

**M. lupulina*
 **M. nigra*
 **Melilotus indicus*
 **Modiola caroliniana*
 **Orobanche minor*
 **Oxalis corniculata*
O. exilis
O. rubens (+)
 **Phytolacca octandra*
 **Physalis peruviana*
 **Plantago lanceolata*
 **Rumex conglomeratus*
 **Scabiosa atropurpurea* AK 226834
Solanum americanum
 **S. nigrum*
 **S. physaloides*
 **Veronica arvensis*
V. plebeia (+) AK 224960
 **Vicia sativa*
 **V. tetrasperma*
Wahlenbergia "violacea" (+)

Total Taxa:	178
Indigenous Taxa:	93
Adventive Taxa	85

Auckland Botanical Society Field Visit to Motu Hawere (Goat Island), Rodney District, Auckland 16th March 1996

Steve Benham

Without doubt the life of a botanist is unique in so much as combining the meticulous attention to detail in the herbarium and on the other end of the scale leading like-minded enthusiasts on full blown adventures.

One such adventure ably led by Ewen Cameron and followed by a score and five relentless members and friends took us to Motu Hawere, a bush-covered islet of 9 hectares and approximately 500 m offshore from the East Coast of Rodney District between Cape Rodney and Okakari Point (Ecological Region: Auckland. Ecological District: Rodney 09.01). The day was one of boisterous rain squalls, spin drift and surf, conditions more familiar to the west coast than to the normally balmy east coast! However, undaunted by the vagaries of an early autumn morning the 'master mariner' Doug Rogan ferried the rather apprehensive group across to the south facing leeward rocky shores of Motu Hawere. With the surf soaked group safely landed on shore the boat was hastily hauled out of the sea and secured on a rocky ledge out of reach from the incoming tide.

The islet has the advantage in that it lies within a marine reserve, an area of 526 hectares and designated as such in October 1975. New Zealand's first marine reserve.

The main objective of the day was to update the species list compiled by Ewen Cameron and based on a list by Esler, Parris and Rawlings (c.1971), a visit by EKC 22nd June 1973 and voucher specimens in AK & AKU herbaria.

The vegetation gradation on the islet was most apparent as we traversed south to north, indicating how topography, geology and shelter can influence the species diversity found in these defined plant communities.

Soon after landing a rain squall sent us scurrying up the slope, grasping onto karo (*Pittosporum crassifolium*) that occurs as the understorey to the pohutukawa canopy. The abundance of karo in fruit and the regeneration of this and numerous other taxa indicated the once high rodent population was under control. Successful nesting colonies of the grey-faced petrels (*Pterodroma macroptera gouldi*) was again indicative that the Norway rat had been eradicated. A capsule specimen of karo with the typical subglobose and tomentose characters was collected by herbarium staff in order to compare its morphology to that of *Pittosporum* aff. *crassifolium* collected on Rangitahua Id (Raoul Id) by Ewen Cameron during 1994.

The slow scramble up the slope allowed for some serious botanising. A diminutive member of the Asteraceae family, a New Zealand endemic herb namely *Lagenophora pumila* was colonising an area 45 cm². The capitula 10 mm in diameter, white ray florets and yellow disc resembled the European *Bellis perennis*. Parallel and close by a single plant of *Peperomia urvilleana* a familiar and mainly North Island coastal species hung precipitously to the loose bank.

As we reached flatter terrain the group ground to a halt. The 'culprit' was another Asteraceous herb *Senecio hispidulus*. This was the second species to be added to the species list in so many minutes. Ewen enthused about the adjacent *Senecio*, *S. scaberulus*, and explained the main diagnostic features of this slender and erect annual / biennial herb namely the stiff hispid and white hairs on the stems and the purplish coloration on the abaxial surface on the lower scabrid leaves. This taxon has the conservation status of Vulnerable and was previously classified in the genus *Erechtites*. Growing in light shade through tufts of grass herbage was mingimingi (*Leucopogon fasciculatus*), appearing in juvenile stage. This habitat was shared with an abundance of *Dichondra repens* a silky pubescent herb belonging to the Convolvulaceae family. The New Zealand endemic hangehange (*Geniostoma rupestre*) also occurred in this area. The genus *Geniostoma* has a wide distribution from Malesia to New Zealand, Tahiti and Japan.

Leaving behind the light shade of the pohutukawa canopy we stepped into a dense thicket of harakeke interspersed with the occasional karo. To walk through this warm temperate luxuriant vegetation was quite an experience especially for an Englishman and a relatively new arrival at that. Ecological plantings in a horticultural context should be looking at creating similar experiences in our amenity plantings.

Close to the path were a few vulnerable seedlings of taraire (*Beilschmiedia tarairi*) and kohekohe (*Dysoxylum spectabile*). Throughout the harakeke, karo trees were the dominant woody plant which in turn gave way to young kohekohe. These trees were already exhibiting their familiar trait known as cauliflory, whereby the flowering growth appears directly from secondary woody growth. Cauliflory is most commonly associated with plants that have their origins in the tropics.

A grove of nikau (*Rhopalostylis sapida*) mixed through the kohekohe gave this area a distinctive atmosphere together with karaka (*Corynocarpus laevigatus*) and the occasional ti kouka (*Cordyline australis*) piercing through the canopy. Pteridophytes luxuriated in the undergrowth with the dark green and lucid lamina of *Asplenium oblongifolium* giving light to an otherwise shady spot by reflecting the smallest amount of light from their shiny laminae. Two species of *Pteris* were present viz. *P. tremula* and *P. comans*. The former is identified by the veins being free and mostly forked whereas the typical Northland offshore island taxon *P. comans* has looped veins which join to form a network (anastomosis).

Cyperaceae was represented by *Uncinia uncinata*. A diagnostic feature of this genus that separates it from other Cyperaceae are their glumes which have subtending utricles (thin loose covers enveloping some fruits).

At this point Colleen discovered a female weta which provoked excitement amongst the squeamish. Weta have the appearance of giant flightless crickets with a fearsome array of spikes and prominent jaws. They have a long fossil record and related species have been found in rock formations of the Triassic age (200 million years ago) in Queensland. After New Zealand became isolated and in the absence of terrestrial mammals, the weta developed habits and lifestyles similar to those of small rodents. They normally hold up during the day and appear at night.

Nearby a venerable pohutukawa provided the ideal host for the perching nest epiphyte *Collospermum hastatum* and the mat epiphyte *Pyrrosia eleagnifolia*, a species shared with Australia and the Polynesian Islands. A 15 m high houpara (*Pseudopanax lessonii*) had obviously benefited from the nutrient-rich soils brought about by petrel guano. Equally high was the kanuka (*Kunzea ericoides*) pointed out by Gordon. Another to add to the species list was *Parsonsia* sp. The two New Zealand species are endemic and show a high degree of polymorphism especially in the foliage at both the juvenile and adult stages and therefore are difficult to identify in the field, without flowers.

Adiantum hispidulum made dense clumps and the immature fronds were typically coloured red - pink. This is one of the hardiest adiantums. Many New Zealand fern taxa have this anthocyanin pigment present as a form of protection from ultra violet light whereas northern hemisphere fern taxa appear to lack these pigments.

A c. 17 m high kahikatea (*Dacrycarpus dacrydioides*) grew close to the summit together with two *Podocarpus totara*. The totara forked at 2 metres indicating that early competition was not a problem. The question was raised 'had these totara been introduced'?

We were not allowed to forget it was time for lunch and a good site was found on the summit which had a canopy of mapou (*Myrsine australis*). Over lunch we discussed the contents of Graham's botanical sandwich filled with a luxuriant assortment of exotic herbs! After lunch the group spread out and descended the lightly shaded northern slopes which were covered with the fragile makaka (*Adiantum aethiopicum*). The dappled sunlight playing on the delicate heart shaped pinnules must surely rank as one of the many highlights of the day.

An imposing robust sedge related to *Carex dissita* was *Carex lambertiana*. Sixty to seventy centimetre high tussocks of this sedge occurred throughout this area. A diagnostic feature of this sedge is the deeply emarginate glumes. Another monocot, a member of Poaceae, was *Oplismenus imbecillis*.

Next, we came upon our first encounters with the adventives. A really heavy infestation of the woolly nightshade (*Solanum mauritianum*) was obviously taking advantage of space and light created by the death of large tii whanake. On field trips perhaps it maybe a good idea if a member was armed with a spade so we could chop out these noxious weeds as they do in South Africa where members of botanical societies hold regular weed hacks! The moth plant (*Araujia sericofera*), luckily with none of its inflated follicles present, and the smilax (*Asparagus asparagoides*) were also uprooted.

The sight of the ocean through the thickets of harakeke was both breathtaking and exciting as here was the chance to botanise amongst the coastal rocks and crevices.

Mats of the halophyte horokaka (*Disphyma australe*) covered the rocks and hung from the cliffs. When seeing this plant I always have difficulty in believing that this is an indigenous taxon especially knowing the ease with which it hybridises with South African *Carpobrotus edulis*. Quick to demonstrate the hygrochastic movements of Aizoaceae capsules Maureen Young poured water over the capsules to see if moisture would help to open them. Alas, we didn't have enough time to see the capsules dehisce. Within the spray zone *Samolus repens*, a glabrous member of the Primulaceae was abundant and we appear to share this taxon with Australia, New Caledonia and Easter Island. The endemic *Einadia triandra* is a most attractive member of the Chenopodiaceae with the typical glaucous and hastate leaves forming large mats of growth. Equally attractive was *Cotula coronopifolia* which grew in the basalt dyke crevices, a most unexpected habitat compared with its normal muddy shore and streamside habitats.

Retracing our steps back to where we had left the boat we discovered a juvenile 60 cm tanekaha (*Phyllocladus trichomanoides*). As we awaited for Doug to ferry small groups of us back to shore, Sebastien Bano, a visiting French botanist, discovered a single fern growing from the cliff of Waitemata sediments which was confirmed as being *Asplenium northlandicum*.

With the group safely ferried back to the mainland Doug and Ewen made a superb beaching through the surf which brought to an end a most adventurous and botanically rich day.

Botanical Society Field Trip to Brown's Island (Motukorea), August 18 1996

Rhys Gardner

This was a Sunday trip to an island not previously visited by Bot. Soc. and about 50 adults and children were able to enjoy the plant-life, some unexpected sunshine, and the shapes and textures of an unspoilt piece of volcanic topography.

Brown's Island is owned by the Auckland City Council (it was gifted in 1955 by Sir Ernest Davis) and managed by the Department of Conservation. Rabbits have been eliminated, as have (DoC believes) the rats and mice in a poisoning carried out last year. Except for the steepest cliffs the ground is mostly in grasses, particularly Kikuyu grass, this recorded by Alan Esler in 1974 merely as a small patch on the flat ground! The crater bottom, which incidentally was left for a subsequent party to explore, is full of bracken and *Muehlenbeckia complexa*, and if grazing were to cease these would probably spread to produce something like the cover of grass, fern and light scrub seen by William Brown and John Logan Campbell in 1840.

We disembarked onto the stone jetty at the island's southern end and moved up northwards past the "small pool of water in the centre of the level ground" mentioned in Campbell's book "Poenamo". It is now in a sad state, without cabbage trees, *Carex secta*, or indeed any native plants. At the island's summit Bruce Hayward pointed out the volcanic landforms standing (or lying) all around.

We lunched at the beach on the north-eastern side in front of the scrub-covered terrace at the foot of the tuff cliffs. Planted trees (a tall yucca, a coral tree, and a couple of species of bottlebrush) are conspicuous, as are Sydney golden wattle, Italian buckthorn, flannel leaf and moth plant. Boneseed has been eliminated from the pasture but is common elsewhere.

At one place the north-eastern cliff is cut by a group of steep faults, and here grew two small colonies of the native spurge *Euphorbia glauca*, a species not found elsewhere in the inner Hauraki Gulf (Little Barrier Island is the nearest known locality). One colony consisted only of three new stems, apparently just having escaped being torn out completely by a recent slump, a hazard of life in this part of the cliff. A search by Peter de Lange in March 1995 had failed to turn up these plants, but the site was extremely dry then so perhaps they had died back.

Additions to Alan Esler's list were: *Asplenium flaccidum* subsp. *flaccidum*, *A. oblongifolium*, *Cheilanthes distans*; *Pteris tremula*; *Coriaria arborea*; *Fumaria* sp.; *Geranium solanderi* "coarse hairs"; *Senecio esleri*.

We regrouped at the southern end of the island at four o'clock low tide, all geologists now, pointing out to each other how the jetty had been gathered up from the crust of the basalt flow that forms the level ground here. Such flows may underlie the meaning of Motukorea "island of the small canoe", the reference perhaps being to the dangers of hidden reefs, and we cautiously returned to our offshore vessel by means of a Zodiac. Panmure Wharf was reached just before dusk.

Jessica Beever and John Braggins kindly imparted their knowledge of mosses, liverworts and lichens to us. Thanks also to Bruce Hayward for volcanic instruction, and to boat operators Jim and Raewyn Insley.