Mathesons Bay islet near Leigh, Auckland

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To reach the islet on the rocky reef c.300 m out from the middle of Mathesons Bay (Fig. 1) I paddled out on my old surfboard, on 14 September 2012, across the channel separating the reef from the mainland near Leigh, c.60 km north of Auckland City. I had in tow a smallish plastic barrel containing a towel, a change of clothes, camera and a collecting book. The islet is at the south-western end of a large (c.160 m × 95 m) storm platform which is exposed at low tide, and is separated from the mainland by a channel which at low water is c.60 m across. The islet on the reef is c.16 m tall by 35 m × 23 m (= 0.01 ha) at the base and c.16 m × 6-7 m (long axis NE-SW) on the flattish summit (Figs. 1, 2). It is steep-sided and eroding, with the only access up the north-western side, aided by a rope. The geology was all I could find previously published about the islet.

The Cape Rodney-Leigh area is composed of a Triassic-Jurassic Waipapa Group greywacke basement unconformity overlaid in places by the eroding remnants of an early Miocene transgressive sequence (Waitemata Group) (Eagle et al. 1999). The Mathesons Bay reef and islet has been mapped and is composed entirely of early Miocene Kawau Subgroup rocks. The local sequence (from the base of the islet upwards) is recorded by Eagle et al. (1999) as: 9 m+ of decimetre-metre bedded, sparsely shelly, pebbly coarse sandstone; 0.5 m of shelly, ± rounded pebble conglomerate; and 6 m+ of decimetre-metre bedded, slightly shelly, medium to coarse sandstone and fine pebbly, very coarse sandstone.

The flattish summit area slopes to the north and is mainly covered in dense shrubby vegetation 2.0 to 2.5 m tall (in decreasing abundance): karamu (*Coprosma macrocarpa*) (Fig. 3) (36%); *Astelia banksii* (17%); grassland (17%); boxthorn (*Lycium ferrocissimum*) (12%); pohutukawa (*Metrosideros excelsa*) (6%); karo (*Pittosporum crassifolium*) (6%); cotoneaster (*Cotoneaster glaucophyllus*) (6%); and a houpara (*Pseudopanax lessonii*) (2%). There were a few ferns on the ground (*Asplenium oblongifolium, Microsorum pustulatum, Pyrrosia eleagnifolia*), but much of the ground was quite bare due to the activity of grey-faced petrels. The patch of grassland along the southern summit side was c.4 m long × 1.5 m across and consisted mainly of ratstail (*Sporobolus africanus*), cocksfoot (*Dactylis glomerata*), *Plantago lanceolata, Linum trigynum* and *Geranium retrorsum* (Fig. 4). More local constituents of the grassland were rye grass (*Lolium perenne*), cocksfoot, *Lotus suaveolens, Medicago nigra* and three mosses (*Thuidium furfurosum, Triquetrella papillata* and *Weissia controversa*).

The steep eroding flanks of the islet are mainly bare, except for the less-steep northern side which locally.

Fig. 1. Mathesons Bay islet and reef from the Leigh Road looking SE (tide c. 3/4 in). All photos by EKC on 14 Sep 2012.

Fig. 2. Mathesons Bay islet from the reef looking SW (near low tide); islet with fairly bare eroding flanks and a shrubland on the summit.

Fig. 3. Summit of Mathesons Bay islet has a shrubland dominated by coastal karamu, with *Astelia banksii* in foreground and a grassland patch on the left; looking SW.

had some shrubby boxthorn and a karo on the west side, and a grassland sward on the mid-face which at the time of visiting contained freesias (*Freesia refracta*) in full flower (Fig. 5) along with ratstail, cocksfoot, rip gut brome (*Bromus diandrus*) and *Plantago lanceolata*.

Fig. 4. *Geranium retrorsum* frequent in the islet's summit grassland.

Fig. 5. Freesias in full flower, on a grassy flank of the islet on the N-side, with boxthorn in the foreground and Hauturu in the background.

The Flora

The flora totalled 29 vascular species, 13 were native (45%), 5 moss species (see Table 1), no liverworts were observed and lichens weren't recorded. The most interesting native plant was the regionally threatened *Geranium retrorsum* (Stanley et al. 2005) with a large taproot. It was locally common in the summit grassland and some of the plants were starting to flower

The naturalised freesias (*Freesia refracta*) were most abundant and stood out on the north-facing mid-face. They were occasional elsewhere on the islet where there was some other vegetation present. I'm not sure how they may have reached the islet, perhaps gulls carrying out nesting material? Freesias appear to be able to reproduce and spread quite quickly by either seed, cormils or both (Healey & Edgar 1980).

Interestingly, wild freesias are also widely established on another uninhabited Hauraki Gulf islet: Papakohatu (Crusoe Id.) east of Motuihe (pers. ob.). The two worst weeds on the islet were boxthorn (*Lycium ferrocissimum*) and cotoneaster (*Cotoneaster glaucophyllus*). There was a 2m-tall thicket of boxthorn on the western end of the islet - just where the rope came up someone had cut a tunnel through the boxthorn (for reason unknown) enabling an inquisitive visitor to crawl through and reach the rest of the summit vegetation – thank you!

Vertebrate fauna

Birds observed during the visit: >30 grey-faced petrel burrows in summit area, smelt of petrels, and feathers present confirmed the identification (Graeme Taylor pers. comm.); Australasian gannet (diving close by); pied shag (1, resting on reef); white-faced heron (1, feeding on reef); variable oystercatcher (3 feeding on reef); black-backed gull (resting on reef); red-billed gull (resting on reef); Caspian tern (flying close by reef); and welcome swallow (flying over reef). No sign of rats was seen.

Discussion

Geranium retrorsum was also present on the equally small islet, Watchman Island, in the Waitemata Harbour (Cameron 1988, 2006) and the reason it is persisting on islands and not doing so well on the mainland is probably to do with competition in the open with weed species, and possibly being eaten by rabbits.

The biggest surprise to me was discovering what appears to be a healthy population of grey-faced petrels nesting on the island's summit. The channel separating the islet reef from the mainland, coupled with the steep islet sides, gives enough protection for this population to survive. It is a similar situation to the grey-faced petrel population on Sentinel Rock at Mangawhai Heads (Cameron & Taylor 1997), some 30 km up the coast from Mathesons Bay.

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Table 1: Flora of Mathesons Bay islet.

Key

a = abundant
c = common
o = occasional
l = local
* = naturalised taxon
AK = voucher specimens deposited in the Auckland Museum herbarium

1. VASCULAR PLANTS

Ferns (3 + 0) (= 3 native + 0 naturalised)		
Asplenium oblongifolium	o	summit only
Microsorum pustulatum	o	terrestrial, summit only
Pyrrosia eleagnifolia	l	terrestrial, summit only
Dicotyledons (6 + 9)		
Anagallis arvensis s.lat.*	o	open areas including 'grasslands'
Coproma macrocarpa	lc	summit shrubland only
Cotoneaster glaucophyllus *	o	mainly summit shrubland, to 2.5m tall
Dichondra repens	o	on bare rock, near base of island
Geranium retrorsum	lc	'grassland' summit S side; AK 333550
Linum trigynum *	a	open areas including 'grasslands'
Lotus suaveolens *	l	'grassland' summit S side
Lycium ferrocissimum *	lc	summit shrubland W end, to 2m tall; o throughout
Medicago nigra *	a	open areas including 'grasslands'
Metrosideros excelsa	o	summit shrubland
Pittosporum crassifolium	o	summit shrubland; o, on N side
Plantago lanceolata *	a	open areas including 'grasslands'
Polycarpon tetraphyllum *	o	bare ground, margin of summit canopy
Pseudopanax lessonii		single shrub, SW edge of summit shrubland
Sonchus oleraceus *	o	throughout
Monocotyledons (4 + 7)		
Astelia banksii	lc	summit only
Bromus diandrus *	lc	open areas
Bromus willdenowii *	o	open areas
Carex breviculmis	o	bare ground, margins of summit vegetation
Dactylis glomerata *	a	open areas including 'grasslands'
Ficinia nodosa	l	margins of summit vegetation
Freesia refracta *	lc	on steep 'grassland' N-facing slope; o throughout; AK 333551
Lolium perenne *	o	'grassland' component
Parapholis incurva *	o	on bare rock, near base of island
Rytidosperma sp.	o	margins of summit shrubland
Sporobolus africanus *	a	open areas including 'grasslands'

2. BRYOPHYTES

Mosses (5 + 0)		
Bryum sp.	l	with the *Didymodon* in the open on N face
Didymodon torquatus	lc	along the north side, in open below 'grassland', as small hummocks in the open, c.3 m asl; AK 334797
Thuidium furfurosum	o	in summit 'grassland'; AK 334796
Triquetrella papillata	l	with the *Thuidium* in summit 'grassland'
Weissia controversa var. *controversa*	o	as small patches in summit 'grassland'; AK 334795

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