

Toatoa Scenic Reserve

Mike Butcher & Paul Cashmore

A small group of seven of us from Eastern Bay, Tauranga, and Rotorua journeyed about an hour from Opotiki up the Meremere Hill to Toatoa Scenic Reserve on the first Sunday morning in November.

Toatoa Scenic Reserve is a large (nearly 3000ha), forested and steep reserve high on the old Motu road, between Meremere Scenic Reserve and the start of the Pakihi Track. The reserve ranges in altitude from 300 to 900 metres above sea level. Below about 600 m the forest is dominated by tawa and rimu. Hard beech (*Fuscospora truncata*) and kamahi (*Weinmannia racemosa*) are prominent on the ridges, and tawari (*Ixerba brexioides*) is present throughout.

The reserve spans both sides of the narrow, winding road and our plan was to make three or four short forays off the road at different points (and elevations) along it. Our first stop was at the northern end of the reserve and we parked in a small patch of grass alongside the road as it climbed through about 540 m elevation. The forest canopy around here is tawa/tawari and we commenced our day with a quick look around the roadside. It was good to see a northern rata (*Metrosideros robusta*) of about 10 or 12 m height, and in good condition, growing just below the road adjacent to our parking area.

From this point on the road an old permolat-marked ridge track leads down into the Pakihi catchment, and ultimately to Pakihi Hut. Although a little overgrown the track was still easy to follow, and we descended slowly towards the first deep saddle. Hard beech dominated the canopy on the ridge, with some large toatoa (*Phyllocladus toatoa*), and tawari. Umbrella fern (*Sticherus cunninghamii*) and abundant *Libertia micrantha* were present beside and on the track, with *Dicksonia lanata* also common on the ground. Shrubs here included *Coprosma rhamnoides*, *C. foetidissima*, and *Raukaua anomalus*, while it was nice to see specimens of *Archeria racemosa* of various sizes scattered around. Some of these were in flower, and Elizabeth was able to collect samples for the herbarium.

A good assortment of different filmy ferns was found in this area and, as always, this slowed us down but provided for interesting discussion (thanks Graeme and Gael). *Hymenophyllum rarum*, *H. revolutum*, *H. bivalve*, *H. revolutum*, and *H. flabellatum*

were all identified and discussed, along with the more commonly found species, while *H. nephrophyllum* (kidney fern) was present in patches on the beech ridge. We also saw the pretty fern *Lindsaea trichomanoides* in places.

As we descended further into the saddle, at around 480 m elevation, we came into a more tawa-dominated zone, with some emergent rimu. Our arrival at the broad saddle was greeted by a nice (and healthy) example of *Raukaua edgerleyi*. We progressed through and ventured up the ridge on the Pakihi side for around a couple of hundred metres, before retracing our steps back to the cars.

A few minutes winding drive southwards saw us climb to the high point on this section of the road at approximately 650 m above sea level. There is a DOC shelter here at Papamoa Hill for cyclists on their way to the top end of the Pakihi track. We explored the bush on the eastern side of the road first, skirting around a large area of invasive *Selaginella kraussiana* on the roadside, before retiring to the shelter to unwrap and eat our lunches. The day's weather was pretty spectacular - sunny and totally calm, and we were joined after a while by two keen cyclists who had pedalled up from Opotiki and were glad for an excuse to stop and chat for a few minutes in the sun.

After lunch we climbed the ridge to the high point behind the shelter, at about 650 m. Here under the hard beech, kamahi and toatoa on the ridge was more *Archeria*, once again flowering sporadically. *Alseuosmia pusilla* was also in flower here (more collecting for Elizabeth). This was our highest point elevation-wise for the day, not high enough however to break into silver beech, which occurs on some of the less accessible higher peaks in the reserve.

Returning to our lunch site and vehicles we proceeded further along the road towards the south, stopping at two additional points to venture into the forest and also to examine the more weedy roadside flora. Not many more native species were added to our list from the forest (*Polystichum vestitum*, and the hanging clubmoss *Phlegmariurus varius* were a couple). However, the steep roadside cuttings proved to be most interesting with an array of adventives, and some native species such as *Gunnera monoeca* (in flower) as well as various orchids including *Pterostylis montana* and *Thelymitra longifolia*. One of the roadside cuttings was festooned with *Arthropodium cirratum* (rengarenga), which formed almost continuous cover over about 20 metres.



Figure 1: Motu tawa dominated forest as seen from Motu Rd.



Figure 2: Tawheowheo trees on ridge above Motu Rd near Papamoa Hill shelter seen from a distance. Can you spot cryptic red mistletoe? (Hint: follow arrow).

Our final task was to collect a few more voucher specimens for the herbarium and we backtracked to the area around our lunch site where, with a little ingenuity, we were able to lasso a sample of flowering *Clematis paniculata* for Elizabeth. While strolling further down the road here Paul made the discovery of the day with his binoculars, spotting one healthy looking red mistletoe (*Peraxilla tetrapetala*) high in a tawheowheo (*Quintinia serrata*) tree. This was located on the ridge on the top side of the road at NZTM 1994866 5769022 about 70m down the road from the shelter.

This was not only the find of the day but a very significant find for the Motu. Despite the size of the forest tract running through the Waioeka and into the Raukumara Ranges there is an absence of any recent records of either of the *Peraxilla* mistletoe species. The nearest recent records would be those from the mainland island at Otamatuna in the Tauranga River catchment further to the west. *Peraxilla tetrapetala* would always be restricted in this country to higher altitude areas above approximately 500-600 m because it hosts exclusively on tawheowheo and beech – mainly red and silver beech. *Peraxilla colensoi* which is restricted only to beech would be further habitat restricted in this area. Much of this country is lower altitude tawa-dominated where the required hosts are not present.

But as this discovery clearly shows, high ridges with pockets of tawheowheo or beech are still potential habitat for mistletoes, waiting to be found. Further survey throughout the Waioeka-Motu in suitable habitat has a good chance of finding further plants. This discovery+ shows that the species is certainly not extinct in this area just because there is a total lack of recent records. Experience shows that *Peraxilla tetrapetala* in tawheowheo is not an easy species to locate because plants are often small and blend in nicely with a tight tawheowheo canopy. Surveys need to be targeted by trained observers with experience spotting mistletoes and focused on flowering time (January-February) to maximise success when plants can be easier to locate with their showy red flowers.

Toatoa Scenic Reserve species list

Graeme Jane and Gael Donaghy

Compiled from observations by
BR Clarkson and CE Regnier, 31-08-1983, and RBS, 02-11-2019

Map: BE42 Grid Ref: 1998367 5767323

Key: x = BR Clarkson & CE Regnier;
β = additions on 2020 visit;
* = naturalised species

Gymnosperm trees and shrubs

x	<i>Dacrycarpus dacrydioides</i>	kahikatea, white pine
x	<i>Dacrydium cupressinum</i>	rimu, red pine
x	<i>Phyllocladus toatoa</i>	toatoa
x	<i>Podocarpus laetus</i>	Hall's totara; thin bark totara
x	<i>Prumnopitys ferruginea</i>	miro; brown pine

Monocotyledonous trees and shrubs

x	<i>Cordyline banksii</i>	forest cabbage tree; ti ngahere
x	<i>Cordyline indivisa</i>	toi; broad-leaved cabbage tree
x	<i>Rhopalostylis sapida</i>	nikau

Dicotyledonous trees and shrubs

x	<i>Alseuosmia macrophylla</i>	toropapa; shrubby honeysuckle
x	<i>Alseuosmia pusilla</i>	karapapa; mountain honeysuckle
x	<i>Archeria racemosa</i>	
x	<i>Aristotelia serrata</i>	wineberry; makomako
x	<i>Beilschmiedia tawa</i>	tawa
x	<i>Brachyglottis kirkii</i> var. <i>angustior</i>	
x	<i>Brachyglottis repanda</i>	rangiora; bushmans friend
x	<i>Carpodetus serratus</i>	putaputaweta; marbleleaf
x	<i>Coprosma colensoi</i>	springy coprosma
x	<i>Coprosma foetidissima</i>	stinkwood; hupiro
x	<i>Coprosma grandifolia</i>	raurekau; kanono; mamono
x	<i>Coprosma lucida</i>	karamu; shining karamu
x	<i>Coprosma rhamnoides</i>	thorny coprosma
x	<i>Coprosma robusta</i>	karamu
x	<i>Coprosma rubra</i>	
x	<i>Coprosma spathulata</i> ssp. <i>spathulata</i>	
x	<i>Coriaria arborea</i> var. <i>arborea</i>	tree tutu
x	<i>Dracophyllum latifolium</i>	needle-leaved neinei
x	<i>Dracophyllum traversii</i>	neinei
x	<i>Elaeocarpus dentatus</i> var. <i>dentatus</i>	hinau
x	<i>Fuchsia excorticata</i>	fuchsia; kotukutuku
x	<i>Fuscospora fusca</i>	red beech

x	<i>Fuscospora truncata</i>	hard beech; tawhairaunui
x	<i>Gaultheria antipoda</i>	snowberry; tawiniwini
x	<i>Geniostoma ligustrifolium</i> var. <i>ligustrifolium</i>	hangehange; privet
x	<i>Griselinia littoralis</i>	broadleaf; kapuka
x	<i>Griselinia lucida</i>	puka
x	<i>Hebe stricta</i> var. <i>stricta</i>	koromiko
x	<i>Hedycarya arborea</i>	pigeonwood; porokaiwhiri
x	<i>Hoheria sexstylosa</i>	houhere
β	* <i>Hypericum androsaemum</i>	tutsan
x	<i>Ixerba brexioides</i>	tawari
x	<i>Knightia excelsa</i>	rewarewa; NZ honeysuckle
x	<i>Laurelia novae-zelandiae</i>	pukatea
x	<i>Leptospermum scoparium</i> var. <i>scoparium</i>	manuka; red teatree
x	<i>Leucopogon fasciculatus</i>	mingimingi; kaikaitau
x	<i>Lophozonia menziesii</i>	silver beech; tawhai
x	<i>Melicytus lanceolatus</i> var. <i>lancelolatus</i>	narrow-leaved mahoe; mahoe-wao
x	<i>Melicytus ramiflorus</i> ssp. <i>ramiflorus</i>	mahoe
x	<i>Metrosideros robusta</i>	northern rata
x	<i>Myrsine australis</i>	red matipo; mapou
x	<i>Myrsine salicina</i>	toro
x	<i>Neomyrtus pedunculata</i>	rohutu
x	<i>Nestegis lanceolata</i>	white maire
x	<i>Olearia rani</i> var. <i>colorata</i>	heketara
x	<i>Pennantia corymbosa</i>	kaikomako
β	<i>Peraxilla tetrapetala</i>	red mistletoe; pirirangi
x	<i>Pittosporum tenuifolium</i>	black matipo; kohuhu
x	<i>Pseudopanax arboreus</i>	five finger; puhou; whaupaku
x	<i>Pseudopanax crassifolius</i>	lancewood; horoeka
x	<i>Pseudowintera axillaris</i>	horopito
x	<i>Quintinia serrata</i>	Westland quintinia; tawheowheo
x	<i>Raukaua anomalus</i>	whauwhaupaku
x	<i>Raukaua edgerleyi</i>	rauakawa
x	<i>Raukaua simplex</i>	haumakoroa
x	<i>Schefflera digitata</i>	pate; patae; kotete
x	* <i>Ulex europaeus</i>	gorse
x	<i>Weinmannia racemosa</i>	kamahi; towai; tawhero

Monocotyledonous lianes

x	<i>Freycinetia banksii</i>	kiekie
x	<i>Ripogonum scandens</i>	supplejack; kareao

Dicotyledonous lianes and related trailing plants

x	<i>Clematis cunninghamii</i>	scented clematis; pokopoko
x	<i>Clematis forsteri</i>	pataua; green clematis
x	<i>Clematis paniculata</i>	clematis; puawhananga
x	<i>Metrosideros diffusa</i>	white climbing rata; akatea

x	<i>Metrosideros fulgens</i>	scarlet rata; winter rata
x	<i>Metrosideros perforata</i>	aka; small white rata; torotoro
x	<i>Muehlenbeckia australis</i>	poheuheu
x	<i>Parsonsia capsularis</i> var. <i>capsularis</i>	small flowered jasmine; akakior
x	<i>Rubus cissoides</i>	bush lawyer; tataramoa
x	* <i>Rubus fruticosus</i>	blackberry

Psilopsids, Lycopods & Quillworts

x	<i>Lycopodium scariosum</i>	creeping clubmoss
x	<i>Lycopodium volubile</i>	waewae-koukou; climbing clubmoss
x	<i>Phlegmariurus varius</i>	hanging clubmoss; iwituna
β	* <i>Selaginella kraussiana</i>	

Ferns

x	<i>Adiantum cunninghamii</i>	maiden hair fern
x	<i>Asplenium bulbiferum</i>	hen and chickens fern; moku
x	<i>Asplenium flaccidum</i>	hanging spleenwort; makawe
x	<i>Asplenium oblongifolium</i>	shining spleenwort
x	<i>Asplenium polyodon</i>	sickle spleenwort; petako
x	<i>Blechnum chambersii</i>	nini; lance fern
x	<i>Blechnum discolor</i>	crown fern; piupiu; petipeti
x	<i>Blechnum fluviatile</i>	kiwakiwa; kiwikiwi
x	<i>Blechnum membranaceum</i>	
x	<i>Blechnum minus</i>	swamp kiokio
x	<i>Blechnum novae-zelandiae</i>	kiokio
β	<i>Blechnum penna-marina</i> ssp. <i>alpina</i>	alpine blechnum
x	<i>Cyathea cunninghamii</i>	slender tree fern; gully tree fern
x	<i>Cyathea dealbata</i>	ponga; silver fern
x	<i>Cyathea medullaris</i>	mamaku; korau; black tree fern
x	<i>Cyathea smithii</i>	soft-leaved tree fern; katote
x	<i>Dicksonia fibrosa</i>	wheki-ponga; kuripaka
x	<i>Dicksonia lanata</i> ssp. <i>lanata</i>	tuokura; stumpy tree fern
x	<i>Dicksonia squarrosa</i>	wheki; harsh tree fern
x	<i>Histiopteris incisa</i>	water fern
x	<i>Hymenophyllum bivalve</i>	
x	<i>Hymenophyllum demissum</i>	piripiri; irirangi
x	<i>Hymenophyllum dilatatum</i>	lop-sided filmy fern
x	<i>Hymenophyllum flabellatum</i>	fan fern
x	<i>Hymenophyllum frankliniae</i>	
x	<i>Hymenophyllum multifidum</i>	
x	<i>Hymenophyllum nephrophyllum</i>	kidney fern; raurenga
x	<i>Hymenophyllum rarum</i>	wire-stemmed filmy fern
x	<i>Hymenophyllum revolutum</i>	
x	<i>Hymenophyllum sanguinolentum</i>	blood-scented filmy fern
x	<i>Hypolepis rufobarbata</i>	sticky pig fern

x	<i>Lastreopsis glabella</i>	felted fern
x	<i>Lastreopsis hispida</i>	hairy fern, hairy legs
x	<i>Leptopteris hymenophylloides</i>	single crepe fern; heruheru
x	<i>Leptopteris superba</i>	Prince of Wales feather
x	<i>Lindsaea trichomanoides</i>	
x	<i>Loxogramme dictyopteris</i>	sexy fern
x	<i>Microsorium novae-zelandiae</i>	fragrant fern
x	<i>Microsorium pustulatum</i> ssp. <i>pustulatum</i>	hounds tongue; kowaowao
x	<i>Microsorium scandens</i>	mokimoki; fragrant fern
x	<i>Notogrammitis billardiarei</i>	common strap fern
x	<i>Notogrammitis heterophylla</i>	
x	<i>Paesia scaberula</i>	scented fern; matata; ring fern
x	<i>Pellaea rotundifolia</i>	tarawera; button fern
x	<i>Pneumatopteris pennigera</i>	gully fern; pakau; pakauharoha
x	<i>Polystichum vestitum</i>	prickly shield fern; punui
x	<i>Polystichum wawranum</i>	common shield fern; pikopiko
x	<i>Pteridium esculentum</i>	bracken; rauaruhe
β	<i>Pteris tremula</i>	turawera
x	<i>Pyrrosia elaeagnifolia</i>	leather-leaf fern
x	<i>Rumohra adiantiformis</i>	butcher's fern
x	<i>Sticherus cunninghamii</i>	umbrella fern; kotuku; tapuwae
x	<i>Tmesipteris elongata</i>	
x	<i>Trichomanes venosum</i>	veined bristle fern

Orchids

β	<i>Corybas acuminatus</i>	
β	<i>Corybas oblongus</i>	
x	<i>Corybas rivularis</i>	
x	<i>Dendrobium cunninghamii</i>	bamboo orchid; winika
x	<i>Earina autumnalis</i>	Easter orchid; raupeka
x	<i>Earina mucronata</i>	spring orchid; peka-a-waka
x	<i>Microtis unifolia</i>	onion orchid
x	<i>Pterostylis banksii</i>	tutukiwi
β	<i>Pterostylis montana</i>	
x	<i>Thelymitra longifolia</i>	white sun orchid
β	<i>Thelymitra pauciflora</i>	

Grasses

β	* <i>Agrostis capillaris</i>	browntop
x	* <i>Anthoxanthum odoratum</i>	sweet vernal
x	<i>Austroderia fulvida</i>	kakaho; toetoe
x	* <i>Dactylis glomerata</i>	cocksfoot
x	<i>Dichelachne crinita</i>	long-hair plume grass
x	* <i>Holcus lanatus</i>	Yorkshire fog
β	* <i>Lolium perenne</i>	perennial ryegrass
x	<i>Microlaena avenacea</i>	bush rice grass; oat grass

x	* <i>Miscanthus nepalensis</i>	Himalayan fairy grass
β	* <i>Poa annua</i>	annual poa
x	<i>Rytidosperma gracile</i>	forest fairy grass
x	* <i>Rytidosperma penicillatum</i>	
x	* <i>Rytidosperma racemosum</i>	

Sedges

x	<i>Carex banksiana</i>	
x	<i>Carex forsteri</i>	
β	<i>Carex geminata</i>	
x	<i>Carex megalepis</i>	
x	<i>Carex uncinata</i>	watu
x	<i>Carex zotovii</i>	
x	<i>Gahnia pauciflora</i>	
x	<i>Gahnia setifolia</i>	
β	* <i>Isolepis sepulcralis</i>	
x	<i>Morelotia affinis</i>	

Rushes and allied plants

β	* <i>Juncus articulatus</i>	jointed rush
x	<i>Juncus edgariae</i>	wiwi
x	* <i>Juncus effusus</i> var. <i>effusus</i>	soft rush
x	* <i>Juncus tenuis</i> ssp. <i>tenuis</i>	track rush
β	* <i>Luzula campestris</i>	
β	<i>Luzula picta</i> var. <i>limosa</i>	
x	<i>Luzula picta</i> var. <i>picta</i>	

Remaining Monocotyledonous herbs

x	<i>Astelia hastata</i>	kahakaha
x	<i>Astelia microsperma</i>	
x	<i>Astelia solandri</i>	kowharawhara
x	<i>Dianella nigra</i>	blueberry; turutu
x	<i>Libertia grandiflora</i>	
x	<i>Libertia micrantha</i>	star herb
x	<i>Luzuriaga parviflora</i>	lantern berry; puwatawata

Daisy-like herbs

x	* <i>Achillea millefolium</i>	yarrow
β	<i>Anaphalioides trinervis</i>	puatea
x	* <i>Anthemis cotula</i>	stinking mayweed
β	* <i>Bellis perennis</i>	lawn daisy
x	* <i>Cirsium arvense</i>	Californian thistle
β	* <i>Cirsium palustre</i>	marsh thistle
x	* <i>Cirsium vulgare</i>	Scotch thistle
x	* <i>Crepis capillaris</i>	hawkesbeard
β	* <i>Erigeron sumatrensis</i>	
x	<i>Euchiton audax</i>	

β	<i>Euchiton japonicus</i>	
β	<i>Euchiton sphaericus</i>	Japanese cudweed
x	* <i>Gamochaeta coarctata</i>	
x	* <i>Hypochaeris radicata</i>	catsear
x	* <i>Jacobaea vulgaris</i>	ragwort
x	* <i>Lactuca serriola</i>	prickly lettuce
x	<i>Lagenophora pumila</i>	
β	* <i>Lapsana communis</i>	nipplewort
x	* <i>Leontodon saxatilis</i>	hawkbit
x	* <i>Mycelis muralis</i>	wall lettuce
β	<i>Pseudognaphalium luteoalbum</i>	Jersey cudweed
x	<i>Raoulia glabra</i>	
x	<i>Raoulia tenuicaulis</i>	
x	* <i>Senecio bipinnatisectus</i>	Australian fireweed
β	<i>Senecio minimus</i>	fireweed
β	* <i>Soliva sessilis</i>	Onehunga weed
β	* <i>Sonchus arvensis</i>	perennial sow thistle
β	* <i>Sonchus oleraceus</i>	sow thistle; puha; puka
β	* <i>Taraxacum officinale</i>	dandelion

Dicotyledonous herbs other than Daisies

x	<i>Acaena anserinifolia</i>	bidibid
x	* <i>Acaena novae-zelandiae</i>	red bidibid; piripiri
x	* <i>Bellardia viscosa</i>	tarweed
β	<i>Callitriche petriei</i> ssp. <i>petriei</i>	
x	<i>Cardamine dolichostyla</i>	
β	<i>Cardamine forsteri</i>	
β	* <i>Cerastium glomeratum</i>	annual mouse-eared chickweed
x	* <i>Digitalis purpurea</i>	foxglove
x	<i>Drosera binata</i>	scented sundew
x	<i>Epilobium brunnescens</i> ssp. <i>brunnescens</i>	
x	<i>Epilobium nummulariifolium</i>	creeping willow-herb
x	<i>Epilobium pubens</i>	
β	<i>Epilobium rotundifolium</i>	round-leaved willowherb
β	* <i>Foeniculum vulgare</i>	fennel
x	* <i>Galium aparine</i>	cleavers
x	* <i>Galium divaricatum</i>	slender bedstraw
x	<i>Galium propinquum</i>	
x	* <i>Geranium robertianum</i>	herb Robert
β	<i>Gunnera monoica</i>	solitary gunnera
x	<i>Hydrocotyle elongata</i>	
x	<i>Hydrocotyle microphylla</i>	hydrocotyle
β	<i>Hydrocotyle moschata</i> var. <i>moschata</i>	
x	<i>Jovellana repens</i>	
x	<i>Lobelia angulata</i>	panakenake

x	* <i>Lotus pedunculatus</i>	lotus major
β	* <i>Lysimachia arvensis</i> ssp. <i>arvensis</i> var. <i>arvensis</i>	scarlet pimpernel
x	* <i>Mentha suaveolens</i>	apple or round-leaved mint
x	<i>Nertera depressa</i>	common nertera
x	<i>Nertera villosa</i>	
β	* <i>Plantago australis</i>	swamp plantain
x	* <i>Plantago lanceolata</i>	ribwort; narrow-leaved plantain
x	* <i>Plantago major</i>	broad-leaved plantain
x	* <i>Potentilla anglica</i>	creeping cinquefoil
x	* <i>Prunella vulgaris</i>	selfheal
x	<i>Ranunculus reflexus</i>	maruru; hairy buttercup
x	* <i>Ranunculus repens</i>	creeping buttercup
x	* <i>Rumex acetosella</i>	sheep' sorrel
x	* <i>Scrophularia auriculata</i>	water figwort
β	* <i>Stellaria media</i> ssp. <i>media</i>	chickweed
x	<i>Stellaria parviflora</i>	
x	* <i>Trifolium dubium</i>	suckling clover
x	* <i>Trifolium repens</i>	white clover
x	<i>Urtica sykesii</i>	stinging nettle
x	<i>Viola filicaulis</i>	forest violet

For recent issues, the editors have received more colour images that was common previously. These add to interest of the articles and are of particular benefit to those receiving digital copies of the RBS newsletter, but are sometimes less helpful to those receiving printed copies with black and white images. If you wish to receive a digital copy, please notify the editors, at rotoruabotanicalsociety@gmail.com