

## THE ENVIRONS OF LAKE OKARO

John F.F. Hobbs

During November 2011 I made two visits to Lake Okaro, the first on the 7<sup>th</sup> to walk the track around the lake and the second on the 21<sup>st</sup> concentrating on the more bushy areas to the south and south-west of the lake.

Much has been written on the eutrophication of the lake through enriched run-off from surrounding dairy farms and the subsequent measures taken to alleviate this problem which I won't go into here as that information may be found by searching with "Google". Suffice to say that an approximately 20 metre wide strip where farmland abutted the lake was retired with the blessing and encouragement of Environment Bay of Plenty, Rotorua District Council, iwi and community representatives, as agreed upon in the Lake Okaro Action Plan in 2006.

After parking in the shade I noticed amongst the loose gravel on the southern side of the car-park small reddish upright herbs which on closer inspection proved to be *Crassula alata* which I had previously found in the Rotorua Ecological District near a Lake Rotoma boat ramp. Other herbs of interest associated with the car-park were toad rush (*Juncus bufonius*), track rush (*Juncus tenuis*), spurrey (*Spergula arvensis*), sand spurrey (*Spergularia rubra*), Onehunga weed (*Soliva sessilis*), parsley piert (*Aphanes inexpectata*) and soldier's button (*Cotula australis*).

To the south of the car-park is a large area of grassland (at that stage unmown) and a *Luzula* attracted my attention with its darkish open heads making it quite conspicuous. Around the south-western and southern margin of the lake there is a remnant strip of bush ranging from 10 metres to 100 metres wide. The dominant trees in this strip are kamahi (*Weinmannia racemosa*), kohuhu (*Pittosporum tenuifolium*) with toru (*Toronia toru*) especially in the south-western portion. The understorey is mainly tree ferns with kiokio (*Blechnum novae-zelandiae*), blackberry (*Rubus fruticosus* agg.) and bracken (*Pteridium*

*esculentum*) in the more open places. In one shaded area was a large patch of tradescantia in the middle of which was several clumps of bluebell (*Hyacinthoides non-scripta*).

Near the eastern end of the bush a small stream provides drainage from the lake down to Lake Rotomahana. This is the stream one sees along the track on the flat after passing through the thermal area at Waimangu. The track along the eastern side of the lake passes through retired farmland with a wide range of grasses, and woody weeds such as broom (*Cytisus scoparius*), and blackberry. In the grassland grey sedge (*Carex divulsa*) was common. At the lake edge were clumps of leafless rush (*Juncus edgariae*) and large patches of submerged *Glossostigma elatinoides* with Canadian pondweed (*Elodea canadensis*) being washed up.

Near the north-eastern part of the reserve is a small scarp over-topped with mainly kamahi and notable species were akepiro (*Olearia furfuracea*), broad-leaved poa (*Poa anceps*), Tarawera (*Pellaea rotundifolia*) and rasp fern (*Doodia australis*), and further around to the north of the lake there has been considerable revegetation planting of *Carex secta*, *C. virgata*, *Cordyline australis* and *Phormium tenax*. Another small scarp along the northern side of the lake provided habitat for several more species such as totorowhiti (*Dracophyllum strictum*), snowberry (*Gaultheria antipoda*), broadleaf (*Griselinia littoralis*), the filmy fern *Hymenophyllum rarum* and the little hard fern (*Blechnum penna-marina*).

At the north-western quadrant (and extending across Okaro Road) considerable wetland revegetation planting has taken place, board-walks with a lookout built, and signage erected to explain the concepts of wetland restoration.

An interesting area well worth a visit.

## LAKE OKARO RESERVE

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Key : \* = naturalised plants, (p) = planted, (+p) = natural & planted

### FERNS

<i>Asplenium bulbiferum</i>	hen and chickens fern
<i>Asplenium flaccidum</i>	petako-paraharaha
<i>Asplenium gracillimum</i>	huruhuruwhenua
<i>Asplenium oblongifolium</i>	huruhuruwhenua
<i>Asplenium polyodon</i>	petako
<i>Azolla filiculoides</i>	retoretore
<i>Blechnum chambersii</i>	rereti
<i>Blechnum filiforme</i>	panako
<i>Blechnum fluviatile</i>	kiwikiwi
<i>Blechnum novae-zelandiae</i>	kiokio
<i>Blechnum penna-marina</i> subsp. <i>alpina</i>	little hard fern
<i>Cyathea dealbata</i>	silver fern
<i>Cyathea medullaris</i>	mamaku
<i>Cyathea smithii</i>	soft tree fern
<i>Deparia petersenii</i> subsp. <i>congrua</i>	
<i>Dicksonia fibrosa</i>	wheki-ponga
<i>Dicksonia squarrosa</i>	wheki
<i>Diplazium australe</i>	
<i>Doodia australis</i>	pukupuku
<i>Histiopteris incisa</i>	matata, water fern
<i>Hymenophyllum rarum</i>	thin filmy fern
<i>Hypolepis ambigua</i>	
<i>Lastreopsis glabella</i>	
<i>Lastreopsis microsora</i> subsp. <i>pentangularis</i>	
<i>Microsorium pustulatum</i>	hounds tongue fern
<i>Paesia scaberula</i>	matata
<i>Pellaea rotundifolia</i>	tarawera, button fern
<i>Pneumatopteris pennigera</i>	gully fern
<i>Polystichum neozelandicum</i> subsp. <i>neozelandicum</i>	pikopiko, shield fern
<i>Polystichum vestitum</i>	prickly shield fern
<i>Pteridium esculentum</i>	bracken
<i>Pteris macilenta</i>	sweet fern
<i>Pteris tremula</i>	shaking brake
<i>Pyrrrosia eleagnifolia</i>	leather-leaf fern

### GYMNOSPERMS

<i>Dacrycarpus dacrydioides</i> (p)	kahikatea
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* <i>Larix decidua</i>	larch
* <i>Pinus nigra</i>	Corsican pine
* <i>Pinus strobus</i>	strobilus pine
<i>Podocarpus totara</i> var. <i>totara</i> (p)	totara
<b>DICOTS</b>	
* <i>Acacia mearnsii</i>	black wattle
* <i>Achillea millefolium</i>	yarrow
* <i>Anagallis arvensis</i> var. <i>arvensis</i>	scarlet pimpernel
* <i>Aphanes inexpectata</i>	parsley piert
<i>Aristolelia serrata</i>	makomako, wineberry
* <i>Bellis perennis</i>	daisy
* <i>Berberis glaucocarpa</i>	barberry
* <i>Bidens frondosa</i>	beggars' ticks
<i>Brachyglottis repanda</i>	rangiora
* <i>Brassica rapa</i> subsp. <i>sylvestris</i>	wild turnip
* <i>Capsella bursa-pastoris</i>	shepherd's purse
* <i>Cardamine flexuosa</i>	wavy bitter cress
* <i>Cerastium fontanum</i> subsp. <i>vulgare</i>	mouse-ear chickweed
<i>Clematis paniculata</i>	puawananga
* <i>Conyza sumatrensis</i>	fleabane
<i>Coprosma lucida</i>	karamu
<i>Coprosma robusta</i>	karamu
<i>Coriaria arborea</i> var. <i>arborea</i>	tutu
<i>Cotula australis</i>	soldier's button
* <i>Crassula alata</i>	
* <i>Crepis capillaris</i>	hawksbeard
* <i>Cytisus scoparius</i>	broom
<i>Dracophyllum strictum</i>	totorowhiti
* <i>Epilobium ciliatum</i>	willow herb
* <i>Fumaria muralis</i>	scrambling fumitory
* <i>Galium aparine</i>	cleavers, bedstraw
* <i>Galium palustre</i>	marsh bedstraw
* <i>Gamochaeta coarctata</i>	cudweed
<i>Gaultheria antipoda</i>	snowberry
<i>Geniostoma ligustrifolium</i> var. <i>ligustrifolium</i>	hangehange
* <i>Geranium dissectum</i>	cut-leaved geranium
* <i>Geranium molle</i>	dove's foot cranesbill
* <i>Geranium robertianum</i>	herb Robert
<i>Glossostigma elatinoides</i>	
<i>Griselinia littoralis</i>	kapuka
<i>Hebe stricta</i> var. <i>stricta</i>	koromiko
* <i>Hypochaeris radicata</i>	catsear
<i>Kunzea</i> aff. <i>ericoides</i>	

* <i>Lactuca serriola</i>	prickly lettuce
* <i>Lapsana communis</i>	nipplewort
* <i>Leontodon taraxacoides</i>	hawkbit
* <i>Lepidium didymum</i>	twin cress
<i>Leptospermum scoparium</i> agg. (+p)	manuka
<i>Leucopogon fasciculatus</i>	mingimingi
<i>Lilaeopsis ruthiana</i>	
* <i>Linum bienne</i>	pale flax
<i>Litsea calicaris</i>	mangeao
<i>Lobelia angulata</i>	panakenake
* <i>Ludwigia palustris</i>	water purslane
* <i>Lupinus arboreus</i>	lupin
* <i>Lycopus europaeus</i>	gypsy wort
<i>Melicytus ramiflorus</i> subsp. <i>ramiflorus</i>	mahoe
* <i>Mentha pulegium</i>	penny royal
* <i>Modiola caroliniana</i>	creeping mallow
<i>Muehlenbeckia australis</i>	puka
* <i>Mycelis muralis</i>	wall lettuce
* <i>Myosotis laxa</i> subsp. <i>caespitosa</i>	forget-me-not
* <i>Myosotis sylvatica</i>	garden forget-me-not
<i>Olearia furfuracea</i>	akepiro
* <i>Ornithopus perpusillus</i>	seradella
* <i>Oxalis corniculata</i>	horned oxalis
* <i>Parentucellia viscosa</i>	tarweed
<i>Parsonsia capsularis</i>	akakiore
<i>Pittosporum tenuifolium</i>	kohuhu
* <i>Plantago australis</i>	swamp plantain
* <i>Plantago lanceolata</i>	narrow-leaved plantain
* <i>Plantago major</i>	broad-leaved plantain
* <i>Polygonum aviculare</i>	wireweed
* <i>Prunella vulgaris</i>	selfheal
* <i>Prunus serrulata</i>	Japanese hill cherry
<i>Pseudognaphalium luteoalbum</i> agg.	pukatea
<i>Pseudopanax arboreus</i>	five finger
<i>Pseudopanax crassifolius</i>	lancewood
* <i>Ranunculus flammula</i>	spearwort
<i>Ranunculus reflexus</i>	maruru
* <i>Ranunculus repens</i>	creeping buttercup
* <i>Ranunculus sceleratus</i>	celery-leaved buttercup
* <i>Robinia pseudoacacia</i>	false acacia
* <i>Rosa rubiginosa</i>	sweet brier
* <i>Rubus fruticosus</i> agg.	blackberry
* <i>Rumex acetosella</i>	sheep's sorrel
* <i>Rumex conglomeratus</i>	clustered dock

* <i>Rumex crispus</i>	curled dock
* <i>Rumex obtusifolius</i>	dock
* <i>Rumex pulcher</i>	fiddle dock
* <i>Salix cinerea</i>	grey willow
* <i>Salix fragilis</i>	crack willow
<i>Schefflera digitata</i>	pate
* <i>Senecio bipinnatisectus</i>	Australian fireweed
<i>Senecio glomeratus</i>	
* <i>Senecio vulgaris</i>	groundsel
* <i>Silene gallica</i>	catchfly
* <i>Sisymbrium officinale</i>	hedge mustard
<i>Solanum aviculare</i> var. <i>aviculare</i>	poroporo
* <i>Solanum nigrum</i>	black nightshade
* <i>Soliva sessilis</i>	Onehunga weed
* <i>Sonchus asper</i>	prickly sow thistle
* <i>Sonchus oleraceus</i>	puha
* <i>Spergula arvensis</i>	spurrey
* <i>Spergularia rubra</i>	sand spurrey
* <i>Stachys arvensis</i>	staggerweed
* <i>Stellaria media</i>	chickweed
<i>Stellaria parviflora</i>	kohukohu
* <i>Taraxacum officinale</i>	dandelion
<i>Toronia toru</i>	toru
* <i>Trifolium dubium</i>	suckling clover
* <i>Trifolium pratense</i>	red clover
* <i>Trifolium repens</i>	white clover
* <i>Trifolium subterraneum</i>	subterranean clover
* <i>Veronica arvensis</i>	field speedwell
* <i>Veronica persica</i>	scrambling speedwell
* <i>Vicia sativa</i>	vetch
<i>Weinmannia racemosa</i>	kamahi, tawhero

## MONOCOTS

* <i>Agrostis capillaris</i>	browntop
* <i>Aira caryophyllea</i> subsp. <i>caryophyllea</i>	silvery hairy grass
* <i>Anthoxanthum odoratum</i>	sweet vernal
* <i>Bromus willdenowii</i>	prairie brome
* <i>Carex divulsa</i>	grey sedge
* <i>Carex ovalis</i>	oval sedge
<i>Carex secta</i> (+p)	purei
<i>Carex virgata</i> (+p)	purei
<i>Cordyline australis</i>	ti kouka
<i>Cortaderia fulvida</i>	toetoe
* <i>Critesion murinum</i> subsp. <i>murinum</i>	barley grass

* <i>Dactylis glomerata</i>	cocksfoot
<i>Dianella nigra</i>	turutu
<i>Earina mucronata</i>	peka-a-waka
<i>Eleocharis acuta</i>	sharp spike-sedge
<i>Eleocharis gracilis</i>	
<i>Eleocharis sphacelata</i>	
* <i>Elodea canadensis</i>	Canadian pondweed
* <i>Holcus lanatus</i>	Yorkshire fog
* <i>Hyacinthoides non-scripta</i>	bluebell
* <i>Juncus articulatus</i>	jointed rush
<i>Juncus edgariae</i>	wi
<i>Juncus sarophorus</i>	wi
* <i>Juncus tenuis</i> var. <i>tenuis</i>	track rush
* <i>Lolium perenne</i>	rye grass
* <i>Luzula picta</i> var. <i>limosa</i>	woodrush
<i>Microtis unifolia</i> agg.	maikaika
<i>Phormium tenax</i> (p)	harakeke, flax
<i>Poa anceps</i> agg.	broad-leaved poa
* <i>Poa annua</i>	annual poa
* <i>Schedonorus arundinaceus</i>	tall fescue
<i>Schoenoplectus tabernaemontani</i>	lake clubrush
* <i>Sisyrinchium</i> "blue"	
* <i>Tradescantia fluminensis</i>	tradescantia
<i>Uncinia uncinata</i>	kamu
* <i>Vulpia myuros</i> var. <i>myuros</i>	vulpia hair grass