

## WINTER EXPEDITION TO TIROHANGA

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A good-sized group of keen botanists met in Opotiki on a winter's morning to explore the dunes, pā site, and wetland at Tirohanga. This area is of regional ecological significance, and has been previously described, mapped, and assessed in a study on all significant sites in the coastal zone of the Bay of Plenty (Wildland Consultants Ltd 2006). Several other earlier studies have also looked at this area.

Although rain threatened at one stage, we were lucky and it held off for the whole day. In the morning we explored the dunes where we saw marram, spinifex, and *Carex pumila*. Weeds were common in this area, with infestations of varying sizes of several species, including giant reed grass, yucca, and agapanthus. We also saw a hybrid bindweed *Calystegia sepium* × *C. soldanella*, and were very pleased to find some native sand oxalis (*Oxalis rubens*). Exploring the pā site, which supports pohutukawa/(mahoe)-(karaka)-(kawakawa)-(houpara)-(taupata) forest, pohutukawa treeland, and wharariki-pohuehue-flaxland, we found several interesting species, including *Carex breviculmis*, and *Hebe stricta* var. *macroura* on the cliffs above the beach, and *Carex spirostris* under the pohutukawa.

After a late picnic lunch beside the sea we drove around to the Tirohanga wetland, which is on the other side of the Tirohanga Stream. The wetland is a special area, particularly for avifauna; whilst we saw fernbird during our afternoon visit, in 1998 Walls recorded Australasian bittern, marsh crake, and banded rail. The wetland was in relatively good condition, it had not been grazed recently, and there had been some recent pampas control. In the exotic-dominant grassland adjacent to the wetland, we found a small population of *Alternanthera denticulata*, which was one of the highlights of the field trip. I have seen this species at only a handful of other sites in the Bay of Plenty, and it is a regionally uncommon species (see Beadel 2009).

The vegetation cover comprised several vegetation types, including *Baumea juncea*-oioi sedgeland with *Calystegia sepium* scrambling over and local harakeke and marsh ribbonwood; raupo-*Baumea articulata* reedland with scattered sea couch; large areas of *Bolboschoenus fluviatilis* sedgeland beside the stream; harakeke-marsh ribbonwood-searush-*Baumea juncea*-oioi flaxland; marsh ribbonwood/searush-oioi rushland with scattered harakeke seedlings, a few *Bolboschoenus fluviatilis* and *Baumea articulata*, and local *Baumea juncea*; harakeke flaxland with local marsh ribbonwood; also areas dominated by *Baumea juncea* in association with marsh ribbonwood, oioi, *Bolboschoenus*, *Carex virgata*, and *Baumea articulata*; and small areas dominated by marsh ribbonwood and searush. Near the southwestern end of the wetland there were small herbfields of arrow grass (*Triglochin striata*) and *Selliera radicans*, with local native celery (*Apium prostratum* subsp. *prostratum* var. *filiforme*), and bachelors' button (*Cotula coronopifolia*).

We also found a sizeable population of *Bolboschoenus caldwellii*. This was a new record for Opotiki Ecological District (Beadel *et al.* 2009), and is another regionally uncommon species (Beadel 2009). During the day we found several other species that had not previously been recorded from the Opotiki Ecological District (as per Beadel *et al.* 2009). These are all naturalised species, and include *Cyperus eragrostis*, *Ficus carica*, *Lactuca virosa*, *Oxalis incarnata*, *Physalis peruviana*, *Sida rhombifolia*, *Solanum chenopodioides*, *Verbascum thapsus*, *Yucca gloriosa*, and *Zantedeschia aethiopica*.

The day concluded with a brief foray to the dunes north of the wetland. The foredunes are dominated by sea couch with scattered boxthorn, *Calystegia soldanella*, and catsear. On the back dunes there was a small clump of taupata, along with local houpara. Beneath the taupata we found a few plants of *Asplenium flaccidum*, *Microsorium pustulatum*, *Asplenium polyodon*, *Pyrrosia eleagnifolia*, and woolly nightshade, however sea couch was common.

## **REFERENCES**

- Beadel S.M. 2009. Regionally uncommon plant species in the Bay of Plenty. Wildland Consultants Contract Report No. 1175a.
- Beadel S., Ecroyd C., de Lange P., Cashmore P., Shaw W., Crump S. 2009. Checklist of indigenous and naturalised vascular plants in the Bay of Plenty. Rotorua Botanical Society. 99 p.
- Walls G. 1998. Ecological survey of the Opotiki Ecological District coastal zone. *Conservation Advisory Science Notes: 189*. Department of Conservation, Wellington. 21 p.
- Wildland Consultants. 2006. Significant indigenous vegetation and significant habitats of indigenous fauna in the coastal environment of the Bay of Plenty Region. Wildland Consultants Ltd Contract Report No. 1345. Prepared for Environment BOP. Volume 1 - 553 p, Volume 2 - maps 49 p.

## TIROHANGA PĀ SITE AND WETLAND

Key W = Wetland species (western side of stream).  
P = Pa site and dune species (eastern side of stream).

### INDIGENOUS SPECIES

#### Monocot. trees and shrubs

*Cordyline australis* (P) ti kouka, cabbage tree  
*Cordyline banksii* (P) ti ngahere, forest cabbage tree

#### Dicot. trees and shrubs

*Brachyglottis repanda* (P) rangiora  
*Coprosma repens* (P) taupata  
*Corynocarpus laevigatus* karaka  
*Geniostoma ligustrifolium* var. *ligustrifolium* (P) hangehange  
*Hebe stricta* var. *macroura* (P) koromiko  
*Leptospermum scoparium* agg. (W) manuka  
*Macropiper excelsum* subsp. *excelsum* (P) kawakawa  
*Melicytus ramiflorus* subsp. *ramiflorus* (P) mahoe  
*Metrosideros excelsa* (P) pohutukawa  
*Myoporum laetum* (P) ngaio  
*Myrsine australis* (P) mapou  
*Pittosporum crassifolium* (P) karo  
*Plagianthus divaricatus* (W) marsh ribbonwood, makaka

#### Dicot. lianes

*Calystegia sepium* subsp. *roseata* (W) pohue  
*Calystegia sepium* subsp. *roseata* × *C. soldanella* (P)  
*Muehlenbeckia complexa* (W,P) pohuehue

#### Ferns

*Asplenium flaccidum* (P) makawe  
*Asplenium oblongifolium* (P) huruhuruwhenua  
*Asplenium polyodon* (P) petako  
*Cyathea dealbata* (P) ponga, silver fern  
*Cyathea medullaris* (P) mamaku  
*Dicksonia squarrosa* (P) wheki  
*Doodia australis* (P) pukupuku  
*Histiopteris incisa* (W) matata, water fern

<i>Microsorium pustulatum</i> (P)	kowaowao, hound's tongue fern
<i>Pellaea rotundifolia</i> (P)	tarawera, button fern
<i>Polystichum</i> sp. (P)	pikopiko, shield fern
<i>Pteridium esculentum</i> (W,P)	rarahu, bracken
<i>Pteris tremula</i> (P)	turawera, shaking brake
<i>Pyrrosia eleagnifolia</i> (P)	leather-leaf fern

### Grasses

<i>Lachnagrostis billardierei</i> (P)	perehia; sand wind grass
<i>Microlaena stipoides</i> (P)	patiti, meadow rice grass
<i>Oplismenus hirtellus</i> subsp. <i>imbecillis</i> (P)	
<i>Poa anceps</i> agg. (P)	
<i>Rytidosperma gracile</i> (P)	
<i>Spinifex sericeus</i> (P)	kowhangatara, spinifex

### Sedges

<i>Baumea articulata</i> (W)	
<i>Baumea juncea</i> (W)	
<i>Bolboschoenus caldwellii</i> (W)	purua grass
<i>Bolboschoenus fluviatilis</i> (W,P)	purua grass
<i>Carex breviculmis</i> (P)	
<i>Carex geminata</i> agg. (W)	rautahi
<i>Carex maorica</i> (W)	
<i>Carex pumila</i> (P)	
<i>Carex spirostris</i> (P)	
<i>Carex testacea</i> (P)	
<i>Carex virgata</i> (W,P)	purei
<i>Cyperus ustulatus</i> f. <i>ustulatus</i> (W,P)	toetoe, upokotangata
<i>Ficinia nodosa</i> (W,P)	wiwi
<i>Ficinia spiralis</i> (W)	pingao
<i>Uncinia uncinata</i> (P)	kamu matau a Maui

### Rushes

<i>Apodasmia similis</i> (W,P)	oioi
<i>Juncus kraussii</i> var. <i>australiensis</i> (W,P)	wi sea rush

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

<i>Lemna minor</i> (W)	karearea
<i>Phormium cookianum</i> subsp. <i>hookeri</i> (P)	wharariki, mountain flax
<i>Phormium tenax</i> (W)	harakeke, flax

<i>Triglochin striata</i> (W)	arrow grass
<i>Typha orientalis</i> (W)	raupo
<u>Composite herbs</u>	-
<i>Cotula coronopifolia</i> (W)	bachelor's button
<u>Dicot. herbs (other than composites)</u>	-
<i>Alternanthera denticulata</i> (W)	nahui
<i>Apium prostratum</i> subsp. <i>prostratum</i> var. <i>filiforme</i> (W)	tuutae kooau, New Zealand celery
<i>Dichondra repens</i> (P)	Mercury Bay weed
<i>Geranium homeanum</i> (P)	pinakitere
<i>Haloragis erecta</i> subsp. <i>erecta</i> (P)	toatoa
<i>Oxalis rubens</i> (P)	sand oxalis
<i>Selliera radicans</i> (W)	remuremu

## NATURALISED AND EXOTIC SPECIES

### Monocot. trees and shrubs

<i>Yucca gloriosa</i> (P)	yucca
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### Dicot. trees and shrubs

<i>Berberis glaucocarpa</i> (P)	barberry
<i>Crataegus monogyna</i> (P)	hawthorn
<i>Ficus carica</i> (P)	fig
<i>Juglans ailantifolia</i> (P)	Japanese walnut
<i>Ligustrum lucidum</i> (P)	tree privet
<i>Lupinus arboreus</i> (P)	lupin
<i>Rubus</i> sp. ( <i>R. fruticosus</i> agg.) (W,P)	blackberry
<i>Solanum mauritianum</i> (P)	woolly nightshade
<i>Ulex europaeus</i> (W,P)	gorse

### Monocot. lianes

<i>Asparagus asparagoides</i> (P)	smilax
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### Dicot. lianes

<i>Lonicera japonica</i> (P)	Japanese honeysuckle
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## Grasses

<i>Ammophila arenaria</i> (P)	marram
<i>Arundo donax</i> (P)	giant reed
<i>Cortaderia selloana</i> (W)	pampas
<i>Cynodon dactylon</i> (P)	Indian doab
<i>Dactylis glomerata</i> (P)	cocksfoot
<i>Elytrigia pycnantha</i> (W,P)	sea couch
<i>Holcus lanatus</i> (W,P)	Yorkshire fog
<i>Paspalum dilatatum</i> (P)	paspalum
<i>Paspalum vaginatum</i> (P)	saltwater paspalum
<i>Schedonorus arundinaceus</i> (W,P)	tall fescue
<i>Stenotaphrum secundatum</i> (P)	buffalo grass

## Sedges

<i>Cyperus eragrostis</i> (W)	umbrella sedge
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## Monocot. herbs (other than orchids, grasses, sedges, and rushes)

<i>Agapanthus praecox</i> (P)	agapanthus
<i>Crocasmia ×crocasmiflora</i> (P)	montbretia
<i>Zantedeschia aethiopica</i> (P)	arum lily

## Composite herbs

<i>Aster subulatus</i> (W)	sea aster
<i>Cichorium intybus</i> (W)	chicory
<i>Cirsium arvense</i> (P)	California thistle
<i>Cirsium vulgare</i> (P)	Scotch thistle
<i>Conyza sumatrensis</i> (P)	broad-leaved fleabane
<i>Crepis capillaris</i> (P)	hawksbeard
<i>Hypochaeris radicata</i> (P)	catsear
<i>Jacobaea vulgaris</i> (P)	ragwort
<i>Lactuca virosa</i> (P)	acrid lettuce
<i>Leontodon taraxacoides</i> (P)	hawkbit
<i>Senecio bipinnatisectus</i> (P)	Australian fireweed
<i>Sonchus asper</i> (P)	prickly puha
<i>Sonchus oleraceus</i> (W,P)	puha, sow thistle

## Dicot. herbs (other than composites)

<i>Anagallis arvensis</i> (P)	scarlet pimpernel
<i>Cakile maritima</i> (P)	sea rocket

<i>Carpobrotus edulis</i> (P)	ice plant
<i>Daucus carota</i> (P)	wild carrot
<i>Euphorbia peplus</i> (P)	milkweed
<i>Foeniculum vulgare</i> (P)	fennel
<i>Fumaria muralis</i> (P)	scrambling fumitory
<i>Galium aparine</i> (P)	cleavers
<i>Lotus pedunculatus</i> (W)	lotus
<i>Oxalis incarnata</i> (P)	lilac oxalis
<i>Oxalis</i> sp. (P)	
<i>Physalis peruviana</i> (P)	cape gooseberry
<i>Plantago australis</i> (W)	swamp plantain
<i>Plantago lanceolata</i> (P)	narrow-leaved plantain
<i>Ranunculus repens</i> (P)	creeping buttercup
<i>Sida rhombifolia</i> <sup>1</sup> (W)	paddy lucerne
<i>Sison amomum</i> (P)	stone parsley
<i>Solanum chenopodioides</i> (P)	velvety nightshade
<i>Solanum nigrum</i> (P)	black nightshade
<i>Verbascum thapsus</i> (P)	woolly mullein
<i>Verbena bonariensis</i> (P)	purple-top

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<sup>1</sup> New record.