of skuas apparently spend the non-breeding season at sea, they are unusual storm waifs in the Auckland district. On August 23, E.G.T., in company with Messrs. T. W. Cox and R. Mann, recorded the two birds. One, a young bird in dark plumage, was flying rather unsteadily about the beach, harried constantly by black-backed gulls. The other was lying dead a few hundred yards away in the dry sand above high water mark. It proved on dissection to be a young female; the plumage is much darker than in breeding birds, and tinged with rufous. The stomach contained only shells of *Spirula* and a small goose-barnacle. It seems probable that both birds came ashore alive, but were prevented by the black-backed gulls from feeding upon the fresh petrel bodies littering the beach. The other bird may also have become a casualty.

Earlier in the year, on April 28, the body of a southern skua was found on the beach by P. C. Bull.

REFERENCES.

1. Murphy, R. C., "The Oceanic Birds of South America," 1936.
2. Falla, R. A., "The Genus *Pachyptila* Illiger," *Emu*, October, 1940.
3. Fleming, C. A., "The Phylogeny of the Prions," *Emu*, October, 1941.
4. Richdale, L. E., "The Parara or Broad-billed Prion, *Pachyptila vittata* (Gmelin)," *Emu*, January, 1944.

DABCHICK INVESTIGATION.—Members are urged to make every effort to visit lakes and pools, particularly those off the beaten track, to count and seek dabchicks (*Poliocephalus rufopectus*). Mr. R. B. Sibson, Auckland, who is investigating the status of the dabchick in New Zealand, is anxious to obtain all possible data as to the presence and numbers of this bird. Information concerning the dabchick is particularly scarce from the South Island.

SKUAS ROBBING RED-BILLED GULLS.—It is quite a common thing on our coast to see Arctic Skuas (*Stercorarius parasiticus*) chasing and robbing white-fronted terns (*Sterna striata*), and occasionally they chase Caspian terns (*Hydroprogne caspia*), but it is only on two occasions that we have seen one victimise a red-billed gull (*Larus novaehollandiae*). On 17/3/46, while fishing, we were attended by a red-billed gull, which swallowed several pieces of eel bait which were thrown to it. Suddenly a skua swooped in and chased the gull, which squawked harshly as it hurried off in frantic dodging flight. It dropped two pieces of bait, one of which the skua caught in the air. The second piece it took from the water, then hurried after the gull again and made it disgorge yet another piece of bait. How did it know that the gull still had a third piece? On 14/4/46 at the same fishing ground on the Clevedon coast another skua chased a red-billed gull and was successful in obtaining, second-hand, some of our surplus bait. The bird was a different skua on each occasion, as one was dark and the other had white under the wings.—H. R. McKenzie and P. H. Orum, Clevedon.