

<i>Avicennia marina</i>	<i>Hedera helix</i>	<i>Passiflora tarminiana</i>
<i>Berberis glaucocarpa</i>	<i>Hoheria populnea</i>	<i>Piper excelsum</i>
<i>Calystegia sepium</i> subsp. <i>roseata</i>	<i>Hoheria sexstylosa</i>	<i>Pittosporum crassifolium</i>
<i>Calystegia silvatica</i> × <i>C. sepium</i> subsp. <i>roseata</i>	<i>Homalanthus populifolius</i>	<i>Pittosporum eugenioides</i>
<i>Calystegia soldanella</i>	<i>Ipomoea indica</i>	<i>Pittosporum tenuifolium</i>
<i>Casuarina cunninghamiana</i>	<i>Knightia excelsa</i>	<i>Plagianthus divaricatus</i>
<i>Chrysanthemoides monolifera</i>	<i>Kunzea linearis</i>	<i>Polygala myrtifolia</i>
<i>Coprosma areolata</i>	<i>Kunzea robusta</i>	<i>Pomaderris kumeraho</i>
<i>Coprosma</i> × <i>cunninghamii</i>	<i>Kunzea triregensis</i>	<i>Populus</i> × <i>canadensis</i> 'Flevo'
<i>Coprosma</i> × <i>kirkii</i>	<i>Lagunaria patersonii</i>	<i>Prunus cerasifera</i>
<i>Coprosma macrocarpa</i> subsp. <i>minor</i>	<i>Lantana camara</i>	<i>Pseudopanax lessonii</i>
<i>Coprosma propinqua</i>	<i>Leptospermum scoparium</i>	<i>Pseudopanax lessonii</i> hybrid
<i>Coprosma repens</i>	<i>Leucopogon fasciculatus</i>	<i>Radermachera sinica</i>
<i>Coprosma robusta</i>	<i>Ligustrum lucidum</i>	<i>Rubus ulmifolius</i>
<i>Corynocarpus laevigatus</i>	<i>Ligustrum sinense</i>	<i>Salix cinerea</i>
<i>Cotoneaster glaucophyllus</i>	<i>Lonicera japonica</i>	<i>Salix</i> × <i>reichardtii</i>
<i>Crassula tetragona</i>	<i>Melaleuca citrina</i>	<i>Solanum laciniatum</i>
<i>Elaeagnus</i> × <i>reflexa</i>	<i>Melicytus ramiflorus</i>	<i>Solanum mauritianum</i>
<i>Entelea arborescens</i>	<i>Meryta sinclairii</i>	<i>Sophora chathamica</i>
<i>Eriobotrya japonica</i>	<i>Metrosideros excelsa</i>	<i>Sophora fulvida</i>
<i>Eucalyptus botryoides</i>	<i>Muehlenbeckia astonii</i>	<i>Tecoma capensis</i>
<i>Eucalyptus saligna</i>	<i>Muehlenbeckia axillaris</i>	<i>Ulex europaea</i>
<i>Fatsia japonica</i>	<i>Muehlenbeckia complexa</i>	<i>Veronica speciosa</i> cultivar
<i>Geniostoma ligustrifolium</i>	<i>Myoporum laetum</i>	<i>Veronica stricta</i>
<i>Gomphocarpus fruticosus</i>	<i>Myrsine australis</i>	<i>Vinca major</i>
<i>Griselinia lucida</i>	<i>Olearia solandri</i>	<i>Vitex lucens</i>
<i>Haloragis erecta</i>	<i>Paraserianthes lophantha</i>	

Auckland Botanical Society Field Trip, 16th April 2022 – Cutty Grass Track, Waitakere Ranges

Geoff Davidson

This Easter weekend trip was organised to complete the species list for the Cutty Grass Track which the Society started in June 2021 (see Davidson 2021). On that occasion we started at the western end of the track on Anawhata Road and completed half of its 3.5 km length. This year we met at the Fairy Falls carpark (Fig. 1), walked the 200 m along the Scenic Drive and began the Cutty Grass Track from the eastern end. All photographs were taken on the day, by either Bev Davidson (BD) or Joshua Salter (JS).

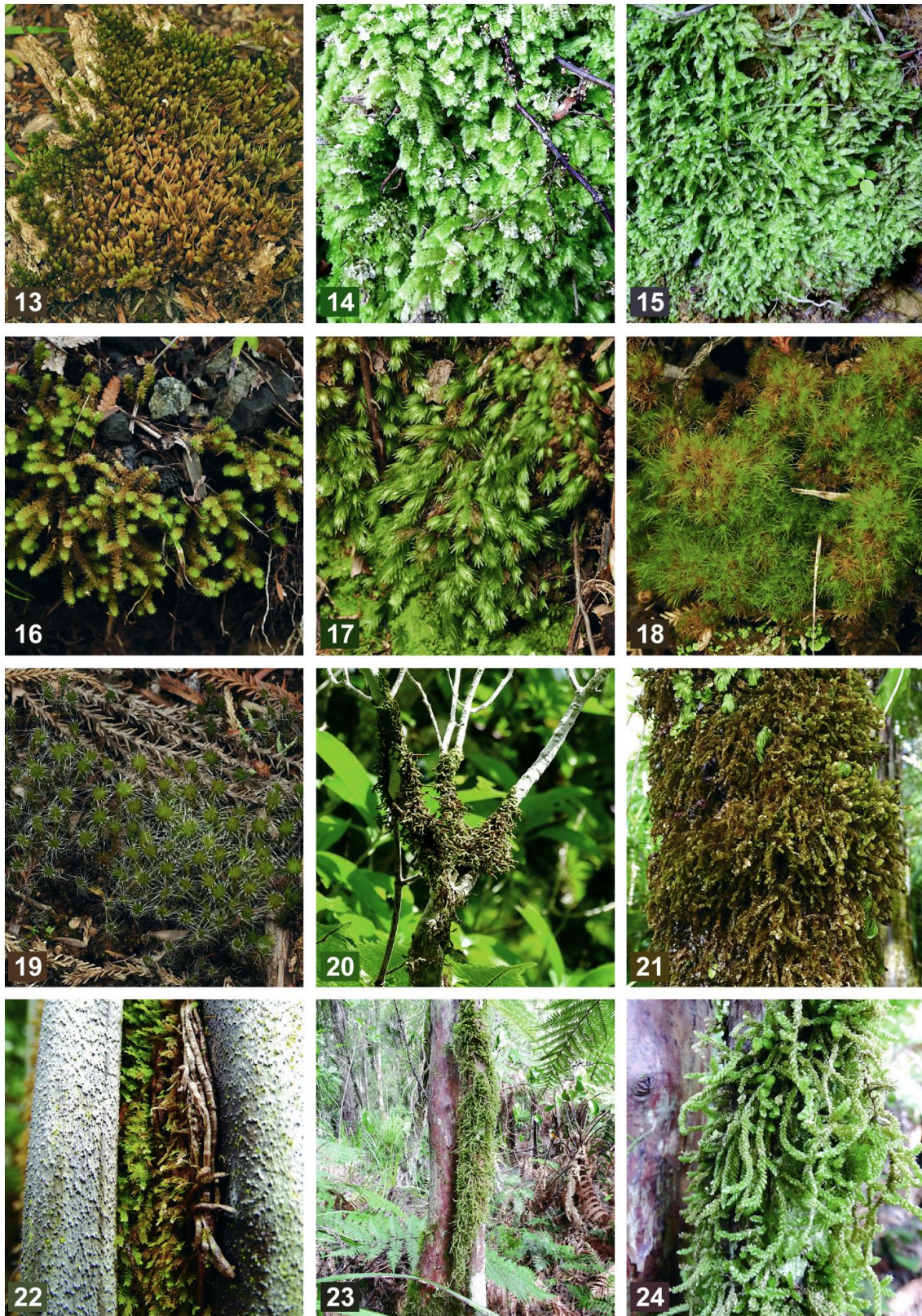
The 22 members participating in this trip consisted of: *Jessica Beever, Maureen Burke, Amanda Charlton, Bev & Geoff Davidson (leader), Neil Davies, Frances Duff, Alex Fox, Leslie Haines, Christine*

Major, John Millett, Michael & Peter Moosberger, Kirsty Myron, Helen Preston Jones, Joshua Salter, Edmund Sharrock, Doug Shaw, Emma Stuges, Alison Wesley, Dave Wilson and Maureen Young.

Again, the weather was perfect for such a stroll where the first half hour saw us move less than 100 m, recording all the plants to be seen, including a flowering *Earina mucronata* (Fig. 2), a fecund *Hymenophyllum rarum* (Fig. 3), and a fruiting *Ixerba brexioides* (Fig. 4, and cover illustration). A number of roadside weeds and garden escapes were spreading along the start of the track, which is cause for concern. The presence of *Tmesipteris* caused a halt in our forward momentum as we discussed



Figs. 1–12: 1. Geoff, Jessica and Maureen at Fairy Falls car park. Photo: JS. 2. *Earina mucronata* in full flower. Photo: BD. 3. *Hymenophyllum rarum* with many plump sori. Photo: BD. 4. *Ixerba brexioides*, held against Helen's black teeshirt to highlight orange and black ripe fruit. Photo: BD. 5. *Raukawa edgerleyi* sapling ~2 m tall. Photo: BD. 6. *Metrosideros fulgens*. Photo: JS. 7. *Astelia trinervia* inflorescence at eye level on a bank. Photo: BD. 8. *Astelia trinervia* flowers with ovaries like deep red glass flasks. Photo: JS. 9. A sunny straight stretch of the track provided a good place for a lunch stop. Photo: JS. 10. A large rimu dwarfs the people admiring it. Photo: JS. 11. The largest kauri on the track, seen from a respectful distance through the surrounding forest. Photo: JS. 12. The broad crown of the large kauri, seen from the track, has several dead branches. Photo: JS.



Figs. 13–24: **13.** A somewhat dessicated colony of the moss *Dicnemon calycinum* on a detached piece of bark found on the ground. Photo: BD. **14.** Leafy liverwort *Balantiopsis ?convexiuscula* on trackside bank. Photo: JS. **15.** Strap-like liverwort *Symphyogyna prolifera*, another coloniser of bare clay banks in shade. Photo: JS. **16.** *Ptychomnion aciculare*, known as the pipe-cleaner moss. Photo: BD. **17.** *Fissidens pallidus*, a moss with flattened shoots. Photo: BD. **18.** The moss *Campylopus pallidus* with fine green leaf tips giving it a fluffy appearance. Photo: BD. **19.** *Campylopus introflexus*, another moss with fine leaf tips, but these colourless and reflexed. Photo: BD. **20.** A liverwort *Porella elegantula*, on twigs approx. 3 m high. Photo: JS. **21.** A lush liverwort colony of *Plagiochilum conjugata* on a trunk approx. 200 mm diam. Photo: JS. **22.** A diminutive moss *Calomnion complanatum* that favours trunks of mamaku (*Cyathea medullaris*). Photo: JS. **23.** A 1 m long colony of the moss *Weymouthia cochlearifolia* on one of two totara trunks. Photo: JS. **24.** The stems of *Weymouthia cochlearifolia* resemble silken cords due to its convex shell-like leaves. Photo: JS.

the difference between the species. Last year's record showed both *T. elongata* and *T. tannensis*. What we saw matched *T. tannensis* and, with enlightenment from Ms Young, we agreed that there was also *T. sigmatifolia*.

Although there is an Auckland Museum herbarium specimen (Cutty Grass Track, *Phyllis Hynes*, 9 Jan 1958, AK 50834), no previous ABS trip had recorded *Gonocarpus micranthus*. We saw several populations where roadside disturbance had provided the ideal habitat for it along with *Hypericum pusillum*.

It was pleasing to see the establishment of seedlings and saplings of *Raukawa edgerleyi* (Fig. 5), which is probably thanks to the pest control by the Ark in the Park project. An occasional *Metrosideros fulgens* was in flower (Fig. 6), and we were delighted to see *Astelia trinervia* (Figs. 7, 8) flowering at our lunch stop (Fig. 9). The track had several large rimu (*Dacrydium cupressinum*), best appreciated when people provided scale (Fig. 10).

Towards the end of our walk we added three more native species to the list. A few plants of *Juncus planifolius* edged the path, and shortly before we turned at the halfway point, not far beyond the large kauri (*Agathis australis*) (Figs. 11, 12), there were two 4–5 m plants of *Mida salicifolia* and a fine 2 m healthy specimen of *Corokia buddleioides*.

One plant of *Erechtites* was uprooted. Ewen Cameron and Peter de Lange (2002) wrote about American fireweed (*Erechtites hieraciifolia*) and its northern spread across the North Island. Apparently, there are two species of *Erechtites* naturalised in New Zealand, the pink-flowered Brazilian fireweed (*E. valerianifolia*) and the yellow-flowered American fireweed (*E. hieraciifolia*). I suspected that it was the American fireweed, but others of our group suggested it was the Brazilian species. Other weedy additions to the list were *Agapanthus praecox* subsp. *orientalis*, *Juncus microcephalus* and *Tradescantia fluminensis* plus perhaps an unidentified *Isolepis*.

See the Appendix for a combined list for the whole track, including additions to the list previously published in Davidson (2021).

Some members left early, and a group of us indulged in a coffee at the Elevation Café whilst enjoying the panoramic view over wider Auckland. All agreed it had been a great pleasure to get back into 'real bush' after all the Covid lockdowns and cancelled outings.

Bryophytes of Cutty Grass Track

Jessica Beever

Cutty Grass Track moss records in the herbarium AK (Auckland Museum) were only four, prior to our visit. These were *Dicnemon calycinum*, *Tayloria callophylla*, and two species of *Sphagnum*, *S. falcatulum* and *S. novo-zelandicum*, so chances were good that we could add to that list.

Of the earlier records, only *Dicnemon calycinum* was found on the Botanical Society visit (Fig. 13), it being common and luxuriant on trunks of large kanuka (*Kunzea robusta*). *Tayloria callophylla* requires specialist substrates, namely those which attract flies, e.g., dung, and rotting animal carcasses, its spores being fly-dispersed. The AK specimen (AK 303889) was collected by Ewen Cameron in 1975, and the species may well be still present in the area.

The same cannot be said of the two *Sphagnum* species recorded earlier. *Sphagnum falcatulum* has two Cutty Grass Track records; collected by I B Wormald (affectionately known as "Mrs Wormald" to older Botanical Society members) in Dec. 1965 (AK 214396) and again by Ewen Cameron in May 1973 (AK 292841). The *Sphagnum novo-zelandicum* record was not strictly from Cutty Grass Track, but collected from the Ian Wells Track between Nihotupu Auxiliary Reservoir and Cutty Grass Track by Sandra Jones in Nov. 2002 (AK 281015). Unfortunately, no *Sphagnum* was seen on the current field trip, and previous track-side ditch habitats appear to have been annihilated in the recent track reconstruction.

However, newly cut clay banks already sported a range of bryophyte primary colonisers, including liverworts such as *Lembidium nutans*, *Balantiopsis ?convexiuscula* (Fig. 14), and *Symphyogyna prolifera* (Fig. 15), and the mosses *Ptychomnion aciculare* (Fig. 16) and *Fissidens pallidus* (Fig. 17). The latter often showed distinctive white spots where the pale young leaves are tightly overlapping at the shoot apex.

Campylopus pallidus (Fig. 18) was very common, and with numerous capsules, colonising rotting vegetation lying at the bush margins adjacent to the track, where the high light conditions this moss prefers are provided by the wide canopy gap of the track. Also in the leaf litter was *Campylopus introflexus*, characterised by its reflexed hair-point leaf tips (Fig. 19).

Some tree-dwelling bryophytes (out-of-reach species identified by the zoom lens method) were the liverworts *Porella elegantula* (Fig. 20) and *Plagiochilum conjugata* (Fig. 21); and the

mosses *Calomnion complanatum* (Fig. 22), and *Weymouthia cochlearifolia* (Figs. 23, 24) .

At the side of the track a single loose fragment of the invasive exotic moss, *Pseudoscleropodium purum*, was found and removed. This species was collected in the Waitakere Ranges by Jack Mackinder on the Scenic Drive verge in 1976 (AK 155171). Whether it can re-establish on the upgraded Cutty Grass Track, will be an interesting observation for the future.

References

- Cameron, E.K.; de Lange, P.J. 2002: American fireweed (*Erechtites hieraciifolia*) moves north. *Auckland Botanical Society Journal* 57: 102–103.
Davidson, G. 2021: Cutty Grass Track, Waitakere Ranges. Auckland Botanical Society Field Trip, Saturday 19th June 2021. *Auckland Botanical Society Journal* 76: 91–97.

Sight records of mosses, by Jessica Beever, have been added to the species list (see Appendix), as have liverworts, tentatively identified from a distance by Joshua Salter.

Acknowledgements

Many thanks to Yumiko Baba for providing specimen data spreadsheets of AK holdings, and to Botanical Society members for cheerful companionship on the day.

Appendix. Species list for the entire Cutty Grass Track from Anawhata Rd to Scenic Drive, based on five accounts from 1969 to 2022. For details of previous records refer to Davidson (2021).

Key

= addition to previous lists (from recent ABS visit to NE half of track)

* = exotic naturalised species
pl. = planted species

Ferns & Lycopods		
<i>Asplenium bulbiferum</i>	<i>Lastreopsis hispida</i>	<i>Dacrydium cupressinum</i>
<i>Asplenium flaccidum</i>	<i>Lindsaea trichomanoides</i>	<i>Pinus radiata</i> *
<i>Asplenium oblongifolium</i>	<i>Loxogramme dictyopteris</i>	<i>Phyllocladus trichomanoides</i>
<i>Asplenium polyodon</i>	<i>Lycopodiella cernua</i>	<i>Prumnopitys ferruginea</i>
<i>Blechnum discolor</i>	<i>Lycopodium deuterodensum</i>	<i>Podocarpus laetus</i>
<i>Blechnum filiforme</i>	<i>Lycopodium volubile</i>	<i>Podocarpus totara</i>
<i>Blechnum fraseri</i>	<i>Lygodium articulatum</i>	
<i>Blechnum novae-zelandiae</i>	<i>Microsorium pustulatum</i>	
<i>Blechnum procerum</i>	<i>Notogrammitis heterophylla</i>	
<i>Cyathea dealbata</i>	<i>Paesia scaberula</i>	
<i>Cyathea medullaris</i>	<i>Phlegmariurus billardieri</i>	
<i>Cyathea smithii</i>	<i>Pneumatopteris pennigera</i>	
<i>Dicksonia squarrosa</i>	<i>Pteridium esculentum</i>	
<i>Histiopteris incisa</i>	<i>Rumohra adiantiformis</i>	
<i>Hiya distans</i>	<i>Selaginella krausiana</i> *	
<i>Hymenophyllum demissum</i>	<i>Tmesipteris elongata</i>	
<i>Hymenophyllum dilatatum</i>	<i>Tmesipteris sigmatifolia</i> #	
<i>Hymenophyllum flabellatum</i>	<i>Tmesipteris tannensis</i>	
<i>Hymenophyllum lyallii</i>	<i>Trichomanes venosum</i>	
<i>Hymenophyllum multifidum</i>		
<i>Hymenophyllum nephrophyllum</i>		
<i>Hymenophyllum rarum</i>		
<i>Hymenophyllum sanguinolentum</i>		
Gymnosperms		
	<i>Agathis australis</i>	
	<i>Cupressus macrocarpa</i> * pl.	
	<i>Dacrycarpus dacrydioides</i>	
Dicotyledons		
		<i>Alseuosmia macrophylla</i>
		<i>Alseuosmia quercifolia</i>
		<i>Aristotelia serrata</i>
		<i>Beilschmiedia tarairi</i>
		<i>Beilschmiedia tawa</i>
		<i>Brachyglottis kirkii</i>
		<i>Brachyglottis repanda</i>
		<i>Callitriche muelleri</i>
		<i>Carpodetus serratus</i>
		<i>Centaurium erythraea</i> *
		<i>Centella uniflora</i>
		<i>Cirsium vulgare</i> *
		<i>Clematis paniculata</i>
		<i>Coprosma arborea</i>
		<i>Coprosma autumnalis</i>
		<i>Coprosma lucida</i>

<i>Coprosma robusta</i>		<i>Mida salicifolia</i>	#	<i>Corybas acuminatus</i>	
<i>Coriaria arborea</i>		<i>Myrsine australis</i>		<i>Crocasmia</i> × <i>crocosmiiflora</i> *	
<i>Corokia buddleioides</i>	#	<i>Myrsine salicina</i>		<i>Dendrobium cunninghamii</i>	
<i>Corynocarpus laevigatus</i>		<i>Nertera dichondrifolia</i>		<i>Dianella nigra</i> s.l. (incl. <i>D. latissima</i>)	
<i>Crepis capillaris</i> *		<i>Nestegis lanceolata</i>		<i>Earina autumnalis</i>	
<i>Dracophyllum latifolium</i>		<i>Nestegis montana</i>		<i>Earina mucronata</i>	
<i>Dysoxylum spectabile</i>		<i>Olearia furfuracea</i>		<i>Ehrharta erecta</i> *	
<i>Elaeocarpus dentatus</i>		<i>Olearia rani</i>		<i>Freycinetia banksii</i>	
<i>Erechtites</i> sp. *	#	<i>Parsonsia capsularis</i>		<i>Gahnia setifolia</i>	
<i>Erigeron sumatrensis</i> *		<i>Pittosporum cornifolium</i>		<i>Gahnia xanthocarpa</i>	
<i>Euchiton japonicus</i>		<i>Pittosporum ellipticum</i>		<i>Juncus bufonius</i> *	
<i>Fuchsia excorticata</i>		<i>Pittosporum kirkii</i>		<i>Juncus effusus</i> *	
<i>Gamochaeta coarctata</i> *		<i>Pittosporum tenuifolium</i>		<i>Juncus microcephalus</i> *	#
<i>Geniostoma ligustrifolium</i>		<i>Plantago australis</i> *		<i>Juncus planifolius</i>	#
<i>Gonocarpus micranthus</i>		<i>Plantago lanceolata</i> *		<i>Lepidosperma australe</i>	
<i>Griselinia lucida</i>		<i>Plantago major</i> *		<i>Luzula banksiana</i>	
<i>Haloragis erecta</i>		<i>Prunus vulgaris</i> *		<i>Machaerina tenax</i>	
<i>Hebe macrocarpa</i>		<i>Pseudopanax arboreus</i>		<i>Microlaena avenacea</i>	
<i>Hebe stricta</i>		<i>Pseudopanax crassifolius</i>		<i>Microlaena stipoides</i>	
<i>Hedycarya aborea</i>		<i>Quintinia serrata</i>		<i>Oplismenus hirtellus</i>	
<i>Helichrysum lanceolatum</i>		<i>Ranunculus repens</i> *		<i>Paspalum dilatatum</i> *	
<i>Hoheria populnea</i>		<i>Raukaua anomalus</i>		<i>Phormium tenax</i>	
<i>Hydrocotyle dissecta</i>		<i>Raukaua edgerleyi</i>		<i>Pterostylis banksii</i>	
<i>Hydrocotyle tripartita</i> *		<i>Rubus australis</i>		<i>Rhopalostylis sapida</i>	
<i>Hypericum pusillum</i>		<i>Rubus cissoides</i>		<i>Ripogonum scandens</i>	
<i>Hypochaeris radicata</i> *		<i>Rumex brownii</i> *		<i>Rytidosperma gracile</i>	
<i>Ixerba brexioides</i>		<i>Schefflera digitata</i>		<i>Schoenus apogon</i>	
<i>Knightia excelsa</i>		<i>Senecio minimus</i>		<i>Schoenus maschalinus</i>	
<i>Kunzea robusta</i>		<i>Solanum americanum</i>		<i>Sisyrinchium micranthum</i> *	
<i>Laurelia novae-zelandiae</i>		<i>Sonchus oleraceus</i> *		<i>Sporobolus africanus</i> *	
<i>Leptospermum scoparium</i>		<i>Ulex europaeus</i> *		<i>Thelymitra longifolia</i>	
<i>Leucanthemum vulgare</i> *		<i>Vicia sativa</i> *		<i>Tradescantia fluminensis</i> *	#
<i>Leucopogon fasciculatus</i>		<i>Vitex lucens</i>		Mosses (compiled by Jessica Beever)	
<i>Litsea calicaris</i>		Monocotyledons		<i>Breutelia pendula</i>	
<i>Lobelia anceps</i>		<i>Acianthus sinclairii</i>		<i>Calomnion complanatum</i>	#
<i>Lophomyrtus bullata</i>		<i>Agapanthus praecox</i> subsp. <i>orientalis</i> *	#	<i>Campylopus introflexus</i>	#
<i>Lotus pedunculatus</i> *		<i>Agrostis capillaris</i> *		<i>Campylopus pallidus</i>	#
<i>Melicytus macrophyllus</i>		<i>Aristea ecklonii</i> *		<i>Cladomnion ericoides</i>	
<i>Melicytus micranthus</i>		<i>Astelia hastata</i>		<i>Dicnemon calycinum</i>	
<i>Melicytus ramiflorus</i>		<i>Astelia solandri</i>		<i>Dicranoloma menziesii</i>	#
<i>Metrosideros diffusa</i>		<i>Astelia trinervia</i>		<i>Fissidens pallidus</i>	#
<i>Metrosideros fulgens</i>		<i>Axonopus fissifolius</i> *		<i>Hypnodendron comosum</i>	
<i>Metrosideros perforata</i>		<i>Cordyline australis</i>		<i>Hypnum</i> sp.	#
<i>Metrosideros robusta</i>		<i>Cordyline banksii</i>		<i>Leucobryum javense</i>	#
		<i>Cortaderia selloana</i> *		<i>Macromitrium</i> ? <i>microstomum</i>	
				<i>Macromitrium</i> sp.	#

<i>Pseudoscleropodium purum</i> *	#	Liverworts (compiled by Joshua Salter)	<i>Porella elegantula</i>	#
<i>Ptychomnion aciculare</i>	#	<i>Balantiopsis</i> ? <i>convexiuscula</i>	<i>Psiloclada clandestina</i>	
<i>Sphagnum falcatulum</i>		<i>Bazzania novae-zelandiae</i>	<i>Symphogyna prolifera</i>	#
<i>Sphagnum novo-zelandicum</i>		<i>Bazzania</i> sp.	<i>Telaranea lindenbergii</i> s.str.	
<i>Tayloria callophylla</i>		<i>Lembidium nutans</i>	<i>Thysananthus anguiformis</i>	
<i>Weymouthia cochlearifolia</i>	#	<i>Plagiochila incurvicola</i>	<i>Trichocolea mollisima</i>	
<i>Wijkia extenuata</i>	#	? <i>Plagiochilion conjugata</i>		

Botanical Society Field Trip, 18 June 2022 – Quinns Road, Waitakere Ranges

Ben Goodwin and Geoff Davidson

On the 18th June 2022, 13 members of the Auckland Botanical Society and two local residents met at the intersection of Quinns Road and Piha Road in Auckland's Waitakere Ranges. Attendees on the day were: *Phoebe Andrews*, *Geoff Davidson* (*Organiser, in absentia*), *Wayne Edwards* and *Tai Edwards* (*Quinns Road residents*), *Ben Goodwin* (*Leader*), *Leslie Haines*, *John Millett*, *Philip Moll*, *Peter Moosberger*, *Jessica Reaburn*, *Juliet Richmond*, *Thiagaraj (Tiago) Siva Sankara Sundaramahalingam*, *Brent Torrens*, *Alison Wesley*, *David Wilson* and *Maureen Young*. Braving the rain and fog, the plan for the day was to explore the roadside vegetation along the length of Quinns Road and to compare the differences in the plant composition (particularly invasive plants) between the road's northern and southern ends.

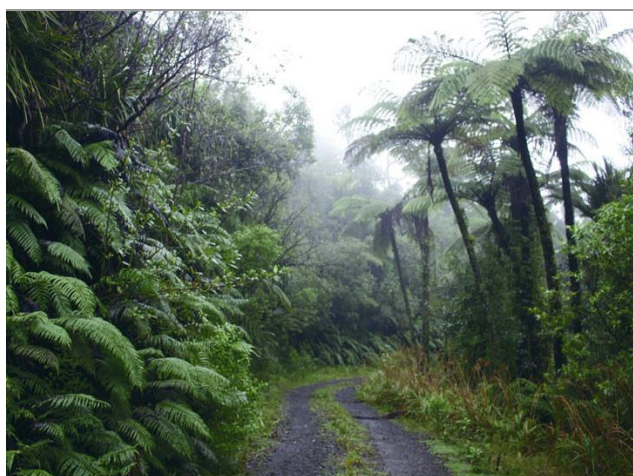


Fig. 1. Southern end of Quinns Road, 18 June 2022. Photo: Ben Goodwin.

Earlier field trips made by the Auckland Botanical Society to Quinns Road occurred on 20 July 1968 (Mead 1968) and on 16 April 2011 (Hutton 2011). Quinns Road meanders for about 2.5 km in a south-easterly direction, parallel to Scenic Drive. The start of the road (its northern end) is a sealed public accessway, bordered on its western side by the Waitakere Ranges Regional Park, and on its eastern side by private properties. After about 1 km, the road crosses into land managed by Chorus Ltd, where it provides an unsealed accessway to their telecommunications transmitter mast (Fig. 1). This southern end of the road is nestled within the Waitakere Ranges Regional Park.

During the 2022 field trip, the most common larger trees observed along the length of Quinns Road were rimu (*Dacrydium cupressinum*), rewarewa (*Knightia excelsa*) and kānuka (*Kunzea robusta*). Typical smaller trees forming the subcanopy and understory included: kanono (*Coprosma autumnalis*), hīnau (*Elaeocarpus dentatus*), hangehange (*Geniostoma ligustrifolium*), houhere (*Hoheria populnea*), māhoe (*Melicytus ramiflorus*), mapou (*Myrsine australis*), tarata (*Pittosporum eugenioides*), five finger (*Pseudopanax arboreus*) and patē (*Schefflera digitata*). Other trees in lower numbers were: Hall's tōtara (*Podocarpus laetus*), kawaka (*Libocedrus plumosa*), miro (*Pectinopitys ferruginea*), kohekohe (*Didymocheton spectabilis*), kōtukutuku (*Fuchsia excorticata*), tawari (*Ixerba brexioides*), pukatea (*Laurelia novae-zelandiae*), mangeao (*Litsea calicaris*), toro (*Myrsine salicina*) and raukawa