A Society visit to Motuora Island, Hauraki Gulf, 16 Oct 2010

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At 8.40am on 16 October 2010 the DoC (Department of Conservation) boat *Hauturu* departed Gulf Harbour with our ABS (Auckland Botanical Society) group of 33 people and four researchers aboard. It was the perfect day – clear skies and no wind. En route to Motuora Island flocks of fluttering shearwaters and gannets were common, and a few Buller's shearwaters were also spotted. Just after 10am we were anchored in calm water off Home Bay to be met by the local Motuora Island managers, Andrea Ravenscroft and Deane Williams, who ferried us ashore in their dinghy. Once ashore, Helen Lindsay, who has been involved with the island's management since 1997, gave us an outline of the major recent conservation projects occurring on the island (Fig. 1).

Fig. 1. Members being briefed by Helen Lindsay by the information centre, Home Bay. Photo: EC, 16 Oct 2011.

Mike and Peter headed off immediately to check the intertidal algae as the tide had already turned. After the briefing, most people followed Helen along the SW coast, inland via different-aged plantings and up to the trig for lunch where a 360 degree view of the Hauraki Gulf was enjoyed (Figs. 2, 3), including watching a pod of bottle-nosed dolphins on the east side of the island. After lunch we proceeded northwards along the main wide plateau looking at extensive plantings with Helen informing us of the different-aged stands. She explained that the kikuyu grass (*Pennisetum clandestinum*) paddocks were sprayed prior to planting and this provided an initial mat of thick dead grass which helped suppress weed growth in the first year and that plants needed to be very hardy to survive the first summer due to exposure. The initial species to colonise after planting were tall pasture weeds, including thistles (*Cirsium vulgare*), fleabane (*Conyza sumatrensis*) and

Fig. 2. View north from trig; the foreground forest was planted in 2004; the islands behind are Moturekareka, Motuketekete and Kawau. Photo: EC, 16 Oct 2011.

Fig. 3. Same view as Fig. 2 fourteen years earlier when the island was farmed. Photo: 1996.

particularly fireweeds (*Senecio* spp.), which gave a good shelter to the young plants. *Senecio bipinnatisectus* had been identified as the main fireweed species but ABS members also identified *S. esleri*, which was added to the species list. Where these were in large numbers they also helped to suppress the re-growth of kikuyu grass and so were being very effective as "nurse plants" (Fig. 4).

We reached the northern point where bone-seed (*Chrysanthemoides monilifera*) was locally common on the steep cliffs. Helen explained that, due to the abundance of this species on steep eroding cliffs, control to date has been limited to ensuring that it does not spread further, particularly into the planted areas. The strategy being employed is to contain its

Fig. 4. This young planting of 2009 is 'protected' by fireweeds and fleabane which are later shaded out by the planted forest. Photo: EC, 16 Oct 2011.

spread until the forest matures at the top of the cliffs, and then to control it along the margins, gradually working down the cliffs. This is to prevent the erosion that would be caused by large-scale clearance. Volunteers have played a large part in pulling seedlings of this species within the plantings and on cliff edges and the ABS members also made their contribution to this (Fig. 5). From this point people made their own leisurely way back to Home Bay, via some of the western plantings (Fig. 6) and by 4.20 pm we were all aboard *Hauturu* and heading back to Gulf Harbour.

Fig. 5. Members weeding bone-seed seedlings at the northern point. Photo: EC, 16 Oct 2011.

Participants: *Chris & Noel Ashton, Tricia Aspin, Duncan Benzie, Ewen Cameron (organiser), Paul & Stella Christoffersen, Alex Davidson, Bev & Geoff Davidson, Alan Foubister, Nick Goldwater, Chris Green, Leslie Haines, Peter Hutton, Robin Ingram, Wendy John, Wolfgang Kanz, Mei Nee Lee, Helen Lindsay (guide), James Luty, Elaine Marshall, Caroline Murdoch, Suman Pancha, Juliet Richmond, Bernie Salmon, Malcolm Shaw, Val Tomlinson, Josh Salter, Claire Stevens, Liesebeth van Kerckhoven, Alison Wesley, and Mike Wilcox.*

Background

Motuora Island (85 ha) was farmed from 1853, and since 1987 has been managed by DoC. Since 1997 farming was down-scaled as the planting increased, and the last farm animals were removed in 2006. Remarkably, rats have never established there. The island was reduced to a few small forest remnants, mainly pohutukawa (*Metrosideros excelsa*), and a carpet of kikuyu grass. Over 250,000 native trees have been propagated and planted on the island since 1990. The Motuora Restoration Society was formed in 1995. Their goal is to re-establish self-sustaining ecosystems and to create a sanctuary for flora and fauna on Motuora.

Fig. 6. Looking west from just south of the northern point – the planting in the foreground was in 2008, and the taller planting behind was in 1996-97. Photo: EC, 16 Oct 2011.

To date, restoration activities have concentrated on planting hardy pioneer species such as kanuka (*Kunzea ericoides*), manuka (*Leptospermum scoparium*), flax (*Phormium tenax*) and *Coprosma* species to establish cover, and on the control of several species of invasive weeds in the forest remnants. The worst infestations of these included bone-seed, climbing asparagus (*Asparagus scandens*), boxthorn (*Lycium ferocissimum*) and lantana (*Lantana camara*), all of which have now been controlled to very low levels with the exception of bone-seed as explained above. Kikuyu grass was introduced to the island during the farming era and it has been a constant challenge to keep this invasive grass under control among the young trees. The pioneer planting is now almost complete and future plantings will concentrate on introducing canopy species as the shrubland develops the shade and shelter required for their establishment. Increasing plant diversity is a priority to establish all tier levels and there will also be a focus on attempting to establish populations of regionally threatened plants that once may have occurred on the island.

We observed the oldest planted vegetation, with ngaio (*Myoporum laetum*), karo (*Pittosporum crassifolium*) and taupata (*Coprosma repens*) to the fore, which has now become a dense, young forest 5-8m tall. Natural coastal vegetation, with pohutukawa, karo, kawakawa (*Macropiper excelsum*), and rengarenga lily (*Arthropodium cirratum*) survives on some of the steep coastal cliffs.

Table 1. Additions and comments to the vascular flora of Heiss-Dunlop & Fillery (2006). (* = naturalised species)

Additions made during the Bot Soc visit (16 Oct 2010):	
Anagallis arvensis var.*caerulea**	Locally common, open sites. Site record.
*Jacobaea vulgaris**	Local, open bank, Home Bay. Site record.
*Lamium purpureum**	Local, old cattle yard, Home Bay. AK 317955.
*Malva nicaeensis**	Local, near nursery, Home Bay. AK 317945.
Microtis ?unifolia	2 young plants, track margin near summit. Site record.
*Polygonum arenastrum**	Local, margin of main mown plateau track by recent plantings – may be the same as the *P. aviculare* record of Heiss-Dunlop & Fillery (2006). AK 327808.
*Sagina procumbens**	Local, near nursery, Home Bay. Site record
*Senecio esleri**	Locally abundant, especially central plateau, among plantings. AK 317946.
*Solanum nigrum**	Occasional, S end Home Bay. AK 317942.
Confirmed earlier record not found in 2006:	
Senecio hispidulus	Occasional - locally common, track margins and N Point. Site record.
Other additions:	
*Cotoneaster glaucophyllus**	Single plant, eradicated, Home Bay; *H.M. Lindsay, 21 Jan 2009*. AK 304353.
*Cymbalaria muralis**	Local, by tap, attempted eradication, Home Bay; *H.M. Lindsay, 28 Aug 2011*. AK 327171. Washed off a visitors boot?
*Ehrharta erecta**	Single locality, attempted eradication, N end (E side); *H.M. Lindsay, Sep 2008*. AK 303652.
Lagenifera pumila	Accidently left off the original species list (S. Heiss-Dunlop pers. comm.). Evidently it was present in 2006 above Pohutukawa Bay on steep slopes
*Zantedeschia aethiopica**	Local, 5 youngish plants, sandy bank by beach, attempted eradication, Home Bay; *H.M. Lindsay, 28 Aug 2011*. AK 327173.
Deletion:	
*Cakile edentula**	Correction. Specimen actually *C. maritima* with hornless fruit. AK 294990.

A comprehensive plan for the introduction of fauna and flora species is in place (Gardiner-Gee et al. 2007) and since 2007 Duvaucel geckos, shore skinks, common geckos, whiteheads and Little Barrier wetapunga have been translocated to the island. The restoration plan has a strong focus on encouraging the re-colonisation of lost seabird populations as these are considered to be an important component of island biodiversity and ecosystem function (Bellingham et al. 2010). Three translocations of northern diving petrels from Wooded Island to Motuora took place between 2007 and 2009. Since then at least two of these birds have returned to breed on Motuora and there is a confirmed record of one island born chick. Model gannets have been placed in the open on a grassy north-western cliff top and sound recordings are played to try and entice the gannets to create a rookery. We certainly observed passing gannets taking an interest in the area. Burrows of suitable size for Buller's shearwaters have also been dug near to this site and the sound system plays gannet calls during the day and Buller's shearwater calls at night. There are plans to translocate Pycroft's petrels from Red Mercury Island in 2012.

In the past three years two Norway rat incursions have occurred on Motuora and both animals were caught. It is not known how these animals arrived but it is presumed that they came ashore from visiting boats.

Vascular flora

The vascular flora of Motuora Island has been well documented by Shelley Heiss-Dunlop & Jo Fillery (2006) who listed 288 species of which 57% were exotic. Our visit added nine more species, confirmed an older record, lists five other additions, and corrects an earlier error (Table 1). This brings the current

recorded wild vascular flora to 301 species (58% exotic). Except for one native orchid (*Microtis* ?*unifolia*) and a native herb (*Lagenifera pumila*) all the additions were exotic species which occur widely on the Hauraki Gulf islands, except for *Lamium purpureum* which is more of an urban weed (EKC pers. obs.).

Cultivated trees seen during our visit

Although few in number the following cultivated trees were seen during our visit: *Acacia mearnsii* (surprisingly no seedlings have been observed on the island), *Araucaria heterophylla*, *Bambusa oldhamii*, *Cupressus macrocarpa*, *Erythrina crista-galli*, *Erythrina* × *sykesii*, *Eucalyptus camaldulensis*, *Eucalyptus macarthurii*, *Ficus benjamina*, *Ficus carica*, *Laurus nobilis*, *Pinus radiata* and *Salix fragilis.*

Birds seen during the visit

Gannet (at one stage >40 circling by the gannet models), pied shag, mallard (1), brown teal (2), pukeko, variable oystercatcher, spur-winged plover, NZ dotterel, kingfisher, welcome swallow, grey warbler, blackbird, skylark, whitehead (heard only – 40 birds translocated from Tiritiri in April 2008), tui (common), chaffinch, and yellow hammer (common).

Fig. 7. Broad sandstone platforms, dominated by dense beds of *Hormosira banksii*. North-east coast. Photo: MW, 16 Oct 2011.

Seaweeds seen during the visit

The tide was generally unfavourable for observing seaweeds in the lower intertidal zone, but the middle and upper reaches of the shore were able to be studied by Mike Wilcox and Peter Hutton. The broad, mid-intertidal sandstone platforms had extensive populations of *Hormosira banksii* (Fig. 7), with its obligate epiphyte, *Notheia anomala*; beds of *Corallina officinalis*, with the epiphyte *Ulva* sp. "2"; and with *Scytothamnus australis*, *Ectocarpus siliculosus*, *Gelidium caulacantheum*, and *Leathesia marina* in reasonable abundance. In channels was observed *Pterocladiella capillacea*, and with it *Jania verrucosa* forming turfs. *Cystophora torulosa* was the dominant large alga on the lowest visible shore level.

Fig. 8. Boulder beach at Pohutukawa Bay, with wash-up of *Ecklonia radiata.* Photo: MW, 16 Oct 2011.

Higher up on the shore were turfs of *Capreolia implexa*, brown tufts of *Bachelotia antillarum* in pools, and colonies of *Rhizoclonium africanum*. On the north-eastern side of the island the brown crust alga *Ralfsia verrucosa* was present in abundance on hard, grit rock, and there was also *Codium fragile* subsp*. fragile*, *Microdictyon mutabile* and the cyanobacterium *Lyngbya majuscula*. Shaded cliff bases with dripping freshwater had *Ulva* "green icicles", the small unconvoluted form of *Scytosiphon lomentaria*, and *Chaetomorpha ligustica*. *Chaetomorpha aerea* was found in a high-tidal rock pool. The boulder beach of

Table 2. Herbarium vouchers of seaweeds collected by Mike Wilcox.

Species	Herbarium Voucher Number
Cyanobacteria	
Lyngbya majuscula	AK 317894
Red algae	
Aeodes nitidissima	AK 317924
Hymenena variolosa (washed up in masses)	AK 317889
Brown algae	
Ectocarpus siliculosus	AK 317868
Leathesia marina	AK 317850
Notheia anomala	AK 317932
Ralfsia verrucosa	AK 317930
Scytosiphon lomentaria	AK 317927
Green algae	
Chaetomorpha aerea	AK 317925
Rhizoclonium africanum	AK 317888
Ulva "green icicles"	AK 326491
Ulva sp. "2"	AK 317929

Pohutukawa Bay had an extensive wash-up of seaweeds, the most abundant being *Ecklonia radiata* (Fig. 8) and *Hymenena variolosa*. Vouchered algae collections are listed in Table 2.

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Marunui Conservation Area, Mangawhai

Ewen K. Cameron

Background

On the 20 November 2010 the Auckland Botanical Society (ABS) re-visited Marunui, a privately-owned conservation area comprising 417 ha, on the southeast face of the Brynderwyns, near Mangawhai (Fig. 1). The first ABS visit was on 21 July 1990 when they recorded 180 native vascular species (Jones 1991). The property was purchased in 1987 and a company of 18 shareholders was formed – with each shareholder having the right to build a house on the property (so far 14 houses have been built). A QEII National Trust open-space covenant covers the whole property. The Marunui dwellings are centered on: 36°4' 52" S, 174° 31' 34" E, and the property ranges from c.20 m to 397 m asl. There is a track network of some 14 km so there are opportunities to explore different areas depending on time and fitness levels.

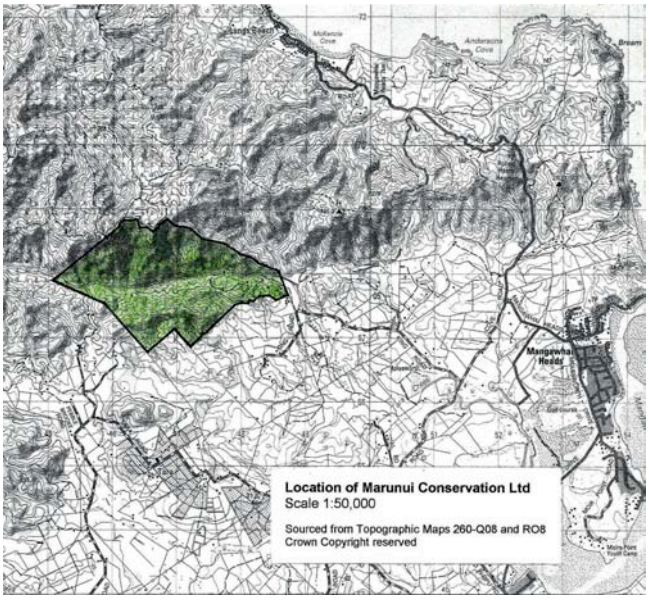

Fig. 1. Location of Marunui Conservation Area. Each square = 1 km^2. Map provided by John Hawley.

Fig. 2. Looking due west up the tributary of the Tara Creek valley from one of the shareholders' houses. Photo: Josh Salter, 20 Nov 2010.

The vegetation is in various stages of regenerating forest: tea-tree scrub (*Leptospermum* and *Kunzea*), tall kanuka (*Kunzea ericoides*), broadleaf forest, mixed broadleaf-podocarp forest (most impressive in the tributary of the Tara Creek valley), and kauri (*Agathis australis*) is locally present. All are in various stages of regeneration since kauri logging ceased early last century. Different habitats and vegetation types occur on the ridges, slopes, gullies, valley bottoms, clearings, stream margins and in small wetlands. Much of the forest is within the Department of Conservation's Schedule of Sites of Biological Interest, identified as being of high national importance. It is part of the Brynderwyn Hills Forest