VASCULAR PLANTS, VEGETATION AND WILDLIFE OF
MATAPIA ISLAND, FAR NORTH, NEW ZEALAND

by Lisa J. Forester and Peter J. Anderson
Department of Conservation, P O Box 842, Whangarei
Approved for publication by the Chairman, Te Aupouri Trust Board

LEGEND

Matapia Island is freehold Maori land, surveyed on 19 October 1971 (Maori Land Court 14858) to be 1.3152 hectares. It has one owner, Tohe, Tupuna of Te Aupouri and the land is vested in the Aupouri Trust Board to hold for the people (Kt 7/103).

Legend has it that Tohe, accompanied by Ariki left Kapo Wairua (Spirts Bay) for Maunganui to seek out his daughter Raninikura. It was he who named Matapia to describe:

“That island that shines
As if it is obsidian”.

(Te Aniwaniwa Hona pers. comm.)

Permission for access, future articles and treaties must be obtained from the Te Aupouri Maori Trust Board.

SUMMARY

Matapia is a 1.3 ha island located off the west coast of the Aupouri Peninsula. Two visits were made, in 1986 and 1993. Vascular plant species were recorded and vegetation zones described. Wildlife recorded were seabirds, marine mammals, terrestrial molluscs and lizards including unusual species.

INTRODUCTION

Matapia Island (Lat. 34°36’S, Long. 172°48’E) covers less than 2ha in total and lies 1.5km off Ninety Mile Beach on the west coast of the Aupouri Peninsula, Northland (Fig. 1). Broad shore platforms on the north-eastern and south-western ends occupy around half of the island’s size. The highest point is 53m, and the outline is a rounded pudding-shape with steep cliffs to the west and south (Fig. 2). A feature is a conspicuous 20m wide tunnel which passes right through the centre of Matapia Island and can be seen from Ninety Mile Beach.

Windswept conditions are characteristic of the west coast, Aupouri Area. A
mean annual rainfall of 1083mm is recorded at Cape Reinga, the nearest meteorological station. The annual mean air temperature close to sea level at Kaitaia is 15.9°C (Moir et al., 1986).

Matapia Island is unusual in its geology. Although previously mapped as Tangihua Volcanics, it consists of pebbly sandstone and sandstone (Matapia Formation) derived largely from keratophyre, spilite and clastic sediments of the Houhora Volcanic Group and other volcanic units. Similar rocks to these are not found onshore (Brook & Isaac 1987).

There are no recorded archaeological sites on Matapia Island although there is midden material comprising tuatua (Paphies subtriangulata) shells (Vic Hensley pers. comm.). Middens on nearby Ninety Mile Beach contain fur seal (Arctocephalus fosteri) bone possibly from seals taken from Matapia by the Maori. (Adrienne Slocombe pers. comm.) Fur seals use the island as a haulout site. The abundant fishlife and shellfish around the Island was probably also exploited during calm conditions.

This paper is based on two visits to the island. The first visit was by one of the authors, (Peter Anderson NZ Wildlife Service) in January 1986 to undertake a survey of the wildlife in conjunction with a geological survey by the DSIR.
Geological Survey Unit. Hec Crane, Department of Lands and Survey Ranger, Te Paki, was also present. About three hours were spent on the Island. The second was a visit by the authors and one other Department of Conservation staff member, Mike Aviss, in May 1993. Also present was one of the Maori Trustees, George Witana. Three hours were spent on the island surveying the wildlife, flora and vegetation. Transport for both visits was by helicopter.

RESULTS AND DISCUSSION

VASCULAR FLORA OF MATAPIA ISLAND

Species List


Key to Symbols
* = adventive
a = abundant
c = common
r = rare
l = local
o = occasional

**SPECIES**

**Ferns**

<table>
<thead>
<tr>
<th>Species</th>
<th>Vouchers</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Asplenium oblongifolium</em></td>
<td>r l AK 212212</td>
</tr>
</tbody>
</table>

**Dicotyledons**

<table>
<thead>
<tr>
<th>Species</th>
<th>Vouchers</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Chenopodium album</em></td>
<td>o</td>
</tr>
<tr>
<td><em>Coprosma repens</em></td>
<td>c l</td>
</tr>
<tr>
<td><em>Dichondra repens</em></td>
<td>o l AK 212207</td>
</tr>
<tr>
<td><em>Dysphyma australe</em></td>
<td>c l AK 212205</td>
</tr>
<tr>
<td><em>Lepidium oleraceum</em></td>
<td>c l AK 212201</td>
</tr>
<tr>
<td><em>Muehlenbeckia complexa</em></td>
<td>o l</td>
</tr>
<tr>
<td><em>Parietaria debilis</em></td>
<td>o AK 212208</td>
</tr>
<tr>
<td><em>Phytolacca octandra</em></td>
<td>r AK 212206</td>
</tr>
<tr>
<td><em>Sarcocornia quinqueflora</em></td>
<td>c l AK 212203</td>
</tr>
<tr>
<td><em>Sarcocornia quinqueflora</em></td>
<td>o l</td>
</tr>
<tr>
<td><em>Solanum americanum</em></td>
<td>r AK 212210</td>
</tr>
<tr>
<td><em>Sonchus oleraceus</em></td>
<td>o AK 212195</td>
</tr>
</tbody>
</table>

**Monocotyledons**

<table>
<thead>
<tr>
<th>Species</th>
<th>Vouchers</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Cyperus ustulatus</em></td>
<td>a AK 212204</td>
</tr>
<tr>
<td><em>Isolepis cernua</em></td>
<td>o AK 212209</td>
</tr>
<tr>
<td><em>I. nodosa</em></td>
<td>c l AK 212211</td>
</tr>
<tr>
<td><em>Echinopogon ovatus</em></td>
<td>r AK 212202</td>
</tr>
<tr>
<td><em>Paspalum dilatatum</em></td>
<td>r AK 212202</td>
</tr>
</tbody>
</table>

**VEGETATION**

The dominant plant on Matapia Island is umbrella sedge (*Cyperus ustulatus*). In the centre of the island it forms a dense sward thinning out to low mixed vegetation on the coastal banks.

The top of the island is rounded and windswept with a thin layer of bird-burrowed soil. Umbrella sedge is dominant with occasional taupata (*Coprosma repens*) and *Parietaria debilis* seedlings underneath. Towards the steep edges of the slope, umbrella sedge thins out to a low herbfield dominated by ice plant
(Disphyma australe), and knobby club-rush (Isolepis nodosa) with fathen (Chenopodium album) forms a patchy band above the coastal banks. Low vegetation comprising glasswort (Sarcocornia quinquesflora ssp. quinquesflora) and Mercury Bay weed (Dichondia repens) extends down the banks into the splash zone (Fig. 3).

Cook’s scurvy grass or nau (Lepidium oleraceum) is a coastal herb in the cabbage family (Brassicaceae). It is listed as “Endangered” using the IUCN Red Data Book categories of threat in the New Zealand Botanical Society Threatened and Local Plant Lists (1995 Revision) (Cameron et al. 1995). It was abundant during the eighteenth and nineteenth centuries (1760s to 1830s), but is now largely restricted to offshore islands. Its decline is thought to be related to insect predation, Albugo fungus, introduced herbivore, browsing and over-collecting. A decline in coastal seabirds and seals through culling is also thought to be a major factor in Lepidium decline (Norton et al. in press.).

On Matapia Island, Cook’s scurvy grass grows in a single dense colony (Fig. 4) covering an area 20 x 14m on a coastal bank on the south-eastern side of the island. More than 50 rounded plants to 30cm tall of Cook’s scurvy plants were counted over an area of 10 x 10m. These were healthy adults, in light flower and bearing abundant young and mature fruit. Also present were numerous juvenile plants and seedlings. Associated species include frequent ice plant and occasional patches of Mercury Bay weed, knobby club-rush, taupata, Chenopodium album and a few stunted umbrella sedge.

The Cook’s scurvy grass colony on Matapia Island is interesting because re-planting was done about 12 years ago. Vic Hensley of Pukenui noted that there was only one unhealthy adult plant left on the island and he collected seed and cuttings. This material produced three cutting grown plants and 35 seedlings which he subsequently planted back onto the island near the old adult. Around 15 plants survived and presumably formed the basis of today’s thriving colony (Vic Hensley pers. comm.).

Also interesting is that Hensley reports that 15-20 years ago umbrella sedge was limited to a few small clumps below the high point on the south-eastern side of the island, from which it spread rapidly to cover the majority of the island. Hensley has some concerns that its continued spread will eventually threaten the Cook’s scurvy grass colony. However, he does not know if the island is recovering from a recent massive disturbance or if the vegetation has been stable for a long time with umbrella sedge a recent colonist.

Another interesting feature is the lack of flax (Phormium tenax) which is present on the nearby coast and is a dominant component of the vegetation on Motuapao Island (Forester, 1993) 20km to the north.
Matapia and Motuapao are the only islands separated from the west coast of mainland Northland. The other small islands that are present are either linked to the mainland at low tide e.g. Taupiri, or occur wholly within the Kaipara
Harbour e.g. Moturemu. It is for this reason that both these islands are very important biological refuges for a number of endemic relict faunal species which were once widespread in New Zealand. These include lizards, seabirds and seals, many of which are confined wholly or partly to offshore islands.

Until 1990 Motuapao supported a population of kiore (McKenzie 1993), but Matapia appears to have always been free of rodents as is evident by at least one species, the robust skink (*Cyclodina alani*) which no longer occurs wherever rodents are found (Towns 1990).

Three main habitat types for wildlife were noted on the island.

1. The perimeter of the island from near mean spring tide to the uppermost splash-line consisting of a bare, solid rocky platform, which rises sharply to form a precipitous rock base with cavities and some sparse vegetation.

2. Immediately above the rocky platform and faces, a steep habitat, containing some broken or loose rock, cavities, and where shallow sandy soils are found, some herbaceous plants e.g. ice plant and occasional taupata shrubs.

3. Island summit, more gently sloping and containing deeper sandy soils, and a dense sward of umbrella sedge.
FAUNA

Lizards

Five species of lizards (two geckos and three skinks) were encountered during the two surveys. Two of these, the robust skink (*Cyclodina alani*) and the locally endemic Matapia Island gecko (*Hoplodactylus* "Matapia Island") are listed as category B (Molloy & Davis 1994), second priority species requiring conservation action.

The other lizards identified were the shore skink (*Leiolopisma smithi*), ornate skink (*Cyclodina ornata*) and Pacific gecko (*Hoplodactylus pacificus*).

1. Robust skink - A single robust skink was found on the first trip, while a further two were located on the 1993 visit. Large rodent-sized lizard droppings were found outside old petrel burrows and elsewhere and this evidence suggested the presence of a large reptile. The first robust skink was found in an old petrel burrow, with the other two being found under a large stone. Both skinks were adults and in good health. Darkling beetles (*Mimopeus* sp.) were found in abundance on the island, and also made up most of the remains in robust skinks droppings (G. Gibbs pers. comm.).

The finding of robust skinks on Matapia Island brings the total number of islands occupied by this species to just six. The other islands are Moturoa (Rangaunu Bay), Middle and Green Islands (Mercury group), Castle Island with the other recent discovery on Groper Rock (Mokohinaus) (D. Towns pers. comm.)

2. Ornate skink - Only one ornate skink was positively identified (R. Hitchmough, unpublished 1993) although a very small juvenile *Cyclodina* (not identified) may have also been an ornate skink. The ornate skink, an adult, was found during the May 1993 trip near the summit of the island.

3. Shore Skink - The shore skink was the second most abundant lizard encountered during the January 1986 survey. During the survey in May 1993, however, this species was surprisingly hard to find, probably because of the cooler temperatures and time of year. Shore skinks were found throughout the island, from near the splash line to the highest point.

4. Pacific gecko - This was the most commonly encountered lizard on the island with about 40 individuals being observed during the two trips. Pacific geckos were found under loose stones or rubble from near the shoreline platform and throughout the more open sites of the island. The Pacific geckos generally
resembled Northland mainland animals in both size and colour. During the January 1986 survey all adults encountered had regenerated or regenerating tails. Many of the females were gravid and because of their short regenerating tails their bodies were quite short and rotund in shape, something quite uncharacteristic which has not been observed in other populations. A general lack of large stones and loose rocks on the island, together with the abundance of this species may have lead to fighting over suitable habitat, hence the reason for the regenerating tails. Predation from *C. alani* could be another reason.

5. Matapia gecko - A total of five Matapia geckos were observed on both trips. They bear a striking resemblance to the gold-strip gecko (*H. chrysosireticus*) and were initially thought to be of that species. However, initial assessment by Dr Rod Hitchmough (pers. comm.) suggests this species to be a type of *H. pacificus* which has become separated by a genetic distance, but which may be too low to be regarded as proof of a separate species status in geographically separated populations. More information will be gained on this species once electrophoretic studies have been completed.

The five Matapia gecko were located (and three captured) in the dense swards of umbrella sedge. The animals were arboreal and located between the leaf-blades of the plants or within the dense leaf litter within or near the base of the plants. A number of sloughed skins were also found around the umbrella sedge thickets. All animals once located were agile with one actually leaping, frog-like, from one leaf-blade to another. The geckos were all shades of a light gold-brown in colour with two darker brown dorsal stripes. Despite searching, no Matapia geckoes were found outside the umbrella sedge, thus their distribution did not appear to overlap that of Pacific geckos.

**Birds**

Because the island is small, steep and rocky, it provides only very limited areas of a shallow sandy soil suitable for breeding seabirds. Wherever these shallow soils existed, however, seabird burrows were found.

Black-winged petrels (*Pterodroma niripennis*) were the only seabirds found nesting on the island. Two burrows situated under umbrella sedges and ice plants that were inspected in January 1986 had single adult birds in them, with one bird sitting on a single egg. Other burrows may have contained black-winged or other petrel species, but because the burrows were so fragile, no attempts were made to physically extract birds unless they could be sighted at the entrance. None were observed on the island during the May 1993 trip. The nearest colony of black-winged petrels is on Motuopao Island where the species numbers 800-1000 pairs (Pierce & Parrish 1993).
Very small burrows encountered during both visits suggested the presence of diving petrels (*Pelecanoides urinatrix*), or white-faced or storm petrels (*Pelagodroma marina*). Larger burrows, one containing occasional old eggs or egg shell fragments at their entrances suggested a larger petrel or shearwater also breeds on the island. None of the larger burrows appeared to be occupied during the two visits.

There was no evidence of any gulls or terns nesting on the island, but large numbers of seabirds were seen offshore. These included southern black-backed gull (*Larus dominicanus*), red-billed gull (*L. novaehollandiae*), white-fronted tern (*Sterna striata* - absent during the May 1993 visit), Australasian gannet (*Morus serrator* - one dead bird on island), Buller's shearwater (*Puffinus bulleri* - 100+), and fluttering shearwater (*Puffinus gavia*).

Passerines seen comprised just three species during both visits. During the January 1986 visit a group of seven mynas (*Acridotheres tristis*) were observed, while on the May 1993 visit one female yellowhammer (*Emberica citrinella*) and a flock of 102 starlings (*Sturnis vulgaris*) arrived at 1545 hours, presumably to roost on the island. The very limited habitat types i.e. absence of tall woody vegetation, does not make the island attractive to passerine species, although species such as NZ pipit, welcome swallow and harrier hawk would be infrequent visitors (present on Motuapao Island and on the adjoining mainland).

**Invertebrates**

A small bag of leaf litter removed from the island was examined for minute land snails by Richard Parrish. Two species were found (*Chamellidea novoseelandica* and Punctid n. sp. 38). Both snails are hardy coastal species which are widespread in Northland. (R. Parrish pers. comm.)

**Marine Mammals**

One fur seal (*Arctocephalus forsteri*) was observed during the January 1986 visit, while 22 were present during the May 1993 visit.

Matapia Island is the main haulout site for fur seals in Northland. The fairly wide rocky platform that surrounds most of the island, together with some large cavities just above the tidal limit offers good haulout space for fur seals. Fur seals traditionally move along Northland's west coast from June to October. In 1990, up to 250-500 fur seals were reported on the island (Richard Parrish pers. comm.).

**THREATS TO HABITATS AND SPECIES**

The island is ecologically very fragile. The shallow, sandy soil quickly
breaks down when walked on or disturbed and, where there is a lack of vegetation, the soil is soon eroded by strong prevailing winds or heavy rainfall. The steepest parts of the island are exposed and contain bare rock, with various cavities and tiny pockets of soil which may contain a few plants.

The umbrella sedge forest appears to be the total habitat for the Matapia gecko, and this area occupies less than half of the island’s total size.

The island does not contain any formal protection status. Threats to the island could include trampling by people, fire, accidental release of rodents or invasion by environmental weeds. Should any of the above threats reach the island then it could cause the local extinction of at least two New Zealand endemic threatened wildlife species, one of which is endemic to the island (Matapia gecko) as well as other species, and accelerate the physical deterioration of the island’s fragile ecology. The best security for the island at this time is its geographic location, difficulty of access, naturalness of the adjacent coastline and scrutiny of visits by its Te Aupouri owners.

ACKNOWLEDGEMENTS

Thanks to the Te Aupouri Trust Board for allowing us to visit the island and to George Witana for accompanying us on the 1993 trip. Thanks go to Terry Conaghan for draughting the map. Ray Pierce, Ewen Cameron, Vic Hensley, Fred Brook, Richard Parrish and Te Aniwaniwa Hona provided information or reviewed the manuscript. Barbara Lyford typed the manuscript.

REFERENCES

Hitchmough, R. 1993: Internal letter, Department of Conservation file FAU 413.


Footnote: On 21 July 1995 Department of Conservation staff flew over Matapia Island by helicopter. Fur seals were present in numbers too large to count. A rough estimate suggested over 1,000. A count on a series of photographs of the whole island revealed 514 (Richard Parrish pers. comm.). The fur seals had done a great deal of damage to the vegetation, particularly around the Cooks scurvey grass colony. The colony appears to have been totally decimated. Not one live plant was seen.