

## Manawahe Trust cell tower block field trip

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Saturday 11 February 2023 was a lovely sunny clear day. Literally the calm before the storm – Cyclone Gabrielle was heading towards the Bay of Plenty (BOP) for a Sunday visit. This didn't stop a good-sized group of Rotorua Botanical Society and locals from Manawahe gathering to share their knowledge and botanise a large block of indigenous forest which is part of the Manawahe Ecological Corridor.

The team met at the Manawahe Eco Centre at 9.30 am, then drove to the Cell Tower block situated at the highest point of the Manawahe hills at 510 m asl, affording a grand view of the Rangitaiki Plains and eastern BOP coastline. The prime object of the trip was to look at the extensive array of king ferns (*Ptisana salicina*) growing in two gullies about 15 minutes from the car park, while undertaking a botanical survey of the area on the way. Because of the close proximity of the king ferns to the car park Peter Ferguson from the Eco Trust decided to take us on the long route - normally regarded as a 45-minute stroll.

This involved some botanising along the fence line on the forest edge which gave us a great opportunity to look at epiphytes and climbing vines, which were fairly abundant in this area, including three of the rata vine species, *Astelia solandri* and two perching *Earina* orchid species. We entered the block down a relatively open spur with a tall stand of regenerating rimu (*Dacrydium cupressinum*) present. Following down the spur we soon noted a couple of key weed species – some large old trees of cotoneaster (*Cotoneaster franchetii*) in a clearing with ring fern (*Paesia scaberula*) not far from some Chinese privet (*Ligustrum sinense*).

From here we followed an old bulldozer track along the slope. Younger vegetation surrounded the track with manuka (*Leptospermum scoparium*), kanuka (*Kunzea robusta*), five-finger (*Pseudopanax arboreus*), wineberry (*Aristotelia serrata*), putaputaweta (*Carpodetus serratus*) and lancewood (*Pseudopanax crassifolius*) locally common. Further away from tracks vegetation was more mature, being dominated by tawa (*Beilschmiedia tawa*) and rewarewa (*Knightia excelsa*) with mangeao (*Litsea calicaris*) in the canopy. Most notable was a good subcanopy of healthy kohekohe (*Dysoxylum spectabile*) in many parts of the forest, reflecting the pest control that the Trust had been undertaking on an ongoing basis.

The block also had a reasonably good collection of ground ferns and tree ferns, with three species of *Cyathea* and two species of *Dicksonia* present, thereby presenting

a good opportunity to show some of the trainee botanists the differences between the species. This diversity probably reflects that although the block is only 13 km inland from the coast it occurs at an altitude of 300-510 m asl. This relatively high altitude shows that some of the tree fern species, in particular, those which are often more common in colder inland areas, namely *Cyathea smithii* and *Dicksonia fibrosa*, will persist here as well as other species more common in coastal sites.

After two and a half hours and many botanical pauses later, we finally arrived at the home of our target species – king fern. Nobody was disappointed but most were surprised at the area that these ferns had colonised, especially when considering that the area had historically been subject to the predations of deer, pigs, wallabies and possums. A big botanical intrigue yet to be resolved. The king fern site consisted of mainly large mature adult plants present in the heads of two adjacent gullies with what appeared to be probably hundreds of plants present. Exact numbers were unclear as no one from the Trust had followed the gully down to ascertain where the king fern population ended. From our knowledge of king fern populations across the BOP this appears to be one of the largest currently known populations present and probably the largest in the eastern BOP. Amazingly it had been ‘rediscovered’ by a Trust volunteer doing pest control several years back but is possibly the same site recorded by former Forest Research Institute staff member Trevor Jones who noted a large king fern population in this vicinity in the early 2000s (DOC Bioweb database record).



Figure 1: John Hobbs admiring the extensive gully of king fern.

Historically the area was first logged for podocarp, mainly rimu, in the 1920s, then logged again for tawa in the 1950s. The bush was noted for its significant kohekohe content which was largely split for fence battens, and was also used to over-winter cattle in the 1960s and 1970s. The area now has a covenant over it and in the last twenty years has had an extensive pest control programme operating to support the reinvigoration of a remnant kokako population. The species list, largely done by John Hobbs, will be a most valuable document as an indicator of what plant species are there and what may have been there, particularly when assessing the dietary requirements needed to sustain the bird life, especially North Island kokako.



Figure 2: At end of the day, we got to admire a great view across eastern BOP with Rurima and Moutohora in the distance.

# Manawahe Trust cell tower block species list

John Hobbs

Species recorded during Rotorua Botanical Society visit, 11 February 2023

\* = exotic species

## Pteridophytes

<i>Asplenium bulbiferum</i>	hen and chickens fern, mouku
<i>Asplenium flaccidum</i> subsp. <i>flaccidum</i>	hanging spleenwort, makawe
<i>Asplenium gracillimum</i>	spleenwort, huruhuruwhenua
<i>Asplenium oblongifolium</i>	shining spleenwort, huruhuruwhenua
<i>Asplenium polyodon</i>	sickle spleenwort, petako
<i>Blechnum chambersii</i>	lance fern, nini
<i>Blechnum discolor</i>	crown fern, petipeti
<i>Blechnum filiforme</i>	climbing hard fern, pānako
<i>Blechnum novae-zelandiae</i>	common hard fern, kiokio
<i>Cyathea dealbata</i>	silver fern, ponga
<i>Cyathea medullaris</i>	black tree fern, mamaku
<i>Cyathea smithii</i>	soft tree fern, kātote
<i>Dicksonia fibrosa</i>	whekī-ponga
<i>Dicksonia squarrosa</i>	harsh tree fern, whekī
<i>Diplazium australe</i>	southern ladyfern
<i>Histiopteris incisa</i>	water fern, mātātā
<i>Hymenophyllum demissum</i>	drooping filmy fern, irirangi
<i>Hymenophyllum sanguinolentum</i>	blood-scented filmy fern, piripiri
<i>Hypolepis ambigua</i>	pig fern, rarahu nehenehe
<i>Lastreopsis hispida</i>	rough shield fern
<i>Leptopteris hymenophylloides</i>	single crepe fern, heruheru
<i>Loxogramme dictyopteris</i>	lance fern
<i>Microsorium pustulatum</i> subsp. <i>pustulatum</i>	hound's tongue fern, kōwaowao
<i>Microsorium scandens</i>	fragrant fern, mokimoki
<i>Paesia scaberula</i>	lace fern, mātātā
<i>Parapolystichum glabellum</i>	smooth shield fern
<i>Pellaea rotundifolia</i>	button fern, tarawera
<i>Phlegmariurus billardierei</i>	hanging clubmoss, iwituna
<i>Phlegmariurus varius</i>	hanging clubmoss, iwituna
<i>Pneumatopteris pennigera</i>	gully fern, pākau
<i>Polystichum wawranum</i>	common shield fern, pikopiko
<i>Pteridium esculentum</i>	bracken, rārahu
<i>Pteris macilenta</i>	sweet fern, turawera
<i>Pteris tremula</i>	shaking brake, turawera
<i>Ptisana salicina</i>	kingfern, para
<i>Pyrrhosia elaeagnifolia</i>	leather-leaf fern, ota
<i>Rumohra adiantiformis</i>	leather-leaf shield fern
<i>Tmesipteris elongata</i>	fork fern
<i>Trichomanes venosum</i>	veined filmy fern

## Gymnosperms

<i>Dacrydium cupressinum</i>	red pine, rimu
<i>Phyllocladus trichomanoides</i>	celery pine, tānekaha
<i>Prumnopitys ferruginea</i>	miro

## Dicotyledons

<i>Acaena anserinifolia</i>	bidibid, piripiri
* <i>Achillea millefolium</i>	yarrow
<i>Alectryon excelsus</i> subsp. <i>excelsus</i>	NZ ash, titoki
<i>Aristotelia serrata</i>	wineberry, makomako
<i>Beilschmiedia tawa</i>	tawa
<i>Brachyglottis repanda</i> var. <i>repanda</i>	bushman's friend, rangiora
<i>Carpodetus serratus</i>	marbleleaf, putaputawētā
* <i>Centaurium erythraea</i>	centaury
<i>Clematis paniculata</i>	clematis, puawhānanga
<i>Coprosma autumnalis</i>	large-leaved coprosma, kanono
<i>Coprosma robusta</i>	glossy karamu, karamū
<i>Coprosma spathulata</i> subsp. <i>spathulata</i>	
<i>Coprosma</i> × <i>cunninghamii</i>	
* <i>Cotoneaster franchetii</i>	Franchet's cotoneaster
* <i>Digitalis purpurea</i>	foxglove
<i>Dysoxylum spectabile</i>	kohekohe
<i>Elaeocarpus dentatus</i> var. <i>dentatus</i>	hīnau
* <i>Erigeron sumatrensis</i>	broad-leaved fleabane, kāka
<i>Fuchsia excorticata</i>	tree fuchsia, kōtukutuku
<i>Geniostoma ligustrifolium</i> var. <i>ligustrifolium</i>	hangehange
* <i>Geranium robertianum</i>	herb Robert
<i>Griselinia lucida</i>	puka
<i>Hedycarya arborea</i>	pigeonwood, porokaiwhiri
<i>Hydrocotyle heteromeria</i>	waxweed pennywort
<i>Hydrocotyle microphylla</i>	small-leaved pennywort
<i>Hydrocotyle novae-zeelandiae</i> var. <i>novae-zeelandiae</i>	pennywort
* <i>Hypericum androsaemum</i>	tutsan
* <i>Jacobaea vulgaris</i>	ragwort
<i>Knightia excelsa</i>	NZ honeysuckle, rewarewa
<i>Kunzea robusta</i>	kānuka
<i>Laurelia novae-zeelandiae</i>	pukatea
<i>Leptospermum scoparium</i>	teatree, mānuka
* <i>Ligustrum sinense</i>	Chinese privet
<i>Litsea calicaris</i>	mangeao
<i>Lophomyrtus bullata</i>	ramarama
* <i>Lotus pedunculatus</i>	lotus
<i>Melicytus lanceolatus</i> × <i>Melicytus ramiflorus</i> subsp. <i>ramiflorus</i>	
<i>Melicytus ramiflorus</i> subsp. <i>ramiflorus</i>	whitey wood, māhoe
<i>Metrosideros diffusa</i>	white rata vine, rātā
<i>Metrosideros fulgens</i>	scarlet rata vine, akatawhiwhi
<i>Metrosideros perforata</i>	white rata vine, akatea
<i>Mida salicifolia</i>	willow-leaved maire, maire-taiki
<i>Muehlenbeckia australis</i>	large-leaved muehlenbeckia, pōhuehue

<i>Myrsine australis</i>	red matipo, māpou
<i>Nertera depressa</i>	bead plant
<i>Olearia rani</i> var. <i>colorata</i>	heketara
<i>Parsonsia capsularis</i>	NZ jasmine, akakaikiore
<i>Passiflora tetrandra</i>	NZ passionfruit, kōhia
<i>Piper excelsum</i> subsp. <i>excelsum</i>	pepper tree, kawakawa
* <i>Prunella vulgaris</i>	self-heal
<i>Pseudopanax arboreus</i>	five finger, whauwhaupaku
<i>Pseudopanax crassifolius</i>	lancewood, horoeka
<i>Pterophylla racemosa</i>	kāmahi
<i>Ranunculus reflexus</i>	hairy buttercup, mārūrū
* <i>Ranunculus repens</i>	creeping buttercup
<i>Rubus cissoides</i>	bush lawyer, tātārāmoa
* <i>Rubus fruticosus</i>	blackberry
<i>Schefflera digitata</i>	patē
<i>Senecio bipinnatisectus</i>	Australian fireweed
* <i>Stachys sylvatica</i>	hedge woundwort
* <i>Trifolium pratense</i>	red clover

### Monocotyledons

<i>Astelia hastata</i>	kahakaha
<i>Astelia solandri</i>	perching astelia, kahakaha
* <i>Carex divulsa</i>	grey sedge
<i>Carex solandri</i>	Solander's sedge
<i>Drymoanthus adversus</i>	green fleshy tree orchid
<i>Earina autumnalis</i>	Easter orchid, raupeka
<i>Earina mucronata</i>	spring orchid, peka-a-waka
<i>Freycinetia banksii</i>	kiekie
<i>Gahnia pauciflora</i>	cutting sedge
* <i>Holcus lanatus</i>	Yorkshire fog
<i>Microlaena avenacea</i>	bush rice grass
<i>Ripogonum scandens</i>	supplejack, kareao
<i>Rytidosperma gracile</i>	dainty fairy grass
<i>Uncinia uncinata</i>	common bastard grass, kamu