

LAKE REREWHAKAAITU FIELD TRIP

Sarah Beadel

A keen group of botanists met at the usual meeting place and set off for Lake Rerewhakaaitu on 9 April 2005, in anticipation of a great day's botanising. Lake Rerewhakaaitu is surrounded by Lake Rerewhakaaitu Recreation Reserve, which is c.50-300 m wide. Behind the reserve is farmland and ponds, with plantation forestry to the north. The lake covers c.7.5 km² with a margin of just over 22 km, and is relatively shallow – only 16 m at it's deepest. The intention was to visit a selection of habitats along the lake margin with the view to seeing as many different species as possible.

Our first stop was at the boat ramp/camping ground near Mangakino Stream. This was to be the most exciting stop for the day. I was asked before we arrived how long we might be here and my reply was “about half an hour”. Well, a good two hours later we were still there. First of all, of course, there was the known population of *Carex cirrhosa*. This species is classed as of “Gradual Decline” in de Lange *et al.* (2004) and this is the only known population in the Bay of Plenty. The population is of moderate size, comprising 50-100 plants. Many low turf species were seen at this site – *Glossostigma elatinooides*, *Lilaeopsis lacustris*, *Gratiola sexdentata*, *Myriophyllum propinquum*, *Elatine gratioloides*, arrow grass (*Triglochin striata*), mudwort (*Limosella lineata*), *Montia fontana*, and *Eleocharis pusilla*, and much time was spent discussing the identity of various rushes – *Juncus bulbosus*, *Juncus effusus*, *Juncus microcephalus*, and *Juncus edgarae* amongst them. Also along the lake margins were beds of giant spike sedge (*Eleocharis sphacelata*).

Quite a while was spent searching both here and, later in the day, elsewhere for *Pilularia novae-zelandiae*, however our search was unsuccessful. *P. novae-zelandiae* has been recorded from the lake in the past (Map 8 in the 1982 draft management plan and accompanying table – Department of Lands and Survey 1982). However, there was one more species present that was spotted just as we were about to move onto another part of the lake – *Amphibromus fluitans*, which is classed as “Nationally Endangered” (de Lange *et al.* 2004),

and has not previously been seen in the Bay of Plenty. The population was relatively sizeable, comprising approximately 1,000 plants. This small grass is fairly indistinctive; however there were some seed heads present which enabled us to confirm its identity.

After this exciting interlude we drove around to Half Moon Bay and investigated the turfs there, where we found many more species, including *Thelymitra cyanea*, *Galium propinquum*, *Hypericum japonicum*, and *Baumea arthrophylla*. We also found an unusual looking *Juncus* which was unfamiliar to us all. Ewen Cameron later identified it as *Juncus dregeanus*, which is native to South Africa, and this is only the second record of this species in New Zealand. The first New Zealand record was in 1945 from Manurewa (CHR 107822, in Healy & Edgar 1980). I also saw this species at the 5 Mile Gate Wetland on SH5, in May 2005.

An inspection of a small area of raupo near the Awaroa Stream Mouth revealed *Wolffia australiana*, *Spirodela punctata*, *Azolla pinnata*, and a very small population of the native water fern *Azolla filiculoides*. The genus *Wolffia* species represents the world's smallest flowering plants and *W. australiana* comprises a floating platelet c.1 mm long x 1.5 mm deep.

From here we drove around to Awaatua Bay and then walked down to the Crater – a small lake 50-100 m to the west of Awaatua Bay. We found several algae in the Crater, including *Nitella leptostachys* and *Chara fibrosa*, along with more giant spike sedge.

Back along the margins of Lake Rerewhakaaitu, growing in mud, a good-sized population of *Myriophyllum votschii* was spotted. This was a great high note on which to end another memorable day botanising in the inland Bay of Plenty.

Footnote: A second much smaller population of approx. 40 *Carex cirrhosa* plants were subsequently found by John Hobbs and Paul Cashmore 30m east of main beach at the DOC Ash Pit Rd campground. Plants were growing in similar habitat on lake edge behind *Eleocharis sphacelata*.

REFERENCES

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- Department of Lands and Survey 1982: Lake Rerewhakaaitu Draft Management Plan.
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VASCULAR PLANTS OF LAKE REREWHAKAAITU

Sarah M. Beadel

P = planted

Indigenous Species

Gymnosperms

<i>Dacrycarpus dacrydioides</i> - P	kahikatea
<i>Dacrydium cupressinum</i> - P	rimu
<i>Podocarpus totara</i> - P	totara

Monocot. trees and shrubs

<i>Cordyline australis</i> - P	ti kouka
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Dicot. trees and shrubs

<i>Aristotelia serrata</i>	makomako, wineberry
<i>Brachyglottis repanda</i> s.s.	rangiora
<i>Coprosma lucida</i>	karamu
<i>Coprosma robusta</i>	karamu
<i>Coriaria arborea</i> var. <i>arborea</i>	tutu
<i>Dracophyllum strictum</i> (Clarkson & Smale 1982)	
<i>Fuchsia excorticata</i>	kotukutuku
<i>Gaultheria antipoda</i>	tawiniwini
<i>Geniostoma ligustrifolium</i>	hangehange
<i>Hebe stricta</i> var. <i>stricta</i>	koromiko
<i>Kunzea ericoides</i>	kanuka
<i>Leptecophylla juniperina</i> subsp. <i>juniperina</i>	prickly mingimingi
<i>Leptospermum scoparium</i>	manuka
<i>Leucopogon fasciculatus</i>	mingimingi
<i>Leucopogon fraseri</i> (Clarkson 1982)	

<i>Melicytus ramiflorus</i> subsp. <i>ramiflorus</i>	mahoe
<i>Myrsine australis</i>	mapou
<i>Nothofagus fusca</i> - P	red beech, tawhai raunui
<i>Nothofagus menziesii</i> - P	silver beech, tawhai
<i>Olearia furfuracea</i>	akepiro
<i>Pittosporum tenuifolium</i> subsp. <i>tenuifolium</i>	kohuhu
<i>Pomaderris</i> aff. <i>phyllicifolia</i>	
<i>Pseudopanax arboreus</i> var. <i>arboreus</i>	whauwhaupaku, five finger
<i>Sophora tetraptera</i> - P	kowhai
<i>Weinmannia racemosa</i>	kamahi
<u>Dicot. lianes</u>	
<i>Muehlenbeckia australis</i>	puka
<i>Rubus cissoides</i>	tataramoa
<u>Lycopods and psilopsids</u>	
<i>Isoetes kirkii</i> (Clayton <i>et al.</i> 1989)	
<u>Ferns</u>	
<i>Asplenium flaccidum</i> s.s.	makawe
<i>Asplenium oblongifolium</i>	huruhuruwhenua
<i>Azolla filiculoides</i>	retoretore
<i>Blechnum fluviatile</i> agg.	kiwikiwi
<i>Blechnum novae-zelandiae</i> s.s.	kiokio
<i>Blechnum novae-zelandiae</i> (wetland form; <i>B. minus</i> of NZ authors)	swamp kiokio
<i>Cyathea medullaris</i>	mamaku
<i>Dicksonia squarrosa</i>	wheki
<i>Diplazium australe</i>	
<i>Hypolepis ambigua</i>	
<i>Microsorium pustulatum</i>	kowaowao (hounds tongue fern)

<i>Paesia scaberula</i>	matata
<i>Pilularia novae-zelandiae</i> (Clarkson 1982)	
<i>Pneumatopteris pennigera</i>	pakau
<i>Pteridium esculentum</i>	rarahu (bracken)
<i>Pyrrosia eleagnifolia</i>	leather-leaf fern

Orchids

<i>Earina mucronata</i> s.s.	peka-a-waka
<i>Microtis unifolia</i>	maikaika
<i>Thelymitra cyanea</i>	
<i>Thelymitra longifolia</i>	maikuku

Grasses

<i>Amphibromus fluitans</i>	
<i>Cortaderia fulvida</i>	toetoe
<i>Deyeuxia</i> sp.	
<i>Dichelachne crinita</i>	patiti
<i>Isachne globosa</i>	swamp millet
<i>Lachnagrostis filiformis</i>	
<i>Poa anceps</i> subsp. <i>anceps</i> (Clarkson 1982)	
<i>Rytidosperma viride</i> (Clarkson 1982)	

Sedges

<i>Baumea arthrophylla</i>	
<i>Baumea articulata</i>	
<i>Baumea rubiginosa</i>	
<i>Bolboschoenus fluviatilis</i>	ririwaka
<i>Carex cirrhosa</i>	
<i>Carex maorica</i>	
<i>Carex secta</i>	purei

<i>Carex virgata</i>	purei
<i>Eleocharis acuta</i>	
<i>Eleocharis gracilis</i>	
<i>Eleocharis pusilla</i>	
<i>Lepidosperma australe</i>	
<i>Schoenoplectus tabernaemontani</i>	kapungawha
<i>Schoenus maschalinus</i>	
<i>Uncinia uncinata</i>	kamu, matau a Maui

Rushes

<i>Juncus edgarae</i>	wi
<i>Juncus prismatocarpus</i>	
<i>Luzula picta</i>	

Monocot. herbs (other than orchids, grasses, sedges and rushes)

<i>Lemna minor</i>	karearea
<i>Potamogeton ochreatus</i>	
<i>Potamogeton cheesmanii</i>	
<i>Triglochin striata</i>	arrow grass
<i>Typha orientalis</i>	raupo
<i>Wolffia australiana</i>	

Composite herbs

<i>Euchiton involucratus</i>	
<i>Euchiton gymnocephalus</i>	
<i>Euchiton sphaericus</i>	
<i>Pseudognaphalium luteoalbum</i> agg.	pukatea
<i>Senecio glomeratus</i>	
<i>Senecio minimus</i>	

Dicot. herbs (other than composites)

<i>Acaena anserinifolia</i>	piripiri
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<i>Centella uniflora</i>	
<i>Elatine gratioloides</i>	
<i>Galium propinquum</i>	mawe
<i>Glossostigma elatinoides</i>	
<i>Gonocarpus incanus</i>	piripiri
<i>Gonocarpus micranthus</i> subsp. <i>micranthus</i>	
<i>Gratiola sexdentata</i>	
<i>Haloragis erecta</i> subsp. <i>erecta</i>	toatoa
<i>Hydrocotyle microphylla</i>	
<i>Hypericum japonicum</i>	
<i>Lilaeopsis novae-zelandiae</i> (incl. <i>L. lacustris</i> and <i>L. orbicularis</i>)	
<i>Lilaeopsis ruthiana</i>	
<i>Limosella lineata</i>	mudwort
<i>Montia fontana</i>	
<i>Myriophyllum pedunculare</i> sub. <i>novae-zelandiae</i>	
<i>Myriophyllum propinquum</i>	
<i>Myriophyllum triphyllum</i> (Clarkson & Smale 1982)	
<i>Myriophyllum votschii</i>	
<i>Persicaria decipiens</i> agg.	
<i>Pratia angulata</i>	panakenake
<i>Ranunculus fluitans</i> (Clarkson 1982)	
<i>Ruppia polycarpa</i> (Clayton <i>et al.</i> 1989)	

Algae

<i>Characean algeare</i>	
<i>Characean corallina</i>	
<i>Characean fibrosa</i>	
<i>Nitella hyaline</i>	
<i>Nitella leptostachys</i>	

Nitella pseudoflabellata

Adventive Species

Gymnosperms

Cryptomeria sp.

Larix decidua larch

Pinus contorta lodgepole pine

Pinus pinaster maritime pine

Pinus radiata radiata pine

Pseudotsuga menziesii Douglas fir

Dicot. trees and shrubs

Berberis glaucocarpa barberry

Betula pendula silver birch

Cotoneaster glaucophyllus cotoneaster

Cotoneaster sp.

Cytisus scoparius broom

Erica lusitanica Spanish heath

Leycesteria formosa Himalayan honeysuckle

Lupinus arboreus lupin

Malus × *domestica* apple tree

Populus sp. poplar

Prunus sp. ornamental cherry

Quercus ilex oak

Rosa sp. (climbing rose)

Rubus sp. (*R. fruticosus* agg.) blackberry

Salix cinerea grey willow

Salix fragilis crack willow

Liquidamber sp. liquid amber (planted)

Grasses

<i>Agrostis capillaris</i>	browntop
<i>Agrostis stolonifera</i>	creeping bent
<i>Aira caryophylla</i>	silvery hairy grass
<i>Anthoxanthum odoratum</i>	sweet vernal
<i>Arrhenatherum elatius</i>	tall oat grass
<i>Axonopus fissifolius</i>	narrow-leaved carpet grass
<i>Bromus willdenowii</i>	prairie brome
<i>Dactylis glomerata</i>	cocksfoot
<i>Eragrostis brownii</i>	bay grass
<i>Holcus lanatus</i>	Yorkshire fog
<i>Lolium perenne</i>	rye grass
<i>Paspalum dilatatum</i>	paspalum
<i>Poa annua</i>	annual poa
<i>Schedonorus phoenix</i>	tall fescue
<i>Vulpia</i> sp.	

Sedges

<i>Carex demissa</i>
<i>Cyperus eragrostis</i>

Rushes

<i>Juncus acuminatus</i>	sharp-fruited rush
<i>Juncus bufonius</i>	
<i>Juncus bulbosus</i>	
<i>Juncus dregeanus</i>	
<i>Juncus effusus</i>	soft rush
<i>Juncus microcephalus</i>	
<i>Juncus tenuis</i>	track rush

Monocot. herbs (other than orchids, grasses, sedges and rushes)

<i>Nymphaea alba</i>	white water lily
<i>Sisyrinchium iridifolium</i>	purple-eyed grass
<i>Spirodella punctata</i>	purple-backed duckweed

Composite herbs

<i>Achillea millefolium</i>	yarrow
<i>Bidens frondosa</i>	beggars' ticks
<i>Cirsium arvense</i>	California thistle
<i>Cirsium vulgare</i>	Scotch thistle
<i>Centipeda aotearoana</i>	
<i>Centipeda cunninghamii</i>	
<i>Conyza albida</i>	fleabane
<i>Crepis capillaris</i>	hawksbeard
<i>Erechtites hieraciifolia</i>	American fireweed
<i>Gamochaeta spicata</i>	cudweed
<i>Hypochoeris radicata</i>	catsear
<i>Leontodon taraxacoides</i>	hawkbit
<i>Mycelis muralis</i> (Clarkson 1982)	wall lettuce
<i>Senecio bipinnatisectus</i>	Australian fireweed
<i>Senecio jacobaea</i>	ragwort
<i>Sonchus oleraceus</i>	puha
<i>Taraxacum officinale</i>	dandelion

Dicot. herbs (other than composites)

<i>Acaena agnipila</i>	Australian sheep's burr
<i>Acaena novae-zelandiae</i>	piripiri
<i>Acetosa acetosella</i>	sheep's sorrel
<i>Anagallis arvensis</i>	scarlet pimpernel
<i>Cardamine</i> sp.	

<i>Centaureum erythraea</i>	centaury
<i>Cerastium fontanum</i>	mouse-ear chickweed
<i>Digitalis purpurea</i>	foxglove
<i>Elodea canadensis</i>	Canadian pondweed
<i>Epilobium ciliatum</i>	willow herb
<i>Galium palustre</i>	marsh bedstraw
<i>Lagarosiphon major</i>	lagarosiphon; oxygen weed
<i>Lotus pedunculatus</i>	lotus
<i>Lotus suaveolens</i>	hairy birdsfoot trefoil
<i>Ludwigia palustris</i>	water purslane
<i>Lycopus europeus</i>	gypsy wort
<i>Lythrum hyssopifolia</i>	hyssop loosestrife
<i>Mentha pulegium</i>	penny royal
<i>Myosotis</i> sp.	forget-me-not
<i>Ornithopus perpusillus</i>	seradella
<i>Orobanche minor</i>	broomrape
<i>Ottelia</i> sp. (Clarkson 1982)	
<i>Parentucellia viscosa</i>	tarweed
<i>Plantago lanceolata</i>	narrow-leaved plantain
<i>Plantago major</i>	broad-leaved plantain
<i>Polygonum aviculare</i>	wireweed
<i>Polygonum hydropiper</i>	water pepper
<i>Polygonum prostratum</i>	
<i>Potentilla</i> sp. (Clarkson 1982)	
<i>Prunella vulgaris</i>	selfheal
<i>Ranunculus flammula</i>	spearwort
<i>Ranunculus repens</i>	creeping buttercup
<i>Rumex acetosella</i>	sheep's sorrel
<i>Rumex conglomeratus</i>	clustered dock
<i>Rumex obtusifolius</i>	dock

<i>Sagina procumbens</i>	pearlwort
<i>Trifolium arvense</i>	haresfoot trefoil
<i>Trifolium dubium</i>	suckling clover
<i>Trifolium pratense</i>	red clover
<i>Trifolium repens</i>	white clover
<i>Verbascum thapsus</i> (Clarkson 1982)	woolly mullein
<i>Wahlenbergia</i> sp.	harebell