

ABS field trip to the Maungawhau (Mount Eden) Rock Forests

Ben Goodwin, Bec Stanley and Phil Simpson

On 15 April 2023, a group of 35 Auckland Botanical Society (ABS) members and representatives of local conservation groups (Fig. 1) met on the roadside of 5 Withiel Drive to explore some of the remnants of the 'Mount Eden Bush'. Our trip took place nearly 80 years after the Society's first documented excursion to this rock forest (Anonymous 1943). The Mount Eden Bush is situated on the rough lava fields northeast of the Maungawhau (Mount Eden) cone. During the early pākehā settlement era of Auckland, forest in this locality was said to cover less than 50 ha (Smale & Gardner 1999). By the 1930s, the Mount Eden Bush had been reduced down to 'some acres' (Wall & Cranwell 1943), and in contemporary times, the combined area of the now-fragmented forest is only about 3 ha (Cameron 2018). Though modified to varying extents, it is remarkable that any remnants of this forest have persisted at all within this urbanised area. Rock forest, in the Auckland context, is a variant of pūriri forest, which even at its greater extent is a critically endangered ecosystem type in the region (Singers et al. 2017). For further reading on this forest type see: Kirk 1878; Wall & Cranwell 1943; Millener 1979; Cranwell 1981; Esler 1991; Smale & Gardner 1999; Cameron 1999 and Cameron 2018.

Leaders: Phil Simpson (Urban Ark – Manawa Taiao, co-leader), Bec Stanley (co-leader), Ben Goodwin (co-leader). Attendees: Jenny Andrew, Yumiko Baba, Bella Burgess, Ewen Cameron, Sarah Carr, Amanda Charlton, Bev Davidson, Geoff Davidson, Gael Donaghy, Frances Duff, Alex Fox, Shelley Heiss-Dunlop, Alistair Jamieson, Graeme Jane, Wendy John, Mei Nee Lee, Kate Lewis, Rich Mairs, Anna

Mairs, Kirsty Myron, Sharon Osman, Helen Preston Jones, Joshua Salter, Emma Simpkins, Adrienne Stanton, Karen Staniland, Lydia Starr, Rylee Starr, Mary Stewart, Alison Wesley and Maureen Young.

Withiel Thomas Reserve

Our day began with a walk through Withiel Thomas Reserve – the most publicly-accessible remnant of rock forest on the Maungawhau lava field. The flora and history of this reserve has previously been documented by Smale & Gardner (1999), and Cameron (1999 & 2018). Canopy trees in this forest are tītoki (*Alectryon excelsus*), karaka (*Corynocarpus laevigatus*), porokaiwhiri (*Hedycarya arborea*), mangeao (*Litsea calicaris*), māhoe (*Meliczytus ramiflorus*), houpara (*Pseudopanax lessonii*) and akapuka (*Griselinia lucida*). The latter species is a significant feature of the reserve, with several enormous trees growing up from the boulders into the canopy (Fig. 2). In the 1870s Thomas Kirk regarded the size of the akapuka in this locality worthy of note: 'The largest specimens of *Griselinia lucida* that I have met with grew amongst the rough scoria [basalt] near Mount Eden' (Kirk 1878, p.452). Other trees that attracted attention during our trip were pōhutukawa (*Metrosideros excelsa*) and ngaio (*Myoporum laetum*), both in low numbers; fast-growing whau (*Entelea arborescens*) on the bush margins; and several establishing tōtara (*Podocarpus totara*), which are intrusive in this ecosystem and may cause future problems if not controlled.

On the rocky forest floor, our group noted plenty of wharanui (*Peperomia urvilleana*), and ferns such as: hanging spleenwort (*Asplenium flaccidum*),



Fig. 1. Our group assembled at Withiel Thomas Reserve at the start of the field trip. Photo: Bec Stanley, 15 Apr 2023.



Fig. 2. Base of a large akapuka (*Griselinia lucida*) at Withiel Thomas Reserve. Photo: Bec Stanley, 15 Apr 2023.



Fig. 3. *Pellaea* aff. *falcata* (b) (AK 330788; "Auckland volcanoes") at the Rannoch Property. Photo: Ben Goodwin, 15 Apr 2023.

shining spleenwort (*Asplenium oblongifolium*), lance fern (*Loxogramme dictyopteris*), kowaowao (*Zealandia pustulata* syn. *Microsorium pustulatum*), fragrant fern (*Dendroconche scandens* syn. *Microsorium scandens*) and leather-leaf fern (*Pyrrosia elaeagnifolia*). Weeds have generally been well-controlled within this reserve in recent years, though *Tradescantia fluminensis* is a perpetual issue on the forest margins. Small seedlings of bird-dispersed invasive trees such as Japanese hill cherry (*Prunus serrulata*) are also frequent throughout the forest. New records of weeds made during our trip were: Japanese aralia (*Fatsia japonica*) and figs of either or both *Ficus macrocarpa* and *Ficus rubiginosa*.

It is poignant to note that several plants that were present in the 1999 studies by Smale & Gardner and Cameron were not seen on this field trip. In fact, several have not been seen within the reserve despite countless searches over the last 8 years or so (*BG unpublished notes*). Notable recent losses in the reserve are: rangiora (*Brachyglottis repanda*), *Solanum aviculare*, lancewood (*Pseudopanax crassifolius*), kowharawhara (*Astelia solandri*) and kiekie (*Freycinetia banksii*). These local extinctions demonstrate that species losses beyond those that occurred prior to 1999 (noted in Cameron 1999) are still occurring in the reserve. The ongoing disappearance of native plant species from remnants

of the Mount Eden Bush is presumably due to the fragmented nature of the forest, and associated instability of the small remnants. Illegal clearance of native vegetation along the bush margins may be contributing to this instability. It is heartening to note that some of the ill-conceived or misguided native plantings noted from Withiel Thomas Reserve in the past have failed to persist. These include the following species recorded by Cameron in 1999: karamu (*Coprosma robusta*), parapara (*Ceodes brunoniana* syn. *Pisonia brunoniana*), *Pseudopanax laetus* and *Tecomanthe speciosa* – none of which appear to be present now. New records of native plants, observed within the reserve over the last few years are listed in the Appendix.

Rannoch

After visiting Withiel Thomas Reserve, our group then walked to the nearby Rannoch Property at 77 Almorah Road. This property is maintained by the James Wallace Arts Trust, which to its great credit has retained forest around the historic Rannoch House. The forest at Rannoch is essentially contiguous with that of neighbouring Almorah (sometimes known as the *Former Goodfellow Property*) to the south, but is more modified, with pathways and sculptures among the trees. Some exotic plantings are present (especially *Clivia maxima*), altering the nature of the rock forest in places and occupying ecological space which would have once been populated by native species. Rannoch shares the same range of canopy trees with Almorah, but in comparison has fewer small native plants on the forest floor. Cameron (2018) recorded 'possibly the largest mangleo on the Auckland isthmus' at Rannoch, but it was noted during our visit that this tree had died. Many of the largest mangleo throughout remnants of the Mount Eden Bush are in poor health, though there is some regeneration with younger trees growing up to replace those that are failing. Kohekohe (*Didymocheton spectabilis* syn. *Dysoxylum spectabile*) is prominent at Rannoch. At the time of our visit, several large kohekohe trees were fruiting heavily and beginning to flower which was attracting native birds including tūi (*Prosthemadera novaeseelandiae*) and kererū (*Hemiphaga novaeseelandiae*). Recent backyard rodent and possum control in the area, led by 'Urban Ark Manawa Taiao' aims to protect native bird populations and enhance forest regeneration processes, so it was heartening to see these positive signs.

Our group found *Hymenophyllum flexuosum* in one of the rocky gullies, a new record for this property. This filmy fern was known from the Mount Eden Bush previously (Wall & Cranwell 1943; AK259473, Atkinson 1953), but after remaining elusive for sixty

years, has been seen recently at both Almorah (see Cameron 2018) and Withiel Thomas Reserve (see Appendix). Several fine clumps of *Pellaea* fern, with large erect fronds and oblong-falcate pinnae were observed along a basalt wall within the forest (Fig. 3). This unusual form, previously referred to as *Pellaea falcata* in Auckland, is now regarded as indistinct from *Pellaea rotundifolia* (Brownsey et al. 2020), but is sometimes (e.g., Simpkins et al 2022) referred by the tag name *Pellaea aff. falcata* (b) (AK 330788; "Auckland volcanoes"). One weed of concern here, capitalising on gaps where forty tree privets (*Ligustrum lucidum*) were removed by Auckland Transport in 2016, is Madeira vine (*Anredera cordifolia*) which was in full flower and climbing over the rock forest canopy alongside the motorway edge.

Gilgit Road

Travelling onwards, our group came to a property on Gilgit Road which has one of Auckland's best front yards in our opinion. Unlike most other properties on Auckland's lava fields, much of the natural topography and rough lava surface of the Gilgit Road property has been retained, and continues to host a stand of rock forest. Previous botanical studies of this site have been undertaken by peering sheepishly over the fence. However, with permission from the land owners, our group was able to explore the area

properly. Trees here include tītoki, porokaiwhiri, māhoe, and pūriri (*Vitex lucens*), as well as one large ngaio. Plantings of native and exotic ferns were prominent amongst the boulders: rosy maidenhair (*Adiantum hispidulum*), pikopiko (*Asplenium bulbiferum*), hanging spleenwort, false hen & chicken fern (*Asplenium x lucrosus*), *Asplenium* 'Maori Princess', peretao (*Austroblechnum colensoi* syn. *Blechnum colensoi*), crown fern (*Lomaria discolor* syn. *Blechnum discolor*), kiokio (*Parablechnum novae-zelandiae* syn. *Blechnum novaezealandiae*), ponga (*Cyathea dealbata*), mamaku (*Cyathea medullaris*), wheki-ponga (*Dicksonia fibrosa*), rasp fern (*Doodia australis*), *Pellaea rotundifolia*, *Polystichum* ?*setiferum*, Cretan brake (*Pteris cretica*) and para or king fern (*Ptisana salicina*). As well as these ferns we also found planted *Metrosideros perforata* and cultivars of houpara. Though these plantings add an additional layer of botanical interest, they also represent further modification to this rare ecosystem. Small native plants of natural origin in this forest include shining spleenwort, sickle spleenwort (*Asplenium polyodon*), kowaowao, leather-leaf fern and wharanui.

88/84 Mountain Road

The last fragment of forest visited on the day lies between Rockwood Place, Gilgit Road and Mountain Road. From the flat properties fronting the

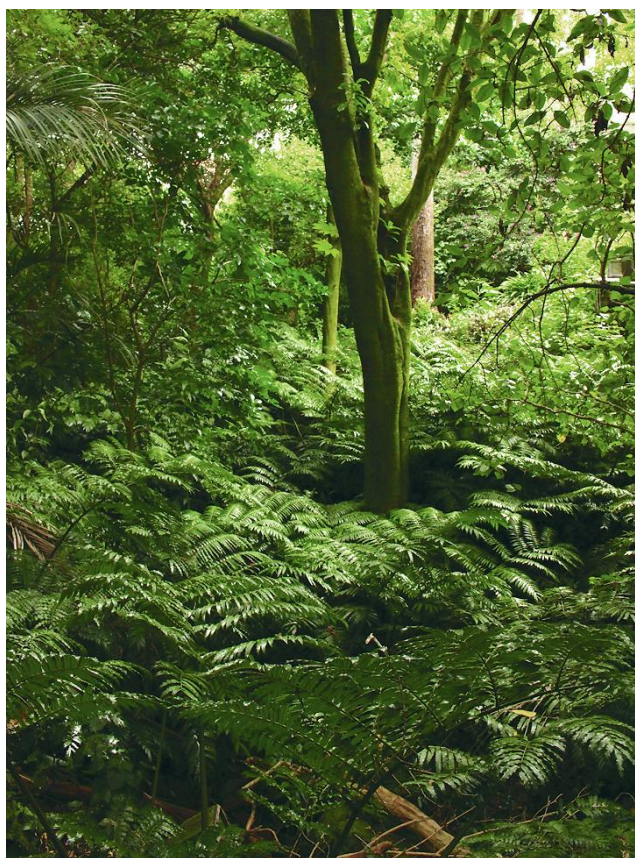


Fig. 4. King fern and tītoki in rocky gully between Rockwood Place, Gilgit Road and Mountain Road. Photo: Ben Goodwin, 15 Apr 2023.

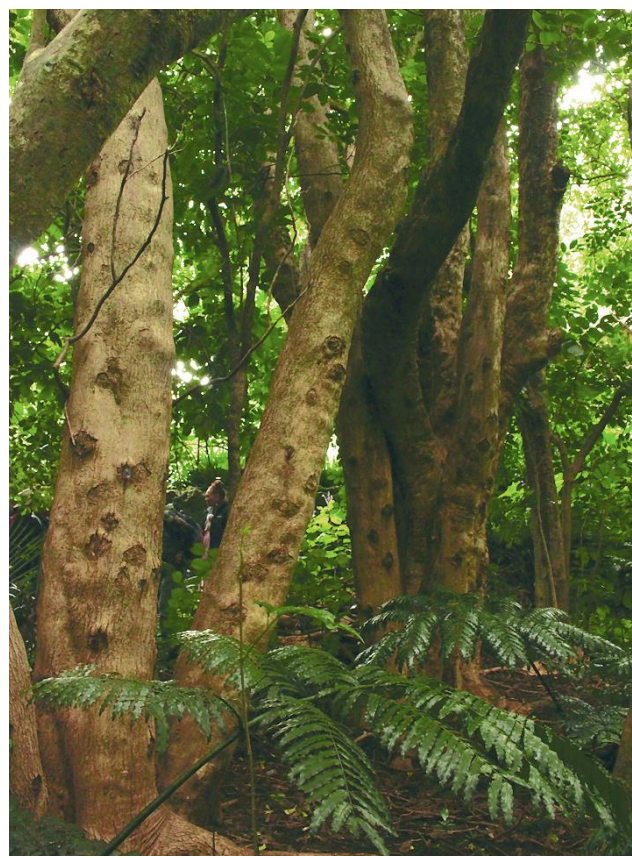


Fig. 5. Pūriri trees in rocky gully between Rockwood Place, Gilgit Road and Mountain Road. Photo: Ben Goodwin, 15 Apr 2023.

surrounding roads, the land falls steeply into a deep rocky gully filled with masses of enormous and healthy king ferns (Fig. 4). These ferns may have been planted here originally, as noted in the past in other areas of the Mount Eden Bush (Wall & Cranwell 1943; Anonymous 1943). It was good to see *Asplenium lamprophyllum* and *Lastreopsis microsora* (syn. *Parapolystichum microsorum*), though there were few other small native plants in this gully. Trees of interest here included large titoki, karaka and mangeao; several mature pūriri (Fig. 5); and of particular significance, some wharangi (*Melicope ternata*). The three wharangi trees in this gully are several metres tall and quite spindly, with trunks to c. 20 cm dbh. They appear to be natural rather than planted. Wharangi is known historically from the Mount Eden area, with collections made by Thomas Kirk in the 1860s (e.g., WELT SP029746, Kirk 1868), and from the 'slopes of Mt Ederl' by Donald Petrie in

1910 (WELT SP029714, Petrie 1910). Petrie also collected a specimen from the Mount Wellington (Maungarei) lava fields in 1911 (AK288263, Petrie 1911), and Kirk recorded it from Rangitoto in the 1870s (Kirk 1878), where it may have persisted until 1958 (see Millener's species list in Segedin 1984). There is also one wharangi tree and a few seedlings near the southern margin of Withiel Thomas Reserve, though this particular tree appears to have been planted.

Acknowledgements

The authors would like to thank Liz Thompson, Peter Busch, Andrew Whillans and the James Wallace Arts Trust for kindly allowing access to their properties. Special thanks to Moana Wilton for the welcoming karakia and kawakawa tea, and to Erinc Yikar for providing some history about the Rannoch property and art works.

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Appendix: New records of native plants from Withiel Thomas Reserve.

This article is a convenient place to publish new records of native plants from Withiel Thomas Reserve, observed by one of the authors (BG) over the last 6 years.

Taxon	Notes
<i>Adiantum hispidulum</i>	22 October 2019, rare along bush margin, high on northern cliffs above Pascoe's Quarry. 3 July 2020, few large clumps on basalt exposure alongside Withiel Drive.
<i>Deparia petersenii</i>	22 October 2019, one plant in lowest area of reserve.
<i>Doodia australis</i>	Winter 2018, rare, one plant near road margin. 22 October 2019, locally common on bush edge above Pascoe's Quarry.
<i>Hymenophyllum flexuosum</i>	1 August 2020, one plant on side of boulder in sheltered rocky gully.
<i>Pellaea</i> aff. <i>falcata</i> (b) (AK330788; "Auckland volcanoes")	Winter 2018, rare. Four plants, one very small. All sterile. On basalt. 28 September 2022, no longer present.

<i>Phlegmariurus billardierei</i>	1 October 2017, one on bush margin high on northern cliffs above Pascoe's Quarry. 22 October 2019 same plant relocated, along with one other. Both sterile. 28 September 2022, original plant relocated, now fertile.
<i>Calystegia tuguriorum</i>	Winter 2018, rare. Two plants seen, one on forest floor, the other climbing into canopy [in light-well]. 3 July 2020, locally common in disturbed area [light-well].
<i>Dichondra repens</i>	13 December 2020, large patch growing in mown lawn between Withiel Drive and rock forest remnant. AK382580, Goodwin 2020
<i>Wahlenbergia vernicosa</i>	1 October 2017, occasional, sunny spots, along bush margin high on northern cliffs above Pascoe's Quarry. March 2021, unable to relocate any plants.
<i>Microlaena stipoides</i>	Winter 2018, few in open spots along northern bush margin.
<i>Melicope ternata</i>	Winter 2018, rare. One tree on margin [of Withiel Drive], probably cultivated. 25 April 2023, small clump of seedlings on southern margin.
<i>Solanum laciniatum</i>	September 2018, one big shrub on road margin, flowering. 22 October 2019, large shrub on road margin. AK380920, Goodwin 2019. NB: these plants almost certainly naturalised here from cultivated plants nearby (e.g., on the Maungawhau cone). This species seems to have replaced <i>Solanum aviculare</i> , which was previously present (1990s).
<i>Streblus banksii</i>	25 April 2023. One small wild plant, presumably naturalised from garden plants nearby.

A secondary kauri bush block at Laingholm, west Auckland

Mike Wilcox, Geoff Davidson, Ben Goodwin

Introduction

We held a field trip on 17 June 2023 to the bush-clad 4 ha property of Tony van Raat and Penny Sender at 129 Laingholm Drive, Laingholm (Figs. 1, 2, 3). The sixteen people attending were *Jenny Andrew*, *Amanda Charlton*, *Geoff Davidson* (co-leader), *Frances Duff*, *Alex Fox*, *Beth Gibbs*, *Ben Goodwin* (principal plant recorder), *Leslie Haines*, *Saryu Mae*, *Peter Moosberger*, *Sharon Osman*, *Suman Pancha*, *Helen Preston Jones*, *Juliet Richmond*, *Joshua Salter*, *Mike Wilcox* (co-leader). A list was compiled of the plants and fungi present (see Appendix). Photos by Mike Wilcox (MW), Amanda Charlton (AC), Beth Gibbs (BG), Geoff Davidson (GD) and Joshua Salter (JS).

Geography

The property is at an elevation of 20 to 70 m, gently sloping to the east towards the shore of Little Muddy Creek, Manukau Harbour. The underlying geology is Tertiary complex marine breccias and conglomerates (Parnell Grit) overlying Tertiary Waitemata Sandstones and Mudstone (Hayward 1976, 2017; Allen 2004), though there are no rock outcrops or exposures here. The land was farmed up to 1920 (Laing 1985). The soil type is Parau Clay Loam (Martindale et al. 2008), a comparatively deep and well-drained fertile soil over most of the property, but shallower and less fertile on the ridges.

Forest types and history

The forest cover is complete, comprising second-growth kauri (*Agathis australis*) ricker forest (Figs. 4, 5) (Forest Ecosystem Type 10.2, Regenerating kauri 'ricker' stands, of Singers et al. 2017), with plentiful tātēkaha (*Phyllocladus trichomanoides*) and kānuka (*Kunzea robusta*), and with a sprinkling of rimu (*Dacrydium cupressinum*), Hall's tōtara (*Podocarpus laetus*), and rewarewa (*Knightia excelsa*), and part of a larger expanse of this type of forest in Laingholm (Fig. 2). It is mapped as Forest Class *Kauri-Softwoods-Hardwoods* (Clarkson & Clarkson 1993) and has developed following kauri logging in the 1850-1920 period (Harvey 2006), clearing and burning of the logged kauri forests and scrubland for farm development by early settlers, and reversion to mānuka (*Leptospermum scoparium*) scrub and then kānuka – this latter still plentiful here (Fig. 3) – following abandonment of farming, and subsequent subdivision and sale as bush blocks for private houses in the 1960s and 70s. A 1940 aerial photo shows just low scrub with very few tall trees on the site, other than in a stream gully on the southern boundary. Laingholm Drive shows up in a 1959 photo, but with no house or driveway into the property. The kauri trees are in the range of 30-55 cm DBH (diameter at breast height), with a probable age range of 100-120 years (based on a mean diameter of 45 cm and mean annual diameter