

FLORA AND FAUNA OF NEEDLE ROCK, EASTERN COROMANDEL

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SUMMARY

During a brief visit to Needle Rock in May 1989 forty-six vascular plants were recorded including *Nestegis apetala*, *Streblus banksii* and *Lepidium oleraceum*. Petrel burrows were common in all areas of suitable soil and two common geckos (*Hoplodactylus maculatus*) were found.

INTRODUCTION

Needle Rock (1.4ha; 77m asl) lies 1.6km off the east coast of the Coromandel Peninsula, near Opito Bay (Map Reference NZMS 260: T10 644923). The name derives from the large holes that have eroded through the centre of the island which bears some resemblance to the eye of a needle. Graeme Taylor, Tim Lovegrove, Lindsay Hatch and Kerry Brown spent 2 hours ashore on 22 May 1989 after landing from Neil Hopkins' boat *Maire* when returning from a trip to the Mercury Islands. We climbed the steep-sided north-east and north-west faces and explored most vegetated ledges on that half of the island. Access to ledges was often difficult and some densely burrowed areas required careful movements to avoid crushing the fragile burrows.

FLORA

We found 46 species of vascular plants on Needle Rock, of which 38 were native (83%). All eight adventive plants were herbs and are not considered problem weeds. Other than these few adventive species the island appears to be in a near pristine state. An annotated species list is presented below which includes all the vascular plant taxa seen.

Ferns

<i>Asplenium oblongifolium</i>	occasional
<i>A. haurakiense</i>	abundant
<i>Pyrrosia eleagnifolia</i>	common on rock outcrops

Dicotyledons

<i>Anagallis arvensis</i> *	rare, locally frequent in one patch
<i>Coprosma</i> ? <i>macrocarpa</i>	rare, south-east face
<i>C. repens</i>	abundant, dominant canopy cover
<i>Crassula sieberiana</i>	rare
<i>Dichondra repens</i>	locally common, occasional patches
<i>Disphyma australe</i>	abundant, dominant on lower slopes
<i>Einadia trigonos</i>	common throughout
<i>Hypochoeris radicata</i> *	occasional
<i>Lepidium oleraceum</i>	rare, four plants on north face
<i>Meliccytus novae-zelandiae</i>	shrubs, occasional to common
<i>Metrosideros excelsa</i>	rare on lower slopes, common on summit ridge
<i>Muehlenbeckia complexa</i>	occasional
<i>Myoporum laetum</i>	rare, several shrubs on northern face
<i>Nestegis apetala</i>	rare, several trees in fruit on eastern face
<i>Parietaria debilis</i>	rare
<i>Peperomia urvilleana</i>	occasional on rock outcrops
<i>Phytolacca oclandra</i> *	occasional, locally common
<i>Pimelea prostrata</i> agg.	rare, one patch on eastern cliff
<i>Pitiosporum crassifolium</i>	occasional shrubs, seedlings present
<i>Polycarpon tetraphyllum</i> *	frequent patches throughout
<i>Pseudopanax lessonii</i>	common, main forest species on mid-slopes
<i>Sarcocornia quinqueflora</i>	rare
<i>Senecio laevis</i>	occasional
<i>Solanum americanum</i>	occasional
<i>S. aviculare</i>	common
<i>S. nigrum</i> *	abundant under taupata scrub
<i>Sonchus oleraceus</i> *	occasional
<i>Spergularia media</i>	locally common, lower slopes
<i>Sireblus banksii</i>	occasional, at least 10 large shrubs or trees
<i>Wahlenbergia gracilis s.lat.</i>	rare, 2 plants

Monocotyledons

<i>Arthropodium cirratum</i>	occasional throughout
<i>Astelia banksii</i>	common on rock outcrops
<i>Bromus willdenowii</i> *	common on ice plant slopes
<i>Colospermum hastatum</i>	rare, 1 clump
<i>Dichelachne crinita</i>	occasional
? <i>Elymus</i> sp.	occasional plants on rock outcrops

<i>Isolepis cernua</i>	locally frequent, west face
<i>I. nodosa</i>	occasional, north face
<i>Lachnagrostis littoralis</i>	occasional throughout
<i>Phormium tenax</i>	rare, 1 plant
<i>Poa anceps</i>	rare, 1 patch
<i>Rytidosperma</i> sp.	occasional on rock outcrops
<i>Sporobolus africanus</i> *	locally common, two patches

* = adventive

The vegetation of the island was dominated by taupata (*Coprosma repens*) which grew to about 4m high in sheltered locations. Shrubby bushes of houpara (*Pseudopanax lessonii*) and coastal mahoe (*Meliccytus novae-zelandiae*) were quite common on most ledges and pohutukawa (*Metrosideros excelsa*) was common on the summit ridge.

The small stunted trees of coastal maire (*Nestegis apetala*) are near their southern limit on Needle Rock. Heginbotham (1986) found one plant of coastal maire on Mayor Island which is 72km south of Needle Rock; this appears to be the southernmost locality for the species.

FAUNA

Birds

Fluttering shearwater (*Puffinus gavia*)

This species probably nests on Needle Rock. Many medium-size burrows (typical of this species) were present on the upper slopes, especially amongst ice plant (*Disphyma australe*) but also under taupata. No birds were ashore nor did we find any skeletal remains. A large flock of fluttering shearwaters was seen flying past offshore.

Common diving petrel (*Pelecanoides urinatrix*)

Numerous small burrows of diving petrel size were present on all suitable slopes of soil. Many hundreds of birds appear to use the island.

Other burrowing petrels

Several larger burrows were present on the mid-slopes amongst ice plant and under open taupata in deep friable soil. These were of the size typically used by grey-faced petrels (*Pterodroma macroptera*), flesh-footed shearwaters (*Puffinus carneipes*) or sooty shearwaters (*P. griseus*). One large white egg shell, typical of any of these three species was found on the north-east slope. All burrows

looked recently cleaned out suggesting they were probably being used by the winter nesting grey-faced petrel. No other sign was found of these species.

Blue penguin (*Endypitula minor*)

Heard calling at sea off the island. No sign was found of birds ashore. The steep access to vegetated ledges may prevent this species from breeding on the island.

Black-backed gull (*Larus dominicanus*)

Present in flight over the island.

Silvereye (*Zosterops lateralis*)

Flock of 20-30 birds were present. These alighted on the coastal maire trees and inspected fruit.

Blackbird (*Turdus merula*)

One male bird was seen.

Reptiles

Two common geckos (*Hoplodactylus maculatus*) were found on the north-east face. Gecko sloughs were numerous on the island. No other species of lizards was encountered.

Invertebrates

Small black Tenebrionidae beetles (*Minopous* sp.) were common on the island.

Rodents

No evidence was found that rodents occur on Needle Rock. No droppings were found and the dense colony of small petrels, presence of geckos, Tenebrionidae beetles, and abundance of fruit on the coastal maire trees and the ground underneath them is good evidence that rodents are absent.

DISCUSSION

The steepness of the terrain, the lack of flat ledges and the difficult access to most ledges has probably deterred most casual human visitors from landing on the island. Only rarely are the seas calm enough around the island to enable people to get ashore easily. Only two previous visits have been documented. On 25 November 1962, C.A. Dickie and P.D.G. Skegg spent a brief time ashore and

found diving petrel burrows "in concentrations wherever there was sufficient soil" (Skegg 1963). Skegg reported that the island was steep, crumbly with much eroded rock and vegetation grew only on small ledges. A.H. Whittaker spent just under an hour ashore on 27 November 1972 (Taylor *et al.* 1990). He found some slopes covered in ice plant and grass, and other slopes covered in forest of karo (*Pitiosporum crassifolium*), taupata, houpara and coastal mahoe. He also noted eight *H. pacificus* but at that time *H. maculatus* was not recognised as a distinct taxon (Taylor *et al.* 1990).

The appearance and vegetation of Needle Rock appears to have changed little in recent years. Many coastal maire and large-leaved milk tree shrubs were obviously old specimens with thick gnarled trunks but were stunted because of the lack of suitable substrate. Erosion of slopes is probably the main modifying agent on this small island. The lack of flat ground and difficult access makes it seem quite unlikely that the island would have been used much by Maori and the vegetation may have escaped being burnt by humans.

Nearby Old Man Rock was also considered by Atkinson (1962) to have escaped burning by Maori. He found 40 vascular plant species on that island, 28 (70%) of which also occur on Needle Rock. Some of the Old Man Rock species absent from Needle Rock were small herbs which may have been present on ledges not explored during our visit. Two tree species were found on Old Man Rock but were apparently absent from Needle Rock. Wharangi (*Melicope ternata*) was found only in the summit vegetation on Old Man Rock. Since we were unable to reach the summit of Needle Rock, it may have been missed during our visit. Small numbers of tawapou (*Pouteria costata*) were found on steep slopes on Old Man Rock and thus might have been expected to occur on Needle Rock.

Conservation values recorded on our visit to Needle Rock include a large colony of small burrowing petrels, especially diving petrels; one of the southernmost locations of coastal maire; and new localities for two threatened species, the endangered Cook's scurvy grass (*Lepidium oleraceum*), and large-leaved milk tree (*Sprehus banksii*) which is ranked Local by Cameron *et al.* (1995). Further surveys are warranted to search for other lizard species, especially *Cycladina oliveri* which occurs on nearby Old Man Rock (Taylor *et al.* 1990).

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