

## Whanganui Plant List No. 228

Vascular plants and vegetation of Lake Waikato, Nukumaru,  
between Maxwell and Waitotara. NZMS260/R22/628513; 60 m a.s.l.  
Colin Ogle with members of Wanganui Museum Botanical Group.  
30 Oct 2011, 10 March 2013

Last amended 19 March 2014

On 30 Oct 2011, the original list was compiled from a walked circumnavigation of much of the lake's shores. After recent heavy rain, lake water levels appeared to be high. We viewed the island from the shore, using binoculars, as had Ravine (1992).

On 10 March 2013, the lake level was very low and we walked dry-shod to the island – only the second time in 12 years that this has been possible, according to the land owner. Some water remained in the western part of the lake. The list below includes all plants seen on the island.

The island was identified as Recommended Area for Protection (RAP) #42 by Ravine (1992). Kelly (1978) did not include L. Waikato in his survey, though the next lake to the east, L. Marahau, was included (see Wanganui Plant List 71).

\* denotes species adventive to this area; P= planted only; P+ = naturally occurring & planted; I = on dry parts of the island in the lake only; I+ = on island & other lake shore sites; # new record 10/3/13.

Abundances: a = abundant; c = common; o = occasional; u = uncommon (only one or a very few specimens seen); l = local (common in small areas only).

Apart from the island, for which all plants seen were listed, the list is for plants in the wetlands and lake bed only, not the adjoining farmlands.

### GYMNOSPERMS

\* *Pinus radiata* u (naturalised) radiata pine

### MONOCOT TREE

*Cordyline australis*<sup>1</sup> u cabbage tree, ti kouka

### DICOT SHRUBS AND LIANES

*Brachyglottis repanda* I l rangiora

*Coprosma grandifolia* I # u kanono

*Coprosma robusta* P+, I+ u (as natural) karamu

\* *Corynocarpus laevigatus* I<sup>2</sup> o? karaka

\* *Crataegus monogyna* u hawthorn

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<sup>1</sup> Trees around the lake shore may have been planted. It was also seen on the island (and recorded there also by Ravine 1992)

<sup>2</sup> Ravine (1992) stated, by viewing the island from the lake shore, that this was the island's dominant species (he estimated 80% cover of karaka). Our observations on 10 March 2013 support this view. Karaka has since been shown (Costall et al., 2006) not be indigenous to the southern North Island and its presence on the island is probably the result of Maori plantings; it appears to be associated with a pa site. It is listed as adventive here.

Melicytus ramiflorus I+	o?	mahoe
Muehlenbeckia australis	l	pohuehue
Muehlenbeckia complexa	u	small-leaved pohuehue
Myoporum laetum I	o?	ngaio
Piper excelsum I #	lc	kawakawa
Pittosporum eugenioides <sup>3</sup> I	o?	tarata, lemonwood
Pittosporum tenuifolium I #	u	kohuhu
* Salix fragilis <sup>4</sup>	o	crack willow

## DICOT HERBS

* Amaranthus lividus #	la	purple amaranth
* Bidens frondosa	la (seedlings)	beggar's ticks
Callitriche petriei #	la	NZ starwort
* Callitriche stagnalis	u	starwort
* Cardamine flexuosa	u	bittercress
Centipeda cunninghamii <sup>5</sup> #	a	sneezeweed
* Cirsium arvense	u	Californian thistle
* Cirsium vulgare	u	Scotch thistle
* Conyza sumatrensis	o	fleabane
Cotula australis	lc	
Cotula coronopifolia	o	bachelor's button
Crassula ruamahanga	u	
Euchiton involucratum	u	cudweed
* Galium palustre	o-lc	marsh bedstraw
Glossostigma elatinooides	lc	
Gratiola sexdentata #	u	
Haloragis erecta I #	u	
Hydrocotyle novaezeelandiae	u	
Hydrocotyle hydrophila #		
CHR 625890	c	
Lilaeopsis sp. #	u	tape measure plant
Limosella lineata #	la	
Lobelia (Pratia) perpusilla	o	
* Lotus pedunculatus	u	lotus major
* Ludwigia palustris	a	water purslane
* Lythrum hyssopifolia	o	hyssop loosestrife
* Mentha pulegium	o	pennyroyal
* Myosotis laxa ssp. caespitosa	o	water forget-me-not
Myriophyllum propinquum	c	water milfoil
* Nymphaea alba	la	water lily

<sup>3</sup> This was recorded from the shore in Oct 2011, but not seen on the island in March 2013. It may have been an error for *Pittosporum tenuifolium*, which was seen on the island in March 2013.

<sup>4</sup> Much of the willow around the lake shores was dead and almost certainly sprayed. Some had re-sprouted and it was also common on the island's margins (& noted there also by Ravine 1992)

<sup>5</sup> *Centipeda* is locally the dominant herb of dried lake bed mud and is very common in some other places, e.g. the fringes of the island. There seemed to be a range of plant colours and growth forms, but all the material examined under a dissecting microscope from the 10 March 2013 visit appeared to be *C. cunninghamii*.

<i>Oxalis exilis</i> #	u	
* <i>Persicaria</i> ( <i>Polygonum</i> ) <i>hydropiper</i>	c	water pepper
<i>Persicaria decipiens</i>		
(was <i>Polygonum salicifolium</i> )	lc	willow weed
* <i>Persicaria maculosa</i> #	o	willow weed
* <i>Plantago lanceolata</i>	lc	narrow-leaved plantain
* <i>Portulacca oleracea</i> #	u	
<i>Potentilla anserinoides</i>	lc	silver weed
<i>Pseudognaphalium luteo-album</i> agg. #	lc	cudweed
<i>Ranunculus amphitrichus</i> #	o	waoriki
* <i>Ranunculus repens</i>	c	creeping buttercup
* <i>Ranunculus sceleratus</i> #	c	celery-leaved buttercup
<i>Rorippa palustris</i>	c	native watercress
* <i>Rumex crispus</i>	o	curled dock
* <i>Senecio bipinnatisectus</i> I+	o	Australian fireweed
* <i>Solanum chenopodioides</i> I+	o	velvety nightshade
* <i>Solanum nigrum</i>	u	black nightshade
* <i>Stellaria media</i>	o	chickweed
* <i>Taraxacum officinale</i> #	u	dandelion
* <i>Verbena officinalis</i> #	u	vervain
* <i>Veronica serpyllifolia</i> #	u	turf speedwell

## MONOCOT HERBS

* <i>Agrostis capillacea</i> #	l	browntop
* <i>Agrostis stolonifera</i>	la	creeping bent
* <i>Anthoxanthum odoratum</i>	o	sweet vernal
<i>Bolboschoenus fluviatilis</i>	la	Purua grass, kukuraho
<i>Carex dipsacea</i> # I	o	teasel carex
<i>Carex flagellifera</i> # I	u	
<i>Carex maorica</i>	o	
* <i>Carex ovalis</i>	u	
<i>Carex secta</i> s.s.	o	purei
<i>Carex virgata</i>	u	
<i>Cyperus ustulatus</i> I #	u	mariscus
* <i>Dactylis glomerata</i> I #	l	cocksfoot
<i>Eleocharis acuta</i>	lc	sharp spike-sedge
<i>Eleocharis sphacelata</i>	la	bamboo spike-sedge, kuta
* <i>Glyceria fluitans</i> #	u	floating sweetgrass
* <i>Holcus lanatus</i>	o	Yorkshire fog
* <i>Iris foetidissima</i> I #	la	stinking iris
<i>Isolepis inundata</i> # CHR625883	u	
* <i>Juncus bufonius</i> #	o	toad rush
<i>Juncus edgariae</i>	o	
<i>Lemna disperma</i>	o	duckweed
* <i>Paspalum distichum</i>	la	Mercer grass
<i>Phormium tenax</i> P (P+?)	o	harakeke, NZ flax
<i>Potamogeton cheesemanii</i>	u	pondweed
* <i>Schedonorus arundinacea</i>	o	tall fescue
<i>Schoenoplectus tabernaemontani</i>	lc	kapungawha

<i>Typha orientalis</i> <sup>6</sup>	?	raupo
<b>FERNS</b>		
<i>Asplenium flaccidum</i> I #	u	hanging spleenwort
<i>Asplenium gracillimum</i> I #	u	
<i>Asplenium oblongifolium</i>	u	shining spleenwort
<i>Asplenium hybrid</i> ( <i>A. flaccidum</i> X <i>A. gracillimum</i> ?) I #	u (1 plant)	
<i>Azolla filiculoides</i> ssp. <i>rubra</i> #	o	azolla, floating water-fern
<i>Hypolepis ambigua</i>	u	
<i>Microsorium pustulatum</i> I #	l	hound's tongue fern
<i>Pellaea rotundifolia</i> I #	u (1 plant)	button fern
<i>Pneumatopteris pennigera</i> I #	u	
<i>Polystichum neozelandicum</i> ssp. <i>zerophyllum</i> I #	u	shield fern
<i>Polystichum vestitum</i>	u (1 plant)	
<i>Pteridium esculentum</i> I #	l	bracken fern
<i>Pteris macilenta</i> (of NZ authors) I #	lc	brake

## VEGETATION

Dune lake grazed to edges in eastern end but much of margin fenced, in places to 20 m or more from water's edge. Railway along south-west side. Extensive plantings inside the fencing, including *Eucalyptus* spp. and native plants that probably include harakeke (flax) and karamu. For some native plants it is difficult to know the extent to which planted species were already present naturally. Plantings on dry ground not listed here.

## PLANT COMMUNITIES

**N.B.: Underlined names > 50% cover; round brackets = 10-20% cover; square brackets < 10% cover; other names = 20-50% cover**

Kuta sedgeland: extensive beds, some grazed in dry summers, others beyond the grazing limit of stock.

Kukuraho sedgeland: 3 patches seen.

Grass spp. grasslands: the absence of flowering material made identification of the species difficult, but much of the land inaccessible to stock is dominated by rank pasture grasses. They included Mercer grass and creeping bent, but what other species were there and the relative abundance of each could not be determined in Oct 2011. Planted trees and shrubs, and possibly planted harakeke (flax) occur through much of this grassland. Wetter areas commonly had herbs such as creeping buttercup.

Waterlily herbfields: extensive in parts of the lake, some grazed by stock in dry summers

Turf mats dominated by different species, according to substratum (sand to mud) and water table: examples

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<sup>6</sup> Recorded by Ravine (1992); not seen in Oct 2011 survey

1. (Lobelia) - (Glossostigma) - (Ludwigia) – [Crassula] "turf": in grazed areas on periodically flooded shore.
2. Callitriche petriei – Limosella lineata: on lake bed
3. Ludwigia – Centipeda cunninghamii – Amaranthus lividus: on lake bed, especially mud polygons in summer

## PLANT SPECIES

A long history of stockgrazing has probably reduced the variety of larger sedges and other herbs and native shrubs; fencing has resulted in rank pasture grasses and native turf plants were hardly seen in fenced areas. Turf plants, including *Lobelia perpusilla*, *Glossostigma elatinoides*, *Crassula ruamahanga*, and small amounts of 'terrestrial' milfoil, were common on peaty sand near the lake where horses graze and trample. In summer, there are extensive mats on the lake bed, mostly on peat-silt substrata but some on sand. In places, these mats have very few adventive plants, comprising 'turfs' of diminutive, perennial indigenous species that flower when water recedes in summer. Other parts are dominated by adventive plants

Of interest is the seeming absence of any invasive aquatic weed species, such as *Elodea*, *Lagarosiphon*, *Egeria*, *Potamogeton crispus*, *Myriophyllum aquaticum* or *Ceratophyllum*. Public boating and eel nets are known methods of dispersing these weeds. Their absence from L. Waikato makes it likely that indigenous aquatic species survive here, species that were recorded in other coastal lakes by Kelly (1978) but which have now disappeared from many lakes, possibly through weed competition. We saw *Potamogeton cheesemanii* but other possibilities that could be watched for in a future survey include *P. ochreatus*, *Ruppia*, *Stuckenia*, *Myriophyllum elatinoides*. None of these aquatic species were seen during our walking the water's edge on 8 March 2103.

The most notable plants (species which are rare or localised in the Wanganui/South Taranaki districts) include:

*Bolboschoenus fluviatilis* (kukuraho) and *Eleocharis sphacelata* (kuta): dense beds, as above.

*Crassula ruamahanga*: small patches in grazed pasture close to lake edge; one small patch seen semi-submerged on bank within ungrazed area. Not seen on the exposed lake bed on 8 March 2013. L Waikato is the furthest west this herb has been found in Foxton Ecological District (next nearest places are Lakes Wiritoa and Pauri).

## REFERENCES

- Costall, J.A.; R.J. Carter; Y. Shimada; D. Anthony; & G. L. Rapson. 2006. The endemic tree *Corynocarpus laevigatus* (karaka) as a weedy invader in forest remnants of southern North Island, New Zealand. *NZ Journal of Botany* 44: 5-22.
- Kelly, D. 1978. A plant distribution survey of twelve coastal lakes. In *Sand country lakes eutrophication study*. Rangitikei-Wanganui Catchment Board and Regional Water Board, Marton.
- Ravine, D.A. 1992 Foxton Ecological District. Survey report for the Protected Natural Areas Programme. *NZ Protected Natural Areas Programme No. 19*. Dept. of Conservation, Wanganui. 264 p.