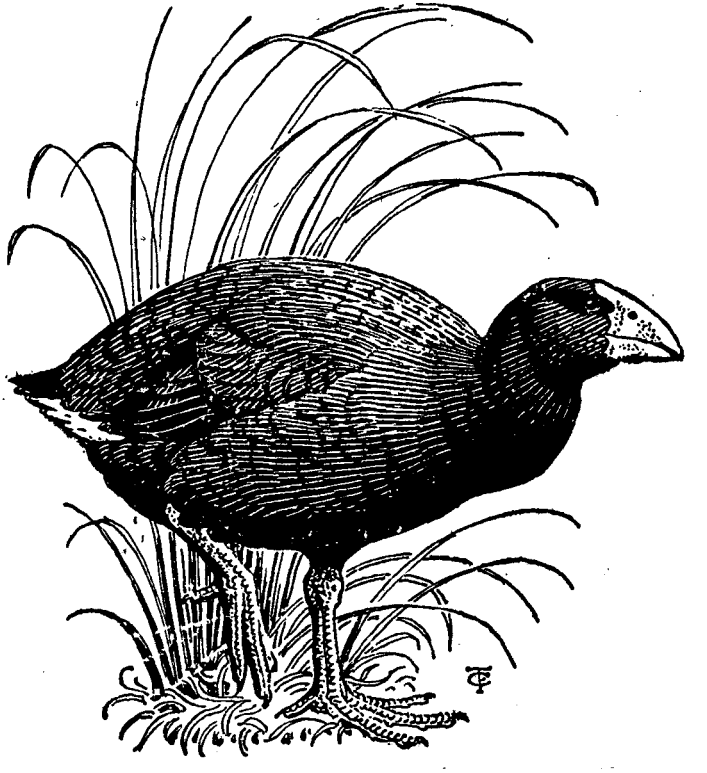
NOTORNIS



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MUTTONBIRD ISLANDS DIARY

By A. BLACKBURN

ABSTRACT

This diary records a visit to nine islands, eight of them lying to the south and west of Stewart Island, during February and March, 1965. The measure of success achieved in transferring Saddleback and Bush Wren in September, 1964, to vermin-free islands is reported on, and an assessment made of the damage by rats on Big South Cape Island. The importance of Codfish Island is discussed, and the bird-life on seldom visited Bird Island described. In appendices are given the results of a census taken by the party, and compared with a census similarly taken in April, 1964; also lists of the birds recorded on the various islands, and compared, where applicable, with lists made by Dr. R. A. Falla in June, 1955, and May, 1956, and by B. D. Bell and party in Aoril,1961, and August, 1964.

NARRATIVE

24/2/65

The party, made up of B. D. Bell, leader, J. F. O'Brien, J. S. Adams, J. L. Kendrick, all of Wildlife Division, L. E. Henderson, Chairman of the Southland section of the Forest and Bird Protection Society, B. Fineran, botanist, and A. McCausland, technician, both of Canterbury University, and myself, gathered before daybreak on the Bluff wharf for departure on the Fisheries Protection vessel H.M.N.Z.S. 'Mako' (Lieut. D. Wood, R.N.Z.N.). A broken oil pipe delayed the start, so we sailed at 7 a.m., in a calm sea, with cloud. A long slow roll developed as we left the shelter of the land; but the cloud cleared

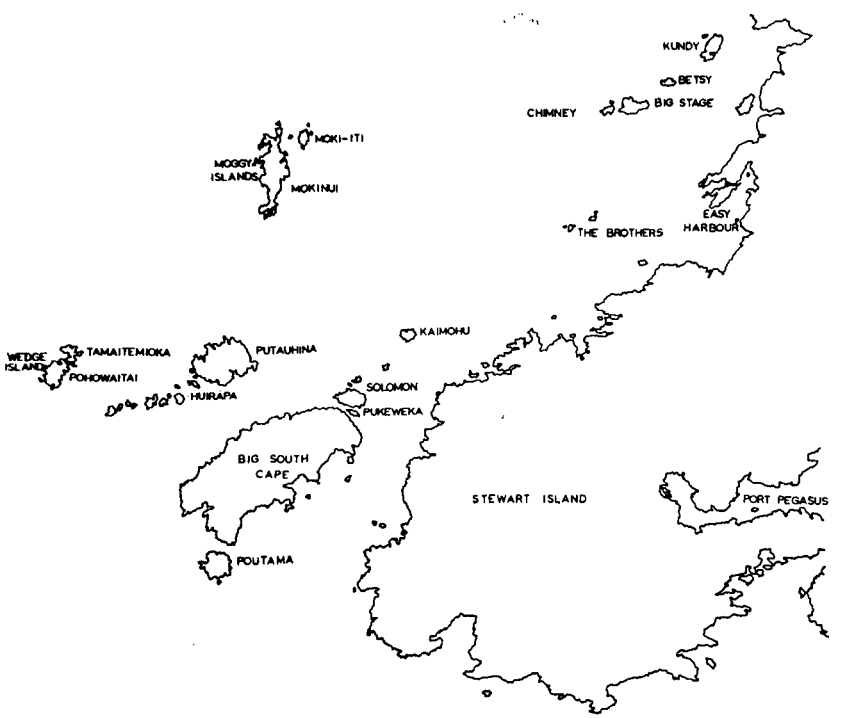


Fig. 1 — Muttonbird Islands

to perfect conditions as we passed through Ruggedy Passage, and Stage Island of the Boat Group was reached at 1 p.m. Conditions for landing were fair, except that the low tide had exposed several feet of sheer, slippery kelp.

South Island Saddleback *(Philesturnus c. carunculatus)* were transferred from Big South Cape Island to Stage early in September last, 21 banded birds being liberated. So the afternoon was spent checking on these birds, and a 2½ hr. search by three parties revealed about 12 adults, with 3 clutches of fledged young numbering 3, 2 and 1. As the steep and more difficult parts of the island were not covered in the limited time available, it is quite possible that all 21 liberated birds have survived, and other pairs may have bred. It was my first sighting of the immature S.I. Saddleback, the Jackbird of Buller (1888), and a beautiful bird it is, with its warm brown plumage and chestnut tail coverts. It is distinctly inquisitive, as described by Guthrie-Smith (1925). The birds were still in family parties, and a female was seen on one occasion feeding a Jackbird. A nest was found in the area of the 3 fledged young, this being 10 ft. up on the sloping trunk of a large dead tupari *(Olearia lyallii)*, with light overhead cover. The base of the nest consisted of dead fern fronds *(Polystichum vestitum)* up to 2 ft. 3 ins. long.

Stage Island appeared ideally suited for Saddleback, although few food plants were in evidence, punui *(Kirkophytum lyallii)* being scarce. But an area of flax *(Phormium tenax)* at the S.W. end of the island would be a valuable source of food in season. Insect life is abundant in the ground litter, although all birds seen were feeding in the canopy, or searching the bark. The canopy is low, about 20 ft., and consists mainly of tupari and teteaweka *(Olearia angustifolia)*, with a few *Myrsine chathamica* in the under storey. In places the tupari has matured

[B. D. Bell

XXIV — Cove on Tamaitimioka, showing low canopy of O. lyalli and O. augustifolia.

and fallen, providing patches of robust young growth. There is also the limitation of area as a suitable place for Saddleback, for the island is only 46 acres in extent. We do not know what long term effect this limit may have, and the situation must be watched with care. We found Saddleback roosting in a muttonbirder's shed, just as they were found to do on Big South Cape last August. It would appear that the provision of shelters for roosting birds on these wind-swept islands could be an important factor in the preservation of the species.

The Stewart Island Fernbird *(Bowdleria punctata stewartiana)* was by far the most numerous bird on Stage, and was everywhere obvious, owing to the lack of ground cover. They were extraordinarily tame and confiding, and would come to within a few inches to accept a grub. Bellbirds *(Anthornis melanura)* were also numerous and vocal, and it was noted that they were imitating to perfection the Saddleback's cadence of two "organ notes." A. T. Edgar *(pers. comm.)* found in March, 1965, that the Bellbirds on Middle Chicken Island were similarly imitating a call of the recently introduced N.I. Saddleback, this being the "chee-per-per" referred to by Kendrick (1964). The Weka *(Gallirallus australis scotti)* has fortunately not been introduced by the muttonbirders on to Stage, so the Banded Rail *(Rallus philippensis assimilis)* flourishes, and several were seen. Crested Penguins *(Eudyptes p. pachyrhynchus)* were ashore, in the final stage of moulting; and a pair of Southern Skuas *(Catharacta lonnbergi)* with two fledged young provided for some of the party a first sighting of this fine bird, commonly found on most of the islands visited.

In the evening, Sooty Shearwaters *(Puffinus griseus)* came ashore in large numbers, beginning half an hour before dark, and continuing until 10 p.m. or later. Well after dark, Broad-billed Prions *(Pachyptila v. vittata)* began to arrive on both steep seaward slopes of the N.W. peninsula, and White-faced Storm Petrels *(Pelagodroma marina)* on to the top plateau, the highest concentrations being to the north and west. Many of these were young birds leaving the nest. Fairy Prions *(Pachyptila turtur)* and Diving Petrels *(Pelecanoides urinatrix chathamensis)* had finished breeding, their nesting areas being indicated by a number of corpses of both species.

25/2/65

Another early morning, as the crescendo of sound from the Muttonbirds (Sooty Shearwaters) made sleep impossible from about 3.30 a.m. The noise eased off later, and ceased at 5.50 a.m. We were ready to embark at 8 a.m. and a little later left for Big South Cape Island. The first Antarctic Terns *(Sterna vittata bethunei)* were seen from the landing at Stage, and many more observed during the day. This species breeds on a stack north of Solomon Island. Falla *(unpublished notes)* first saw them round the stack in January, 1955, noting on 25th "a flock of c. 30 adults and about the same number in juvenal and sub-adult plumage." On 28th he "saw another group of *Sterna vittata* at Mogi (Mokinui) also apparently nesting," and the same evening landed on the stack off Solomon, finding "c. 20 *S. striata* with several young of the year, just able to fly, and c.15 *S. vittata* with 4 just flying young, and a sub-adult bird in moult. Some Red-billed Gulls also present, with flying young, and it appeared that all had nested there." Dr. Falla *(pers. comm.)* says that this observation was the basis of Oliver's (1955) recording of the distribution of *S. vittata* at these islands. But Oliver includes Big South Cape in its breeding distribution,

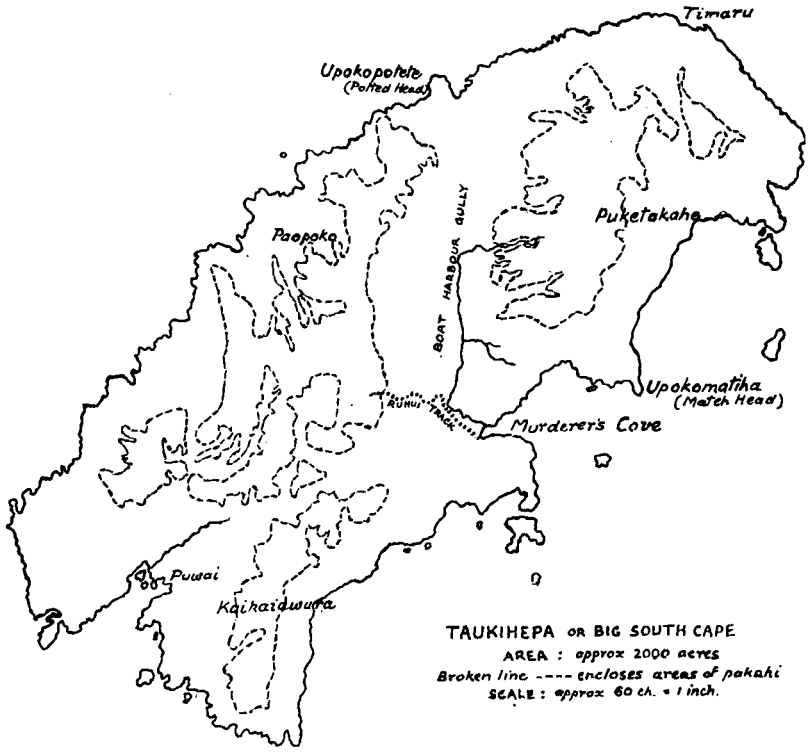


Fig. 2 — Big South Cape Island

which appears unsubstantiated; and says under 'habitat' that the N.Z. subspecies is not known north of the Snares. The sea was rough, with a high wind, and driving rain at times, but we ran into perfect shelter in Murderers' Cove, on the E. side of Big South Cape. The evil name derives from two incidents of the early 1800's. The first was in 1810, when six men from the 'Sydney Cove' were killed and eaten; and the second in 1823, when a sealing gang was similarly treated; but the latter seems to have been a case of just and swift retribution.

In the afternoon we sailed for Kaimohu, dropping L.H. en route on Solomon Island to renew poison baits for rats. Extensive poisoning in July, 1964, has been highly successful and regeneration of the vegetation remarkable. All the punui had been eaten down to the roots, and even the growing tips of the tupari extensively attacked. But control, or even complete elimination, of the rats will not bring back the several species of birds which have been exterminated (vide Appendix A).

Landing on Kaimohu was difficult owing to the heavy surge on the kelp-covered rock face, but was accomplished without incident.

The island has an area of about 20 acres, with a canopy of the same composition as Stage, but not exceeding 14 ft. in height. There

is an abundance of punui, and one smallish area of coarse grasses, *Poa foliosa,* and *carex trifida;* but little ground litter, due to the steep slopes, and exposure to wind. In early September, 1964, 15 Saddleback and 6 Stead's Bush Wren *(Xenicus longipes variabilis)* were transferred from Big South Cape to Kaimohu, and a 2 hr. search by two parties produced 9 adult Saddleback, with one family of 2 Jackbirds. At least 4 Wrens were seen, but no young birds. The thicker ground cover on Kaimohu provides a much better habitat for Wren than the bare ground of Stage. There was a remarkable absence of all other bush birds, for we recorded only 6 Banded Rails, 2 Fernbirds, and some introduced species. Fairy Prions and Diving Petrel had finished nesting, many disgorged pellets from Skuas enabling us to identify these two species.

On our return to Murderers' Cove via Solomon in the late afternoon, many Antarctic Tern were passing through the narrow strait between Solomon and Pukaweka, and here some of us had our first sighting of the Blue Shag *(Phalacrocorax punctatus steadi).*

The evening flight of Sooty Shearwaters was impressive, the birds coming in like a swarm of locusts, with no calling at all; and large numbers of Mottled Petrel *(Pterodroma inexpectata)* were heard arriving after dark.

26/2/65

Embarked from Murderers' Cove at 8.30 a.m. for Solomon, to assist L.H. in renewing rat baits in the 100-odd boxes scattered about the island. The sea moderate with passing showers, improving to fair. A Salvin's Mollymawk *(Diomedea cauta salvini)* showed itself to advantage on the way, and provided another 'first' for some.

Solomon was the beloved Kotiwhenu of Guthrie-Smith (1925), and here in 1913 he exploded the myth of the Jackbird as a separate species. Saddleback, Bush Wren, Stewart Island Robin *(Petroica australis rakiura),* Fernbird, and the Morepork *(Ninox novaeseelandiae)* were then common, and he found the Wren's clutch limited to 2 eggs, which he ascribed to a restricted food supply, due no doubt to the large population. Here Stead (1936) first described the Wren as a new subspecies, following five weeks spent in the southern islands in 1931. Wilson (1959) states that a cave on Solomon had contained a large number of the rare Short-tailed Bat *(Mystacops tuberculatus),* but that by 1931 the colony had been dispersed by vandals. To-day Solomon has bat 'nurseries,' where the females from other islands apparently rear their young, unless these have recently been destroyed by rats. During his stay with Stead in 1931, Wilson (1959) recorded all the species then on the island, and estimated that there were 100 pairs of Saddleback nesting. He suggested transferring the surplus to Cundy and Codfish, as " if rats got on the island they would probably exterminate the Saddleback." Prophetic words !

Up to the time of the present explosion of rats, Solomon retained its abundant bird life; but we found that most of the bush birds, except the Tui *(Prosthemadera novaeseelandiae)* and Weka, had disappeared, and the Saddleback was reduced to about 20 birds. The area of Solomon is c.66½ acres.

At noon we re-embarked, and crossed the strait to Timaru on Big South Cape, and thence over the highest points on the northern part of the island, and back to Murderers' Cove. The undulating

plateau covering the higher ground of the island is mostly deep, water-logged peat, covered with a heath like association of thick, semi-prostrate manuka *(Leptospermum scoparium)* and *dracophyllum longifolium,* and containing much to delight the botanist. This is locally known as " the pakahi." The better drained parts of the pakahi country contain occasional small patches of mixed low bush. In April 1961, Bell and Merton *(unpubl.)* found strong populations of Robin, Wren, Saddleback and Fernbird in this part of the island; but we found none of them, apart from three Saddlebacks; and other than Tuis and Wekas, only a few of the commoner bush birds were recorded. (Appendix A.)

27/2/65

A stormy, wet day, so a late start was made at 11 a.m. to walk overland to Puwai Beach, at the S.E. end of Big South Cape. On the steep Ruhui Track leading up through the bush to the pakahi, we recorded and first and only Pigeon *(Hemiphaga novaeseelandiae).* There was no sign of the Stewart Island Bush Snipe *(Coenocorypha aucklandica iredalei)* in the pakahi, the trails followed by F.O'B.'s Labrador 'Scout' all proving to be made by rats or Wekas. Going down to Puwai Beach, we heard the first Bellbirds *(Anthornis m. melanura),* just two or three of this previously abundant species. A cave at Puwai contains a colony of Short-tailed Bats, but they roost in high, pitch-black recesses, so that the only indication of the colony by day is a distinctive smell and a deep layer of guano. Again on returning by a different route, no Snipe were seen, nor did we record any Wren, Robin, or Fernbird. The only encouraging records to-day were of ten Saddlebacks, of which a pair at Kaikaiawura, E. of Puwai, had a Jackbird with them, this being the only evidence of any successful breeding on Big South Cape over the past season. It is strange that the myth of the Jackbird should have persisted until early in this century, for Potts (1872) describes a young female Saddleback from Banks Peninsula with " the whole plumage cinereous brown slightly flushed with rufous," etc., and proceeds to describe the Jackbird exactly as we saw it. This was in 1872, and he describes six subadult specimens collected in Canterbury at varying times of the year. Matthews and Iredale (1933) were the first to describe the North Island and South Island Saddlebacks as separate subspecies, and to describe the Jackbird as the young of the S.I. subspecies.

We had really expected to find Snipe to-day in the pakahi country. Guthrie-Smith and Stead recorded them as being common there, and Wilson (1959) says that in 1931 they found many nests. Bell and Merton *(unpubl.)* in a survey of April, 1961, considered their habitat to be mainly along the scrub fringe between the bush and the pakahi; and the party of August September 1964 had some success in catching, but not in transferring, the bird.

The evening flight of Sooty Shearwaters was even more impressive than ever, due no doubt to the better weather, and reminded one of Guthrie-Smith's (1925) graphic description of their arrival on Kotiwhenu. The spectacle on these southern islands is to-day just as thrilling, and the birds in the same vast numbers, as in 1913 when he described it; and in his perfect prose he describes the noise . . . " From tens of thousands of burrows arose an intensifying babel of sound. By fullest dark . . . a roar ascended to the sky, a roar like that of water chafing over stones, an unceasing comminglement of sound, hour after hour sustained . . ." Mottled Petrel followed after dark in vast numbers, indicating an extensive colony.

[D. V. Merton

XXV — Stewart Island Snipe, on Big South Cape Island, 31/8/64. This subspecies may now be extinct.

[D. V. Merton

XXVI — Female South Island Saddleback on Big South Cape Island.

28/2/65

At Murderers' Cove. We set off at 10 a.m. for a circuit of the northern part of the island, via Upokomatiha (Match Head), Puketakahe, Upokopotete (Potted Head), and return via Boat Harbour Gully. Stops of 3 mins. were made at the end of each half hour, all birds seen or heard during such stops being noted. Bell and O'Brien *(unpubl.)* made a similar rough count, but not on the same route, in April 1964, and the results of the two counts are given in Appendix B. All Saddleback seen or heard during the day were recorded, and totalled 12.

1/3/65

We were up at 4.20 a.m. to observe the morning take-off of petrels. The last of the Mottled Petrels were on the wing by 4.45 a.m., and the Sooty Shearwaters were then in full voice on the ground, many of them outside their burrows. I separated from the rest of the party, and so by chance became witness to the departure of many thousands of birds. Guthrie-Smith (1925) vividly describes the dawn flight, but here I give my own impressions of this remarkable sight.

The early morning was very wet and pitch dark, and having completely lost all sense of direction in the extensive Muttonbird colony, I decided to wait for daybreak to regain it. Even thought was stifled by the roaring noise from the vast multitude of birds around me. The eastern sky began to lighten at 5.35 a.m., and at the same time there began a general movement of birds towards the coast. I followed, and within 10 mins. was involved in streams of birds tending to converge into several well-defined tracks, along which they moved, sometimes 6 or 7 abreast. They were completely undisturbed by my presence, even brushing against my legs in passing. The take-off site was a precipitous headland, about 100 ft. high, flanking a tiny cove, and from this the birds were taking off from stationary positions, without any preliminary run, or movement of the wings. A few birds were continuously taking off from the tracks leading to the site, but almost without exception these failed to become airborne, striking branches and falling, mostly to join the lowest stream of birds making a laborious ascent. The total number was impossible to estimate, but it would run into many thousands.

These sites are situated all round the coastline, so the number of Sooty Shearwaters on Big South Cape alone must be prodigious.

Heavy rain began at 5.20 a.m., eased off for a time, and then set in, with a southerly gale, which confined us to camp all day. The night continued stormy, so the numbers of Sooty Shearwaters and Mottled Petrel coming in were much reduced.

2/3/65

Strong southerly gales with passing showers and hail to-day. Left camp at 10 a.m. and tramped from Murderers' Cove to the extreme S.W. corner of the island, returning via Puwai and the steep face of bush W. of the summit hill, Paopoko. Again counts were made at half-hourly stops, and all Saddleback seen or heard during the day recorded. To-day's total was better — 20, with at least two pairs apparently on territory, but no immature birds, and again no Wren, Snipe, Robin, or Fernbird, in spite of careful search in suitable areas.

This tragic situation following the invasion of rats is probably a fair indication of what happened on the mainland soon after rats

first appeared; only on an island, extermination of species is complete. Guthrie-Smith (1925) foresaw the present result when he said "Should rats obtain a footing, farewell to Snipe, Robin, Bush Wren, and Saddleback, none of which species are able to adapt themselves to novel conditions."

Again not the usual number of Sooty Shearwaters and Mottled Petrel came ashore, probably because the storm had prevented the gathering of food for the young birds.

3/3/65

The weather took up to-day, with the sea moderating, and some bright sunshine. The morning was spent in camp on various chores, and in the afternoon a transect was made through the heavy mixed bush on the steep northern slopes of Paopoko Hill, W. of Murderers' Cove. As elsewhere on Big South Cape, Wekas and Tuis, both adult and birds of the year, were extremely abundant. The Tui, being an aggressive bird, is probably a match for the rat during the crucial nesting season. Five Saddleback were observed.

'Mako' arrived before dark and anchored in the Cove. Later, we climbed the Ruhui Track up to the pakahi, to listen for Snipe, but none was heard. Guthrie-Smith (1936) was convinced that the Snipe had lost its power of flight, but Bell *(unpubl.)* records a short flight when disturbed, and at night the bird "had a shrill double whistle, repeated several times, and very often this appeared to be coming from a hovering position in the air. This was followed by a considerable roar similar to that made by a bird diving at great pace, but even more so. . . . The whining dive and concluding flutter are similar to the 'drumming' behaviour of the Common Snipe, but not identical." From this behaviour arose the legends of the Hakawai of the southern muttonbirders, a supernatural being variously described as the father of the Mutton Birds, calling them away on their northern migration; or as a Maori Eagle, with seven joints in its wings! By some it is held in supersitious awe, and on hearing it, a muttonbirder torching at night has been known to drop everything and dive for cover.

Mottled Petrels were coming in to the high plateau in immense numbers. This beautiful petrel reminded one so much of a large edition of the White-faced Storm Petrel in its gentle behaviour, and its attraction to light. When caught in flight in the beam of a powerful torch, it hovers stationary, with short quick wing beats for quite 15 to 20 seconds, showing the striking underwing pattern. Then it either drops to the ground, or takes evasive action. Stead (1932) says that in 1902 the Mottled Petrel went inland on the mainland at night during the summer months in large numbers, and in 1907 many still went up the Rakaia River. It may have then nested in the high country of both main islands, but its present known breeding areas are only in the islands south of Foveaux Strait. Stead (1932) found them in great numbers on Solomon and on Big South Cape, where the largest concentrations were on the high plateau, and in the fringe of rata bush just below its edge. We found them here, and also in considerable numbers right through the bush along the Ruhui Track leading up to the plateau.

4/3/65

Up at 4 a.m., and the weather again deteriorating. We sailed at 6.15 a.m. for the islands to the S.W. of Big South Cape. A party

of three landed on Pohowaitai in a fair surge, and spent two hours ashore, where Robin and Fernbird were found in large numbers. Many immature Robin were observed, with down still on the scapulars. Yellow-crowned Parakeet *(Cyanoramphus auriceps)* were common, and Banded Rail were seen, and others heard. A party of three made a difficult landing on Tamaitemioko, which is separated from Pohowaitai by a narrow cleft, the two islands forming the Wedge Group. B.D.B. was first ashore, at the first attempt obtaining a very precarious hold on the slippery bull kelp covering a vertical rock face, and having to wait for a later surge before falling back into the dinghy. They also had two hours ashore, and recorded the same species as the other party.

Fur seals abounded on both islands. The canopy is mainly teteaweka, with some *Hebe elliptica*, and a sparse undercover of punui, *Carex*, and *Poa* spp. In Skua middens, the remains of Fairy Prion, Broad-billed Prion, and Diving Petrel were identified, and both islands were riddled with burrows of Sooty Shearwaters and probably Mottled Petrels.

The next northerly islands of Putauhinu and Mokinui (Big Moggy) were not visited, as both are known to be infested with rats and cats. Our next landing was on Moki-iti (Little Moggy), on which Wekas are plentiful, but no other known predators are present. However, bush birds on this lovely little island are almost non-existent, our tally being one Bellbird, c.12 Fantails *(Rhipidura fuliginosa)*, and a small flock of Silvereyes *(Zosterops lateralis)*. Without predators, Moko-iti should provide good habitat for Saddlebacks, but some unknown factor makes it unsuited to bird life. It has a good canopy of tupari and teteaweka, with a thick ground cover of punui, ferns, etc., and is well sheltered from the prevailing W. and S.W. gales by Mokinui. Fur seals were numerous about the landing place.

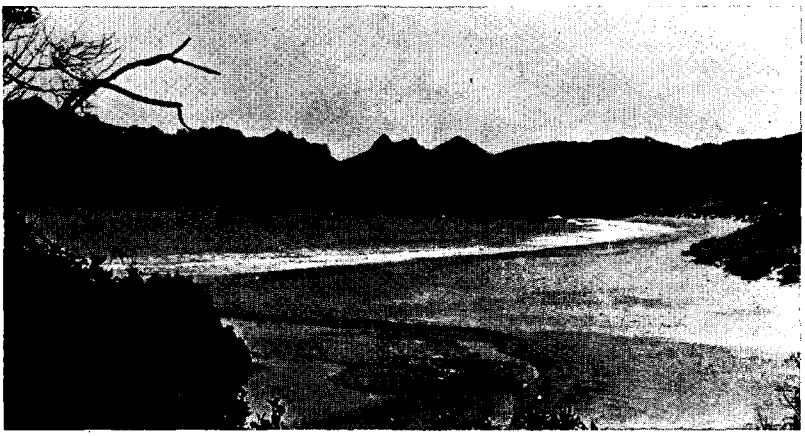
Rising seas and heavy rain made a landing on Poutama Island, S. of Big South Cape, impracticable, so we returned to Murderers' Cove at 1.30 p.m. In the afternoon we packed, ready for final departure from Big South Cape, wrote up notes, discussed, and were early to bed.

It had become increasingly apparent during our stay on the island that the Stewart Island Bush Snipe had been exterminated, and was now extinct, unless there was a remnant population on Little Solander, on which we hoped to make a landing. Likewise Stead's Bush Wren had gone, except for the few birds transferred to Kaimohu; and the Stewart Island Robin, the Brown Creeper, and the Stewart Island Fernbird exterminated on Big South Cape and Solomon. Ships' rats have appeared on all islands where there is an anchorage; that is to say, where a mooring line can be put ashore. On many islands, the mutton-birders have introduced cats to deal with the rats. Wekas have been introduced for food, in some cases back in the whaling and sealing days, to the extermination of the Banded Rail, and in extreme cases, of the smaller nesting petrels.

5/3/65

Up at 5 a.m. to observe the Sooty Shearwaters taking off. This began at 5.50 a.m. and was mostly over by 6.10 a.m. F.O'B. estimated that from one point only, 10 birds took off per second, making 12,000 in all, and they did not come ashore in maximum numbers last night.

'Mako' arrived promptly at 7.30 a.m. to allow time for a landing on Poutama, but this was again out of the question owing to the



[A. Blackburn

XXVII — Sealers' Bay, Codfish Island, with Ruggedy Range of Stewart Island in background.

[A. Blackburn

XXVIII — Vegetation of sand-dunes, Sealers' Bay, Codfish Island, habitat for Fernbird and Red-crowned Parakeet.

high sea. So we loaded up, and sailed north for Codfish Island. We had planned to land small parties en route for brief periods on three islets of the Boat Group, of which Stage is the main island, but high winds and heavy seas made this impossible. Seabirds were numerous, and included Wandering Albatross *(Diomedea e. exulans),* both Northern and Southern Royal Albatrosses *(D. epomophora sanfordi* and *D. e. epomophora),* White-capped Mollymawk *(D. c. cauta),* Salvin's, Buller's *(D. bulleri)* and Black-browed *(D. melanophris)* Mollymawks.

We passed to the east of Codfish, and were off the beach at Sealers' Bay by 2 p.m. This bay was a H.Q. for sealers and whalers early in the 19th century. Several sailors with Maori wives established a settlement here in the 1820's, but no trace of it remains to-day. Even the large bed of mint mentioned by Wilson (1959) as a perfect protection from sandflies in 1931 has been almost smothered by cocksfoot, and other alien grasses. A landing through the surf was not without incident, the dinghy being twice pooped by waves, but without damage to essential gear or stores. Camp was established at a delightful spot in the bush on a promontory at the west end of the bay, where a peat-stained stream provided water. Birdlife round the campsite and along the dunes behind the beach was varied and in good numbers, and our first impression of Codfish was extremely favourable.

All were tired after the rough passage and landing, carrying gear and setting up camp, so we were early to bed.

6/3/65

We set out at 10 a.m. for the summit rock, 985 ft. a.s.l., arriving at 2 p.m. The panorama from this point was magnificent. To the west, the Solander Islands were just visible on the horizon, but that was all that we were to see of them, for two days' delay on Big South Cape obliged us to eliminate the Solanders from our programme, much to our regret. Codfish is considerably larger than Big South Cape, having an area of 3600 acres, and is mostly covered with fine podocarp forest, with areas of scrub on the higher flats. Unfortunately possums *(Trichosurus vulpecula)* were introduced many years ago, and are trapped. Some damage to flora was noted, particularly *Neopanax colensoi,* which has been virtually wiped out.

On a visit in August, 1964, Bell *(unpubl.)* found the South Island Kaka *(Nestor m. meridionalis)* abundant, but all other bush birds in very small numbers; but the weather at the time of his visit was bad, with almost continuous heavy rain throughout. On the contrary, we have found many species abundant, viz. Kaka, South Island Rifleman *(Acanthisitta c. chloris),* Yellow-breasted Tit *(Petroica m. macrocephala),* Brown Creeper, Grey Warbler *(Gerygone igata),* Bellbird, Silvereye, and of course the ubiquitous Weka. Pigeons were in small numbers, and probably subject to a seasonal variation; Red-crowned Parakeet *(Cyanoramphus novaeseelandiae)* were in numbers along the littoral, and Yellow-crowned in smaller numbers in the higher forest; several Long-tailed Cuckoos *(Eudynamis taitensis)* were heard; the Fantail well distributed but not common; the Codfish Fernbird *(Bowdleria punctata wilsoni)* was frequently heard and seen, both in the fern and scrub in from the beach, and in the low scrub west of Summit Rock. No predators were observed, other than Wekas, although a small kiore or a mouse was seen at night on the summit. Bats (? sp.) were flying about Summit Rock. In fact, the island impressed us as a suitable faunal reserve, and a future wildlife sanctuary, its present status being

merely a scenic reserve. Dell (1950) says that "rats are not plentiful." If present, and we saw no sign of them, they are most likely to be kiore, brought here for food by early Maoris, for certainly ships' rats could not get ashore unaided. This is a question which should be cleared up, for with its wide variety of habitat and of flora, and its luxuriant growth, Codfish would appear to offer opportunity for the successful establishment of Kiwi, Robin, and Saddleback.

The night was spent at a fly camp on the summit in the hope of observing Cook's Petrel *(Pterodroma cooki)*. This species was discovered in great numbers on Codfish at the end of 1934 by Stead (1936), who described them nesting from 15 ft. a.s.l. to the tops of the bush, and estimated there were 20,000 burrows. Breeding had obviously finished, for only Mottled Petrel arrived, and not in great numbers.

7/3/65

Left Summit Rock at 8.15 a.m. and back in camp at Sealer's Bay by 10.15 a.m. Here we enjoyed several mugs of tea, having spent a reasonably active and waterless 24 hrs. The afternoon was spent in photography and relaxation. At 5 p.m. a search was made for the Codfish Fernbird, and shortly we had a bird, well in moult, in the hand. The subspecies was discovered by Stead (1936) in December, 1934, and named after the late Major R. A. Wilson, who was his constant companion. It is quite srikingly different from what was now to us the familiar Stewart Island Fernbird.

In the evening, we looked for the Brown Teal *(Anas chlorotis)* recorded by Wilson (1959) as coming out on to the beach at the mouth of the stream by night. That was in December, 1931. Dell (1950) failed to find them in 1949, as did we, so they must be gone.

We nearly lost our botanist, B.F., this afternoon. He was collecting alone along the rocky coast when a huge wave engulfed him, and he was fortunate in being able to cling to a rock.

8/3/65

Up at 6.30 to pack and await the arrival of 'Mako,' scheduled for 9.30 a.m. Heavy rollers were coming in at the east end of the bay, conditions at the west end being much better; but a high westerly wind and rough sea made the Navy's arrival extremely doubtful.

A Yellow-eyed Penguin *(Megadyptes antipodes)* was heard soon after daybreak, and later a pair was observed, with a young bird in the process of losing its down. Southern Blue Penguins *(Eudyptula minor)* were in full moult.

Camp was re-established when it appeared that 'Mako' was not turning up. In the afternoon, a 2½hr. walk along the bushed ridges at the east end of Sealers' Bay produced the following birds, as a fairly conservative sample of the bird life all over the island: Weka 10, Pigeon 5, Kaka 1, Parakeet 15, Long-tailed Cuckoo 2, Rifleman 5, Fantail 3, Yellow-breasted Tit 14, Brown Creeper 15, Grey Warbler 6, Bellbird 21, Tui 10.

In the evening the wind dropped away, and the sea moderated considerably.

9/3/65

Packed up again this morning, and 'Mako' arrived at 9.30 a.m. Left at 10.15 and 3½ hrs. sailing in an easy sea brought us to Bird Island, only an hour's sail from Bluff Harbour. So far as we knew, Bird Island had seldom been looked at previously by ornithologists. Stead and Wilson (1959) had been ashore for two hours only in

December, 1941, and had recorded Pigeon, Yellow-crowned Parakeet, Tit, Fernbird, Bellbird, and Sooty Shearwaters breeding. Landing on the east side is good enough in a calm sea, but otherwise difficult. The water supply is unreliable, so we took water ashore, but later found a sufficient supply. Camp was set up at an old muttonbirder's hut, disused since 1961; but 'birding' continues on the island despite decreasing suitable habitat for Sooty Shearwaters, so probably only 'torching' of birds is carried on.

This small island has a canopy varying from 12 ft. up to 20 ft. on the saddle, consisting mainly of taupata, *Senecio reinoldi, Hebe elliptica, Myrsine australis,* and *M. chathamica.* Much of the canopy in the eastern basin is smothered with a dense growth of *Muhlenbeckia australis.* Birdlife immediately impressed us as varied, and most abundant, due to a complete absence of predators. The steep western slopes, with a low cover of *Hebe elliptica,* dwarf *Senecio, Carex* and *Poa* spp., had a very high population of Fernbird (*Bowdleria p.*? subsp). Suitable small areas were riddled with petrel burrows.

Just before dark, a few hundred Sooty Shearwater came in, followed an hour or so later by Broad-billed Prions.

10/3/65

Light rain began in the early morning, and there was little bird song, other than Fernbirds calling in the thick undergrowth; but the weather improved to fair during the morning. From our observations during the day, it appeared that the bird population had reached maximum numbers for the island. Yellow-breasted Tits predominate, but are possibly equalled in numbers by the Fernbird. Tuis and Bellbirds were especially numerous, and a disused Tui's nest was found at 3 ft. and a Bellbird's at 5 ft. Silvereyes and Grey Warblers were common, and Pigeon numerous. Yellow-eyed Penguins were frequently seen under the canopy, some having completed moulting, and others in full moult. In all, we were able to add considerably to the species recorded by Stead and Wilson, and a full list is given in Appendix A.

The island has a large number of food-bearing plants, the most important being taupata *(Coprosma repens), Myrsine chathamica, M. australis, Neopanax colensoi, Coprosma lucida,* and *Senecio reinoldi.* Insect life is fairly abundant in the deep litter, and on the trunks of trees.

Late in the evening, up to 11 p.m., Broad-billed Prions came ashore in large numbers.

11/3/65

'Mako' was at hand at 9 a.m. sharp. Embarkation went smoothly, and at 9.15 we sailed for the Bluff, many Tuis and Bellbirds high in the air over the island providing a fitting farewell.

POSTSCRIPT. At Bluff, a muttonbirder was asked where he had heard the 'hakawai' in recent years, and his reply was: "On Big South Cape and Little Solander." This is some slight evidence that the Snipe may still exist on remote Little Solander.

The question may well be asked as to why poison was not used to control the rats on Big South Cape. Owing to its large area, poison could only be spread from the air, and an investigation showed that the cost would have been prohibitive. In any case, poisoning would not effect extermination, so that in due course a further explosion would occur.

APPENDIX A

Birds listed on Big South Cape Island

vc = very common c = common f = few r = recorded only (1 or 2 birds)
l = listed, but numbers not recorded

	25/2/65 to 4/4/65	Falla June 1955 and May 1956	Bell and Merton April 1961	Bell and party August 1964
Yellow-eyed Penguin	–	l	–	–
Little Blue Penguin	–	l	–	l
Crested Penguin	–	l	r	–
Broad-billed Prion	–	l	–	–
Fairy Prion	–	l	c	l
Sooty Shearwater	vc	l	vc	l
Mottled Petrel	vc	l	c	burrows
Southern Diving Petrel	–	l	l	burrows
Pied Shag	r	l	r	–
White-throated Shag	–	–	r	l
Stewart Island Shag	r	l	r	–
Blue Shag	r	l	r	l
Harrier	–	l	f	–
Stewart Island Weka	vc	l	c	l
S.I. Pied Oystercatcher	r	–	–	–
Black Oystercatcher	–	–	r	l
Stewart Island Snipe	–	l	r	l
Southern Skua	c	l	c	l
Black-backed Gull	c	l	c	l
Red-billed Gull	r	l	vc	l
Black-billed Gull	–	–	f	l
Antarctic Tern	f	l	f	–
White-fronted Tern	–	–	f	–
Pigeon	r	l	f	–
South Island Kaka	r	l	r	l
Red-crowned Parakeet	f	l	c	l
Yellow-crowned Parakeet	f	l	vc	l
Morepork	–	l	f	l
Kingfisher	–	–	–	l
Stead's Bush Wren	–	l	c	l
Skylark	–	–	r	–
South Island Fantail	f	l	f	l
Yellow-breasted Tit	f	l	f	l
Stewart Island Robin	–	l	c	l
Stewart Island Fernbird	–	l	vc	l
Brown Creeper	–	l	–	–
Grey Warbler	f	l	f	l
Song Thrush	–	–	–	l
Blackbird	–	–	r	l
Hedge Sparrow	r	–	f	l
Bellbird	f	l	c	l
Tui	vc	l	c	l
Silvereye	r	l	f	l
Goldfinch	–	–	f	l
Redpoll	f	l	r	l
Chaffinch	–	–	r	l
House Sparrow	–	–	–	l
Starling	–	l	–	l
South Island Saddleback	f	l	c	l

Solomon Island

	26/2/65	Falla Jan. 55 & May 56
Yellow-eyed Penguin	–	l
Little Blue Penguin	–	l
Crested Penguin	–	l
Fairy Prion	–	l
Sooty Shearwater	vc	l
Blue Shag	r	–
Stewart Island Weka	c	l
Southern Skua	–	l
Antarctic Tern	f	l
White-fronted Tern	f	l
Red-crowned Parakeet	–	l
Yellow-crowned Parakeet	r	l
Morepork	–	l
Bush Wren	–	l
Fantail	–	l
Yellow-breasted Tit	–	l
Stewart Island Robin	–	l
Brown Creeper	–	l
Grey Warbler	r	l
Hedge Sparrow	r	–
Bellbird	–	l
Tui	c	l
Silvereye	r	l
Redpoll	–	l
Chaffinch	r	–
Saddleback	f	l

Pohowaitai and Tamaitemioko

	4/3/65	Falla Jan. 55 & May 56
Broad-billed Prion	In Skua middens	–
Fairy Prion	" " "	–
Sooty Shearwater	vc	1
Diving Petrel	In Skua middens	–
Blue Shag	–	1
Harrier	–	1
Banded Rail	c	1
Southern Skua	r	1
Red-crowned Parakeet	–	1
Yellow-crowned Parakeet	c	1
Kingfisher	–	1
Fantail	–	1
Stewart Island Robin	vc	1
Stewart Island Fernbird	vc	1
Grey Warbler	–	1
Blackbird	–	1
Hedge Sparrow	r	1
Silvereye	r	1
Redpoll	–	1

Mokl-itl Island

	4/3/65	Falla Jan. 55 & May 56
Sooty Shearwater	vc	1
Weka	c	1
Fantail	c	–
Bellbird	r	–
Silvereye	f	–
Chaffinch	r	–

Codfish Island

	5-8 Mar. 1965	Bell & party Aug. 1964
Yellow-eyed Penguin	f	1
Little Blue Penguin	r	1
Sooty Shearwater	c	burrows only
Mottled Petrel	c	–
Cook's Petrel	–	burrows only
White-throated Shag	r	1
Stewart Island Shag	r	1
Weka	vc	c
Harrier	r	1
Falcon	–	1
Black Oystercatcher	r	1
Southern Skua	r	1
Red-billed Gull	f	1
White-fronted Tern	–	1
Pigeon	f	f
S.I. Kaka	vc	vc
Red-crowned Parakeet	c	1
Yellow-crowned Parakeet	c	1
Long-tailed Cuckoo	f	–
Morepork	r	1
Kingfisher	r	–
S.I. Rifleman	vc	1
Fantail	c	1
Yellow-breasted Tit	vc	1
Codfish Fernbird	c	1
Brown Creeper	vc	1
Grey Warbler	vc	1
Song Thrush	–	1
Blackbird	r	1
Hedge Sparrow	–	1
Pipit	–	1
Bellbird	vc	1
Tui	c	1
Silvereye	c	–
Redpoll	–	1
Chaffinch	–	1
Yellowhammer	–	1

There are no recent records for comparative purposes in respect of the following islands visited in February and March, 1965.

	Stage Island	Kaimohu	Bird Island
Yellow-eyed Penguin	–	–	vc
Little Blue Penguin	–	–	c
Crested Penguin	c	–	–
Broad-billed Prion	c	–	vc
Fairy Prion	corpses	Skua middens	–
Sooty Shearwater	c	c	vc
White-faced Storm Petrel	c	–	–
Southern Diving Petrel	corpses	Skua middens	–
Harrier	–	–	r
Banded Rail	c	c	–
Southern Skua	f	r	–
Pigeon	–	–	c
Red-crowned Parakeet	–	–	vc
Yellow-crowned Parakeet	–	–	vc
Morepork	r	–	–
Kingfisher	–	–	r
Bush Wren	–	introduced	–
Yellow-breasted Tit	r	–	vc
Fernbird (? subsp.)	–	–	vc
Stewart Island Fernbird	c	f	–
Grey Warbler	c	–	c
Song Thrush	r	–	f
Blackbird	vc	c	f
Hedge Sparrow	–	–	r
Bellbird	vc	–	vc
Tui	–	–	vc
Silvereye	c	–	c
Chaffinch	–	r	–
House Sparrow	f	–	–
Starling	r	–	f
Saddleback	introduced	introduced	–

APPENDIX B

Summary of Bird Counts on Big South Cape Island

	32 stations 17-23 Apr. 1964 Bell & O'Brien	19 stations 28/2/65 and 2/3/65
Harrier	6	–
Weka	10	20
Parakeet	12	15
Bush Wren	1	–
Fantail	8	2
Yellow-breasted Tit	4	–
Robin	11	–
Fernbird	2	–
Grey Warbler	8	11
Hedge Sparrow	4	–
Bellbird	28	2
Tui	23	56
Silvereye	10	1
Goldfinch	2	–
Redpoll	6	6
Chaffinch	4	–
Saddleback	15	7

REFERENCES

DELL, D. K. (1950): N.Z. Bird Notes III, 231.

GUTHRIE-SMITH, H. (1925): Bird Life on Island and Shore, 127 et seq. 141 et seq. 157.
(1936): Sorrows and Joys of a N.Z. Naturalist, 183.

KENDRICK, J. L. (1964): Observations on the Song of the N.I. Saddleback, Notornis XI, 98.

POTTS, T. H. (1872): Trans. N.Z. Inst. V, 184.

STEAD, E. F. (1932): Life Histories of N.Z. Birds, 74 et seq.
(1936): Trans. Roy. Soc. of N.Z., 66, 312-315.

WILSON, R. A. (1959): Bird Islands of N.Z., 42 et seq

OLIVER, Dr. W. R. B. (1955): N.Z. Birds, 336.

A BRIEF HISTORY OF THE NORTH ISLAND SADDLEBACK

By D. V. MERTON

INTRODUCTION

Like so many of New Zealand's native birds, the North Island Saddleback, *(Philesturnus carunculatus rufusater),* was both plentiful and widespread in pre-European times, but had vanished from most parts by the late nineteenth century, retreating rapidly before the advance of European settlement (Oliver 1955). In the Urewera and Northern Hawke's Bay, according to Best and Guthrie-Smith respectively, it had gone long before these places had been altered by settlement (Oliver 1955). Fulton considered the Saddleback extinct in all inhabited parts by 1907 (Gordon 1938). The reasons for this rapid and complete disappearance from the mainland and all islands except Hen have been attributed largely to the invasion of introduced carnivores which appeared last century. It is reasonable to assume that a bird, which had evolved in the complete absence of mammalian predators, spends much time on or near the forest floor and has but weak flight, could fall easy prey to any of the various introduced mustelids, rats or cats.

A more recent example of this can be seen to-day on the South Cape Islands off S/W. Cape, Stewart Island, where a vigorous population of South Island Saddleback *(Philesturnus carunculatus carunculatus),* has in little over twelve months, been all but exterminated following the arrival on these islands of a very efficient predator, the ship rat *(Rattus rattus).* (Bell and O'Brien 1964 — Dept. Internal Affairs file No. 46/62/19; Blackburn 1965 elsewhere in this issue; and from my own observations on three visits to Big South Cape Id., each of approximately one month's duration in 1961, 1964 and 1965).

MAORI MYTHOLOGY

It is not surprising to find that the Saddleback or Tieke of the Maori, with its aristocratic air, should figure prominently in ancient Maori lore; for example, the well known legend of Maui when he and his brothers snared and beat the sun to compel it to travel more slowly, so that man might enjoy a longer day. Following his successful encounter with the sun, Maui felt a great thirst and called to various bush birds, including Tieke, to bring him water. When in turn they failed to oblige, Maui, irritable after his exertions, seized the birds and flung them from him, leaving a scorch mark wherever his hot hands touched their plumage. As a result Tieke to this day bears on its wings and shoulders, the mark of Maui's displeasure. Similarly the male Stitchbird *(Notiomystis cincta)* received its vivid orange-yellow breast mark and the Robin *(Petroica (Miro) australis)* a white spot above its bill. The Kokako *(Callaeas cinerea)* however, obliged and brought Maui water, who, in reward, pulled its legs, so making them long as they are now. (Andersen 1926).

In Maori times the Tieke was among the most difficult to snare and for this reason was probably rarely kept in captivity. (Gordon 1938).

According to Andersen Tieke was a guardian of ancient Maori treasures and, if the name can be construed to mean "a guardian," it might rather be on this account than because it accompanied flocks of White-heads *(Mohoua albicilla)*. The name "Tieke" was probably taken from the call of the bird for there is an old song used for hauling a canoe over difficult places which begins:—

One voice	*All*
The kiwi cries	kiwi
The moho cries	moho
The tieke cries	tieke

If a war party should hear the cry of a Tieke to the right of their path it would be counted an omen of victory; but if to the left, an omen of evil and defeat. (Andersen 1926).

Two legendary Saddlebacks named Takareto and Mumuhau were said to belong to the Arawa canoe migrants. The two lived on Rapanga (Cuvier) Is. and were known as supernatural beings with power to fly back and forth from the mainland. Cuvier now boasts a powerful lighthouse; thus in a practical sense does civilisation dissolve the shreds of ancient myth. (Gordon 1938).

EARLY RECORDS

During his stay at the Bay of Islands in 1772, Crozet mentions a starling, which, as Oliver (1955) points out, could only be the Saddleback. Specimens were obtained in the same locality in 1824 by Lesson, naturalist to the "Coquille"; and Yate in 1835, also records it at the Bay of Islands (Oliver *loc.cit.*).

According to Oliver Saddlebacks were recorded from Kaitaia in 1878, Cuvier Island in 1878, Great Barrier Island in 1882 and Little Barrier Island in 1862, when specimens were collected by Layard. Hutton (1896) found them very common on Little Barrier in 1869, but in 1882, after the introduction and establishment of feral cats, about this time, Reischek (1887) found them extremely scarce.

In November 1880, Reischek (1887b) discovered them in abundance on Hen Island and in February 1883, he considered them even more numerous there. This vigorous population still persists on Hen Island (Turbott 1940; Skegg 1964) and is, in fact, the only remaining natural strong-hold of the sub-species to-day.

James Cowan recalls that Wi Parata, a Maori Chief of Waikanae, could remember the time when Saddlebacks were plentiful on Kapiti Island. (Wilkinson 1952).

By 1870, they had virtually disappeared from the mainland north of the lower Waikato (Oliver 1955) and were rare elsewhere. In the early part of this century few mainland sightings were made, the most recent of these being that of Fleming (1940) in February 1935, when a pair was seen up the Kopuapounamu River, beneath Raukumara Peak, East Cape. Oliver states that Saddlebacks still occur in the Raukumara Range, East Cape, but Williams (1962) considers that this claim, as well as recent reports from the Urewera Country (Williams unpubl.) awaits confirmation.

PREVIOUS ATTEMPTS TO TRANSFER SADDLEBACK

During an official Dominion Museum expedition to Hen Island, (1,775 acres), in November/December 1924, Oliver and Hamilton (1925 — Dept. Internal Affairs file 46/62/19), considered the North Island Saddleback to be one of the most common birds present, yet the subspecies was in grave danger, being confined to a single island. Soon after, on 28/1/1925, a meeting of the Board of Science and Arts, acting on Oliver and Hamilton's report, resolved that steps should be taken to transfer Saddlebacks to both Kapiti (5,000 acres) and Little Barrier Islands (6,960 acres), in an effort to establish other populations of this vulnerable species. Permission was subsequently obtained from the Director General of Lands and Minister of Internal Affairs in September of that year for the removal from Hen Island of up to twelve pairs of these birds and their release on the island sanctuaries of Kapiti and Little Barrier.

As a result, on 11/10/1925, a party consisting of Messrs. H. Hamilton (Dominion Museum), A. S. Wilkinson (Kapiti Island) and E. V. Sanderson (Hon. Sec. N.Z. Native Bird Protection Soc.), sailed from Whangarei to Hen Id., on the Whangarei Harbour Board's launch "Kumi" to carry out this task. They met with success, catching their first pair of birds within minutes of leaving their camp. On 18/10/25, four pairs were released, on Little Barrier Is., one female which had been ailing for a day or so having died soon afterwards.

Wilkinson (1925), who witnessed this liberation wrote: "As soon as the birds were released they started to search for food. Their only enemies on Little Barrier are wild cats which, however, are far too numerous."

By 28/10/25, when the party returned to Whangarei, they had obtained a further eleven Saddlebacks, bringing the total caught to nineteen, all of which had been secured by means of bird-lime, hand-nets or drop-traps (Hamilton 1925 Dept. Internal Affairs file). The remaining eleven birds were transported overland from Whangarei to the Paraparaumu coast, from where they were taken by launch and released on Kapiti Island, twenty-two hours after leaving Whangarei. On arrival, two birds were found to have died in transit, leaving four males and five females, all of which were said by Wilkinson to have been "a little bedraggled but perky." These birds survived to breed successfully at least three times during successive years, but were not seen after 1931.

Wilkinson suggests that Bush Hawks *(Falco novaeseelandiae)* may have been responsible for the Saddlebacks' disappearance, but it is more likely that they, too, succumbed to the depredations of introduced rats, as did it seems, Kapiti's original Saddleback population. It must also be remembered that Kapiti at this time, according to Wilkinson, was over-run by possums, feral sheep and goats, which had damaged the island's vegetation considerably. Both sheep and goats have since been removed.

The Little Barrier Is. liberation, however, was apparently much shorter-lived. Even under the most favourable conditions such a small liberation (3 pairs and one male) could hardly have been expected to colonise an island the size of Little Barrier (6960 acres).

Gordon (1938) in reference to this transfer says that the Saddleback were harried from the island by Tui *(Prosthemadura novaeseeland-*

iae) on the second day after liberation and were never heard of again. This seems a most unlikely explanation for their failure to persist, as the two species live in harmony on Hen Is., and were previously found together throughout New Zealand as well as on several islands including Little Barrier. The wild cat population of Little Barrier Is., is the obvious culprit, as it was last century, when the island's original Saddleback population was quickly exterminated following the establishment of feral cats (Turbott 1947).

After a visit to Hen Island in November/December 1933, Edgar Stead reported that Saddlebacks were flourishing still and suggested that a liberation on the Chicken Is., four miles to the north of Hen Is., would be beneficial; but it was not until 10/12/48 that this transfer was recommended by the Rare Birds Advisory Committee.

Authority was granted the Wildlife Branch, Department of Internal Affairs by both the Minister of Internal Affairs and the Director General of Lands, for the removal of up to 20 Saddlebacks from Hen Is., for release on each of the two larger Chicken Is. On 17/5/1949 Messrs. L. C. Bell and F. Woodrow (Department of Internal Affairs), E. G. Turbott (Auckland Museum) and A. S. Wilkinson (Kapiti Is.) arrived at Hen Is. to tackle the project. This attempt proved abortive, however, as by 6/6/1949 only five birds were on hand. Two of these were captured in a mist-net, two in drop traps and the other in a hand net. A severe storm then caused the death of two of the captive birds, so it was decided that the remainder should be set free on Hen Is. again and the quest abandoned for the time being.

Another expedition was launched by the Wildlife Branch on 1/6/1950 when Messrs L. C. Bell, H. J. Ollerenshaw (Wildlife Branch) and W. D. F. King (Aviculturist from Invercargill), arrived at Hen Is. This attempt proved more successful as on 12/6/1950, three pairs of Saddleback were set free on Big Chicken (Marotiri) Is. (332 acres), two of these birds having been captured with bird-lime and four by means of a hand operated drop-trap, baited with live insects.

A visit to this island in December 1953 by R. B. Sibson and a party of King's College Bird Club members (Chambers, Chambers and Sibson 1955) revealed that at least one pair of Saddlebacks was still present, but none has been reported since.

Recent visits to Middle Chicken (Whakahau) Is. (168 acres) by the writer and other Wildlife Officers, following the transfer of 23 Saddlebacks to this island in January 1964, as described elsewhere in this issue (Merton 1965), have shown that the birds are persisting. The most recent visit was on 20/5/1965, when ample evidence of breeding was obtained. A total of twenty-two Saddlebacks were recorded, of which a minimum of seven were juveniles bred on the island.

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REFERENCES

ANDERSEN, J. C., 1926: " Bird Song & N.Z. Song Birds," p. 100-105. Whitcombe & Tombs Ltd.

BELL, B. D., & O'BRIEN, J. F., 1964: " Report on Visit to Big South Cape Is." 16th to 28th April 1964. Dept. Internal Affairs file No. 46/62/19.

BLACKBURN, A., 1965: " Muttonbird Is. Diary." Notornis XII, 191 et. seq.

CHAMBERS, B. S., CHAMBERS, S., & SIBSON, R.B., 1955: "Notes on the Hen & Chicken Is." Notornis VI, 5, 152-157.
FLEMING, C. A., 1940: "Summarised Reports." Annual Report of Ornithological Society of N.Z., 1939-1940, p. 18.
GORDON, M., 1938: "The Children of Tane," p. 124-127. Whitcombe & Tombs Ltd., Chch.
HAMILTON, H., 1925: "Report on Northern Trip," 11th-28th Oct. 1925. Dept. Internal Affairs file No. 46/62/19.
HUTTON, F. W., 1869: "Notes on the Birds of Little Barrier Is." Trans. N.Z. Inst. 1, p. 160-162.
MERTON, D. V., 1965: "Transfer of Saddlebacks from Hen Is. to Middle Chicken Is., Jan. 1964." Notornis XII, p. 213 et. seq.
OLIVER, W. R. B., 1955: "New Zealand Birds," second edition, p. 513-514. A. H. & A. W. Reed, Wellington. N.Z.
OLIVER, W. R. B., & HAMILTON, H., 1924: "Report on visit to Hen Is." Nov./Dec. 1924. Dept. Internal Affairs file No. 46/62/19.
REISCHEK, A., 1887: "Description of the Little Barrier or Hauturu Is." Trans. N.Z. Inst. 18, p. 181.
1887b: "Notes on Ornithology." Trans. N.Z. Inst. 19, p. 184-188.
SIBSON, R. B., 1949: "A Visit to Hen Island," N.Z.B.N. III, 183-188.
SKEGG, P. D. G., 1964: "A Population Estimate of the Saddleback on Hen Is." Notornis XI, 3, p. 176-182.
TURBOTT, E. G., 1940: "A Bird Census on Taranga." Emu 40, p. 158-161.
1947: "Birds of Little Barrier Id." N.Z. Bird Notes 2 (5), 92-108.
WILKINSON, A. S. & A., 1952: "Kapiti Bird Sanctuary." p. 28, 29, 58, 82, 86. Masterton Printing Co., Masterton, N.Z.
WILLIAMS, G. R., 1962: "Extinction of Birds in N.Z." Notornis X, 1, p. 20.

★

SHORT NOTE

AN UNUSUAL DOTTEREL NEAR NEW PLYMOUTH

In the late afternoon of 17/4/65, my wife and I noticed an unusual dotterel feeding on a small, slightly muddy sandbank at the estuary of the Waiongona River, 7 miles north of New Plymouth. As we were on the opposite bank, distance as well as poor lighting conditions made it impossible to attempt to photograph the bird. However, a diagram made at the time to show the main features, when compared with the plates in Notornis VIII, 251-2, leaves little doubt that it was *Charadrius leschenaulti*.

Being familiar with both the N.Z. Dotterel *(C. obscurus)* and the Banded Dotterel *(C. bicinctus)*, I placed this bird about midway in size between the two. Its most prominent feature was a dark brown to black band extending from behind the head to just in front of the prominent black eye. A slightly lighter band extended along the crown. The wings appeared to be mottled grey to brown, with a noticeable darker band. The under surface, chest and face were otherwise light in colour, a chest band extending only partly beyond the carpal flexure of the wing. The beak was dark and robust, and the legs appeared to be flesh-coloured.

All the time it was under observation, the bird was feeding by taking short runs and probing with the beak into the sand. It was noticeable that it did not indulge in the frequent bobbing of the head which is characteristic of the other two dotterels mentioned.

On our attempting a closer approach, the bird flew off and was not seen by us again.

— M. G. MACDONALD

[The summer of 1964-65 seems to have been a "good one" for the Large Sand Dotterel in New Zealand. Three were present in the Firth of Thames for several months. Two were reported from Kaipara in January and April. Later one may have over-wintered in Manukau Harbour. — Ed.]

TRANSFER OF SADDLEBACKS FROM HEN ISLAND TO MIDDLE CHICKEN ISLAND JANUARY, 1964

By D. V. MERTON, Wildlife Branch, Dept. Internal Affairs

INTRODUCTION

The fourth attempt by the Internal Affairs Department since 1925 to establish a second island population of North Island Saddleback *(Philesturnus carunculatus rufusater)*, now confined in range to Hen (Taranga) Island, took place over a four week period in January and early February 1964. The project was organised and led by the writer, who was asisted officially by D. J. Campbell. R. Walker, Wildlife Branch, was present for the first week and a team of Ornithological Society and King's College Bird Club members also helped in a voluntary capacity. They were:—

7-14/1/64 — R. H. Sibson, L. C. Shailer. 7-18/1/64 — J. L. Kendrick, J. Kerr, M. G. MacDonald. 14-18/1/64 — A. & G. Baskett, J. Ewen. 7-24/1/64 — D. R. Ellis. 14/24/1/64 — G. J. H. Moon, D. M. Walter. 14-20/1/64 — N. J. Ledgard. 23-29/1/64 — G. Hogg. 23/1-4/2/64 — M. J. Hogg and P. D. G. Skegg,

without whose willing co-operation, this expedition could not have achieved the success that it did.

The project was made possible by the Navy Department's making available its Fleet Auxiliary "Arataki" to transport both personnel and birds.

As a result of prior investigations by the Wildlife Branch, Department of Internal Affairs, in consultation with the Fauna Protection Advisory Council, it was decided to transfer Saddlebacks from Hen (Taranga) Island and release them on Middle Chicken (Whakahau) Island (168 acres), four and a half miles to the north. Middle Chicken Island was suggested as a more suitable habitat than Big Chicken (Marotiri) Island by R. B. Sibson, following the unsuccessful attempts to establish Saddlebacks on the latter island (Bell 1949 and 1950, Department of Internal Affairs file 46/62/19).

Permission to carry out this transfer of protected native birds and within a scenic reserve was obtained from the Minister of Internal Affairs and Director General of Lands respectively. Authority was also granted for Saddlebacks to be retained at Mount Bruce Native Bird Reserve, in the Wairarapa district.

Weather conditions throughout the stay were good; but, on several days, a light wind interfered with mist-netting. No rain of any consequence fell; in fact, the period coincided with a severe drought throughout Northland.

METHODS OF CAPTURE

The first few days ashore were spent in building cages, carrying boxes, various types of traps and obtaining tape recordings of calls. This accomplished, catching was started, using eight standard untethered mist-nets of various lengths set at random, as well as various types of drop traps, none of which proved successful. Little success was had at first, when attempts were made to lure birds into mist-nets by means of tape recordings. The few birds caught were all males. (In adult birds, sex could usually be determined by caruncle size, males having larger and more pendulous caruncles than females. Other minor differences in both form and behaviour, recorded by Blackburn (1964), were apparent.)

Later, however, when this technique had been perfected, it was most productive. J. L. Kendrick's considerable technical knowledge and experience of sound equipment proved invaluable in developing this method of capture.

The first bird, an adult male, was caught in a mist-net in Pukanui Bay on 9/1/64. It was placed in a cage, where it lived for only two days. During this time, it fed on insects, but did not settle down and probably died of exhaustion and shock, as a result of being alone and so confined. The skin of this bird was preserved in the form of a decoy, which subsequently proved to be invaluable for luring birds into mist-nets.

Following the death of this bird, a 10 x 4 x 4 feet aviary was built and furnished with litter and foliage. This aviary served to hold all subsequent birds caught, without further loss.

The method which proved most successful is as follows:—

A portable transistorised tape recorder was carried through the forest and a "territory call" replayed at high volume at intervals. Before long, the male of a pair would answer this challenge and rush to the scene, followed by his mate. Most pairs were obviously defending territories, particularly those with dependent young. Occasionally, however, a pair would be encountered which showed no more than a pasing interest in the recording. Such pairs were difficult to catch and wasted much time. They were therefore avoided.

Having located a pair actively defending their territory, a suitable site was then decided upon in which to suspend a 20ft or 30ft. mist-net, a favourite position being horizontal to a steep shady slope. Often, branches and foliage had to be removed or tied back in order to make a clear line for the net. In tall bush, two nets were used, one above the other, the ties being attached to an endless rope belt over an upper canopy branch and under a root or log on the ground. In this manner, a net could be hoisted quite simply to the upper canopy of the tallest forest trees.

It was soon found that Saddlebacks, because of their comparatively weak flight and quick reflexes, were difficult to catch in a mist-net by normal methods, so certain modifications had to be made. The tiers of the mist-net were brought closer together, so that a three tier, 9 feet deep net when set for Saddlebacks would be only 6 feet deep. The "pockets" in the net were thereby deepened considerably, so making it more difficult for captured birds to escape. The ties were kept tight lengthwise, so that there was no sag in the centre of the net with resultant bagging.

Having set the net, the mounted Saddleback decoy was placed on a perch 2 to 3 feet from the net on the up-hill side and about level with the middle of the lower net. The tape recorder's remote speaker was set up near the mounted bird and the machine itself taken some 25 feet away further up-hill. A fine string was then attached to the branch to which the decoy was fastened and run back near the tape-recorder. If suitable perches were not available on both sides of the centre of the net, these had to be provided. When all was ready, assistants would sit quietly 30 feet or so from the nets, while the operator at the tape-recorder set this machine going. It was found that individual territory calls played at high volume at intervals were adequate to bring most birds to the netting areas. If this failed, a recording of Saddlebacks and other birds scolding a Morepork was very effective and occasionally brought pairs from neighbouring territories as well. A live Morepork tethered beneath the net proved an even more succesful attraction.

Once the birds were attracted to the general area, the tape recorder's volume was lowered considerably and the decoy gently moved by means of the fine string attached to its perch. As the birds came closer, various calls were played and the volume decreased even more, so that when a bird was close at hand, the sound was just audible to the operator. The gentle rocking of the decoy was continued throughout.

Attracted Saddlebacks would generally approach rapidly from above, often high in the canopy, the male invariably leading. In reply to the recordings, he would give voice to a number of bold territory and threat calls. At about 20 feet distance, he would bow and display to the decoy, his mate often doing likewise. This bowing-display (described by Blackburn 1964) was accompanied by low amplitude flute-like calls and was performed in a similar manner by both sexes.

The male would now approach the decoy fairly rapidly, stopping at intervals to display to it, his mate usually keeping her distance in the branches above. Displacement feeding, particularly by the male, was not uncommon at this stage.

All going well, the male would soon alight on the same perch as the decoy and cover the remaining distance to it with a series of hops and much bowing-display. The operator would now make a sudden dash towards the bird, so causing it to retreat down-hill in the opposite direction, where the net was spread in its path.

Even greater success was obtained when two remote speakers were used. These were placed either side of the net and about fifteen feet from it. By means of a selective switch at the tape-recorder, the operator was able to call birds back and forth across the net, so increasing the chances of a catch.

With the disappearance of her mate, the female would become agitated by his failure to answer her. A few well chosen calls replayed at this stage often resulted in her also being caught. On the other hand, in almost all instances, tape recordings had the opposite effect upon juveniles, causing them to retreat. In other cases, juveniles ignored the tape recordings completely. To them the calls probably conveyed the meaning that they were trespassing upon an occupied territory. Most of the six current season's birds caught were in either randomly set nets, or those set near the aviary in which their parents

were captive. Two, however, were caught by hand; one at night after it had been followed to its roost in a dense tangle of vines fifteen feet from the ground in coastal scrub; and the other, a chick not long out of the nest, was stalked in daylight after its parents had been caught. One young bird, which had not long left the nest, would not leave its parents' territory, even when the adult birds had been removed. It was pursued from one side of its range to the other, a distance of approximately 100 yards, and back again many times, but seemed loth to leave the area it knew.

During the four weeks ashore on Hen Island, no clutches of more than one chick were positively identified. Oliver (1955) records the clutch size on Hen Island as being two eggs.

OTHER METHODS OF CAPTURE

Various types of traps were tried, most of which required baiting with live insects, but none of these was successful. A drop trap placed beside the aviary and operated by a string to a nearby tent did catch a Saddleback that had been attracted to the aviary by the birds within. (See Table I).

METHODS OF CAPTURE AND NUMBERS OF BIRDS CAUGHT

TABLE I

Date	Mist-nets			Other Methods		Total
	Recorder & Decoy	Decoy Only	Random Set	Drop-Trap	By Hand	
9/1/64			1			1
10/1/64						–
11/1/64			2			2
12/1/64				1		1
13/1/64	1					1
14/1/64	1					1
15/1/64						–
16/1/64	1					1
17/1/64	2	1				3
18/1/64	2				1 (Juvenile at roost)	3
19/1/64	1	1				2
20/1/64	3					3
21/1/64	2					2
22/1/64	1					1
23/1/64		3			1 (Fledgling)	4
24/1/64		1				1
25/1/64	1					1
26/1/64	1					1
27/1/64	1					1
28/1/64	2					2
29/1/64						–
30/1/64	1					1
31/1/64	1					1
1/2/64	4					4
2/2/64			1			1
	25	6	4	1	2	38

ARTIFICIAL FOODS OFFERED AS BAIT

An assortment of artificial foods, such as bread, butter, broken biscuit, raisins, dates, diced cheese, dried apricots, carrot, mashed potato, fat and apple was offered on two tables in trees, but neither Saddlebacks nor other birds were seen to take these baits, natural foods being so abundant. Containers of honey-water, however, were frequented continuously by large numbers of Tui *(Prosthemadera novaeseelandiae)*, Bellbirds *(Anthornis melanura)* and Pigeons *(Hemiphaga novaeseelandiae)*. Saddlebacks were not observed to drink from them.

FOODS OF CAPTIVE SADDLEBACK

Birds caught were banded and placed in mutton-cloth bags for carrying back to the aviary. They were then freed in the aviary pending transport to the Chickens. Once in the aviary birds settled down quickly and were taking honeywater and food provided for them within minutes. Favourite foods were diced cheese, hard-boiled eggs, bread, butter, raisins and a mash made from oatmeal, breadcrumbs, broken biscuits, milk powder and raw eggs, mixed with milk to a damp crumbly consistency. Captive birds readily took ripe fivefinger *(Neopanax arboreum)* berries, earth-worms and all insects offered them, but they were particularly partial to ant-pupae and cockroaches, i.e. anything of obvious colour or movement. Much time was devoted to collecting insects, in particular cockroaches from under the bark of kanuka trees, so that live insects formed the basis of their diet. A maggot "factory" was used to maintain an additional supply of live food, both maggots and their pupae being readily accepted.

Captive birds would attack and eat the large weta *(Deinacrida megacephala)* in the following way:—

First the bird would approach to a safe distance and await its opportunity to lunge at the weta and puncture its abdomen, keeping well clear of the insect's fearsome hind legs. The weta would now move rapidly towards cover with the Saddleback in pursuit. Between attacks, the Saddleback would sit well back on its tail, like a Woodpecker. With the contents of the abdomen finally removed and devoured, the weta was left to die. Smaller wetas were held with one foot while the legs were torn off with the bill, some of which were eaten and others tossed away. With legs and antennae removed, the weta was then swallowed whole.

Earth-worms were stretched between foot and bill several times before swallowing. Sometimes they were broken in two beforehand.

BEHAVIOUR IN CAPTIVITY

It was quite remarkable how so many active territorial birds (up to 11) could live harmoniously together in a confined space for periods of up to 8 days. Not one instance of fighting was noted, although odd threat displays were seen. At first, captive birds would fight the netting, but would generally settle down within minutes of being placed in the aviary. They would then spend their time turning over litter or examining the foliage in the aviary, in search of insects. The honeywater container was seldom passed by without the birds drinking,

although, in the wild, birds were rarely seen to drink. It could be that the sweetened water either induced this thirst, or that they were just fond of it, preferring it to water.

Several instances of adult birds feeding juveniles were recorded. On one such occasion, a male bird was seen to feed a female and two juveniles also in the cage. The female was possibly his mate, but the young ones could not have been his progeny. The three would sit in a row on a perch with bills agape while the male busied himself collecting food for them, the female generally passing her share on to the young birds.

Another note-worthy fact was that captive birds, with rare exceptions, remained perfectly quiet throughout. Saddlebacks are characteristically a very vocal species.

LIBERATIONS

Of the thirty-eight Saddlebacks captured and banded, a total of ten pairs and three juveniles of unknown sex, were released on Middle Chicken Island, while a further pair, five males and two juveniles were taken to Mount Bruce Native Bird Reserve near Masterton. Unfortunately all but four of these latter birds died in transit as a result of a delay. The survivors, three males and a juvenile (which later proved to be a female), were flown directly to Masterton from Hen Island. Four surplus males were released again where caught, on Hen Island (see Table II).

The first liberation on Middle Chicken Island of one bird was made on 15/1/64 by A. Wright and the crew of the Lighthouse-tender "Colville," which called to service the Hen Island automatic lighthouse. A further transfer was made on 22/1/64 by the Whangarei Harbour Board's pilot launch "Ngapuhi." Other liberations depended upon the arrival of "Arataki" at irregular intervals from Auckland.

Whenever possible, birds for liberation were caught in the aviary while roosting at night and transferred early the following day in darkened boxes.

During the thirty-minute launch trip from Hen Island to Middle Chicken Island and the four-hour flight to Masterton, birds became distressed, particularly when subjected to vibration or high frequency sounds such as those from a two-way radio set.

Once ashore on Middle Chicken Island, birds were released just inside the bush canopy of the island's main valley. On one occasion, a bird so released panicked and flew directly out to sea. From its liberation point 40 ft. above sea level, it rapidly lost altitude to crash in shallow water after flying only 40 yards. It was immediately snatched from the water while it swam and held its wings aloft. This incident occurred in the early afternoon of a fine, warm day, so that the bird would have soon dried out.

Concern was at first felt for liberated birds when the island's only stream was found to be dry. However, on examining the leaf bases of collospermums and astelias, which were plentiful, many were found to contain trapped rain water despite this exceptionally dry season. Other bird life appeared quite prolific and varied, as on Hen Island ,so no doubt sufficient water was available for their needs.

TABLE II — SADDLEBACK RELEASE

Date	Middle Chicken Island	Mt. Bruce Reserve	Released where caught on Hen Is.	Died (Hen Is.)	Total
11/1/64				1	1
12/1/64			1		1
14/1/64		3			3
15/1/64	1				1
18/1/64	4				4
22/1/64	11				11
23/1/64	3				3
25/1/64				1	1
26/1/64			1		1
27/1/64			1		1
29/1/64	4				4
31/1/64			1		1
4/2/64		6			6
	23	9	4	2	38

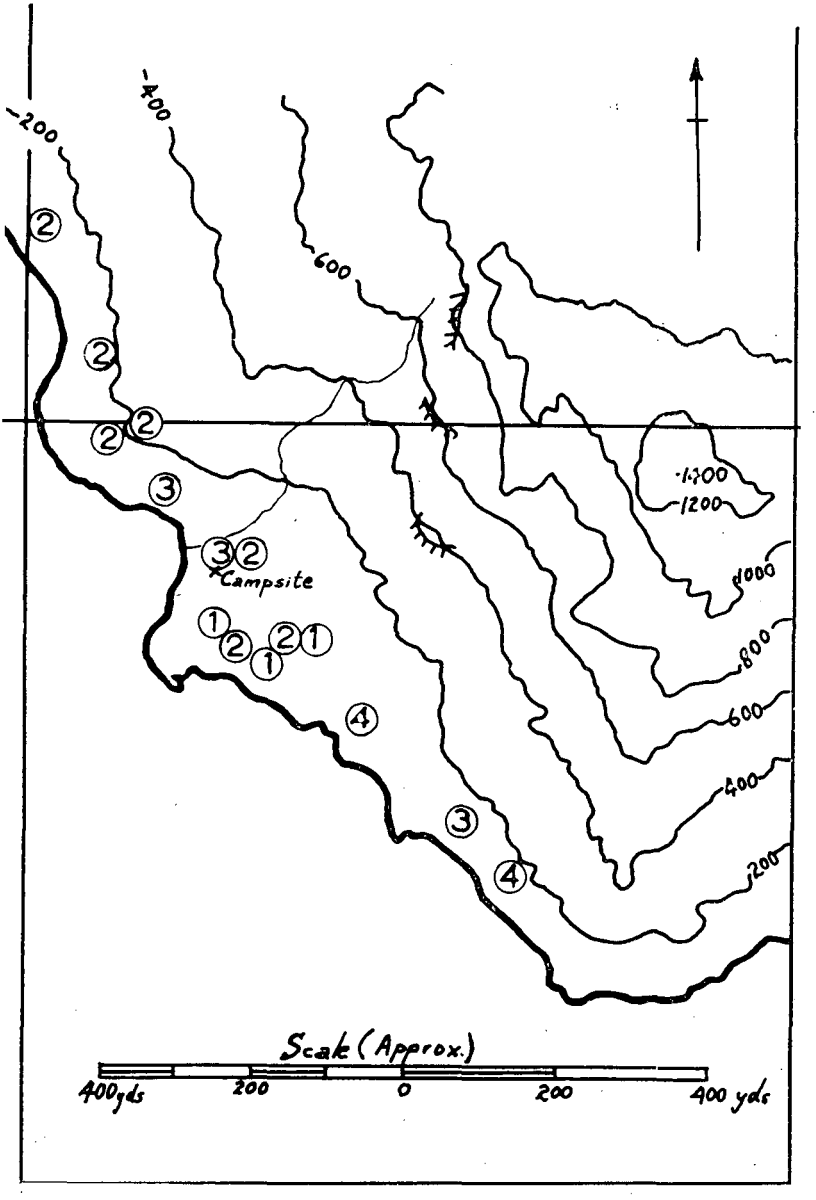
JUVENILE PLUMAGE

A fledgling Saddleback which died on 25/1/64 was preserved as a study skin and presented to Dominion Museum, Wellington. This Hen Island specimen was typical of all other juveniles caught and seen here, in that it closely resembled an adult in both size and colour, but the bill and tail were noticeably shorter than those of an adult, i.e. bill 25 m.m., tail 66 m.m. (adult bill 28.5 m.m. to 32 m.m., tail 80 m.m. to 90 m.m. Oliver 1955). Plumage of Hen Island juveniles lacked the glossiness of an adult's and the chestnut saddle was of a duller hue. The fawn edging of the upper saddle was absent in juveniles and the wattle small and pale. These birds had a distinctive call which resembled an adult's territory call. On the other hand, Gordon (1938) states; "In 1880, Reischek met with plenty of Saddleback on Hen Island, including entirely brown birds which he wrongly identified as a new species. In reality, these were immature Saddlebacks in their first year plumage known to the early colonists as "jack-birds." Mystery, however, still surrounds these coffee brown adolescents, for, in some haunts of the adults, they have never been seen at any season."

Similarly, Wilkinson and Stidolph (1927) mention a report of a pair of Saddlebacks on Kapiti Island on 4/4/26, following the liberation there the previous October from Hen Island, feeding a "jack-bird" which was brown all over, as large as its parents, with small wattles and no saddle, i.e. identical to a juvenile of the South Island Saddleback. If these reports are reliable, then it would appear that the "jack-bird" plumage of young South Island Saddlebacks is not entirely unknown in the northern sub-species.

GENERAL

All Saddlebacks taken were caught within a half mile radius of Dragon's Mouth Cove, i.e. the south-western slopes of Hen Island, between the eastern end of Pukanui Bay and Lighthouse Bay (see Fig. 1). Not all pairs were removed, the more difficult ones were abandoned after attempts to catch them had failed, but the impression made in the local Dragon's Mouth Cove population was most noticeable towards the end of January, when virtually no calls at all were heard from this area. Roving juveniles, however, soon arrived to fill the vacuum created by the removal of established pairs.



[I. A. E. Atkinson, Del.

Fig. 1 — Distribution and numbers of Saddlebacks captured for transfer to Middle Chicken Island: January - February 1964. Map shows western end of Hen Island: outline and contours from Lands and Survey multiplex map (aerial survey No. 620).

During nine days ashore at Dragon's Mouth Cove, Hen Island, in late December 1964, G. J. H. Moon (pers. comm.) could see no apparent reduction in local Saddleback numbers. This seems to indicate that territories vacated during the previous January were again occupied.

Post-liberation checks on Middle Chicken Island by Wildlife officers have revealed that the Saddlebacks released there have not only survived but have also bred successfully. During a visit on 20/5/65, twenty-two Saddlebacks were located, seven of which were juveniles bred on the island (see Fig. 2).

The four Saddlebacks at Mount Bruce Native Bird Reserve settled down remarkably well. In August of this year the two-year-old female and her mate nested, laying two eggs which hatched on 18/9/65 after an eighteen day incubation period. The two young that fledged in mid-October are probably the first North Island Saddlebacks ever bred in captivity.

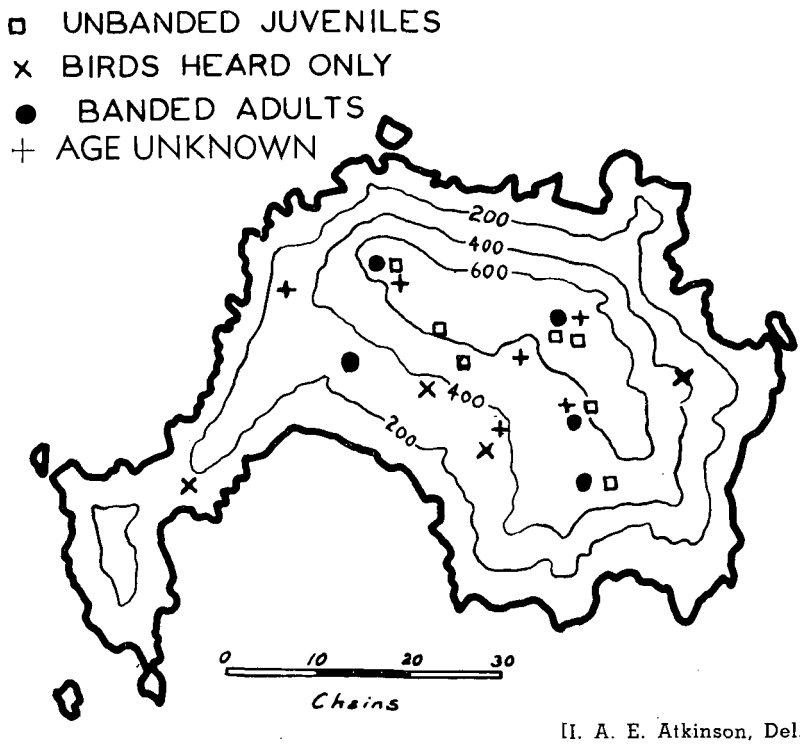


Fig. 2 — Distribution of Saddlebacks on Middle Chicken (Whakahau) Island on 20th May, 1965, sixteen months after liberation. Outline from Lands and Survey Department aerial photograph 1314/B6. Sketch contours from Aerial Plan No. 715 of the Photogrammetic Branch, Lands and Survey Department.

CONCLUSIONS

1. No interest was shown in artificial baits offered to wild birds, a rich assortment of natural foods being available.
2. Mist-netting proved by far the most efficient means of capture when used in conjunction with a tape recording of Saddleback calls and a decoy.
3. Best results were obtained when mist-nets were set with larger "pockets" than usual.
4. Captured birds must not be confined alone in small cages for more than a few hours.
5. Captive birds readily accept a variety of foodstuffs, both natural and artificial.
6. Captive birds show remarkable tolerance towards one another, even when closely confined for long periods.
7. The average fledged brood size in January was very small, possibly as low as one young bird.
8. Both fledglings and juveniles seen resembled parent birds in size and colour.
9. The maximum range of the North Island Saddleback in flight, even when over water, appears to be very short.

ACKNOWLEDGEMENTS

I wish to acknowledge with hearty thanks the assistance given by the team named in the introduction above, who so willingly gave up their holidays to spend long days exercising patience helping with this often frustrating task. Without their ready co-operation, this project could not have achieved the success which it did. Special thanks are due to J. L. Kendrick, whose inspiration it was to use a tape recording of Saddleback calls in conjunction with a mist-net to catch these birds. Mr. Kendrick also gave valuable technical assistance and both he and M. G. MacDonald kindly made available their sound recording equipment for the project.

The co-operation of the Commodore, Navy Department, Auckland, in making available H.M.F.A. "Arataki" was greatly appreciated and overcame the major obstacle, that of transport. Mr. E. F. Brick, Master of the tug "Arataki," is to be commended for the fine service he provided us.

Thanks are also due to the Commander, Northern Military Districts, Army Department, for providing a radio transmitter and operator.

Miss V. S. Hudson and Mr. I. A. E. Atkinson kindly prepared the accompanying maps.

REFERENCES

BELL, L. C., 1949: "Report on Visit to Hen and Chicken Islands" 17/5/49 to 6/6/49. Dept. Internal Affairs, Wellington, file No. 46/62/19.

1950: "Report on Saddleback Transfer from Hen Is. to Chicken Islands," 1st to 12th June, 1950. Dept. Internal Affairs, Wellington, file No. 46/62/19.

BLACKBURN, A., 1964: "Some Observations on Behaviour of the North Island Saddleback in August." Notornis XI, 87-92.

GORDON, M., 1938: "The Children of Tane." P. 127. Whitcombe & Tombs Ltd., Christchurch.

OLIVER, W. R. B., 1955: "New Zealand Birds," second edition, p. 513-514, A. H. & A. W. Reed, Wellington.

WILKINSON, A. S., & STIDOLPH, R. H. D., 1927: "Saddlebacks and 'Jackbirds'." N.Z. Journal of Science and Technology, IX; p.235-236.

THE DISTRIBUTION OF BREEDING COLONIES AND STATUS OF THE RED-BILLED GULL IN NEW ZEALAND AND ITS OUTLYING ISLANDS

L. GURR, Massey University of Manawatu, Palmerston North
F. C. KINSKY, Dominion Museum, Wellington

INTRODUCTION

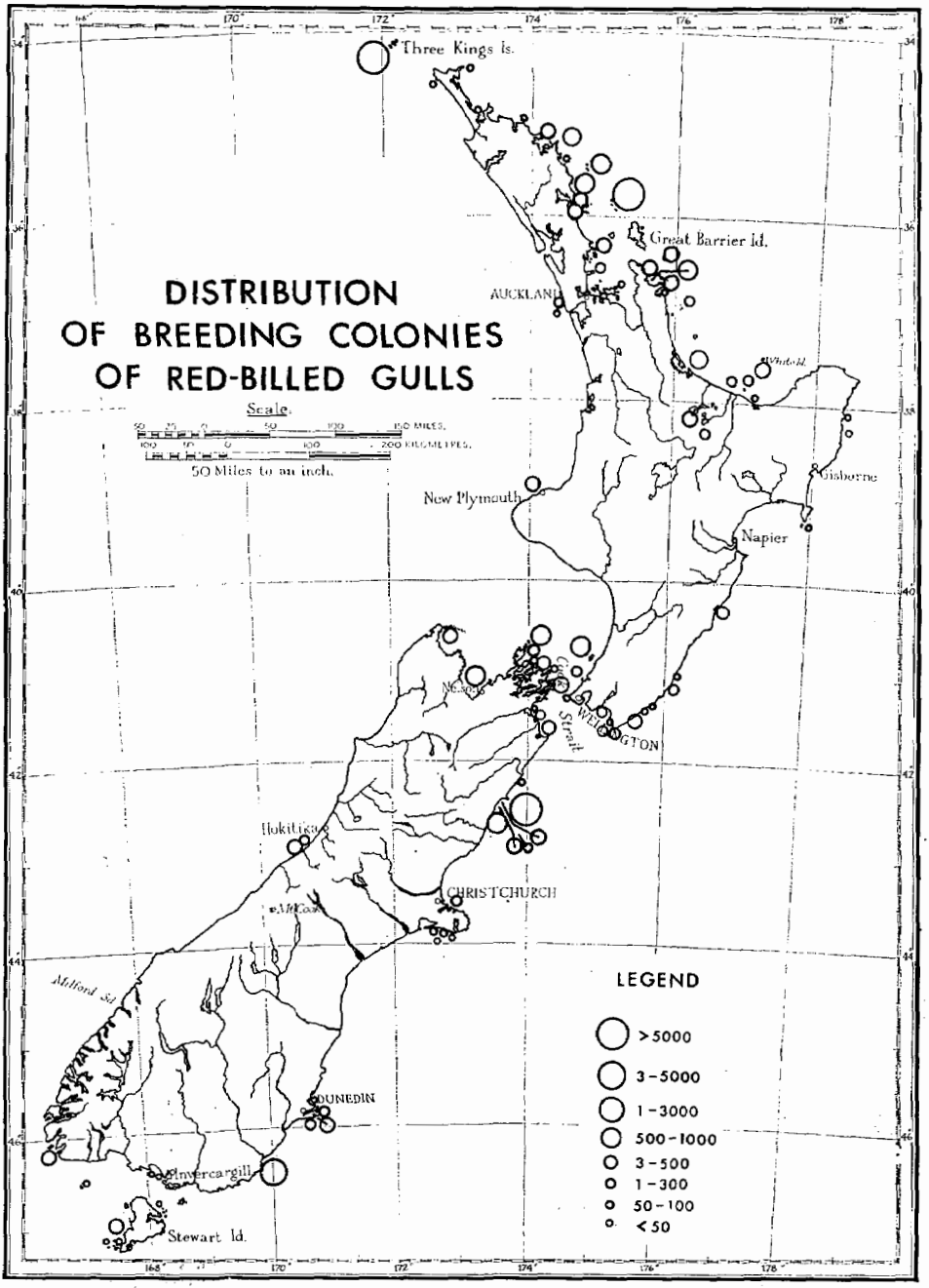
The Red-billed Gull *(Larus novaehollandiae scopulinus,* Forster, 1884) was first recorded by an ornithologist, Forster, in New Zealand during Cook's second voyage in 1773 (Oliver 1955). It is a common bird on the New Zealand coast and many accounts of coastal bird life contain reference to it but probably because it is so common they are usually perfunctory. Specific references to breeding sites are few. In 1940, however, the Ornithological Society of New Zealand started to publish annually in its bulletin, classified summarised notes on New Zealand birds. These contain a number of references to breeding sites and cumulatively have added a great deal to the knowledge of the breeding status of this species.

In 1960, a colour banding scheme, sponsored by the Ornithological Society of New Zealand, was launched to gain information on the dispersal of these gulls from their breeding colonies and as an adjunct to this study, a census of breeding colonies was undertaken and the co-operation of the members of the society was sought. Using the information thus obtained and combining this with the records from the literature, a list of the breeding sites in New Zealand and its outlying islands is here presented as nearly as possible in order from north to south. This plan has been adhered to even with more remote islands, except that Chatham Islands are dealt with last.

DISCUSSION

The pattern that emerges is of concentrations of large numbers of birds into several major colonies. They are occupied annually and have a long tradition of occupancy. Conversely, the smaller colonies are often of an ephemeral nature, and the sites chosen may vary from year to year. In these small colonies the breeding success is low, often they are complete failures.

With the exception of two or three lakeside breeding sites in the Rotorua district, all breeding colonies occur on the sea coast, on off-shore stacks, or on islands. In the North Island the Three Kings Islands colony is by far the largest and Mokohinau Islands colony probably ranks next in size. The largest colony in the South Island is at Kaikoura Peninsula. The mainland birds choose open, bare sites for their colonies and nest close together in compact aggregations. In the sub-Antarctic islands, however, the gulls nest singly and in concealed situations — under overhanging shrubs or ledges, or in clefts or caves. This is made necessary by the presence on these islands of skuas *(Stercorarius skua lonnbergi)* and serves to protect the nesting gulls and their young from the skuas' attacks. They still, however, retain a degree of gregariousness for these isolated nests tend to occur in groups.


DISTRIBUTION
OF BREEDING COLONIES
OF RED-BILLED GULLS
Scale.
50 Miles to an inch.
Three Kings Is.
Great Barrier Id.
AUCKLAND
Whitianga
Gisborne
New Plymouth
Napier
Cook Strait
WELLINGTON
Hokitika
CHRISTCHURCH
Milford Sd.
DUNEDIN
Invercargill
Stewart Id.
LEGEND
>5000
3-5000
1-3000
500-1000
3-500
1-300
50-100
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DISTRIBUTION OF BREEDING COLONIES OF RED-BILLED GULLS IN NEW ZEALAND AND ITS OUTLYING COLONIES

Locality	Map Reference 1 inch/mile Map No.	Map Reference Map. Ref.	Situation	Substrate	Size of Colony No. of Breeding Pairs	Status	Source of Information Ref. in Literature	Source of Information Name of Informant	Year of Observation
Three Kings Is. West I.			Rocky slopes and cliffs of islands		"thousands"		1891 Cheeseman, T.F. Trans. N.Z. Inst. 23:408-424		1887
Three Kings Is. Great I.			Especially above South East Bay		"tens of thousands"		1929 Fraser, W.M. N.Z.J.Sci.Tech. 11:148-156		1928
Three Kings Is. Great I.			Above Tasman Bay "east coast"		c. 300 c. 500		1948 Turbott, E. G. Buddle, G. A. Recs.Auck.Inst. and Mus. 3: pts4 + 5, pp. 319-336		1945
Three Kings Is. South West I.			On lower slopes of the S.E. end of island		"several thousand strong"		1948 Buddle, G. A. Recs.Auck.Inst. and Mus. 3: pts 4 + 5, pp 195-204, also N.Z. Bird Notes 2:129-130		1947
Three Kings Is. Princes I.			Top plateau and down slopes		c. 1000		1948 Buddle,G. A. Recs.Auck.Inst. and Mus. 3: pts 4 + 5, pp 195-204, also N.Z. Bird Notes 2:129-130		1947
Three Kings Is.			All colonies mentioned above		5,000+		1951 Buddle, G. A. Bird Secrets, Wellington		
Three Kings Is. Great I.			Rocky outcrops, cliff ledges and slopes of island	Rock and bare ground	600+	Annual	1954 Turbott, E. G. Bull, P. C. Recs.Auck.Inst. and Mus. 4:245-262		Dec. 1952 Jan. 1953
Three Kings Is.			On whole group of islands		est. 6000+	Annual	pers. comm.	R. A. Falla	
North Cape	N1 + 2	Between 50+60 North	Rocky coast		Few scattered pairs		1947 Watt, A. H. N.Z. Bird Notes, 2:115-120		1915-1947
Scott Point (Far Nth.)	N3 + 4	190397	On small rock	Rock	12		1949 Michie, R. H., N.Z. Bird Notes, 3:146 + 181		1948
Kaimaumau	N.7	767926	Shelly bank	Shell	c. 20		1959 C.S.N.'s Notornis 8:72.	R. B. Sibson	1958
Cavalli I. Wai-iti Bay	N.8	438832	Island shore		48		1953 Sibson, R. B. Notornis 5:110-114		1951

DISTRIBUTION OF BREEDING COLONIES OF RED-BILLED GULLS IN NEW ZEALAND AND ITS OUTLYING COLONIES — Continued

Locality	Map Reference 1 inch/mile Map No.	Map. Ref.	Situation	Substrate	Size of Colony No. of Breeding Pairs	Status	Source of Information Ref. in Literature	Name of Informant	Year of Observation
Cavalli I. Motukawaiti	N.8	458807	Island shore		a few amongst terns		1953 Sibson, R. B. Notornis 5:110-114		1951
Bay of Islands (Black Rocks)	N.11	620860	Rocky Island		Not stated	Annual	1898 Pycroft, A. T. Trans.Proc.N.Z.Inst. 30:141-146		1895-98
,,	N.11	620860	Rocky Island		Not stated	Annual	1961 in litt.	O. M. Cullen	1961
Bay of Islands (Tapeka Pt.)	N.11	628553	Headland		Not stated	Annual	1898 Pycroft, A. T. Trans.Proc.N.Z.Inst. 30:141-146		1895-98 Jan. 1928
Bay of Islands (Urupukapuka I.)	N.12		Rocky pinnacle islets in bay	Rock	c. 150	Probably intermittent	pers. comm.	R. A. Falla	
Cape Brett	N.12	837642	Rocky headland		Not stated	Annual	1949 C.S.N.'s N.Z. Bird Notes, 3:98	J. Shepherd	1948
Cape Brett	N.12	833636	Rocky headland	Tussock or rock	+ 300	Annual	pers. comm.	J. A. Bartle	1962
Whangaruru Sth.	N.16	848387	Isolated rock	Rock	c. 20		1955 C.S.N.'s Notornis 6:100	F. W. Strumpel	1953
Poor Knights Rocks (Sugar Loaves)	N.17		Cliffs and ledges — both islets		500 +	With gannets and terns — annual	pers. comm.	R. A. Falla	Dec. 1923 Nov. 1933
Tutukaka	N.20	036109	Not stated		Small		1942 Bull, P. C. Bull.Ornith.Soc.N.Z. 1 Year 1941-42.		1941 ?
Taiharuru Rock	N.20	065980	Steep slopes — some vegetation		600 - 700	Annual	pers. comm.	R. A. Falla	Dec. 1923
Pataua I.	N.20	060980	Rocky side of hill and on small islet	Rock	Not stated		1961 in litt.	O. M. Cullen	
Awarua Rock	N.24	067896	Small off shore rock	Rock	c. 250	Annual	1965 in litt.	B. D. Bell and A. Wright	Dec. 1964
Parua Bay	N.24	963890	Small rocky island	Rock			1961 in litt.	O. M. Cullen	
McLeod Bay (Robbs I.)	N.24	001878	Island				1961 in litt.	O. M. Cullen	
Reotahi (Aubreys I.)	N.24	011843	Island				1961 in litt.	O. M. Cullen	
Bream Head	N.24	092832	Rocky shore	Rock	c. 250	Annual	1965 in litt.	B. D. Bell and A. Wright	Dec. 1964
Frenchman I.	N.24	042808	Island				1961 in litt.	O. M. Cullen	
Hen I.	N.25		Small off shore rock	Rock			1961 in litt.	O. M. Cullen	
,,	N.25		Small corner of mainland		c. 20	Annual	1963 in litt.	J. A. Bartle	1962
Mokohinau Is.	N.26		On rock		"numbers"	"every second year"	1889 Sandager, F. Trans.Proc.N.Z.Inst. 22:286-294		1880's

Mokohinau Is. (Burgess I.)	N.26		Cliff tops and adjacent slopes		5000 +	Annual and increasing according to lighthouse keepers(1933)		pers comm.	Oct. 1933	R. A. Falla
Mokohinau I.	N.26		Only on Burgess I. on headlands and cliff tops		2,500-5,000	Annually	1946	Fleming, C. A. N.Z. Bird Notes 2:27-29		1944
,,	N.26		Around edge of cliffs		20,000 (10,000 pairs?)	Annually		Wilson, R. A. Bird Islands of N.Z. Christchurch		1945
,,	N.26		Burgess I. and on off shore rocks		c. 6,500	Annually	1947	Buddle, G. A. N.Z. Bird Notes 2:71-72		1945
,,	N.26		Island			Every year	1954	Emmons, C. Notornis 5:253		1950's
Matheson's Bay	N.34	313270	Small off shore islet		c. 150	First year that birds bred here	1961	in litt.	M. Hogg	1961
Cuvier I.	Pt.N.36		Slopes near Lighthouse		250 - 300	Irregular		pers. comm.	R. A. Falla	Oct. 1933
,,	Pt.N.36		Island		"hundreds"	Annual	1953	C.S.N.'s Notornis 5:97	R. B. Jenkins	1952
Bird Rock, North Hauraki Gulf			On three rocks	Rock	c.100		1954	C.S.N.'s Notornis 5: 229	J. Prickett	1952
Green I. (Mercury Is.)	N.40	340857	On stack to south of I.		"100 + assembled as if preparing to nest"		1947	C.S.N.'s N.Z. Bird Notes, 2:48	C. A. Fleming	1946
Tiritiri I.	N.38	414908	Rocky point N. of lighthouse		50 - 60			pers. comm.	R. A. Falla	Nov. 1923
Tiri I. Tiritiri Matangi I.?)	N.38		On outlying rock		c. 6		1947	C.S.N.'s N.Z. Bird Notes, 2:47	R. B. Sibson	1946
Kuaotunu	N.40	195759	On shoreline stack	Rock	c. 500	Sporadic		pers. comm.	J. Peart	1957
,,	N.40	195759	On coast 1 mile N. of township		c. 500		1962	in litt.	N. Gleeson	1962 ?
,,	N.40	211764	Small rocky islands off shore		c. 200	Annual	1965	in litt.	B. D. Bell and A. Wright	Dec. 1964
,,	N.40	195760	Small rocky peninsula		c. 50	Annual ?	1965	in litt.	B. D. Bell and A. Wright	Dec. 1964
Te Rehutae	N.40	111782	Small rocky off shore island	Rock	c. 200	Annual	1965	in litt.	B. D. Bell and A. Wright	Dec. 1964
Waiheke I. (Nani I.)	N.39	558705	Rocky island		c.20		1961	in litt.	D. F. Booth	1960
Waiheke I. (Putiki Bay)	N.42	540560					1949	C.S.N.'s N.Z. Bird Notes, 3:98	Reported P. H. Basley	Prior to 1948

DISTRIBUTION OF BREEDING COLONIES OF RED-BILLED GULLS IN NEW ZEALAND AND ITS OUTLYING COLONIES — Continued

Locality	Map Reference 1 inch/mile Map No.	Map Ref.	Situation	Substrate	Size of Colony No. of Breeding Pairs	Status	Source of Information Ref. in Literature	Name of Informant	Year of Observation
Waiheke I. (Koi I.)	N.43	568638	Rocky island		6	1st season at this situation	1949 C.S.N.'s N.Z. Bird Notes, 3:98	G. K. McKenzie	1948
Waiheke I. (Three Sisters)	N.43	?			Several	Transient	1957 C.S.N.'s Notornis 7:83	M. J. Blundell	1956
Muriwai Pt.	N.41	953626	Rocky pinnacle off shore		c. 50		1960 C.S.N.'s Notornis 9:77	M. J. Hogg	1959
,,	N.41	,,	Rocky pinnacle off shore				1961 C.S.N.'s Notornis 9:249	P. D. G. Skegg	1960
Oaia I. (Motutara)	N.41	938616	Lower ledges of rocky islet		30 - 40	Permanent parasitic on gannet and shag colony	pers. comm.	R. A. Falla	1916-36
Motuihe I. (Rock I.)	N.42	447669	Rocky island	Among mesembryan-themum	20		1949 C.S.N.'s N.Z. Bird Notes, 3:99	O. Cheesman	1948
,, ,,	N.42	447669	Rocky island		c. 2		1950 C.S.N.'s N.Z. Bird Notes, 3:212	R. B. Sibson	1949
,, ,,	N.42	447669	Rocky island		c. 38	Annual	1954 C.S.N.'s Notornis 5:229	S. Chambers	1953
Whitianga	N.44	207627	Rocks at river mouth		c. 40	First nesting here	1953 C.S.N.'s Notornis 5:97	G. W. Gummer	1952
,,	N.44	207627	On high rocks		"small colonies"		1959 C.S.N.'s Notornis 8:72	R. V. McClintock	1958
Alderman Is. (Ruamhua-iti Sugarloaf Rks.)			On steep off shore rock along northern shoreline			Annual	1927 Sladden, B. Falla, R. A. N.Z.J.Sci.Tech. 9:193-205, 282-290		Jan. 1925
Alderman Is. (Ruamhua-iti			Pinnacle rock at east end of island		50 - 100	1925 but not in 1926	pers. comm.	R. A. Falla	Jan. 1925
Mt. Maunganui	N.58	650660	Rocky cliffs	Rock ledges	"fair sized party"	"one season only"	1949 Hodgkins, M. N.Z. Bird notes, 3:116-125		c. 1945
,,	N.58	645663	Rocky cliffs		"small"	"again after some years"	1956 C.S.N.'s Notornis 6:206	M. Hodgkins	1955
Motuotau I.	N.58	671659	Vegetation covered island				1960 C.S.N.'s Notornis 7:206	R. V. McClintock	1958
,,	N.58	670663	On off shore rock				1960 C.S.N.'s Notornis 7:206	R. V. McClintock	1958
Plate I. (Motunau)			Slopes of main island	Rock and stunted vegetation	350 - 400	Probably annual	pers. comm.	R. A. Falla	Dec. 1924 Jan. 1925

White I. (East point and North Coast)			Shore line and on tussock slopes	Rock and tussock			1913	Oliver, W. R. B. Emu, 13:86-90		1912
White I. (Te Awapuia)			Boulder bank		c. 70 - 80 "few score" "few hundred"	Annual	1959	Hamilton, W. M. Baumgart, J. L. Dept.Sci.Industr.Res. Bull. 127, 84 pp.		1947
,, (Troup Head)					141		1964	in litt.	R. M. Weston	1962
,, (Volkner Rocks)			Boulder bank	Rocks	130		1964	in litt.	C. J. R. Robertson	1964
,, (Te Awapuia)					30		,,		,,	,,
,, (Te Awapuia)					15		,,		,,	,,
,, (N.E. Point)					c. 30 - 40		,,		,,	,,
,, (Club Rocks)										
,, (Volkner Rocks)					c. 50		1960	C.S.N.'s Notornis 8:206	W. T. Parham	1958
Rurima Rocks	N.68									
,, ,, (Lizard I.)	N.68		"On cliff face		Small colony		1960	C.S.N.'s Notornis 9:77	W. T. Parham	1959
Whale I. (N.W. Point)	N.69				60		1964	in litt.	C. J. R. Robertson	1964
Whakatane	N.69		On steep rock west of harbour		"Large colony"		1958	C.S.N.'s Notornis 7:197	M. S. Black	1956
Whakatane Heads	N.69				"Colony abandoned"		1960	C.S.N.'s Notornis 8:206	W. T. Parham	1953
Kohi Point (between Ohope Beach and Whakatane)	N.69				c. 30 - 40		1964	in litt.	C. J. R. Robertson	1964
Whanarua Bay	N.62		Off shore rocks				1960	C.S.N.'s Notornis 8:206	M. Scott	1959
Rotorua	N.76	725900	Rocky lake shore & islets	Rock and sand	c. 27	Annual	1947	C.S.N.'s N.Z. Bird Notes, 2:47	P. H. Orun H. R. McKenzie	1945
,,	N.76	725900	Rocky lake shore & islets	,,	c. 20	Annual	1949	ed. Cunningham, J.M. N.Z. Bird Notes, 3:125		1947
,,	N.76	725900	Rocky lake shore & islets	,,	c. 70	Annual	1955	Black, M. S. Notornis 6:167-170		1951
,,	N.76	725900	Rocky lake shore & islets	,,	c. 100	Annual	1955	C.S.N.'s Notornis 6:100	M. S. Black	1954
,,	N.76		Rocky lake shore & islets	,,	c. 150	Annual	1958	C.S.N.'s Notornis 7:197	M. S. Black	1957
Rotorua (Sulphur Point)	N.76	725900	On lake shore and islets	,,	430	Annual		Unpublished Mss.	B. Reid D. Reid	1961-62
Rotorua (Arikikapakapa golf links)	N.76	715015	Mud flat	,,		New colony	1961	C.S.N.'s Notornis 7:249	M. S. Black	1959
Rotorua (Roto-a-tamaheke)	N.76	727014	On scrub covered island in middle of thermal lakelet		c. 20	New colony		in litt.	M. J. Daniel	Nov. 1964
Rotorua (Sulphur Point)	N.76	725900	On lake shore	Rock and sand	c. 350	Annual		pers. observation	L. Gurr	Nov. 1964

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Locality	Map Reference 1 inch/mile Map No.	Map. Ref.	Situation	Substrate	Size of Colony No. of Breeding Pairs	Status	Source of Information Ref. in Literature	Name of Informant	Year of Observation
Rotomahana	N.86						1955 Black, M. S. Notornis 6:167-170		
Waiotapu	N.85		Near hot pools		c. 75	One year only	1947 Phillipps, W. J., and Lindsay, C. J. N.Z. Bird Notes, 2:73-74		1944
Motuoroi I.	N.90		Seaward side of island				1957 C.S.N.'s Notornis 7: 83	A. Blackburn	1956
Moutara Pt.	N.90						1957 C.S.N.'s Notornis 7: 83	A. Blackburn	1956
New Plymouth (Sugar Loaf Is.) (Pararaki Rk.)	N.108	598915	Off shore rock	Rock			1957 Sedgwick, E. H. N.Z. Bird Notes, 3:42		1948
New Plymouth (Sugar Loaf Is.) Pararaki	N.108	598915	Off shore rock	Rock	c. 200		1957 C.S.N.'s Notornis 7: 83	D. Medway	1955
Moto-a-tamatea	N.108		Off shore rock	Rock	42				1956
New Plymouth Paratutu	N.108	605917	Rocky shore line		60		in litt.	C. N. Challies	Dec. 1958
New Plymouth Seagull Rock	N.108	598915	Off shore rock	Rock	c. 125	Annual	in litt.	M. Williams	Dec. 1961
Schnapper Rock	N.108	595913	Off shore rock	Rock	c. 100				
Portland I.	N.127		On beach		41		in litt.	A. Wright	Nov. 1960
Porangahau	N.151	118468	On beach	Sand	"several score"		1925 Guthrie-Smith, H. Bird Life on Island and Shore. Edinburgh & London		1910
"	N.151	118468	On sandspit	Sand	c. 45	Annual	1948 Cunningham, J. M. Wodzicki, K. A. Emu 47: 177-198		1945
"	N.151	118468	On sandspit	Sand	c. 20		1952 C.S.N.'s Notornis 4:187	K. A. Wodzicki	1950
"	N.151	118468	On sandspit	Sand	c. 100		pers. comm.	J. M. Cunningham	1951-52
"	N.151	118468	On sandspit	Sand	c. 50	Annual	1953 C.S.N.'s Notornis 5:97	R. H. D. Stidolph J. M. Cunningham	1952
"	N.151	118468	On sandspit	Sand	5 nests (65 birds) 3/1/55		pers. comm.	J. M. Cunningham	1954-55
Mataikona	N.159	709835			"small colony"	Sporadic	1952 C.S.N.'s Notornis 4:187	J. M. Cunningham	1950
"	N.159	709835			c.40 (1/1/53)	Sporadic	pers. comm.		1952-53

Castlepoint	N.159	673688	Rocky shore	Rock	c. 55 (47-48)	Nested here first time 1946-47	1949	C.S.N.'s N.Z. Bird Notes, 3:98	J. M. Cunningham	1947
,,	N.159	673688	Rocky shore	Rock	c. 40		1950	C.S.N.'s N.Z. Bird Notes, 3:212	J. M. Cunningham	1948-49
Castlepoint	N.159	673688	Rocky shore	Rock	c. 64		1951	C.S.N.'s Notornis 4:50	J. M. Cunningham	1949-50
,,	N.159	673688	Rocky shore	Rock	c. 30	Successful 1951-52		pers. comm.	J. M. Cunningham	1951-52
,,	N.159	673688	Rocky shore	Rock	c. 30		1953	C.S.N.'s Notornis 5:97	J. M. Cunningham	1952-53
,,	N.159	673688	Rocky shore	Rock	c. 60	Annual		pers. comm.	J. M. Cunningham	1954-55
,,	N.159	673688	Rocky shore	Rock	c. 40			pers. comm.	J. M. Cunningham	1957-58
,,	N.159	673688	Rocky shore	Rock	c. 60	Annual		in litt. also —	C. N. Challies	1960
							1961	C.S.N.'s Notornis 7:249	C. N. Challies	1960
Kapiti I. (Tokomapuna I.)				Rock	23		1927	Wilkinson, A. S. Emu 26: 237-58		
Kapiti I.			On rock near caretaker's house	Rock	c. 100		1947	Stidolph, R. H. D. N.Z. Bird Notes, 2:121-122		1941
,,			On raised beach ¼ mile east of Tokohaki Trig	Rock and shingle	73			personal observation	F. C. Kinsky	1960-61
,,			On raised beach due east of caretaker's residence	Rock and shingle	400			,,	,,	1960-61
,,			On rocky shoreland 30 chains north of Maraetakaroro Stream	Rock	50			,,	,,	1960-61
,,			On raised beach ¼ mile east of Tokohaki Trig	Rock and shingle	300			,,	,,	1961-62
,,			On raised beach ½ mile east of Tiwhapaua Trig	Shingle	8			,,	,,	1961-62
,,			On raised beach due east of caretaker's residence	Shingle	500			,,	,,	1961-62
,,			Tahoramaurea Island	Rocky island	12			,,	,,	1961-62
,,			On stack 10 chains N.W. of Tokohaki Trig	Rock	90			,,	,,	1962-63
,,			On raised beach ¼ mile east of Tokohaki Trig	Rock and shingle	250			,,	,,	1962-63
,,			On rocky shore line 15 chains N.E. of Katihe Trig	Rock	7			,,	,,	1962-63
,,			On raised beach ½ mile ESE of Tiwhapaua Trig	Shingle	550			pers. comm.	B. D. Bell Y. A. Bartle	1963-64

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Mana I.	N.160	330475	Ledges of cliffs		c. 70 - 100		1944 C.S.N.'s N.Z. Bird Notes, 1:71 also 1944 Wodzicki, K. A. Oliver, W. R. B. N.Z. Science Rev. 2:10 and 14	K. A. Wodzicki	1943
Cape Terawhiti	N.164		On cliffs		"Large colony"		1946 C.S.N.'s N.Z. Bird Notes, 1:131	J. M. Cunningham	1945
Glenburn Station	N.166		Shore line rock	Rock	c. 10		in litt.	R. H. Broughton	1961
Pahaoa	N.166	203087	On rock at river mouth		c. 50		in litt.	K. Clark	1962
Te Awaiti	N.168/9	030963	Rock on shore line	Rock	c. 125		1946 Cunningham, J. M. N.Z. Bird Notes, 2:12		Dec. 1945
,,	N.168/9	029956	Off shore rock	Rock	c. 200		1946 Cunningham, J. M. N.Z. Bird Notes, 2:12		1945
,,	N.168/9	030963	Rock on shore line	Rock	c. 75		1948 C.S.N.'s N.Z. Bird Notes, 2:168	J. M. Cunningham	1946
,,	N.168/9	030963	Rock on shore line	Rock	Not nesting		pers. comm.	J. M. Cunningham	1952-53
Palliser Spit	N.165	663092	On shore line	Gravel	c. 100	Annual	1949 C.S.N.'s N.Z. Bird Notes, 3:98	J. M. Cunningham	1947-48
,,	,,	,,	,,	,,	"few" c. 40 (pers. comm. subsequently colony unsuccessful, washed out)		1950 C.S.N.'s N.Z. Bird Notes 3:212	J. M. Cunningham	1948-49
,,	,,	,,	,,	,,	c. 15 unsuccessful		1953 C.S.N.'s Notornis 5:97	,,	1951-52
,,	,,	,,	,,	,,	No nesting		pers. comm.	,,	1952-53
,,	,,	,,	,,	,,		,,	,,	,,	1954-56
,,	,,	,,	,,	,,		,,	,,	,,	1955-56
,,	,,	,,	,,	,,	c. 1		,,	,,	1956-57
,,	,,	,,	,,	,,	c. 8 unsuccessful		1961 C.S.N.'s Notornis 9:249	C. N. Challies	Dec. 1960

,,	,,	,,	,,	,,	c. 80 unsuccessful			in litt. pers. observation	C. N. Challies F. C. Kinsky	1961-62
,,	,,	,,	,,	,,	11			pers. comm.	C. N. Challies	Dec. 1964
Palliser Bay (Mukamuka River Mouth)	N.165	551094	Off shore rock	Rock	c. 20			pers. observation	F. C. Kinsky	1954
,,	,,	,,	,,	,,	c. 20	Annual		pers. comm.	R. A. Fordham	1963
,,	,,	,,	,,	,,	c. 25	,,		,,	R. A. Fordham	1964-65
White Rock	N.169	905878	Rocky shore line	,,	c. 250	,,		,,	J. M. Cunningham	1952-53
Palliser Bay (Kowakowa Stream)	N.168	747897	On shore line		c. 90	Sporadic		pers. comm.	J. M. Cunningham	,,
Palliser Bay (Ngawihi Pt.)	N.168/69	760834	,,	Shingle and rock	c. 100	Annual	1951	C.S.N.'s Notornis 4:50	J. M. Cunningham	1949-50
,,	,,	,,	,,	,,	c. 75	,,	1952	C.S.N.'s Notornis 4:187	,,	1950-51
,,	,,	,,	,,	,,	c. 50 unsuccessful	,,		pers. comm.	,,	1951-52
,,	,,	,,		,,	c. 100	,,		in litt.	K. Clark	1962-63
,,	,,	,,		,,	100 - 200	,,		pers. comm.	R. A. Fordham	1964-65
Farewell Spit	S.1		On shelly bank		c. 175		1948	Stidolph, R. H. D. N.Z. Bird Notes, 3:64-67		1946
			,,		,,	Annual ?		B. D. Bell, pers. comm.		1963
Stephens I.	S.5 + S.6		Steep cliff slopes		500 + "Large colony"	Annual	1960	C.S.N.'s Notornis 8:206	D.M.	1958
Jag Rocks	S.11	357880	Rocky islands		c. 50	Annual		in litt.	B. D. Bell	1963
Trio Is.	S.11		On large Trio		50		1960	C.S.N.'s Notornis 8:206	D.M.	1958
,,	S.11		On large Trio		c. 200			in litt.	B. D. Bell	1963
Bird I.	S.11	333620	Rocky island		500 +	Annual	1960	C.S.N.'s Notornis 8:206	D.M.	1958
White Rocks	S.16	628507	Rocky islands			Annual		in litt.	B. D. Bell	1962
The Brothers	S.16	702475	Rocky island		500 +	Annual	1951	Sutherland, J. H. Notornis 4:136-137		1950
,,	,,	,,	,,			,,	1952	Sutherland, J. H. Notornis 5:26-27		1951
,,	,,	,,	,,			,,		in litt.	A. Wright	1960
Nelson (Boulder Bank)	S.14		On boulder bank opposite Atawhai Church	Boulders and shingle	c. 67	Annual		pers. observation	L. Gurr	1943/44
,, ,,	S.14		,,	,,	c. 100	,,		,,		1944/45

DISTRIBUTION OF BREEDING COLONIES OF RED-BILLED GULLS IN NEW ZEALAND AND ITS OUTLYING COLONIES — Continued

Locality	Map Reference 1 inch/mile Map No.	Map. Ref.	Situation	Substrate	Size of Colony No. of Breeding Pairs	Status	Source of Information Ref. in Literature	Name of Informant	Year of Observation
Nelson (Boulder Bank)	S.14		On boulder bank south of lighthouse	Boulders and shingle	c. 200	Annual	personal observation	L. Gurr	1950-51
,, ,, ,,	S.14		On boulder bank opposite Atawhai Church	,,	840	,,			1964-65
Wairau Bar	S.29		Shore of lagoon	Sand	5 - 6	Annual (in association with **Hydroprogne caspia**)	pers. comm.	B. D. Bell	1962
Moerepo I.	S.29	345980	Island in lagoon		20	Annual	1965 in litt.	S. Kennington	1962-63
,,	,,	,,	,,		50	,,	,, ,,	,,	1963-64
,,	,,	,,	,,		60	,,	,, ,,	,,	1964-65
Awatere River	S.29	432872	Sand spit at mouth of river	Sand	"small" usually unsuccessful	Sporadic	pers. comm.	B. D. Bell	1950's
Lake Grassmere	S.29	420740	On island in lake	,,	c. 100	Annual	1960 C.S.N.'s Notornis 7:206	D. Merton	1958-59
,,	,,	,,	,,	,,	c. 250	,,	pers. observation	L. Gurr	1959-60
,,	,,	424735	On road near last year's nesting site	,,	250	,,	1965 in litt.	S. Kennington	1960-61
,,	,,	,,	,,	,,	300	,,	,,	,,	1961-62
,,	,,	425735	On island in lake, near road	,,	300	,,	,,	,,	1962-63
,,	,,	,,	,,	,,	350	,,	,,	,,	1963-64
,,	,,	,,	,,		240 unsuccessful 40 pairs renested and reared 25 young	,,	,,	,,	1964-65
Irongate Stream (Kaikoura Coast)	S.49	055065	On shore line rock	Rock	c. 20 nesting just starting, numbers may increase later	Associated with **Sterna striata**	pers. observation	L. Gurr	Nov. 1964
Kaikoura Peninsula	S.49	984880	On rocky reef	Rock	c. 250	Annual	1955 C.S.N.'s Notornis 6:100	B. D. Bell	1953
,,	S.49		,,	,,	c. 800	,,	1960 C.S.N.'s Notornis 8:206	D.M.	1958
,,	(a) S.49	001890	,,	,,	c. 2000	,,	pers. observation	L. Gurr	1961
	(b) S.49	985883	,,	,,	c. 60	,,			
	(c) S.49	984880	,,	,,	c. 1000	,,			
	(d) S.49	975878	,,	,,	c. 100	,,	pers. comm.	J. Cowie S. Kennington	1961

,,	S.49	a. b. c. d. above	,,	,,	c. 6000	,,	pers. comm.	J. Cowie	Nov. 1964
Pinnacle Rock	S.49	875864	Off shore rock	Rock	50 +	Annual	pers. observation	L. Gurr	1961
,,	,,	,,	,,	,,	c. 200	Annual (associated with **Sterna striata** and **Larus dominicanus**)	pers. observation	L. Gurr	Nov. 1964
Rileys Lookout	S.49	850848	Off shore rock	Rock	200 +		pers. observation	L. Gurr	1961
Raramai Tunnel	S.49	848851	On rocky shore line	Rock	131	Associated with **Sterna striata**	pers. observation	L. Gurr	Nov. 1964
"Gull Rock" Goose Bay	S.49	825823	Rocky shore line and stack	Rock	500 +	Annual	pers. observation	F. C. Kinsky	Nov. 1964
,,	,,	,,	,,	,,	700 +	,,	pers. observation	L. Gurr	Jan. 1961
Waitangitoana River	S.63	885055	River mouth shingle bank, south head	Shingle	50 +	Sporadic (with **Sterna striata** and **Hydroprogne caspia**)	pers. comm.	R. A. Falla	Nov. 1949
Okarito	S.63		Ocean beach south of river mouth		c. 200	Annual	pers. comm.	R. A. Falla	1949
,,	S.63				6		1957 C.S.N.'s Notornis 7:83	J. R. Jackson	1956
,,	S.63				c. 10		1961 C.S.N.'s Notornis 9:249	H. R. McKenzie	1961
Sumner	S.84	128512	Rocky headland				1948 C.S.N.'s N.Z. Bird Notes, 2:168	G. Guy	1945
Sumner Head	S.84	128507	Rocky headland and cliff	c. 200 (1962-63)	Annual		pers. observation	F. C. Kinsky and E. G. Turbott	Nov. 1962
Port Levy	S.84			c. 50			1948 Lindsay, C. N.Z. Bird Notes, 3:26-27		1947
Wainui (Akaroa Harbour)	S.94		Rocky coves				1950 C.S.N.'s N.Z. Bird Notes, 3:212	E. W. Dawson	1949
Birdlings Flat	S.94		Rocky shore line	c. 20-30			in litt.	J. R. Jackson	
Tokoroa Bay	S.94		,,	,,			,,	,,	
Murrays Mistake	S.94		,,	,,			,,	,,	1957
Tumbledown Bay	S.94		,,	,,			,,	,,	
Rakaia River	S.93		Near river mouth				1932 Stead, E. F. The Life Histories of New Zealand Birds, London	Potts	1860's

DISTRIBUTION OF BREEDING COLONIES OF RED-BILLED GULLS IN NEW ZEALAND AND ITS OUTLYING COLONIES — Continued

Locality	Map Reference 1 inch/mile Map No.	Map. Ref.	Situation	Substrate	Size of Colony No. of Breeding Pairs	Status	Source of Information Ref. in Literature	Name of Informant	Year of Observation
Whakapohai River	S.87		On rock just off shore from river mouth				in litt.	P. Grant	1962
Potato Point	S.164	262882	On small stacks	Rock	c. 40		in litt.	J. Allan	1963
Otago Peninsula Tairoa Head	S.164	342848	Rocky shore	Rock	c.80		in litt.	J. Allan	1963
Otago Peninsula	S.164	355833	Top and bottom of cliff		c. 120		in litt.	J. Allan	1963
Otago Peninsula Rerewahine	S.164	356825	Rocky shore		220	Annual	in litt.	Anonymous	1959
,,	S.164	356825	Rocky shore		c. 200	Annual	1961 C.S.N.'s Notornis 9:249	W. T. Popplewell	1960
,,	S.164	356825	Rocky shore		c. 50	Annual	in litt.	J. Allan	1963
	S.164	356822	,,		c. 100				
Wharekakahu	S.164	333711	Rocky stack		c. 77		1961 C.S.N.'s	W. T. Popplewell	1960
Otago Peninsula Telfers Bay	S.164	285695	Rocky shore		"a few"		in litt.	J. Allan	1962
Otago Peninsula Sandymount	S.164	307698	Rocky coastline		"Large numbers"		in litt.	J. Allan	1962
Otago Peninsula Sandfly Bay	S.164	300689	On cliffs		"Hundreds"		1951 C.S.N.'s Notornis 4:50	L. E. Walker	1950
Blanket Bay (Fiordland)							1957 C.S.N.'s Notornis 7:83		
Preservation Inlet			Rocky islet near Kisbee		100	(with **Sterna striata**)	pers. comm.	R. A. Falla	Dec. 1947
Preservation Inlet			Islet in Otago's Retreat		c. 60	Annual	pers. comm.	R. A. Falla	1950
Nugget Point	S.179		Rocky shore		c. 1000	Annual	pers. comm.	R. A. Falla	1941
Nugget Point	S.179		Rocky shore		c. 2000	Annual	in litt.	A. R. Harris	
Bluff Harbour (Rabbit I.)	S.181 and S.182	330810	Low island				1954 C.S.N.'s Notornis 5:229	O. Wiig	1952
Bluff Harbour	S.181 and S.182	330810	Low island				pers. comm.	F. C. Kinsky	1962
Pourakino R.	S.176	035092	River mouth		c. 30		pers. comm.	F. C. Kinsky	1962
Kawakaputa Bay	S.176	933036			c. 25		pers. comm.	F. C. Kinsky	1962
Pig I.	S.176	050008	Small off shore island				pers. comm.	F. C. Kinsky (W. T. Popplewell)	1962
Centre I. Foveaux Strait			Not located, but birds present in breeding season				pers. comm.	R. A. Falla	Nov. 1934
Solander I.			Between and below large boulders		10 - 15	(associated with fur seal rookery)	1948 Falla, R. A. N.Z. Bird Notes, 3:52-55		Dec. 1947

Codfish I.	On small stack in the N.W. corner of the island		"small"		1950	Dell, R. K. N.Z. Bird Notes, 3:231-235		1948
Hazelburg Group						pers. comm.	F. C. Kinsky (W. T. Popplewell)	1962
Stewart Island (Halfmoon Bay)	On rock		c. 50	Annual		in litt.	W. T. Popplewell	1961
Stewart Island (Doughboy Bay)			c. 200	Annual		pers. comm.	B. D. Bell	1964
Solomon I. (South Cape Group)	On high rocky reef, all nests seen were under shelter		15 - 20	In association with **Sterna striata** and **Sterna vittata**		pers. comm.	R. A. Falla	Jan. 1955
Big South Cape I.	On rocky point	Rock	18	All eggs eaten by **Larus dominicanus**	1932	Stead, E. F. The Life Histories of N.Z. Birds, London See also 1959 Wilson, R. A. Bird Islands of N.Z., Christchurch Editor's note:— Wilson gives Solomon Island as the locality of this colony.		1931
Moggy I. (Mokinui I.)	On high rocky reef, all nests seen were under shelter		20 - 30	In association with **Sterna striata** and **Sterna vittata**		pers. comm.	R. A. Falla	Jan. 1955
Snares I.	On coastline		Several small colonies		1943	Fleming, C. A. N.Z. Bird Notes,		1947
,,	"Underneath veronicas"				1943	Stead, E. F. N.Z. Bird Notes, 3:69-80		1947
,,			c. 100	Annual (associated with **Sterna vittata**)		Richdale, L. E. Wildlife on an Island Outpost, Dunedin		Jan. 1948
Auckland Is. Webling Bay Ocean I. Ewing I.	All small colonies, all under rocks or in caves		15 - 20 15 - 20 15 - 20	Annual		pers. comm.	R. A. Falla	1942-44 Nov. 1954 Dec. 1962
(Auckland Is., There are numerous other colonies down the east coast to Carnle/ Harbour, all of the same size and character. — R.A.F.)								
Campbell I.	Rocks in bay below and west of Mt. Dumas	Rock	5		1960	Westerskov, K. Wildlife Publication No. 61, Dept. of Internal Affairs, New Zealand		1958

DISTRIBUTION OF BREEDING COLONIES OF RED-BILLED GULLS IN NEW ZEALAND AND ITS OUTLYING COLONIES — Continued

Locality	Map Reference 1 inch/mile Map. Ref. Map No.	Situation	Substrate	Size of Colony No. of Breeding Pairs	Status	Source of Information Ref. in Literature	Name of Informant	Year of Observation
Campbell I. Windlass Bay Northwest Beach		On coastline in clefts of rocks		Various solitary pairs and small groups	1962	Bailey, A. M. Sorenson, J. H. Subantarctic Campbell Island, Proceedings No. 10, Denver Museum of Natural History	J. H. Sorenson	1942 and 1943
Campbell I.		Middle and Northwest Bays in clefts of rocks		Various solitary pairs	1963	Wright, A. Notornis 10:240		1962
Chatham Is.		On rocks well out from shore			1924	Archey, G. Lindsay, C. Rec.Cant.Mus., 2:187-201		1924
,,		At many points around the coast			1939	Fleming, C. A. Emu 38:492-509		1937-38
,,	(Nga-toka-turua)	On ledges of off shore stack Rock Between Cape Young and Cape Pattison	c. 50			pers. comm	B. D. Bell	1961
,,	(Kaingaroa)	Rocky shore line	c. 40			,,	,,	,,
,,	(Okawa Pt.)		c. 500			,,	,,	Sept. 1961
,,	(Weeding Pt.)		c. 20			,,	,,	,,
,,	(Cape Fournier)	Rocky cliff faces	c. 50 preparing to nest			,,	,,	Oct. 1961
,,	(Mangere Is.)				1924	Archey, G. Lindsay, C. Rec.Cant.Mus. 2:187-201		1924
,,	,,		c. 12			pers. comm.	B. D. Bell	1961
,,	(South East I.)		c. 50			,,	,,	,,

Sometimes others species of birds nest in association with Red-billed gulls. Black-backed gulls *(Larus dominicanus)* and Black-billed gulls *(Larus bulleri)* in small numbers occasionally attach themselves to Red-billed gull colonies. At Rotorua Red-billed and Black-billed gulls in almost equal numbers, some 400 pairs of each species, breed annually in close proximity. This however is exceptional and atypical. White-fronted Terns *(Sterna striata),* however, are frequently found breeding in association with Red-billed Gulls. Apparently they are attracted by the aggregation of the breeding gulls for they almost invariably establish their colonies later than the gulls. This association often leads to a loss of a proportion of the terns' eggs through gull predation. Sometimes small groups of Caspian Terns *(Hydroprogne caspia)* breed near or amongst Red-billed gull colonies and on the sub-Antarctic islands the Antarctic Tern *(Sterna vittata bethunei)* breeds alongside these gulls. Red-billed Gulls sometimes nest with shags *(Phalacrocorax* spp.) or gannets *(Sula bassana serrata),* the gulls supplementing their food supply by scavenging around the colonies of their associates.

The distribution of the colonies is predominantly on the east coast. The exceptions are New Plymouth, Kapiti Island, Mana Island, Fiordland, and the small colonies at Muriwai and Okarito. There are long stretches of uninhabited coast on the west of the South Island and consequently the records may not be as complete for this coast as is the case for the eastern seaboard. It is considered however that this paucity of colonies on the west coast is as real as it is apparent and that it is linked with availability of food.

A constant, abundant, and readily available food supply is necessary to support such concentrations of adults and to feed the nestlings when they hatch. At Grassmere, at Kaikoura, and at Kapiti the young are fed extensively on small crustacea. At Nelson, although the colony is close to the city where a ready supply of scraps and offal is available, the nestlings are mainly fed on small fish. It appears therefore that large colonies can only occur where a reliable pelargic food supply is available. This means that this type of food not only must occur within foraging range but that it should also be available reasonably continuously. A surface feeding bird like the Red-billed Gull requires relatively calm conditions to obtain its food at sea, thus feeding is restricted to lee-shores. On the otherwise open and exposed west coast only in the vicinity of New Plymouth, Kapiti and Mana Islands, and in Fiordland are extensive areas of sheltered waters available for the gulls to forage in, and thus large colonies are restricted to these areas. Carrick and Murray (1964) have shown that food supply determines the location of nesting colonies in Australia.

Information in colony size from year to year is available in a few cases. Most of these show that numbers are increasing, especially in the large colonies, i.e. Nelson and Kaikoura. The numbers given, however, are in most cases estimates so no more than broad tendencies can be inferred. A conservative estimate of the total breeding population based on the information herein would be something in the order of 40,000 breeding pairs and it is shown that these birds breed, or have been known to do so, at some 166 different localities in the New Zealand region.

The Red-billed Gull is, therefore, obviously well adjusted to European settlement in New Zealand, is numerous and apparently is increasing.

ACKNOWLEDGEMENTS

The authors wish to acknowledge their gratitude to all who have responded to their request for information (they are named beside their contributions in the list) and to Dr. R. A. Falla for helpful discussion and comments.

GENERAL REFERENCES

CARRICK, R., and MURRAY, M. D., 1964: Social factors in population regulation of the silver gull, **Larus novaehollandiae** Stephens. CSIRO Wildl. Res., 9: 189-99.

OLIVER, W. R. B., 1955: "New Zealand Birds." **2nd** edit. A. H. and A. W. Reed, Wellington, 661 pp.

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SHORT NOTE

WHITE-CAPPED NODDY AT SPIRITS BAY

On the afternoon of 10/1/65 I was able to watch a White-capped Noddy *(Anous minutus)* for about two hours at Spirits Bay.

The bird was first noticed on the edge of a group of c. 100 White-fronted Terns *(S. striata)* which were resting on the beach at the eastern end of the bay. My first impression was of a bird about the size and shape of a White-fronted Tern but with the colours reversed. It was uniformly coloured a dark greyish brown except for the crown and nape, which were white shading to greyish white at the back of the head. Prominent features were a white line under and extending back slightly from the eye, and a jet black line running forward from the eye over the lower forehead. There was also a small area of jet black directly behind the eye. The bill and legs were black and the feet large and webbed.

When the flock was disturbed, the noddy separated from the terns and flew over the brackish pool formed by the Kapowairua Stream just behind the beach. Here it hovered for some time just above the water apparently feeding. Eventually it settled down near the far bank almost up to its thighs in the water; and, in the company of five Red-billed Gulls *(L. scopulinus)*, which dwarfed it, it proceeded to preen itself for some time. At this point, the stream is about a chain wide, and the noddy was not at all disturbed at my moving about on the opposite bank photographing it, using a 135mm. telephoto lens.

The bird flew off once again, but I located it back on the beach, on the edge of the group of terns. Here I attempted a careful approach and although the terns moved gradually further away, the noddy stood its ground, and, to my surprise, I came as close as only five yards from it before it flew off again. With the terns, it moved a considerable distance along the beach. The weather at the time was fine and sunny, but the preceding few days had been dull and unsettled in the Kaitaia area.

The photographs confirm the identification of the bird as a White-capped Noddy. Also, shortly after observing the bird, I was able, by the courtesy of Mr. G. Turbott, to examine the specimens held in the Auckland War Memorial Museum.

— M. G. MACDONALD

WELCOME SWALLOW: FIRST BREEDING RECORDS FOR SOUTH ISLAND

By E. G. TURBOTT, Auckland Museum

The original report was by R. F. Savill in a letter in the Christchurch "Press" of 16th November, 1961. When I inquired, Mr. Savill said that he had been fishing at Lakeside (west side of Lake Ellesmere, near Leeston and approximately 30 miles from Christchurch) and had noticed a pair constantly flying in and out of a disused launch moored offshore and thought they were probably nesting. On 19th November I found the pair as reported by Mr. Savill, flying in and out of the cabin of the launch "Loretta" moored about 25 yards offshore: they ranged out over the water, often dipping down to the surface, and from time to time they would leave the water and pass inland for a short distance; at intervals they entered the cabin, remaining from two to three minutes and often coming out together. They were apparently building; once one of the birds was seen picking up sandy material at the lake edge (later events confirmed that building was probably in progress at this stage). On one occasion we saw a bird take a midge from the surface.

I got in touch immediately with the owner of the launch, Mr. A. C. Young, of Irwell, and with rangers of the North Canterbury Acclimatisation Society and was assured that the pair would not be disturbed. Mr. Young said that when he visited the launch on 24th September he had found a nest already built, but having no knowledge of swallows had pulled it off and in the process destroyed the two eggs: this first nest had been built against the glass of the cabin window. As the birds were now flying straight through the cabin, it seemed likely that the nest was situated well within the interior of the launch, but it seemed best, at this stage, not to disturb the birds in order to examine the nest more closely.

Several Canterbury observers visited the site during the following month. Mr. L. Hoff (North Canterbury Acclimatisation Society) was able to see the nest on a ledge right towards the bow — on 26th November — but no closer examination was made. (During this period the launch was visited by the owner occasionally, to pump out water.)

On 23rd December I found that the birds were spending much longer periods (10 - 15 minutes) at the nest; they sometimes emerged together, but once one came out immediately after the other entered, presumably replacing its mate. Once during this visit a harrier was chased by the pair; once both emerged together to chase a sparrow which alighted on the cabin roof. As indicated by later events, incubation must have been in progress.

On 7th January, 1962, the birds were making very short visits of a few seconds and seemed to be feeding chicks. On 14th January, G. R. Williams and I rowed out and examined the nest; we found that it contained four young ready to leave. Mrs. M. Buchanan, of Rakaia Huts, who had been making regular visits since the discovery of the nest, reported, two days later, on 16th January, that the parents and young had left the nest and were perching on a dinghy about 20 yards away: a strong south east wind was blowing, but the adults eventually managed to shepherd the young, which were very unsteady

in flight, back to the launch. On 17th January I saw the young with their parents in the neighbourhood of the launch — on the nearby dinghy and amongst the raupo. By this stage the young flew quite strongly, although high winds were still blowing; the only trace of unsteadiness in flight was on alighting.

It may be added that at least one of the brood failed to survive, for on 2nd March a youth reported having shot one (apparently a genuine misunderstanding when shooting sparrows), the bird being handed in to Mr. R. Novis (North Canterbury Acclimatisation Society ranger). The specimen is in the Canterbury Museum.

The last observation for the season was by D. H. Brathwaite, who saw a small flock, presumably this family, at Lakeside on 1st May.

Inquiries in the district, made mainly by Mrs. M. Buchanan, during the period of the above observations, indicated that several local residents had known of the birds' presence; further, there was a strong suggestion that more than one pair had been in the area during September - October, informants stating that as many as seven had been present in the adjacent Hart's Creek estuary.

The following observations in the neighbourhood of the "Loretta" summarise the 1962/63 and 1963/64 seasons:—

19/8/62 D. H. Brathwaite reported pair at launch.
24/8/62 J. Flux and E.G.T. saw pair about launch.
26/8/62 E.G.T. saw pair about launch.
22/9/62 D. Graham and D. Dawson saw 3 about the area.
30/9/62 Mrs. M. Buchanan observed 2 pairs, one pair entering launch and the other active about the adjacent concrete water gauge (situated about 20 yards offshore).
28/10/62 J. P. Strijbos and E.G.T. saw three birds. One pair was active about water gauge, but none seen entering launch. (The water gauge was subsequently abandoned and a half-finished nest, built on the inside wall with very little to support it, was found there by Mrs. Buchanan.)
22/11/62 Mrs. Buchanan saw pair going regularly into launch.
31/12/62 (E.G.T.) Young being fed in launch.
3/1/63 Mrs. Buchanan, D. Graham and E.G.T. examined nest in launch, situated exactly as last year; it contained one well-grown chick and two eggs. It seems probable that this chick failed to survive, for it was not seen out of the nest with the adults.
10/2/63 (E.G.T.) Pair visiting the launch constantly.

Again this year local information suggested the presence in the Lakeside area of more than the total to be expected had only one pair colonised the area. Mrs. Buchanan received a report from a local fisherman of 6 seen in early December in the Hart's Creek area, and again of "numbers" in January. The latter were about a mile to the north, not far offshore.

18/5/63 (E.G.T.) Three seen feeding over flooded lake shore of Hart's Creek estuary adjacent to Lakeside.
25/8/63 Pair flying about at Lakeside but only once perched on "Loretta."
27/10/63 Members of the O.S.N.Z. field study group saw one going repeatedly into the "Loretta."

11/1/64 D. H. Brathwaite and E.G.T. rowed out to launch: nest as before but empty. Pair entering regularly.

25/1/64 (E.G.T.) Pair were entering and leaving cockpit of "Loretta," but not going right through cabin to nest.

1/3/64 (J. M. Cunningham and E.G.T.) No sign of Swallows about the area — waited for approximately one hour.

(Breeding success was not known in the 1963/64 season: a brood could have left the "Loretta" unnoticed at the end of October.)

In addition to the swallows observed as above at Lakeside, some appeared at Kaituna (east side of Lake Ellesmere, about 15 miles across the lake from Lakeside), the first observation being made by D. Graham on 27/1/63. Two birds were seen; one, according to Mr. Graham, having a much paler breast, and thus apparently a young bird. They were resting on the road and returned to the same spot several times after being disturbed by cars.

In the following season, on 24/11/63, I heard from Mr. G. Burrows of Ataahua (near Kaituna) that three young were flying with their parents. They were thought to have nested in an old cottage adjacent to Mr. Burrows' house, but further word was received from Mrs. K. C. Pegley, of Christchurch, who stated that on 23rd and 24th November she saw swallows going in and out below her week-end caravan — a converted railway carriage — situated about ½ mile from Mr. Burrows': the birds seen by Mr. Burrows had possibly nested in this site. It is of further interest that Mrs. S. E. Patten, of "Stirling Hills" (in the Kaituna Valley some 4 miles from the lake), on 1/12/63 saw c. 6 swallows. Mrs. Pegley and Mr. and Mrs. Burrows saw nothing more of the birds near the lake shore at Ataahua, and it thus seems probable that Mrs. Patten had seen the family as it moved away from the lake up the Kaituna Valley. I visited both areas on 14/12/63 but could see no sign of the birds.

My final records for 1963/64 were made at the North Selwyn Huts (on lake shore about 5 miles from Lakeside on the north side of Lake Ellesmere): Mr. G. Tunnicliffe saw two swallows here on 20/1/64, and again one in early February.

Finally, I am indebted to Mrs. Buchanan for the following note, after my departure from Christchurch, on the 1964/65 season. Mrs. Buchanan wrote that a family of 5 newly fledged chicks was seen in the raupo adjacent to the "Loretta" on 28/10/64, one of the parents, when first seen, making repeated flights back into the cabin; finally the five chicks returned to the launch. During the following four weeks Mrs. Buchanan visited the area regularly and recorded renewed activity by the pair, which were apparently preparing to rear a second brood in the same nest in the launch; nothing further was seen of the five young birds.

To summarise, as the "Loretta's" owner first saw signs of nesting in September, 1961, it seems safe to assume that the pair arrived in the area in that year. As breeding by this pair could not have produced a total of more than five in the following season, this would not provide enough birds to explain the breeding recorded in that season on the opposite shore at Kaituna: however, the pair which attempted to nest in the water gauge could later in the same season have moved to Kaituna and bred, or could even have bred successfully at Lakeside unobserved, i.e. adults and young may have crossed to Kaituna after departure from the nest.

At the same time, persistent reports of additional swallows in the Lakeside area — all unconfirmed — suggest strongly that the original colonisation was by a party of several birds.

APPENDIX

Plant material used as strengthening in the partly-completed nest collected from the water gauge at the end of the 1962/63 season was kindly identified as under, by Miss Ruth Mason, of the Botany Division, D.S.I.R.:—

Ruppia sp. — leaves.
Lemna sp. — a few fruits.
Trifolium sp. — a seed and some leaves.
Festuca arundinacea — some fruits.

A filamentous green algae.

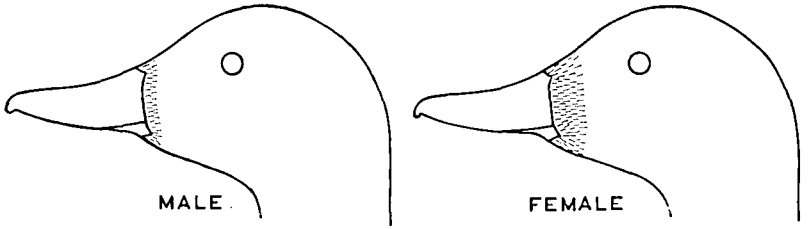
★

SHORT NOTE

NOTE ON THE IDENTIFICATION OF SEX IN JUVENILE PARADISE SHELDUCK

While banding 23 juvenile Paradise Duck *(Tadorna variegata)* in the central North Island during November 1961, I carefully studied the plumage before sexing each bird cloacally. The juvenile female has a similar black head to the male, but Delacour (1956) states the female has "a reddish tinge on the breast and upper mantle." I agree with this but consider it to be darker than the eclipse plumage of the adult female. I also found that white feathers are not necessarily present on the head of the immature female.

In my examination of these juveniles which had their plumage fully developed except for the primary feathers, I found there was an area of grey around the base of the bill on the forehead, cheeks and chin. In the males it was narrow and in the females extended to nearly half way between the bill and the eyes. (cf. Fig. 1).



Using this grey area in conjunction with the general colouration I determined the sex of the juveniles and found the method to be correct, when checked by cloacal examination.

In December 1962, I found this variation again occurring in the juveniles but was unable to make cloacal examinations to check. It is therefore desirable for further information to confirm this method of sexing the juveniles at this stage.

REFERENCE

DELACOUR, JEAN, 1956: **The Waterfowl of the World,** Vol. 1, Country Life Limited, London.

— H. J. F. McALLUM

A TASMAN SEA-BIRD LOG

By R. B. SIBSON

S.S. Arcadia (30,000 tons) sailed from Auckland in the late afternoon of 5/2/64 and passed Sydney Heads early on the morning of February 8th, having completed the journey at an average speed of about 21 knots. The weather generally was fine, calm and sunny till the last morning when a fresh gale was blowing, accompanied by some drizzle. For much of the crossing, there was a light easterly swell. Conditions for bird-watching were excellent. I was often aided by my wife and son; and was able to compare notes with Mr. D. J. Slinn.

This log seemed worthy of publication because I was fortunate in being able to watch in mid-ocean a number of sea-birds which, though they are on the New Zealand list, are seldom reported from our coastal waters. It is hoped that these observations will prove of use to other loggers of sea-birds who may be crossing the northern Tasman in summer.

For the sake of completeness and also to show how common species at either end, e.g. Fluttering Shearwaters *(P. gavia)* in the Hauraki Gulf and Crested Terns *(S. bergii)* in Sydney Harbour, may be missed or fail to appear, no species seen, however trivial, has been omitted.

5/2/64. 1700 hrs. Sailed from Auckland. In the Waitemata the usual Red-billed Gulls *(L. scopulinus)* including some mottled young of the season; also Black-backed Gulls *(L. dominicanus);* neither species in big numbers. Two White-fronted Terns *(S. striata)* and one Big Pied Shag *(P. varius).*

Rangitoto. Some Black-backs still over breeding colony. Near the beacon, 1 Arctic Skua, dark breasted *(S. parasiticus)* and a few White-fronted Terns.

W. of Rakino, a single adult Gannet *(S. serrator)* and at 1825 hrs., the first Buller's Shearwater *(P. bulleri)* flying parallel, its underwing lit up by the westering sun. In summer it is not unusual to pick up the first Buller's Shearwaters just beyond Rangitoto.
A few Black-backs, ranging rather wide for them, evidently homing from a great gathering of Gannets, 500-1000. We have passed well outside Tiri and are south-east of Kawau I. Buller's Shearwatrs are now numerous and there are some Flesh-footed *(P. carneipes).*

1840 hrs. Some shearwaters of both species and also occasional Gannets are using Arcadia's slip-stream. I can look right down on them.

1900 hrs. Little Barrier to starboard. Buller's and Flesh-footed Shearwaters now plentiful. Though the light is failing, the pale bill of *carneipes* shows quite clearly. No smaller petrels seen, nor a single brown juvenile Gannet among the hundreds or adults through which we have passed.

6/2/64. 0630 hrs. An empty seascape, relieved by a single distant gadfly petrel, flashing white underneath, possibly a Black-winged Petrel based on the Three King's Islands, which are over the north-east horizon.

0810 hrs. One brown immature Wandering Albatross *(D. exulans)* over the wake.

Rest of morning, no birds.

Noon. 34°16'S. 168°37'E. Our course is 272°, i.e. just north of due west.

1225 hrs. One big dark petrel; *(P. macroptera)* suspected.

1320 hrs. We have run into an assemblage of Black-winged Petrels *(P. nigripennis),* a robust gadfly petrel whose under-wing, edged with solid black fore and aft, distinguishes it at once from *cooki* (Notornis VI, 20). These petrels are superb fliers, often soaring in to-day's fresh south-easterly breeze up to more than 100 ft. Pairs indulge in follow-the-leader chases and a third bird may join in. It is often easy to count up to ten in sight at once; some are over the wake; others are beside us on the southern side, and thus lit up by the sun; others are close under the bows. Black-winged Petrels seem to be classable under the category of ship-followers. I have been able to find only one big dark petrel, presumably *macroptera,* among them.

1415 hrs. Still several *nigripennis* with us.

1515-1530 hrs. Several *nigripennis* very much in view.

1615-1630 hrs. As many *nigripennis* as ever, perhaps more. Also one white Wanderer *(D. exulans)* over the wake, dwarfing the *nigripennis* and one gannet which looked 'wrong' and proved to be a Blue-faced or Masked Gannet *(S. dactyatra).* For a vital minute or two it flew beside us, going west, steadily overtaking Arcadia's 21 knots; face faintly bluish; crown and nape not golden; wings with broad dark trailing edge; dark tail. Earlier it was criss-crossing the wake with the single white *exulans.*

1725 hrs. I have never seen gadfly petrels at sea soaring as these *nigripennis* do, up to the level of the upper structure of this large liner. Is this one of the reasons why they crash on board ships more often than other petrels? The flying in pairs is most marked. Are these courtship flights of young adults? As I write I can see a couple cavorting at about 200 ft., using if need be, against the wind a flapping flight. There are still plenty about. Sometimes there must have been a few dozen over the wake.

1900 hrs. No *exulans* visible; but *nigripennis* all around us.

7/2/64. 0540 hrs. A single *macroptera* across the bows. One small gadfly petrel, apparently not *nigripennis,* flashing white underneath. Two whales which looked like Sperms.

0600 hrs. A tantalizing 'swirl' of about twenty gadfly petrels with a gleaming White Tern *(G. alba)* and a Sooty Tern *(S. fuscata)* and some big brownish tubenoses, one dirty white on belly, passed rather distantly and was soon left behind. Light not bright; but it was useless to look astern towards the sunrise. An easterly swell is still pushing us. The Sooty Tern was buoyant and angular, with long tail streamers. It was flying well above the tubenoses which were probably Wedge-tailed Shearwaters *(P. pacificus)* and was seen to peel off in a steep turn and dive.

0615 hrs. One Gray-faced Petrel.

0633 hrs. A small gadfly petrel quite well seen close under the bows; smaller than *nigripennis;* an inverted W showing dark across upper surface; dark crown and nape, underwing not edged with black. *Pt. leucoptera* seems a fair guess. Several pale blue flying fish, paler and smaller than those *(Cypselurus melanocercus)* of the Hauraki Gulf and Bay of Plenty.

0805 hrs. One *macroptera* and one *leucoptera.*

0855 hrs. One *macroptera.*

0904 hrs. One *macroptera.* The grey face on these was easily seen.

0904-0925 hrs. Several *leucoptera* passing across bows from north to south.

0925 hrs. Two big brownish shearwaters fairly close seemed to be Wedge-tailed *(P. pacificus).*

0930 hrs. More *leucoptera.* None of the gadfly petrels seen closely this morning has been *nigripennis;* but odd ones in the distance have aroused suspicions.

0936 hrs. Three Wedge-tailed Shearwaters. The bill can look bluish. One passed close, revealing considerable contrasts in the pattern of browns on its upper surface.

0950 hrs. Some hundreds of Wedge-tailed Shearwaters 'Swirling' with a few Sooty Terns overhead, whence presumably the shrill chattering. A young Sooty Tern with smudgy belly and short-forked tail flew close. But when one is travelling at 20 knots, these concentrations of pelagic birds pass all too quickly and their composition is not easily diagnosed.

1000-1020 hrs. Several *leucoptera.*

1115 hrs. Nil.

1145 hrs. Nil.

Noon. 34°07'S. 158°34'E.

1400 hrs. A single brown gull-like bird with a 'flapping' flight high over the wake rather far astern. Possibly a Pomarine Skua *(S. pomarimus)* intent on galley-scraps.

1745 hrs. Two dark petrels flying together, *macroptera* or *carneipes* size.

1900 hrs. Nil. What a contrast with the animated scene of this time yesterday.

8/2/64. 0530 hrs. Sea rough; some drizzle. Australian coast in sight. No birds astern.

0600 hrs. Silver Gulls *(L. novaehollandiae)* streaming out from Port Jackson to meet us.

Later, as we neared the harbour bridge, a Welcome Swallow *(H. neoxena)* flew over. Parties of European Starlings *(S. vulgaris)* and a Peewee *(Grallina cyanoleuca)* could be seen feeding on lawns. By now Silver Gulls were in hundreds. But the commonest birds flying across the harbour were the inevitable feral Rock Doves *(C. livia).*

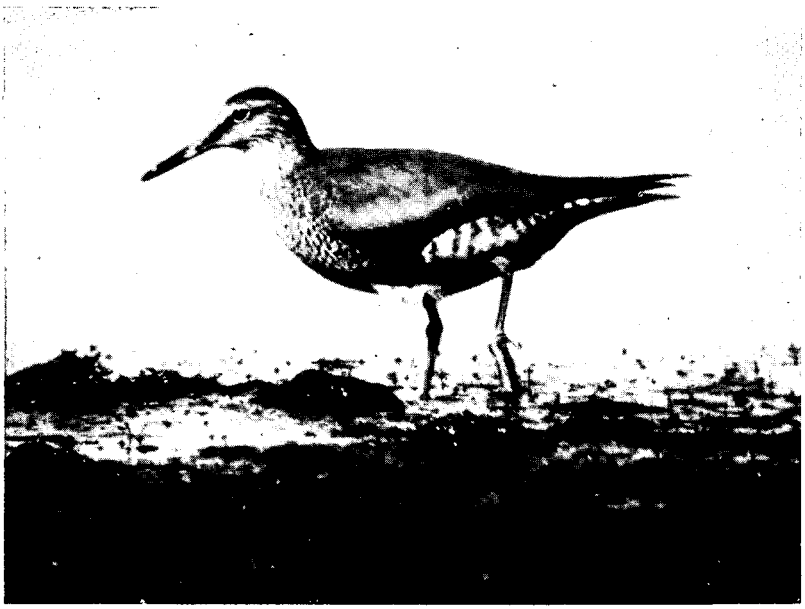
SHORT NOTES

A NOTE ON WANDERING TATTLERS IN FIJI

This note is prompted by the valuable survey of waders (Notornis 12, 158-168), especially Wandering Tattlers *(Tringa incana)* which Mr. and Mrs. Morgan made near Suva, Fiji, in 1961 and 1962. From May 18 to 22, 1965, I stayed on Nukulau, a small coral atoll, some five miles east of Suva Point and separated by a wide channel from Lauthala Island and the other mangrove-covered islands of the Rewa estuary. The Rewa, the biggest river in Fiji, forms a delta where it enters the sea at Lauthala Bay. Nukulau lies well clear of the delta, but silt which the river has brought down is deposited over the extensive reef of which Nukulau atoll is the slightly elevated western end. As a result of silting the reef is said to be dead, in the sense that very little living coral is now to be found upon it: and compared with the clean oceanic reefs of the south coast of Viti Levu, the Nukulau reef is muddy. In an ornithological sense, however, it is very much alive. While Reef Herons *(E. sacra),* both blue and white, are its most conspicuous inhabitants, the most numerous feeding birds during my stay were Wandering Tattlers. Only small numbers of other over-wintering arctic waders were present, the best counts being: Bar-tailed Godwit (5); Pacific Golden Plover (12); Turnstone (5).

As the incoming tide covered the reef, Wandering Tattlers were commonly seen perching on protruding rocks or stakes; and sometimes on the Nukulau jetty; and at full tide a particularly favoured roost was among the branches of a large dead tree stranded on the reef about 300 yards from the outermost point of the island. Here it was not unusual for at least a score to roost while the reef was under water. As the tide fell and the reef became exposed, more Tattlers would appear from other roosting places among the islands of the delta. My biggest count was c. 80; and once in a line of c. 80 feeding waders, more than 70 were Tattlers.

At this season most, if not all, of these Tattlers must have been immature non-breeders. Careful watching with field-glasses 8 x 30, often at ranges of less than 40 yards, disclosed that there was considerable variation in the intensity of the barring on the underparts. Although the age when Tattlers first breed is not known, it is most unlikely that they breed at the end of their first year; and there is some evidence to suggest that some at least are not mature till their third or even their fourth year. Differences in plumage among the Tattlers which continue to frequent the Rewa estuary between May and August, i.e. during the species' northern nesting season, are understandable if the over-wintering population is composed not only of birds just entering their second year, but also of third-year birds, together with a few which may be even older. To outward appearance some were in full breeding dress with bold, heavy barring on the underparts (v. Plate XXIX). But as reported by McKenzie (Notornis III, 178-180) a Wandering Tattler at Clevedon remained throughout winter after assuming what appeared to be full nuptial dress in late summer. The frequent sightings of a Siberian Tattler *(T. brevipes)* over four years along the Karaka shore of Manukau are believed to be of the same individual. This Tattler was first noted on 25/4/55, when it was probably nearly a year old, though it could have been older; and its last appearance



[B. Morgan

XXIX — Wandering Tattler near Suva.

was on 26/4/59. Did it breed for the first time at the end of its fifth year?

At times, especially when the Wandering Tattlers moved out to feed, the Nukulau reef was quite musical with their rippling trills. More often than not, when disturbed from a resting perch or while feeding, they called with a sustained fluty whistle; though they never showed the sort of hysterical alarm and panic which sometimes besets Redshanks and Stilts. Their Hawaiian name, 'Ulili,' is well-chosen, but does not convey quite aptly the length of their typical call. Sometimes one Tattler would start trilling and the others would join in, the resultant chorus being reminiscent of the piping ceremony of oystercatchers, but in a toned down, less vibrant, version. It was also noticed that sometimes two birds which were feeding near one another would start calling; and this might develop into mild sparring and chasing on the wing. Not once did I hear the short unmelodious dissyllable which is commonly associated with Siberian Tattlers on their wintering grounds in Australia and New Zealand.

The trilling of the American Tattlers around Nukulau was sometimes audible after dark.

Comparisons are difficult; and to make them in this instance may be injudicious. My impression was that these Fiji Tattlers were robuster than Siberian Tattlers which I have seen in New Zealand and that their upper surface was rather darker. In bright sunshine some had an almost bluish look with a dull gloss rather like that of a Blue Reef Heron.

The reason why Wandering Tattlers are attracted to the Rewa estuary in such numbers must be an abundant food supply produced by the deposition of river silt over the adjacent reefs. Moreover there is shelter from any wind among the mangrove-covered islands. In mid-May 1965 I spent more than a week at Natandola Harbour in the south-west of Viti Levu. Here the extensive reefs are exposed to the full sweep of the ocean tides; there is no alluvial silt and little shelter; and Wandering Tattlers were scarce, not more than five scattered over several miles of reef.

Is there among the Pacific Islands any concentration of Wandering Tattlers comparable with that just north of Suva? For instance no such local density is suggested for Hawaii by Munro, who writes (Birds of Hawaii, p.57): "It frequents rocky shores of all islands of the group, generally singly or in pairs, but occasionally small flocks are seen." At Suva Point and around Nukulau, even in winter these tuneful waders may be seen in flocks of some size, and in summer the numbers run into hundreds. The Fiji Islands have much to offer the ornithologist. I would place the unusual concentration of Wandering Tattlers just north of Suva high among their attractions.

— R. B. SIBSON

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LETTERS

THE FIELD IDENTIFICATION OF STINTS

Sir,

I should like to suggest that more diagnostic data be given when new first record sightings are claimed. The sight record of a Western Sandpiper on Farewell Spit recently published (A. Blackburn and B. D. Bell, Notornis 12 (2) 109) would have been more convincing if the authors had explained why they had ruled out two other likely visitors which are known to be easily confused with *C. mauri,* namely the Semipalmated Sandpiper *(C. pusilla)* and Baird's Sandpiper *(C. bairdi).* Unless the bill of the Farewell Spit bird was very markedly decurved ("Slightly down-curved at the tip" is the phrase used) there is nothing in the description given that is inconsistent with either Semipalmated or Baird's Sandpipers. One or two points even suggest *C. pusilla:* both the 'pale forehead' and the 'very pale sides of neck and nape,' would normally apply better to *pusilla* than to *mauri.* Baird's Sandpiper may be a shade too large to be considered in the present context, but should it be held that the estimated bill size of the bird seen — "at least 1½ times as long" (as *ruficollis*) — makes *pusilla* unlikely, then *bairdi* would have to be considered and reasons given for eliminating it. Recorded bill sizes show the possibilities — *ruficollis,* 16 - 18 mm; *pusilla,* 16 - 23; *bairdi,* 22 - 25; *mauri,* 23 - 28 m.m. The Semipalmated has a tendency to decurve (Handbook of Brit. Birds, 4, 251) and Baird's rather more so; both show it more at some angles than others.

It is a salutary exercise to follow what Bannerman (1963, 392*) calls the 'appalling muddle' whereby a bird has been officially declared to be *C. mauri* by the British Records Committee some seven years after the specimen had been caught and examined by competent

observers and recorded as *C. pusilla*. This is not to suggest that we accept a reverse judgment for the New Zealand sighting, but merely that published records should show more awareness of the real problems of identification in this particular group of waders.

— R. A. FALLA

Dominion Museum,
Wellington.

Sir,

We are grateful to Dr. Falla for giving us the opportunity of replying in this issue to his letter of 16th August. We fully agree with what he says regarding the necessity, when describing an unusual species, to give reasons for excluding any closely similar species with which it may be confused. But in the Western Sandpiper *(Calidris mauri)*, the bill is the diagnostic feature, and so readily distinguishes the bird from both the Semipalmated Sandpiper *(C. pusilla)* and Baird's Sandpiper *(C. bairdi)* that we did not consider it necessary to refer to these last two species. Petersen's "Field Guide to Western Birds," p. 120, provides an excellent sketch comparing the bills of the Western and Semipalmated Sandpipers, and describes the bill of the Western as "longer, thicker at the base, slightly drooped at tip." Furthermore, Peterson, Mountfort and Hollom's "Field Guide to the Birds of Great Britain and Europe," p. 296, describes the Semipalmated as "in winter usually indistinguishable from Little Stint but bill is very slightly stouter and *broadened at tip*." Dr. Falla's reference "Handbook of British Birds" 4, 251, refers to an illustration (line drawing) which does in fact show a tendency of the Semipalmated's bill to decurve. However in the text, in two places, pp. 255 and 258, the description gives "straight." Under Field Characters and General Habits, the Handbook says "bill broader and straight," and under Measurements and Structure "bill short stout straight, and considerably expanded at tip." The slightly rufous colouring of the Western, as noted by us, distinguishes it further from the Semipalmated, which is described by Hall in "A Gathering of Shore Birds" p. 178, as greyish brown. There are thus distinguishable differences which enabled us to be certain of our identification, after several hours of close observation over two days.

On distributional grounds, *mauri* is more likely to reach New Zealand than *pusilla*. According to Vaurie (Birds of the Palearctic Fauna, p. 393) the breeding range westwards of *mauri* includes north-eastern Siberia, where *ruficollis* also breeds. *Pusilla* is a nearctic breeder. Moreover, whereas *mauri* is common along the coast west of the Rockies, *pusilla* migrates mainly east of the Rockies; and in fact is omitted from Hoffman's "Birds of the Pacific States."

We described the size of the Western Sandpiper (6½ ins.) as very slightly larger than a Red-necked (Little) Stint (6 ins.), whereas Baird's Sandpiper is very noticeably larger, Peterson giving its length as 7 to 7½ ins., i.e. almost the size of a Sanderling *(Crocethia alba)*. But here again the bill of the Western Sandpiper provides a completely distinguishing characteristic. Peterson describes Baird's Sandpiper as "larger than the Western, paler, with a *rather short bill*. No tendency of the bill to decurve is mentioned in the text, nor is any shown in the illustrations in his "Field Guide to Western Birds" pp. 115 and 119. Dr. Falla has shown that the length of bill in *C. bairdi* and *C. mauri* can overlap; but whereas the recorded sizes of 22 - 25 mm. give the

impression of "a rather short bill" on the larger *C. bairdi,* it was the unusual length of bill on *C. mauri* which first drew our attention to the bird.

— A. BLACKBURN
— B. D. BELL

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ADVERTISEMENTS

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NOTICE

STORM WRECKED SEA BIRDS

The attention of members is drawn to the provisions of the Wildlife Act 1953 in relation to the retention of storm-wrecked sea birds. As these birds are absolutely protected under the terms of the Act, an authority is necessary to retain the specimens.

Such an authority is obtainable from one of the four major museums, namely the Dominion Museum, Wellington; the Auckland Institute and Museum, Auckland; the Otago Museum, Dunedin; and the Canterbury Museum, Christchurch.

The authority is issued only to bona fide ornithologists, and a copy is retained by the museum concerned and by the Wildlife Branch, Department of Internal Affairs. The conditions of the authority must be strictly followed. DEPARTMENT OF INTERNAL AFFAIRS