

OMAIO BAY

Elizabeth Miller

Members of the Rotorua Botanical Society visited Omaio, Eastern Bay of Plenty, on 19 November 2009. The main feature is a bay with a long, broad gravel beach sheltered at each end by rocky headlands, beside the coastal highway between the Motu River mouth and Te Kaha. They met with Karamea Insley and Willie Ngamoki to make brief surveys of areas of particular interest to landowners in the area who have an interest in restoring the biodiversity of the coastal margins. These included the bush-covered cliff towards the eastern end of the main beach. Vegetation of the gravel beach from opposite the store at the west end of the beach to the eastern end of the bush-covered cliff was also noted.

Bush-covered cliff

Large trees, especially pohutukawa (*Metrosideros excelsa*), protect most of the cliff, although a few weedy tree species are present. Other native trees present amongst the pohutukawa include coastal five-finger (*Pseudopanax lessonii*), karaka (*Corynocarpus laevigatus*), kohekohe (*Dysoxylum spectabile*), puriri (*Vitex lucens*), karo (*Pittosporum crassifolium*), mahoe (*Melicytus ramiflorus*), ti kouka (*Cordyline australis*) and mamaku (*Cyathea medullaris*). There is more variety amongst the trees where the cliff broadens towards the eastern end. Several small native trees and shrub species such as kawakawa (*Macropiper excelsum*), taupata (*Coprosma repens*), ngaio (*Myoporum laetum*), hangehange (*Geniostoma ligustrifolium*) and whau (*Entelea arborescens*) occur in sheltered situations neat the base of the cliff, at the back of the gravel beach, but some less desirable weedy species including boxthorn (*Lycium ferocissimum*), cotoneaster (*Cotoneaster glaucophyllus*) and brush wattle (*Paraserianthes lophantha*) have become established there as well.

In the shade and shelter under the trees on the cliffs, especially in damp sites, a few small coastal ferns and herbs are present, including hen and chickens fern (*Asplenium*

bulbiferum), hanging spleenwort (*A. flaccidum*), shining spleenwort (*A. oblongifolium*), common maidenhair (*Adiantum cunninghamii*), kiokio (*Blechnum novae-zealandiae*), pukupuku (*Doodia australis*), rengarenga (*Arthropodium cirratum*), shore lobelia (*Lobelia anceps*) and New Zealand jasmine (*Parsonsia heterophylla*). Small communities of water-loving species inhabit damp seepage areas at the base of the cliff.

The sunny, sheltered area along the base of the cliff has the widest variety of plants, including weedy species and garden discards, but also has convenient access. The quality of the bush on the cliff area and adjacent gravel beach would be improved by some control of weedy tree and shrub species, such as boxthorn, brush wattle and pampas (*Cortaderia selloana*).

Gravel beach

The wide flat gravel area between the sea and the road is fairly uniform along its length, grading from mobile nearest to the sea to stable near the road, and is very occasionally swept by very high seas during storms. It is crossed by a few deep drains that flow from further back in the catchment, and provide more variety of habitat, including shelter and flowing water.

The native shore bindweed (*Calystegia soldanella*) and American sea rocket (*Cakile edentula*) are common in a broad band just above the high tide level. In the more stable areas behind, a wide variety of mostly introduced species of roadside and wasteland plant species such as grasses, clovers and other low herbs form a mixed turf. Shrubs such as wild roses (*Rosa* spp.), tree lupin (*Lupinus arboreus*), Japanese honeysuckle (*Lonicera japonica*), blackberry (*Rubus fruticosus* agg.), paddy lucerne (*Sida rhombifolia*) – a pest of hill pastures in the area, and pampas are scattered throughout. In a site by some harakeke (*Phormium tenax*) where discarded garden waste has established, potato (*Solanum tuberosum*), Jerusalem artichoke (*Helianthus tuberosus*) and wild leek (*Allium ampeloprasum* var. *ampeloprasum*) were amongst the species present.

Native species on the gravel beach were shore bindweed/panahi, powhiwhi (*Calystegia tuguriorum*), two very salt-tolerant herbs poipapa (*Einadia triandra*) and kokihi (*Tetragonia tetragonioides*), taupata, young pohutukawa, pohuehue (*Muehlenbeckia complexa*), harakeke, two small daisies (*Euchiton sphaericus*, *Senecio glomeratus*), the grass patiti (*Microlaena stipoides*) and wiwi (*Ficinia nodosa*).

In the drains and in wet areas below the cliff are sedges, *Bolboschoenus medianus* and a large form of *Carex geminata*, three rushes (*Juncus* spp.) and raupo (*Typha orientalis*).

Efforts to control troublesome weeds have successfully reduced the areas affected, maintaining access across it and improving the ecological quality of the beach.

Shore birds seen on the beach during the visit included a pair of New Zealand dotterels and a family of paradise shelducks with several ducklings. A number of skylarks hovered high overhead.

Acknowledgements

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OMAIO BEACH AND CLIFF PLANT SPECIES

Elizabeth Miller, John F.F. Hobbs, Graeme Jane.

* = naturalised; p = planted; v = NZFRI herbarium voucher

Ferns & fern allies

Adiantum cunninghamii

common maidenhair

Asplenium bulbiferum

hen and chicken fern

	<i>Asplenium flaccidum</i>	hanging spleenwort
	<i>Asplenium oblongifolium</i>	shining spleenwort
	<i>Blechnum novae-zealandiae</i>	kiokio
	<i>Cyathea medullaris</i>	mamaku; black tree fern
v	<i>Doodia australis</i>	rasp fern; pukupuku
	<i>Huperzia varia</i>	hanging clubmoss
	<i>Microsorium pustulatum</i> subsp. <i>pustulatum</i>	hound's tongue fern
	<i>Pteridium esculentum</i>	bracken
v	<i>Pteris saxatilis</i>	
	<i>Pyrrhosia eleagnifolia</i>	leather-leaf fern

Gymnosperms

*	<i>Pinus pinaster</i>	maritime pine
*	<i>Pinus radiata</i>	radiata pine

Dicot trees & shrubs

	<i>Coprosma repens</i>	taupata
	<i>Corynocarpus laevigatus</i>	karaka
	<i>Dysoxylum spectabile</i>	kohekohe
	<i>Entelea arborescens</i>	whau
*	<i>Ficus carica</i>	fig
	<i>Geniostoma ligustrifolium</i> var. <i>ligustrifolium</i>	hangehange
	<i>Kunzea ericoides</i> var. <i>ericoides</i>	kanuka
*	<i>Ligustrum sinense</i>	privet
*	<i>Lupinus arboreus</i>	tree lupin
*	<i>Lycium ferocissimum</i>	boxthorn
	<i>Macropiper excelsum</i> subsp. <i>excelsum</i>	kawakawa
	<i>Melicytus ramiflorus</i>	mahoe
	<i>Metrosideros excelsa</i>	pohutukawa
v	<i>Myoporum laetum</i>	ngaio
	<i>Myoporum laetum</i> × <i>M. aff. insulare</i>	ngaio hybrid
	<i>Myrsine australis</i>	mapou
*	<i>Paraserianthes lophantha</i>	brush wattle
	<i>Pittosporum crassifolium</i>	karo
	<i>Pseudopanax lessonii</i>	houpara
v *	<i>Rosa rubiginosa</i>	sweet brier
*	<i>Rosa wichuriana</i> 'Dorothy Perkins'	rambler rose
*	<i>Rubus fruticosus</i>	blackberry
v *	<i>Sida rhombifolia</i>	paddy lucerne
	<i>Vitex lucens</i>	puriri

Climbers & scramblers

*	<i>Araujia sericifera</i>	moth plant
*	<i>Calyptegia sepium</i>	pink bindweed

	<i>Calystegia soldanella</i>	shore bindweed; panahi
*	<i>Delairea odorata</i> (<i>Senecio mikanioides</i>)	German ivy
*	<i>Lonicera japonica</i>	Japanese honeysuckle
	<i>Metrosideros perforata</i>	clinging rata; aka
	<i>Muehlenbeckia australis</i>	pohuehue
	<i>Muehlenbeckia complexa</i>	wire vine
	<i>Parsonsia heterophylla</i>	New Zealand jasmine
*	<i>Vinca major</i>	periwinkle

Dicot herbs

v *	<i>Achillea millefolium</i>	yarrow
v *	<i>Anagallis arvensis</i> var. <i>arvensis</i>	scarlet pimpernel
v *	<i>Anagallis arvensis</i> var. <i>coerulea</i>	blue pimpernel
v *	<i>Apium nodiflorum</i>	water celery
*	<i>Arctotheca calendula</i>	Cape weed
*	<i>Aster subulatus</i>	sea aster
*	<i>Atriplex prostrata</i>	orache
*	<i>Cakile edentula</i>	American sea rocket
*	<i>Callitriche stagnalis</i>	starwort
*	<i>Chenopodium album</i>	fat hen
*	<i>Chenopodium ambrosioides</i>	Mexican tea
*	<i>Cirsium vulgare</i>	Scotch thistle
*	<i>Conyza sumatrensis</i>	broad-leaved fleabane
*	<i>Crepis capillaris</i>	hawksbeard
*	<i>Cynoglossum amabile</i>	Chinese forget-me-not
*	<i>Daucus carota</i>	wild carrot
v *	<i>Dianthus armeria</i>	Deptford pink
v	<i>Dichondra repens</i>	Mercury Bay weed
	<i>Disphyma australe</i>	NZ ice plant; horokaka
	<i>Euchiton sphaericus</i>	common cudweed
*	<i>Euphorbia lathyris</i>	caper spurge
*	<i>Euphorbia peplus</i>	milkweed
*	<i>Foeniculum vulgare</i>	fennel
*	<i>Fumaria muralis</i>	scrambling fumitory
*	<i>Galium aparine</i>	cleavers
*	<i>Gamochaeta coarctata</i>	purple cudweed
*	<i>Geranium dissectum</i>	cut-leaved geranium
	<i>Haloragis erecta</i>	shrubby haloragis; toatoa
v *	<i>Helianthus tuberosus</i>	Jerusalem artichoke
*	<i>Helminthotheca echioides</i>	oxtongue
*	<i>Hypochoeris radicata</i>	catsear
*	<i>Jacobaea vulgaris</i>	ragwort
*	<i>Lactuca serriola</i>	prickly lettuce
*	<i>Lapsana communis</i>	nipplewort

* <i>Leontodon taraxacoides</i>	hawkbit
* <i>Lepidium bonariense</i>	Argentine cress
* <i>Linum bienne</i>	pale flax
* <i>Lobelia anceps</i>	shore lobelia; punakuru
* <i>Lotus angustissimus</i>	slender birdsfoot trefoil
* <i>Lotus pedunculatus</i>	lotus
v * <i>Lotus suaveolens</i>	hairy birdsfoot trefoil
* <i>Ludwigia palustris</i>	water purslane
v <i>Malva nicaeensis</i>	French mallow
v * <i>Matricaria discoidea</i>	rayless chamomile
v <i>Medicago nigra</i>	bur medick
* <i>Modiola caroliniana</i>	creeping mallow
* <i>Myosotis arvensis</i>	field forget-me-not
* <i>Myosotis scorpioides</i>	water forget-me-not
* <i>Nasturtium officinale</i>	watercress
* <i>Oenothera glazioviana</i>	evening primrose
* <i>Ornithopus pinnatus</i>	yellow serradella
v * <i>Orobanche minor</i>	broomrape
* <i>Oxalis articulata</i>	sourgrass
* <i>Oxalis incarnata</i>	lilac oxalis
<i>Oxalis rubens</i>	sand oxalis
* <i>Paronychia brasiliiana</i>	Brazilian whitlow
* <i>Paspalum urvillei</i>	Vasey grass
* <i>Pastinaca sativa</i>	wild parsnip
<i>Peperomia urvilleana</i>	
* <i>Persicaria hydropiper</i>	water pepper
* <i>Petroselinum crispum</i>	parsley
* <i>Physalis peruviana</i>	Cape gooseberry
* <i>Phytolacca octandra</i>	inkweed
* <i>Plantago lanceolata</i>	narrow-leaved plantain
* <i>Plantago major</i>	broad-leaved plantain
* <i>Polycarpon tetraphyllum</i>	allseed
* <i>Ranunculus repens</i>	creeping buttercup
* <i>Rumex acetosella</i>	sorrel
v * <i>Rumex pulcher</i>	fiddle dock
* <i>Sagina procumbens</i>	pearlwort
* <i>Senecio bipinnatisectus</i>	Australian fireweed
<i>Senecio glomeratus</i>	fireweed
<i>Senecio lautus</i>	shore groundsel
* <i>Sherardia arvensis</i>	field madder
* <i>Silene gallica</i>	catchfly
v * <i>Solanum nigrum</i>	black nightshade
* <i>Solanum tuberosum</i>	potato
v * <i>Soliva sessilis</i>	Onehunga weed

* <i>Sonchus arvensis</i>	perennial sowthistle
* <i>Sonchus oleraceus</i>	puha, sow thistle
* <i>Spergula arvensis</i>	spurrey
v * <i>Spergularia rubra</i>	sand spurrey
* <i>Stellaria media</i> subsp. <i>media</i>	chickweed
v * <i>Symphytum</i> × <i>uplandicum</i>	Russian comfrey
* <i>Taraxacum officinale</i>	dandelion
<i>Tetragonia tetragonioides</i>	New Zealand spinach
* <i>Trifolium angustifolium</i>	narrow-leaved clover
v * <i>Trifolium dubium</i>	suckling clover
v * <i>Trifolium glomeratum</i>	clustered clover
* <i>Trifolium pratense</i>	red clover
* <i>Trifolium repens</i>	white clover
* <i>Trifolium resupinatum</i>	reversed clover
v * <i>Trifolium subterraneum</i>	subterranean clover
* <i>Tropaeolum majus</i>	garden nasturtium
v * <i>Verbena bonariensis</i>	purple-top
* <i>Veronica anagallis-aquatica</i>	water speedwell
* <i>Veronica serpyllifolia</i>	turf speedwell

Monocots

p <i>Agapanthus praecox</i> subsp. <i>orientalis</i>	agapanthus
* <i>Agrostis stolonifera</i>	creeping bent
* <i>Aira caryophyllea</i> subsp. <i>caryophyllea</i>	silvery hair grass
v * <i>Allium ampeloprasum</i> var. <i>ampeloprasum</i>	wild leek
p <i>Amaryllis belladonna</i>	belladonna lily
* <i>Anthoxanthum odoratum</i>	sweet vernal
<i>Arthropodium cirratum</i>	rengarenga
* <i>Asparagus asparagoides</i>	smilax; bridal veil creeper
<i>Astelia solandri</i>	
<i>Bolboschoenus medianus</i>	purua
v * <i>Briza maxima</i>	quaking grass
* <i>Briza minor</i>	shivery grass
v * <i>Bromus diandrus</i>	ripgut brome
v * <i>Bromus hordeaceus</i>	soft brome
* <i>Bromus willdenowii</i>	prairie grass
<i>Calystegia tuguriorum</i>	native bindweed
* <i>Canna indica</i>	canna lily
v <i>Carex geminata</i> "large"	rautahi; cutty grass
<i>Cordyline australis</i>	ti kouka; cabbage tree
* <i>Cortaderia selloana</i>	pampas
v * <i>Critesion murinum</i> subsp. <i>murinum</i>	salt barley grass
* <i>Crocsmia</i> × <i>crocsmiiflora</i>	montbretia
* <i>Cynodon dactylon</i>	Indian doab

* <i>Cyperus congestus</i>	purple umbrella sedge
* <i>Cyperus eragrostis</i>	umbrella sedge
<i>Cyperus ustulatus</i>	giant umbrella sedge
* <i>Dactylis glomerata</i>	cocksfoot
<i>Earina mucronata</i>	NZ bamboo orchid
v * <i>Ehrharta erecta</i>	veld grass
<i>Ficinia nodosa</i>	knobby clubrush; wiwi
* <i>Gladiolus</i> sp.	gladiolus
* <i>Glyceria declinata</i>	glaucous sweet grass
<i>Isolepis inundata</i>	
v <i>Isolepis reticularis</i>	
<i>Juncus australis</i>	
* <i>Juncus bufonius</i> var. <i>bufonius</i>	toad rush
<i>Juncus edgariae</i>	leafless rush
* <i>Juncus effusus</i> var. <i>effusus</i>	soft rush
v <i>Juncus flavidus</i>	
<i>Juncus planifolius</i>	flat-leaved rush
* <i>Juncus tenuis</i> var. <i>tenuis</i>	track rush
v * <i>Lagurus ovatus</i>	harestail
* <i>Lolium multiflorum</i>	Italian ryegrass
* <i>Lolium perenne</i>	perennial ryegrass
<i>Microlaena stipoides</i>	meadow rice grass
* <i>Oplismenus hirtellus</i> subsp. <i>imbecillis</i>	creeping beard grass
* <i>Paspalum dilatatum</i>	paspalum
* <i>Paspalum distichum</i>	Mercer grass
* <i>Pennisetum clandestinum</i>	kikuyu
<i>Phormium tenax</i>	harakeke, NZ flax
* <i>Poa annua</i>	annual poa
* <i>Poa pratensis</i>	Kentucky bluegrass
* <i>Poa trivialis</i>	rough-stalked meadow grass
v * <i>Romulea rosea</i>	onion grass
* <i>Schedonorus arundinaceus</i>	tall fescue
v * <i>Setaria gracilis</i>	knot-root bristle grass
v * <i>Setaria palmifolia</i>	palm grass
* <i>Sisyrinchium iridifolium</i> "blue"	blue-eyed grass
* <i>Sporobolus africanus</i>	ratstail
* <i>Tradescantia fluminensis</i>	tradescantia
<i>Typha orientalis</i>	raupo
v * <i>Vulpia bromoides</i>	vulpia hair grass
v <i>Vulpia myuros</i> var. <i>myuros</i>	vulpia hair grass
* <i>Yucca gloriosa</i>	yucca
* <i>Zantedeschia aethiopica</i>	arum lily