A BRIEF SURVEY OF CUVIER ISLAND

By A. BLACKBURN

SUMMARY

The present state of the vegetation on the island is recorded, and the vigorous regeneration of the undergrowth since the extermination of goats and the exclusion of cattle is noted. Birds observed in June, 1966, and those recorded previously, are listed. The history of the eradication of goats, the exclusion of live stock, and the extermination of wild cats is summarised. The potential value of the island for the future is indicated.

GENERAL

Cuvier Island lies 25 miles due east of Cape Colville at the northern tip of Coromandel Peninsula, and 10 miles north of Great Mercury Island. It has an area of 782 acres, of which 58 acres at the southern end are fenced off to contain the lighthouse-keepers' live stock, and consist mainly of open pasture. Steep bare slopes encircle the northern and eastern aspects, whilst forest covers most of the remainder of the island, and is estimated to be 200 acres in extent. A main ridge, with a maximum height of 755 feet, runs approximately north and south, with a branch running to North West Point. In view of the potential wildlife value of Cuvier, the present state of the vegetation is noted in some detail, as there will probably be important changes in the future.

VEGETATION

Since the final eradication of goats in July, 1961, and the exclusion from the forested area of the lighthouse-keepers' cattle and sheep in June, 1963, regeneration under the whole of the canopy has been extremely vigorous, and there is everywhere a marked gap between the old under-storey and the regenerated growth. Some areas show distinctly the layer of six year old vegetation, and others, where the cattle grazed heavily, show a remarkably vigorous three year growth. In parts the new growth is so considerable that it is difficult to traverse.

The forest is generally an open one of pohutukawa (*Meterosideros excelsa*) 30 to 40 feet high, but it includes many old trees of giant girth. Puriri (*Vitex lucens*) is scattered throughout, and many of these are also of great age and girth. Tawapou (*Planchonella novo-zelandica*) is mostly restricted to a few areas. There are many large kohekohe (*Dysoxylum spectabile*), and a few large karaka (*Corynocarpus laevigatus*). Two species of maire (*Olea cunninghamii* and *O. apetala*) are scattered throughout, the former being the more common. Odd rewarewa (*Knightia excelsa*) and tawa (*Bielschmiedia tawa*), and one lone specimen of mangeao (*Litsea calicaris*) were noted.

In the under-storey, kohekohe is most abundant, with mahoe (*Melicytus ramiflorus*) and puriri next in order of abundance. Whau (*Entelea arborescens*), kohuhu (*Pittosporum tenuifolium*), kawakawa (*Macropiper excelsum*), houpara (*Pseudopanax lessoni*), are scrattered throughout, also nikau palms (*Rhopalostylis sapida*), which in one valley form a very extensive grove. Rangiora (*Brachyglottis repanda*) is much in evidence. Parapara (*Hiemerliodendron brunonianum*) is confined to the main gully, but seedlings are sparsely appearing in other parts. Tree ferns of at least three species are common.

In the regenerated growth, kawakawa is generally predominant, with kohekohe next in abundance; but in some areas houpara is predominant, and in others hangehange (*Geniostoma ligustrifolium*).

Rangiora is everywhere in great abundance, as is raurekau (*Coprosma australis*), mahoe, and puriri. Other very common species are kohuhu, nikau, mapou (*Myrsine australis*) and karaka. Less abundant are wharangi (*Melicope ternata*), *Coprosma macrocarpa,* whau, fivefinger (*Pseudopanax arboreum*), rewarewa, and a trifoliate form of *Pseudopanax*. Porokaiwhiri (*Hedycarya arborea*), maire 2 spp., tawapou, and parapara are widespread but not common; and kowhai (*Sophora tetraptera*) and tawa are rare. Broom (*Carmichaelia* sp.) is flourishing in all situations, some specimens still showing signs of the severe predation by goats of six years ago. *Rhabdothamnus solandri* is common in some places, particularly along the bed of the one permanent stream on the island.

Climbing plants are limited to two species, *Clematis paniculata* and kaiwhiria (*Parsonsia heterophylla*), which are everywhere abundant. There is a complete absence of any of the climbing ratas (*Meterosideros* spp.), and no supplejack (*Rhipogonum scandens*) or lawyer (*Rubus* spp.). Epiphytes are scarce, only a few largish clumps of *Collospermum* being noted.

In old Maori clearings and other open areas, bracken fern (*Pteridium aquilinum*), a tall species of *Gahnia, Dianella intermedia,* and introduced grasses form the ground cover, with emergent vegetation such as kawakawa, mahoe, rangiora, houpara, and koromiko (*Hebe* sp.) slowly taking over. Several stands of vigorous young manuka (*Leptospermum scoparium*) are to be seen, and in some open areas *Muehlenbeckia complexa* has spread through the ground cover. Flax (*Phormium tenax*) is sparsely scattered over open areas and under the canopy, but has nowhere formed into clumps; it is, however, tending to do so on some seaward slopes.

In the coastal vegetation, there is the usual association, with taupata (*Coprosma repens*), ngaio (*Myoporum laetum*), karo (*Pittosporum crassifolium*), and some toitoi in evidence. Native spinach covers much of the ground. *Cassinia retorta* is showing a robust regeneration on bare seaward slopes.

THE BIRDS OF CUVIER

Bird life, except for Bellbirds and Fantails, is generally sparse throughout the forested area of about 200 acres but with the rapidly reverting habitat, changes may be expected to occur. Only one petrel, the Grey-faced, breeds on Cuvier.

NORTHERN BLUE PENGUIN (*Eudyptula minor*). A few come ashore in the coastal bays.

GREY-FACED PETREL (*Pterodroma macroptera*) nest in moderate numbers round the coastline, and particularly on headlands at North, East and South Points, on the lighthouse promontory, on the steep faces on the landward side of the isthmus, and on the ridge leading down to North-West Bay.

MOTTLED PETREL (*P. inexpectata*). There is no evidence today of *P. inexpectata* breeding on the island, nor has Merton seen any evidence on visits during the breeding season of the species. It was reported by Falla (1), who found freshly cleaned out burrows under the roots of pohutukawas on 7/10/33. He also quotes a report by the late R. S. Sutherland dated 1923 that there were odd burrows of *P. inexpectata* scattered over the island.

PIED SHAG (*Phalocrocorax varius*). A colony of 6 pairs nests on the eastern coastline.

HARRIER (*Circus approximans*). Three seen regularly.

N.Z. FALCON (*Falco novaeseelandiae*). One seen on two days, and also noted by Merton in July, 1961, and by R. T. Adams in 1960.

RED-BILLED GULL (*Larus novaehollandiae scopulinus*) nests in many hundreds on the rock ledges of the 'monument,' a big stack by the lighthouse isthmus, and on nearby cliffs. Skegg (*unpub.*) estimated 400 to 500 pairs in 1963.

WHITE-FRONTED TERN (*Sterna striata*). The lighthouse staff reported that this species had nested on the monument and nearby, but numbers unknown. Skegg estimated 5 to 10 pairs in 1963.

N.Z. PIGEON (*Hemiphaga novaeseelandiae*). A walk along either of the two main ridges usually produced two or three, and the total number we estimated at 12. The population appears static, small numbers having been recorded by Merton on both summer and winter visits. Falla (*upub.*) recorded "a few" in 1933.

NORTH ISLAND KAKA (*Nestor meridionalis septentrionalis*). An occasional bird seen, and numbers are probably limited to two pairs. Two were observed by Merton in February, 1961, but there is no earlier record.

RED-CROWNED PARAKEET (*Cyanoramphus novaeseelandiae*). Not seen in June 1966, nor are there any recorded earlier sightings; but various lighthouse-keepers have reported seeing them occasionally.

SHINING CUCKOO (*Chalcites lucidus*). Merton and party heard several in February 1964, and it was recorded by Falla in October 1933.

LONG-TAILED CUCKOO (*Eudynamis taitensis*). Merton reported them as numerous and calling in Feb. 1961, and again in Feb. 1964 he heard one, and saw a juvenile.

MOREPORK (*Ninox novaeseelandiae*). The only record is by Merton in June, 1963.

KINGFISHER (*Halcyon sancta vagans*). Common in coastal bays and seen in bush clearings.

SKYLARK (*Alauda arvensis*). Very common in the open pasture.

NORTH ISLAND FANTAIL (*Rhipidura fuliginosa placabilis*). Common, particularly in the small bush clearings. Six regularly around the old radar barracks near the summit, and 8 counted in one small clearing. The species was more in evidence than during previous visits by Merton. An interesting feeding association with Silvereyes was noted on occasions, the Fantail keeping a few inches below a feeding Silvereye, and catching the flying insects disturbed by it.

PIED TIT (*Petroica macrocephala toitoi*). None was observed on this visit, nor on any previous visit by Merton. It was recorded by Falla on 6/10/33, but no numbers were stated.

GREY WARBLER (*Gerygone igata*). Generally distributed, but not common.

SONG THRUSH (*Turdus ericetorum*). Not common. A few on the open pasture, and occasionally in the bush.

BLACKBIRD (*Turdus merula*). Very common, on the pasture and elsewhere.

DUNNOCK (*Prunella modularis*). Observed in small numbers throughout the forested area.

PIPIT (*Anthus novacseelandiae*). Uncommon, but seen or heard occasionally on the coast and in the open pasture.

BELLBIRD (*Anthornis melanura*). The predominant species. Density appeared to be at least three per acre, giving a total population of c600. Song was heard frequently from isolated trees by the keepers' dwellings, and from low vegetation on "the monument."

TUI (*Prosthemadera novaeseelandiae*). Not seen on this visit, nor in recent years, although reported by the lighthouse staff as seen occasionally. It was recorded by Falla in 1933.

SILVEREYE (*Zosterops lateralis*). Common, in small flocks. In July, 1961, Merton found flocks of 1000+ a common sight. "They left as suddenly as they had arrived."

GOLDFINCH (*Carduelis carduelis*). The only sighting was a flock of 8 in a bush clearing. Previously recorded by Merton on the open pasture.

REDPOLL (*Carduelis flammea cabaret*), CHAFFINCH (*Fringilla coelebs*), and YELLOWHAMMER (*Emberiza citrinella*). All common on the open pasture land.

HOUSE SPARROW (*Passer domesticus*). 100+ live near the keepers' dwellings.

STARLING (*Sturnus vulgaris*). Flocks numbering up to 50 in the open pasture.

INDIAN MYNA (*Acridotheres tristis*). Three birds were recorded present and breeding in Jan. 1964, but have disappeared.

HISTORICAL

Eradication of Goats. The first step towards extermination of these extremely destructive animals was taken by B. D. Bell, R. T. Adams and N. Ewing in August, 1959, when about 160 were shot. A Wildlife party went again in June and July, 1960, and destroyed a further 333. It was then thought that eradication was complete; but in Feb., 1961, D. V. Merton found fresh sign on the lower edge of the nikau grove, a favoured camping spot, and later saw three goats. In the following July, Merton and I. Hogarth destroyed these, together with three kids, and extermination was complete.

Exclusion of Live Stock. In the winter of 1963 Merton and G. Anderson constructed a stout 9-wire fence to enclose the lighthouse-keepers' live stock, and about 70 acres of pasture land. Cattle surplus to requirements and found within the reserved area were destroyed, and no live stock have since been able to enter the reserve.

Extermination of Cats. This has proved a long and difficult task. An unsuccessful attempt at biological control of the wild cat population was made by Merton and party in Feb., 1961. They found cat sign in the form of droppings and scratch marks on trees widely distributed over the island. Kiore (*Rattus exulans*) were particularly abundant, and it was found that because of this source of food, the cats were not interested in trap baits. One cat only was taken. A further visit in the following July was more successful, despite kiore being just as plentiful as before. Of 13 cats trapped or shot, Merton records that three had malignant facial growths. During the building of the fence

in June, 1963, no cats were seen; but there were some signs in the form of droppings, and partly eaten carcases of kiore and birds. The lighthouse-keepers reported wild cats being seen occasionally. A further determined effort at eradication was made by Merton and party in Feb., 1964, but extremely humid conditions rendered the trap baits ineffective, and 50 per cent of traps were sprung by kiore within hours of setting. Sign was abundant on all headlands, and on some of the ridges and saddles; but under the very difficult conditions, only one cat was trapped.

A detailed programme for final extermination was arranged by Merton for June, 1966, to include biological control, and the hunting of any survivors with fox terriers. However, a thorough search over many days failed to reveal any of the usual tell-tale signs of the presence of cats; and a month of intensive trapping along the main ridges down to the shore line, with the various types of bait renewed daily, was without result. No wild cats had been seen by the lighthouse-keepers. It became increasingly apparent to us that there were none now surviving, and the likely causes of their extermination were discussed. The two cats reported by the keepers in Feb., 1964, had later been shot by them, and these had survived in *open* country. These, in addition to the cat taken in Feb., 1964, may have been the last survivors, for three cats can leave much sign. The tremendous regeneration of undergrowth, making it difficult in places to push one's way through, may have restricted movement for the cats, and hindered the taking of their prey, kiore and birds. The disease noted in July, 1961, may have wiped out the remnant population. In any case, there was no evidence of survivors. To make quite certain that extermination is complete, a thorough search with fox terriers is now in prospect.

DISCUSSION

The habitat now provided by Cuvier Island would appear to be ideally suited for the reintroduction of Saddleback (*Philesturnus carunculatus rufusater*), a species which Oliver (2) states was present in 1878, before the introduction of cats. Insect life abounds in the ground litter, under bark, in the nikau palms, and elsewhere, and this source of food is virtually unexploited. The vegetation is sufficiently varied to provide a succession of berries and fruits over part of the year, a food supply which will continue to improve as the new growth develops. With more knowledge of the food requirements of the Stitchbird (*Notiomystis cincta*) the habitat may also prove suitable to meet the needs of this species. There would appear to be no shortage of suitable nesting sites for either species. It is now a matter of the utmost importance that cats be rigidly excluded from the lighthouse station.

The impact of the kiore on bird life is not really known, although this rat is not generally considered to be directly inimical. The disappearance of the Pied Tit from Cuvier, and from Inner Chetwode Island, where kiore also abound, might be considered significant; but the species survives in small numbers on Hen Island, which has a high population of kiore. The indirect effects of large numbers of kiore may be quite important. There is obviously some competition with certain species for food in the way of ripe seeds, and insects in

the ground litter. In Feb., 1964, Campbell (3) erected an exclosure to ascertain the effects of the kiore on regeneration of the vegetation, and his findings will be awaited with interest.

Mention has been made of the old radar barracks. The opportunity was taken in June, 1966, to reglaze the windows, all of which had been destroyed by vandals, and to do other essential repairs, so that the building will now provide a base for parties for many years to come.

REFERENCES

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SOME OBSERVATIONS ON BLACK STILTS

By M. F. SOPER

A total of six Black Stilt nests is no number to be drawing conclusions from; even tentative ones. On the other hand, when the total population of Black Stilts (*Himantopus novaezealandiae*) is down to about fifty birds as the recent Wildlife Survey indicates, every scrap of information becomes of value.

I found my first nest in a wet field four miles from Omarama on 10/11/58. This nest, containing four eggs, is of interest in that it is the only one I have seen incorporated as part of a colony of other nesting Stilts. It is also the only occasion I have seen Black Stilts elsewhere than on a river-bed. There were six Black Stilts, an unusually large number to see together — all pure — in company with twenty Pieds. Six nests were found: five Pied and the one Black. The other Black Stilts did not, I am sure, have either eggs or chicks, and were not attached as mates to any of the Pieds.

My next breeding birds were observed on 29/10/60 when two pairs were found; and again both pairs were pure Black and both had chicks estimated to be four or five days old. Both were on the Ahuriri river-bed.

The remaining nests were all found in the one area (Ahuriri river-bed) within a short time of one another.

On 12/10/65 a pair of pure Blacks was found with three recently hatched chicks; the (presumed) nest was situated in a precarious position on a small tuft of grass at the apex of a small island and contained one addled egg.

On 16/10/65 the nest of a Black x near-Black — a bird with slight white mottling of the cheeks and head — was located in a precarious position on a small tuft of grass in the middle of a ripple in one of the many side divisions of the river. There were three eggs and on 18/10/65, four. Like the previous pair these birds were well separated from their nearest neighbours.

On 18/10/65 I found another three-egg pure Black x pure Black nest, in a good position in the centre of an island. On 22/10/65 one of the eggs was found broken — one of the birds had obviously trodden on it — and incubation was estimated to be half completed.