

VEGETATION AND FLORA OF BROADLANDS BLOCK RESERVE, WAIHI BEACH

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On 13 September 2009 John Hobbs and I visited a little known Western Bay of Plenty District Council (WBOPDC) reserve at Waihi Beach known as Broadlands Block Reserve. This 9.8 ha reserve is the large block of 'undeveloped' land behind the Waihi Beach pub on Wilson Road and is bordered by Waihi Beach Road to the west and the community centre to the north. The prompt for this visit was mainly curiosity and the need to gather some basic botanical information as I was personally aware of this reserve but was not aware of even basic vegetation information for the reserve, let alone a vascular plant species list.

The reserve is broadly comprised of 5 main vegetation types as follows:

1. Grey willow-manuka shrubland.

This vegetation type occurs in the western corner of the reserve immediately south of the community centre. Grey willow (*Salix cinerea*) saplings and small trees are regenerating amongst manuka shrubland and will eventually overtop the manuka (*Leptospermum scoparium*) if not controlled. Japanese honeysuckle (*Lonicera japonica*) is abundant throughout this forest type. Blackberry (*Rubus fruticosus* agg.) is also locally common.

2. *Baumea articulata* reedland.

A small pure stand of *Baumea articulata* occurs near the SW corner of the reserve and is contiguous with grey willow-manuka shrubland in 1 above.

3. Rank exotic grassland.

This type dominates most of the reserve and reflects historic clearance of indigenous vegetation and, more recently, grazing. Composition varies with drier parts dominated by kikuyu (*Pennisetum clandestinum*) and wetter areas with buttercup (*Ranunculus repens*), tall fescue (*Schedonorus arundinaceus*), dock (*Rumex obtusifolius*) and

narrow-leaved plantain (*Plantago lanceolata*). Blackberry, Japanese honeysuckle, arum lily (*Zantedeschia aethiopica* and *Zantedeschia aethiopica* cv. 'Green Goddess') are locally scattered throughout. This habitat was generally not botanised in detail and the eastern half was not visited. The grassland behind the Waihi pub along the stream margin is particularly weedy with a clump of Mexican devil (*Ageratina adenophora*) found along with a range of other weed species including German ivy (*Delairea odorata*, also known as *Senecio mikanioides*). Inkweed (*Phytolacca octandra*) and purple top (*Verbena bonariensis*) are locally common.

4. Grey willow forest.

This is the main remnant of wetland habitat left in the block. From a distance it does not look particularly interesting, being dominated by grey willow, with abundant Japanese honeysuckle and blackberry on margins. However once in under the canopy it is a different picture. There is little subcanopy present but swamp coprosma (*Coprosma tenuicaulis*) is locally present along with an occasional cabbage tree (*Cordyline australis*). Chinese privet (*Ligustrum sinense*) is also scattered throughout as saplings and seedlings, mostly in the understorey. Japanese honeysuckle is present, mostly scrambling through the grey willow canopy, but does occur throughout all layers including the understorey in places where it is drier, but blackberry is very occasional. *Muehlenbeckia complexa* is also present, in some places scrambling locally on the ground but mainly in the canopy. The understorey is dominated by *Carex virgata* and giant umbrella sedge (*Cyperus ustulatus*) which are common throughout. Unfortunately arum lily including the 'Green Goddess' variety is also common here.

The southeastern part of this habitat has wandering willie (*Tradescantia fluminensis*) present in the understorey along with African clubmoss (*Selaginella kraussiana*) which occurs throughout. In many places the understorey is quite dense with some relatively weed free swards of *Carex virgata* present. Also pleasing to see was the amount of standing water present when visited. Although this probably was during the wettest period of the year, standing water was present throughout the grey

willow forest with only a few dry hummocks present. The amount of water present suggested that with control of the grey willow, Japanese honeysuckle and arum lily a wetland dominated by indigenous species (mainly *Carex virgata*) would be present.

5. Gorse scrub

At the eastern end of the reserve a large hillock of previously dumped spoil is dominated by gorse (*Ulex europaeus*) scrub amongst exotic grassland. This vegetation type was only seen from a distance and was not examined further.

The vascular plant species list compiled for the reserve during the visit contains 68 exotic and 36 indigenous plant species, a total recorded flora of 104 vascular plant species. With 65% of the flora exotic this recognises the high level of modification and weed encroachment present in the reserve in a semi-urban environment. No nationally threatened indigenous plant species were recorded.



Figure 1: Overview of reserve.

The Future

The reserve is an asset for the local Waihi Beach community representing one of the last remaining publicly owned examples (albeit modified) of the once extensive freshwater wetlands that would have existed behind the dune system along this coastal strip. While currently not managed the reserve presents many opportunities for restoration coupled with management of storm water flows, which has been an ongoing issue at Waihi Beach for many years. To this end WBOPDC has adopted a concept plan for the reserve in its current Waihi Beach Reserves Management Plan (WBOPDC 2009) following consultation with the local community.

The concept plan proposes management of the two main indigenous vegetation areas (types 1-2 and 4 above) by a community group with a focus on weed control and regeneration of native vegetation. The plan suggests initial mowing of the exotic grassland between the above areas rather than revegetation of this area to link the two indigenous vegetation areas together. The rank exotic grassland at the eastern end of the wetland is proposed for development into a community pitch and putt golf course to be managed by a community group (WBOPDC 2009).

With good restoration advice and local management by a dedicated local community group and appropriate funding levels this reserve has the potential to be a showcase of wetland restoration and management in a semi-urban environment which will transform it from its current rather neglected state into an asset that the community recognises and values.

REFERENCE

Western Bay of Plenty District Council 2009. *Waihi Beach Reserves Management Plan*.
Western Bay of Plenty Council, Barks Corner, Tauranga.

**BROADLANDS BLOCK RESERVE (WAIHI BEACH)
VASCULAR PLANT SPECIES LIST**

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NZMS 260 U13 703 173

		Non- forest Willow land forest
Botanical Name	Common Name	
* = naturalised		
* <i>Abutilon darwinii</i> × <i>A. pictum</i>	Chinese lantern	√
* <i>Acacia verticillata</i>	prickly Moses	√
* <i>Ageratina adenophora</i>	Mexican devil	√
* <i>Agrostis stolonifera</i>	creeping bent	√
* <i>Allium triquetrum</i>	three-cornered garlic	√ √
* <i>Alocasia brisbanensis</i>	elephant's ear	√
* <i>Anthoxanthum odoratum</i>	sweet vernal	√
* <i>Araujia sericifera</i>	moth plant	√
* <i>Asparagus scandens</i>	climbing asparagus	√
<i>Baumea arthropophylla</i>	baumea	√
<i>Baumea articulata</i>	baumea	√
<i>Blechnum novae-zelandiae</i>	kiokio	√ √
<i>Brachyglottis repanda</i>	rangiora	√
* <i>Brassica rapa</i>	wild turnip	√
* <i>Callitriche stagnalis</i>	starwort	√
<i>Calystegia sepium</i> subsp. <i>roseata</i>	pohue	√ √
* <i>Canna indica</i>	canna lily	√
<i>Carex geminata</i> agg.	rautahi	√
<i>Carex virgata</i>	purei	√ √
* <i>Cerastium fontanum</i> subsp. <i>vulgare</i>	mouse-ear chickweed	√
* <i>Cichorium intybus</i>	chicory	√
* <i>Cirsium vulgare</i>	Scotch thistle	√
<i>Coprosma repens</i>	taupata	√
<i>Coprosma robusta</i>	karamu	√ √
<i>Coprosma tenuicaulis</i>	hukihuki	√
<i>Cordyline australis</i>	ti kouka	√
<i>Cortaderia fulvida</i>	toetoe	√
* <i>Cortaderia selloana</i>	pampas	√
* <i>Crocasmia</i> × <i>crocosmiiflora</i>	montbretia	√
<i>Cyathea dealbata</i>	silver fern	√ √
<i>Cyathea medullaris</i>	mamaku	√ √
<i>Cyperus ustulatus</i> f. <i>ustulatus</i>	toetoe upokotangata	√ √

* <i>Cytisus scoparius</i>	broom	√	
* <i>Dactylis glomerata</i>	cocksfoot	√	
* <i>Datura stramonium</i>	thorn apple	√	
* <i>Daucus carota</i>	wild carrot	√	
* <i>Delairia odorata</i> (<i>Senecio mikanioides</i>)	German ivy	√	
<i>Deparia petersenii</i> subsp. <i>congrua</i>	deparia		√
<i>Doodia australis</i>	pukupuku		√
* <i>Duchesnea indica</i>	Indian strawberry		√
* <i>Euonymus japonicus</i>	Japanese spindle tree		√
* <i>Fatsia japonica</i>	fatsia	√	
* <i>Galium aparine</i>	cleavers, bedstraw	√	
<i>Galium propinquum</i>	mawe		√
* <i>Geranium molle</i>	dove's foot cranesbill	√	
* <i>Glyceria fluitans</i>	floating sweetgrass		√
<i>Haloragis erecta</i> subsp. <i>erecta</i>	toatoa	√	
* <i>Hedychium gardnerianum</i>	kahili ginger; wild ginger	√	√
<i>Histiopteris incisa</i>	matata, water fern	√	
* <i>Holcus lanatus</i>	Yorkshire fog	√	
* <i>Impatiens sodenii</i>	shrub balsam	√	
<i>Isolepis reticularis</i>		√	
* <i>Jacobaea vulgaris</i>	ragwort	√	
* <i>Lactuca virosa</i>	acrid lettuce	√	
<i>Leptospermum scoparium</i> agg.	manuka	√	
* <i>Ligustrum lucidum</i>	tree privet	√	
* <i>Ligustrum sinense</i>	Chinese privet	√	√
* <i>Lonicera japonica</i>	Japanese honeysuckle	√	
* <i>Lotus pedunculatus</i>	lotus	√	√
* <i>Ludwigia palustris</i>	water purslane	√	
* <i>Lupinus arboreus</i>	lupin	√	
* <i>Lythrum hyssopifolia</i>	hyssop loosestrife	√	
<i>Macropiper excelsum</i> subsp. <i>excelsum</i>	kawakawa	√	√
<i>Melicytus ramiflorus</i> subsp. <i>ramiflorus</i>	mahoe	√	
<i>Metrosideros excelsa</i>	pohutukawa	√	
<i>Microsorium pustulatum</i>	hounds tongue fern		√
<i>Muehlenbeckia australis</i>	puka	√	√
<i>Muehlenbeckia complexa</i>	pohuehue		√
<i>Myriophyllum pedunculatum</i>	milfoil	√	
<i>Paesia scaberula</i>	matata	√	
* <i>Paraserianthes lophantha</i>	brush wattle	√	
* <i>Parentucellia viscosa</i>	tarweed	√	
* <i>Pennisetum clandestinum</i>	kikuyu grass	√	
* <i>Persicaria hydropiper</i>	water pepper		√
<i>Phormium tenax</i>	harakeke, flax	√	
* <i>Physalis peruviana</i>	cape gooseberry	√	

* <i>Phytolacca octandra</i>	inkweed	√	
<i>Pittosporum crassifolium</i>	karo	√	√
* <i>Plantago lanceolata</i>	narrow-leaved plantain	√	
* <i>Populus sp.</i>	poplar	√	
* <i>Prunella vulgaris</i>	selfheal	√	
<i>Pteridium esculentum</i>	rarahu (bracken)	√	
<i>Pteris tremula</i>	turawera (shaking brake)		√
<i>Pyrrosia eleagnifolia</i>	leather-leaf fern		√
* <i>Ranunculus flammula</i>	spearwort	√	√
* <i>Ranunculus repens</i>	creeping buttercup	√	
* <i>Rubus fruticosus</i> agg.	blackberry	√	√
* <i>Rumex obtusifolius</i>	dock	√	√
* <i>Rumex sagittatus</i>	climbing dock	√	
* <i>Salix cinerea</i>	grey willow	√	√
* <i>Schedonorus arundinaceus</i>	tall fescue	√	
<i>Schoenoplectus tabernaemontani</i>	lake clubrush, kapungawha	√	
* <i>Selaginella kraussiana</i>	creeping clubmoss		√
* <i>Senecio bipinnatisectus</i>	Australian fireweed	√	
* <i>Solanum chenopodioides</i>	velvety nightshade	√	
* <i>Solanum nigrum</i>	black nightshade	√	
* <i>Solanum pseudocapsicum</i>	Jerusalem cherry		√
* <i>Sonchus oleraceus</i>	puha	√	
* <i>Tradescantia fluminensis</i>	tradescantia	√	
* <i>Tropaeolum majus</i>	garden nasturtium	√	
* <i>Ulex europaeus</i>	gorse	√	
* <i>Verbena bonariensis</i>	purple-top	√	
* <i>Zantedeschia aethiopica</i>	arum lily	√	√
* <i>Zantedeschia aethiopica</i> 'Green Goddess'	arum lily		√