

Maud Island

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After a cold and dark start at 4:45am, waking up the Rainbow Station gatekeeper at 6:00am, negotiating the rough 4WD road to St Arnaud and finding the right dock at Havelock, a three-hour ferry ride was a much needed chance to catch a snooze amidst the fantastic scenery and serenity of the Marlborough Sounds. And so it was that two fortunate explorers left the Bot Soc trip at Molesworth a few days early for a four-day adventure on Maud Island (Te Hoiere).

Biosecurity was taken seriously by the Department of Conservation. Our first steps on the island were onto a footpad to kill any chytrid fungi we might be carrying – a fungus lethal to native frogs. Other shoes were later doused with alcohol. All our gear had to be unpacked in a secure room as part of a pest and rodent check

Layers of polypro and raincoats, standard issue for Molesworth Station, were soon swapped for shorts and sunhats. 'Work' for the Department of Conservation consisted of assisting a master's student studying the pakeka frog, replacing eggs in stoat traps around the island, chasing takaha chicks to free them of bidibids and helping the new DoC ranger move into his abode. Never fear though, it was not all work with an entire day spent kayaking around the beach lined island in a perfectly glassy sea and swimming in the balmy waters. Summer at it's finest.

Maud Island is possibly best known as one of only two remaining sanctuaries for the endangered kakapo. The scientific reserve is free from predators and has been home to kakapo since the first transfer of birds to the island in 1974. Aluminium manufacturers, Comalco, have sponsored the kakapo recovery project for a number of years with one of their major contributions on the island being the construction of the Lockwood Comalco Lodge, which, is as comfortable as its name suggests.

Unfortunately for us, though great for the recovery programme, it was breeding time for the kakapo and all the mature females had been transferred to Codfish



A Curious Local

Island / Whenua Hou, west of Stewart Island, in the hope they would breed. Of the few males remaining we were only able to meet Trevor – a very inquisitive parrot that came to visit the lodge late one night and seemed far more interested in a pair of well-used socks than his spellbound guests.

In addition to giant, flightless parrots, Maud Island is also home to around 25 takaha (*Notornis mantelli*), the Cook Strait giant weta (*Deinacrida rugosa*), the endangered striped gecko (*Hoplodactylus stephensi*) only discovered on the island in 1989, a giant land snail (*Powelliphanta hochstetterii obscura*) and the Cook Strait click beetle (*Amychus granulatus*). When Maud was originally purchased for use as a reserve in 1975 only 18 ha of original forest cover remained but this act would unwittingly save one of Maud Island's other endangered species, and New Zealand's only population, of the pakeka frog (*Leiopelma pakeka*). Maud Island now has a healthy population of around 20,000 frogs with a second safe guard population of 300 frogs established since 1997 on Motuara Island (Queen Charlotte Sound). A feature of the eastern side of the island is a boulder field beneath a mature canopy of kohekohe. This habitat is home to a localised population of Maud Island frogs. A unique find was the discovery of a cluster of 24 frogs eggs found under a boulder.

The island itself is dominated by a steep sided central ridge that runs in a north-east to south-west direction. The island is around 3.5km in length and approximately 1.5km at it's widest point. There is one prominent peninsula on the south-eastern corner of the island that extends 1.5km out into the blue waters of the Marlborough Sounds. The central summit area of the island (369masl) is open grassland. It is here that the distinctive track and bowl kakapo mating area is located right alongside the main summit track. The 320 ha island has a long history of farming stretching back to the 1860's. A small number of sheep remain in fenced areas on the island to provide open pasture for takaha to browse. These paddocks provide habitat for one of the few pasture weeds on the island, Californian thistle (*Cirsium arvense*).

The island has also had several plant translocations namely *Hebe speciosa* (from it's only known South Island location of Titirangi Bay in the Marlborough Sounds) and Cook Strait Spaniard (*Aciphylla squarrosa*) originally planted in the 1970's as a food source for kakapo. The mature vegetation cover of Maud Island is the original kohekohe dominated forest remnant from the 1970's, now surrounded by thickly regenerating tea-tree stands. On the forest margins bright purple berries adorned mahoe (*Melicactus ramiflorus*) and pale green and white seeds were a prominent feature of akeake (*Dodonaea viscosa*), both found in plentiful numbers on the edges of the track

out to the peninsula trig station. The forest health on the island accounts for much of the abundance of tui and kereru.

A feature of the island was the low numbers of weeds species present. Most occur in the pasture, forest margins or scrubland along the summit ridge. Nevertheless, DoC maintains a vigilant weed control programme. A weed team of 5 people arrived on the island to conduct 3 weeks of weed control work while we were there. *Acaena* spp., common in the open grassland areas of the island, pose a major threat to

takahe chicks and are treated as a weed. The bidibids catch and accumulate on the juvenile plumage of takahe, trapping the young birds in the thick scrub they use for cover where they can starve to death.

Stoat traps are spread around the coastal edge of the island and on the main tracks to the summit and ridgeline as a defence against incursions from the mainland. The common occurrence of ground dwelling weta, skink and gecko gives an indication of what mainland NZ would have been like before the arrival of humans and the animal predators they introduced.



Vascular flora of the fringes of Waionui Inlet, Kaipara South Head

E. K. Cameron & P.J. Bellingham

Introduction

The Waionui Inlet is a shallow harbour at the northern end of Kaipara South Head, measuring c.6 km long x 2 km across at its widest point. It opens to the north, by the swift-flowing mouth of the Kaipara Harbour (Fig. 1), and is bordered by a shifting sand bar (Papakanui Spit). The Inlet is located at the north end of Woodhill Forest, a 12,500 ha commercial plantation forest (exotic pines) on stabilised, Holocene sand dunes, northwest of Auckland, on the South Kaipara Peninsula. A former State Forest, Woodhill is currently leased from the Crown by Carter Holt Harvey Forests Ltd (CHH), which purchased the rights to manage and harvest the pine plantation in 1990. Many of the few remaining natural areas in Woodhill are legally protected under a covenant between Ministers of Finance and State Owned Enterprises and CHH. Access is via the forestry roads or the Rangitira Beach. The following articles document many of the natural areas of vegetation at Woodhill: Mackinder (1984), Cameron & Bellingham (1986), Cameron (1987, 1988, 1994, 1998), Smale et al. (1995) and Bishop (1996).

Terrestrial and estuarine areas adjacent to the Waionui Inlet are Crown land administered by Department of Conservation (DoC), i.e. Waionui Marginal Strip (3ha), Ti Tree Island Conservation Area (8ha), and Papakanui (1088ha), Papakanui Spit (including the Papakanui Spit Wildlife Refuge)(25ha) and Ti Tree Island (5ha) Stewardship Areas (Anon. 1995) (see Fig. 1). The 2 km margin from South Head to Ti Tree Island is privately owned land. As part of Woodhill Forest, CHH manage the Waionui Covenant Area (148ha) which is kanuka (*Kunzea ericoides* s.lat.) forest, and to the south of the Papakanui Stewardship Area as commercial plantation forestry land. The western side of the Inlet is also part of a weapons training area used by the NZ Defence Force (until recently it was also a bombing range). The DoC administered land combined with the Waionui Covenant Area form the largest remaining area of indigenous vegetation on the

Holocene sands on the South Kaipara Peninsula.

Here we present a more complete vascular flora of the area than in Cameron & Bellingham (1986), together with notes on the vegetation and unusual species. This account is mainly based on a field trip on 1 July 1993 when the eastern and southern areas of the Waionui Inlet were visited by us; with other observations by EKC when leading an Auckland Bot Soc trip there on 19 February 1995, being a member of the Auckland Conservation Board trip 27 November 1998, and a visit to a site where *Mazus novaezeelandiae* occurred with DoC staff 11 May 1999; and observations by DoC staff in February 2001 and April 2002.

Description of the Waionui Inlet fringe vegetation

In the 1990s a second channel formed through the Papakanui Spit. This exit fluctuated over time, but by 1997 had firmly established as a deep second channel with associated sand banks on each side to the north (Barbara Waller pers. comm.). This new channel and associated flow changes within the Inlet have increased the erosion on the south-western part of Ti Tree Island which is clothed in kanuka (a more appropriate spelling would be Tea Tree Id). The previous Inlet channel is also still operating strongly.

The Waionui Inlet is sandy in the northern half and grades into mudflats with mangroves (*Avicennia marina*) at the southern end bordered by saltmarsh ribbonwood (*Plagianthus divaricatus*) and a manuka (*Leptospermum scoparium*) shrubland, which grades further into 6 m kanuka forest on the east side. The kanuka-covered dunes on the eastern side are up to c.0.5 km across (Waionui Covenant Area) and extend for nearly 1 km south of the tidal southern tip of the Inlet (part of Waionui Stewardship Area).

To the west of the Inlet is an active dune system representing the best dune assemblage in the Auckland region (Anon. 1995: 113). The highest dune