

TERRESTRIAL AND FRESHWATER ALGAE

Charophytes

- Chara corallina* Whatipu, *T.C.Chambers*, 12 Apr 1950. AK 239396 (as *C. australis*)
- Chara globularis* Whatipu, *G.W.Mason*, Apr 1950, AK 346808; Whatipu, large pool at cave entrance, *T.C.Chambers*, 12 Apr 1950, AK 238569; Whatipu, *E.M.Dickson*, 1 Mar 1972, AK 346839; Whatipu Sands, *E.K.Cameron*, 11 May 2003, AK 282338, AK 282339, AK 284895
- Nitella hyalina* Whatipu Sands, *E.K.Cameron*, 11 May 2003, AK 282332, AK 282340, WELT A031853

Other green algae

- Cephaleuros lagerheimii* Whatipu, parasitic on mahoe leaves, *B.Goodwin*, (MW6211), 28 Oct 2017, AK 370455
- Microsora* sp. Whatipu beach lagoon, *M.D.Wilcox*, 2 Jan 2015 (sight record)
- Oedogonium* sp. Whatipu, Manukau Heads, in brackish creek, *M.D.Wilcox 5351*, 2 Jan 2015, AK 356040
- Rhizoclonium riparium* Whatipu, freshwater/saline lagoon, *M.D.Wilcox 6196, 6204*, 28 Oct 2017, AK 370461
- Spirogyra* sp. Whatipu beach lagoon, *M.D.Wilcox*, 2 Jan 2015 (sight record)
- Zygnema* sp. Lake in wetland, *A.Simpson*, MW 6212, 28 Oct 2017, AK 370451
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Botany of the Lynfield Coast, Manukau Harbour, Auckland

Mike Wilcox & Jack Warden

Introduction

A series of native bush reserves borders the Manukau Harbour from west of Wattle Bay Reserve (Wilcox & Kowhai 2015) to Lynfield Cove. To the west of Lynfield Cove is Gittos Domain (Wilcox 2016). These reserves (Fig. 1) form part of a more-or-less continuous belt of coastal forest stretching from Hillsborough Bay westwards to Green Bay and includes the more inland Wairaki Stream Reserve and the adjoining Ryman Healthcare Tropicana Bush ("Subritzky's Bush").

Access to these reserves is via a main coastal walkway, bush tracks, and directly from the ends of cul-de-sac streets or from the coast.

Manukau Domain

This council reserve covers 5.83 ha and extends steeply down from Halsey Drive via a circuit track towards the coast where it adjoins Halsey Esplanade Reserve. The vegetation here (see Appendix) has been briefly mentioned by Cameron (2001), and Gardner (2007) who made note of a very large titoki

(*Alectryon excelsum*), a huge pohutukawa (*Metrosideros excelsa*) – which has since fallen over – and plentiful puriri (*Vitex lucens*). There is a grassed area at the top, a small area of gumland scrub, and extensive regenerating coastal forest.

The best-preserved forest is in deep, damp, shaded gullies where the aforementioned trees are the dominants, with associated karaka (*Corynocarpus laevigatus*), kohekohe (*Dysoxylum spectabile*), rewarewa (*Knightia excelsa*), kowhai (*Sophora chathamica*) and kahikatea (*Dacrycarpus dacrydioides*). Elsewhere there is much low secondary forest with an abundance of pigeonwood (*Hedycarya arborea*), mapou (*Myrsine australis*), kawakawa (*Piper excelsum*), lacebark (*Hoheria populnea*), and toward the coast, karo (*Pittosporum crassifolium*) and houpara (*Pseudopanax lessonii*). Rarities here are tanekaha (*Phyllocladus trichomanoides*), tawapou (*Planchonella costata*), milk tree (*Streblus heterophyllus*) and mamangi (*Coprosma arborea*). *Veronica macrocarpa* is frequent beside tracks.

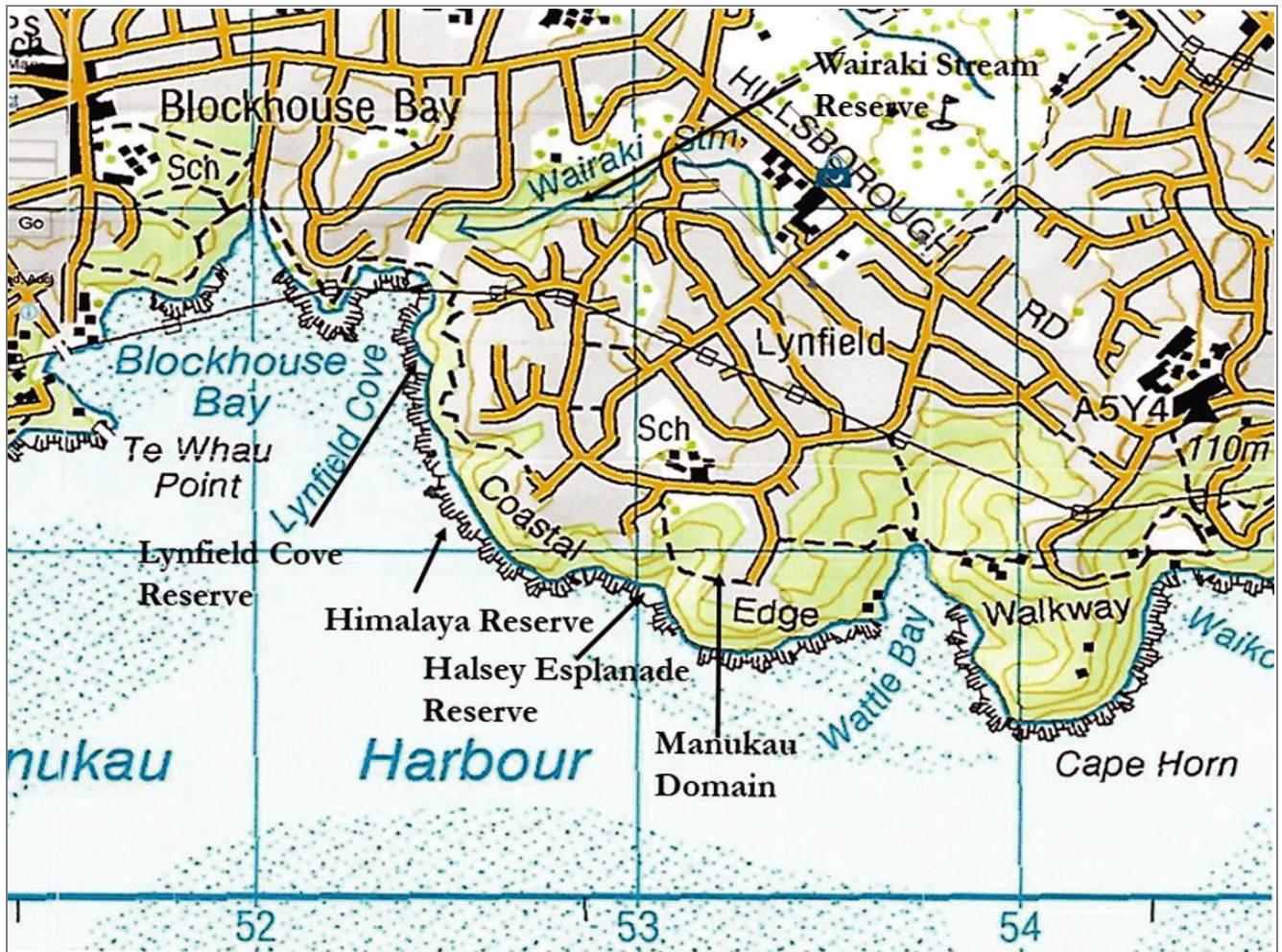


Fig. 1. Location map – Manukau Domain to Flounder bay (centre of Blockhouse bay) (from NZ TopoMaps).

Along the tracks can be seen a wide variety of smaller plants. The native grasses *Rytidosperma gracile* and *Deyeuxia quadriseta* are common beside the upper part of the westernmost track, and *Lobelia anceps* and *Carex banksiana* are frequent.

The small area of gumland has kanuka (*Kunzea robusta*), manuka (*Leptospermum scoparium*) (Fig. 2), shining karamu (*Coprosma lucida*), *Dracophyllum sinclairii*, and tauhinu (*Pomaderris amoena*) and several gumland sedges: *Gahnia setifolia*, *Lepidosperma laterale*, *Machaerina tenax*, *M.*

teretifolia, *Schoenus tendo* and *Tetraria capillaris*. Bracken (*Pteridium esculentum*) and tangle fern (*Gleichenia dicarpa*) are present. The parasite *Korthalsella salicornioides* (Cameron 2001) occurs on manuka (reputedly planted with stock from a Taupo native plant nursery, Steve Benham, pers. comm.) on the grassed margin. Invasive *Hakea salicifolia* trees have been destroyed. On the grassy edge of the gumland scrub can be found *Aira caryophyllea*, *Danthonia decumbens*, *Eragrostis brownii*, *Rytidosperma biannulare*, *Schoenus apogon*, *Thelymitra pauciflora* (Fig. 3), *Vulpia myuros* and



Fig. 2. *Leptospermum scoparium* forest, Manukau South Domain, 3 Dec 2016. All photos by Mike Wilcox.

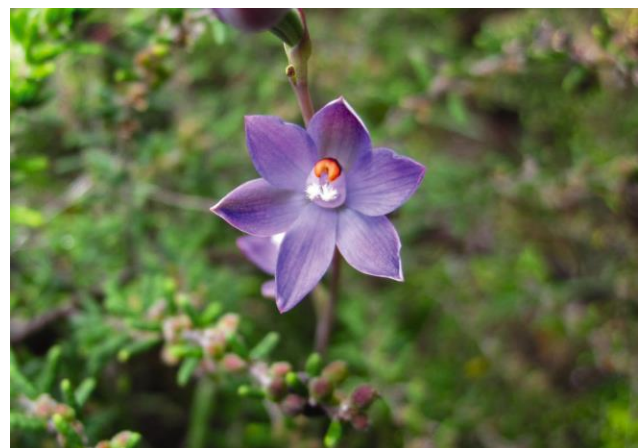


Fig. 3. *Thelymitra pauciflora*, Manukau Domain, Lynfield, 22 Nov 2017.



Fig. 4. Halsey Esplanade shoreline, 31 Jan 2017.

several seasonal exotic plants such as *Aristea ecklonii*, *Centaurium erythraea*, *Isolepis levynsiana*, *Leontodon saxatilis* and *Romulea rosea*. The moss *Kindbergia praelonga* abounds in the open grassy area.

Halsey Esplanade Reserve

The track down through Manukau Domain comes out on the coast in Halsey Esplanade Reserve covering a narrow coastal strip of 1.15 ha and is a good place to see a range of Manukau Harbour coastal species (Fig. 4). The cliffs are very steep and difficult of access, but most of the plants can be viewed in a stroll at low tide. Coastal flax (*Phormium cookianum*) is particularly abundant, and common flax (*Phormium tenax*) clothes the shoreline where the track comes out on a shelly beach. Coastal toetoe (*Austroderia splendens*) and oiio (*Apodasmia similis*) are very sparse, but there is an abundance of *Poa anceps*, *Carex testacea* and *Ficinia nodosa*, and a few patches of *Lachnagrostis billardiarei* and *Austrostipa stipoides*. Nearly all the big kiokio ferns here have turned out to be *Parablechnum novae-zelandiae* rather than *P. triangularifolium* (the Green Bay kiokio). Freshwater seeps from small creeks spilling over the cliffs provide a habitat for numerous smaller plants among which *Apium prostratum*, *Isolepis cernua*, *Lobelia anceps* and *Samolus repens* are common. Glasswort (*Sarcocornia quinqueflora*) is rare.

The coastal forest is typical of the northern Manukau Harbour: large pohutukawa trees, abundant karo and houpara, frequent kowhai, *Cordyline banksii*, tutu (*Coriaria arborea*), akepiro (*Olearia furfuracea*) and coastal cutty grass (*Gahnia lacera*), and large amounts of climbing asparagus (*Asparagus scandens*).

Himalaya Reserve

The approach to this 3.33 ha coastal reserve from the end of Fairsea Place off Himalaya Crescent gives a dramatic vista to the Manukau Harbour,



Fig. 5. Monterey pines (*Pinus radiata*), Himalaya Reserve, 11 Feb 2017.

picturesquely framed by large Monterey pines (*Pinus radiata*) (Fig. 5). There is a narrow, steep stretch of coastal forest, with pohutukawa and pines, intermingled with thickets of houpara and the usual associates: hangehange, mahoe (*Melicytus ramiflorus*) and mapou. There are also akepiro, mingimingi (*Leucopogon fasciculatus*), shining karamu, silver fern (*Cyathea dealbata*), bracken, *Astelia banksii*, *Dianella nigra*, *Gahnia lacera*, *Lepidosperma australe*, and agapanthus (*Agapanthus praecox*). Beside the path grow the grasses *Rytidosperma biannulare* (abundant) and *Deyeuxia quadriseta*. Summer-green grasses on the track margins in the open are *Axonopus fissifolius*, *Eleusine indica*, *Microlaena stipoides*, *Paspalum dilatatum* and *Paspalum urvillei*.

Lynfield Cove Reserve

This reserve covers 3.53 ha of steep, coastal land backing on to houses. Monterey pine is frequent, and there are also wattles (*Acacia mearnsii*, *A. verticillata*). The coastal cliffs also have pohutukawa and the usual understorey assemblage of houpara, karo and mapou, with some patches of *Astelia banksii*. Damper sites near creeks support three kinds of tree ferns (*Cyathea dealbata*, *C. medullaris* and *Dicksonia squarrosa*), gully fern (*Pneumatopteris pennigera*) and kiokio (*Parablechnum novae-zelandiae*), and open glades have the sedges *Carex ochrosaccus*, *Isolepis inundata* and *Schoenus maschalinus*. Mahoe is the commonest tree, but there are also a few small puriri and kohekohe. The forest is very highly modified. Manuka beside the track below Marco Polo Avenue has a thriving population of *Korthalsella salicornioides* (Fig. 6).

An interesting botanical feature of this reserve is the series of small wetlands that occur beside two narrow stormwater-fed creeks that flow down to the coastal cliffs. The assemblage of wetland monocots here includes swamp millet (*Isachne globosa*), the sedges *Machaerina rubiginosa*, *Carex dissita*, *Carex lessoniana*, *Carex virgata* and *Eleocharis acuta*, and



Fig. 6. *Korthalsella salicornioides* on manuka, Lynfield Cove Reserve, 26 Nov 2016.



Fig. 7. Putaputaweta (*Carpodetus serratus*) fruiting, Lynfield Cove Reserve, 11 Feb 2017.

the rushes *Juncus effusus* and *Juncus planifolius*. A prominent plant here is putaputaweta (*Carpodetus serratus*), with several adult trees and numerous seedlings and saplings (Fig. 7). There is also a fair amount of kiokio. Where the creek opens out on to the cliff top there are groves of umbrella sedge (*Cyperus ustulatus*) and *Machaerina sinclairii*, the latter also found locally below the cliffs, close to the sea (Fig. 8).

At Lynfield Cove itself where Wairaki Stream (also known as Duck Creek) comes out into Manukau Harbour (via a culvert) there are wetland plants along the creek, which include alligator weed (*Alternanthera philoxeroides*), watercress (*Rorippa nasturtium-aquaticum*), marsh bedstraw (*Galium palustre*), *Bolboschoenus medianus*, *Juncus effusus*, *Juncus articulatus*, *Juncus prismatocarpus*, and a fine stand of raupo (*Typha orientalis*). Short-leaf spike sedge (*Kyllingia brevifolia*) is abundant on the damp grassy edges.

Lynfield Cove to Flounder Bay Esplanade

A narrow band of privately-owned cliff vegetation grows on the margin of this attractive shoreline,

which includes a small, shelly beach below Lynbrooke Avenue with a patch of oioi (*Apodasmia similis*). The cliffs are very steep, and often bare. As usual, there are plentiful large pohutukawa trees, but it is highly weedy in places with abundant growth of wild ginger, numerous *Fatsia japonica*, and presence of agapanthus, climbing asparagus, Cape ivy (*Senecio angulatus*), *Plectranthus ciliatus* and climbing jasmine (*Jasminum polyanthum*). The exotic fern *Cyrtomium falcatum* also occurs here. Other significant naturalised plants are sexton's bride (*Rhaphiolepis umbellata*) and *Cotoneaster glaucophyllus* – both common on the shore of Flounder Bay; *Agave attenuata*, *Yucca gigantea* and *Hydrangea macrophylla* – garden discards that have been tossed down cliffs from neighbouring properties and taken root; and Sydney golden wattle (*Acacia longifolia*) – abundant all along the cliff faces.

The coast line in Flounder Bay (the central cove of Blockhouse Bay) has a small area of mangroves (*Avicennia marina*) with an adjoining salt meadow fringe of *Apodasmia similis*, and *Isolepis cernua*. Particularly where there is fresh water seepage, the sedge *Machaerina sinclairii* is abundant, and with it



Fig. 8. *Machaerina sinclairii*, Lynfield Cove, 29 Nov 2016.



Fig. 9. Wairaki Stream Reserve, below Wanganella Place, 11 Dec 2016.

plentiful *Ficinia nodosa*, *Parablechnum novae-zelandiae*, *Phormium cookianum* and *Ph. tenax*. There is a patch of gumland vegetation in Flounder Bay with *Dracophyllum sinclairii*, *Leptecophylla juniperina* and akepiro, and a stand of kanuka. Common undergrowth plants in the pohutukawa fringe are *Astelia banksii*, *Gahnia lacera*, *Pittosporum crassifolium* and *Pseudopanax lessonii*.

Wairaki Stream Reserve

This reserve of 6.55 ha is steep bushland closely following the course of Wairaki Stream. Storm water from the local streets (e.g. Wanganella Place, Alaunia Place, Royal Viking Place, Halsey Drive, Iberia Place, Andes Place and Flavia Place) drains into the reserve via culverts that give access points into the bush. The entrances have been landscaped and planted with trees, especially river sheoak (*Casuarina cunninghamiana*), Mexican cypress (*Cupressus lusitanica*), camphor laurel (*Cinnamomum camphora*), brush box (*Lophostemon confertus*), silky oak (*Grevillea robusta*), evergreen magnolia (*Magnolia grandiflora*), Algerian oak (*Quercus canariensis*), brush cherry (*Syzygium australe*), magenta lilly pilly (*Syzygium paniculatum*), lilly pilly (*Syzygium smithii*) and pohutukawa.

The regenerating native bush along the creeks and main stream (Fig. 9) has silver fern, mahoe, mapou, pigeonwood, hangehange and kawakawa in abundance as the core vegetation. Large native trees are not common, but there are some patches of tall kanuka, a few rewarewa, puriri, kowhai, white maire (*Nestegis lanceolata*), pohutukawa, karaka, one large miro (*Prumnopitys ferruginea*), and plentiful regenerating kahikatea. Putaputaweta and pate grow in damp places near the main stream, there are some dense thickets of supplejack (*Ripogonum scandens*), and shore ribbonwood (*Plagianthus divaricata*) occurs on the stream bank where there is tidal influence. The herb *Apium prostratum* "white denticles" also can be found there (Fig. 10).

Ferns clothe the damp banks of the streams, with *Austroblechnum lanceolatum* (syn. *Blechnum chambersii*) (Fig. 11), *Deparia petersenii*, and *Parapolystichum glabellum* being particularly abundant, but there are also very occasional king ferns (*Ptisana salicina*). Other ferns, on the drier slopes, include *Lygodium articulatum*, *Pteris saxatilis*, and *Tmesipteris tannensis* as a tree fern epiphyte.

Exotic plants are frequent in the more open parts of the reserve, and these include *Acacia mearnsii*, *Epilobium tetragonum*, inkweed (*Phytolacca octandra*), *Pteris cretica*, *Cestrum nocturnum*, crack willow (*Salix × fragilis*) and *Pinus radiata*. At the Alaunia Place entrance there are patches of naturalised *Lobelia erinus* (Fig. 12).

Ryman Health Care Tropicana Bush

North of Wairaki Stream there is a 2.21 ha area of privately owned bush on the Tropicana property, formerly belonging to Bill Subritzky, and now owned by Ryman Health Care. The Lynfield Retirement Village is being built there on adjoining open land. Once the main Wairaki Stream is crossed, the best bush occupies the south-facing slopes where grows tanekaha, rimu (*Dacrydium cupressinum*), miro, towai (*Weinmannia sylvicola*), kowhai, *Alseuosmia macrophylla*, *Coprosma grandifolia*, akepiro, *Pseudopanax arboreus* and kiekie (*Freycinetia banksii*). There is a noteworthy presence of the filmy fern *Hymenophyllum demissum*, not recorded elsewhere in the Manukau coastal forests, and abundant *Carex banksiana*.



Fig. 10. *Apium prostratum* "white denticles", Wairaki Stream Reserve, 29 Nov 2016.



Fig. 11. *Austroblechnum lanceolatum*, Wairaki Stream Reserve, 30 Nov 2016.



Fig. 12. *Lobelia erinus*, Alaunia Place entrance, Wairaki Stream Reserve, 11 Dec 2016.

References

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Appendix: Plant species list for Lynfield coast (Manukau Domain to Flounder Bay).

Compiled by Mike Wilcox & Jack Warden from numerous visits made in 2017 and up to 10 March 2018. Reserve records have not been separately denoted for several common and widespread plants (e.g. *Trifolium repens*) found in all the reserves. (F = Lynfield Cove to Flounder Bay; H = Himalaya Reserve; HE = Halsey Esplanade Reserve; L = Lynfield Cove Reserve; M = Manukau Domain; T = Tropicana; W = Wairaki Stream Reserve) * = introduced; cult. = planted.

LICHENS

- Buellia cranwelliae* (F, basalt sea wall, Flounder Bay;
L, basalt rocks by Wairaki Stream outlet culvert)
- Dirinaria applanata* (M, on bark of pohutukawa)
- Dufourea ligulata* (F, basalt sea wall, Flounder Bay;
L, basalt rocks by Wairaki Stream outlet culvert)
- Parmotrema perlatum* (M, on bark of pohutukawa)
- Ramalina celastri* (M, on bark of pohutukawa and karo)
- Usnea cornuta* (M, on bark of karo)
- Xanthoria parietina* (L, sandstone coastal rocks)

ALGAE

- Trentepohlia aurea* (F, L, sandstone, vertical rock face)

MOSSES

- Bryum clavatum* (F, HE)
- Calliergonella cuspidata* (L)
- Fissidens leptocladus* (F)
- Fissidens taxifolius* * (L, W)
- Hypnodendron arcuatum* (W, on rock platforms in
stream bed)
- Kindbergia praelonga* (M)
- Leucobryum javense* (M, T, W)
- Philonotis tenuis* (L)
- Ptychomnion aciculare* (M, L)
- Racopilum convolutaceum* (L)
- Rhynchostegium tenuifolium* (M)
- Thamnobryum pandum* (L, W)

LIVERWORTS

- Chiloscyphus novaezelandiae* var. *meridionalis* (HE)
- Lepidozia laevifolia* (F, cliff face near waterfall)
- Solenostoma inundata* (F, wet base of cliff)
- Symphogyna hymenophyllum* (L, M)

PSILOPHYTES

- Lycopodium deuterodensum* (M)
- Selaginella kraussiana* * (L, W)

FERNS

- Adiantum cunninghamii* (M, W)
- Asplenium bulbiferum* (M, T)
- Asplenium flaccidum* (T, W)
- Asplenium lamprophyllum* × *A. oblongifolium* (M)
- Asplenium oblongifolium* (F, L, M, W)
- Asplenium polyodon* (L, W)
- Austroblechnum lanceolatum* (syn. *Blechnum chambersii*)
(M, T, W)
- Austroblechnum membranaceum* (syn. *Blechnum membranaceum*) (M, T, W)
- Cyathea dealbata* (F, H, L, M, T, W)
- Cyathea medullaris* (L, M, W)
- Cyrtomium falcatum* * (F)
- Deparia petersenii* (W)
- Dicksonia squarrosa* (M, L, T, W)
- Doodia australis* (syn. *Blechnum parrisiae*) (F, L)
- Gleichenia dicarpa* (L, M)
- Gleichenia microphylla* (M, Cameron 2001)
- Histiopteris incisa* (H)
- Hymenophyllum demissum* (T)
- Hymenophyllum dilatatum* (M)
- Icarus filiformis* (syn. *Blechnum filiforme*) (M, W)
- Lygodium articulatum* (W)
- Microsorium pustulatum* (M, T, W)
- Microsorium scandens* (L, M, W)
- Nephrolepis cordifolia* * (F, H, T)
- Paesia scaberula* (L, M, W)
- Parablechnum novae-zelandiae* (syn. *Blechnum novae-zelandiae*) (F, L, M, T, W)
- Parablechnum triangularifolium* (syn. *Blechnum triangularifolium*) (M)
- Parapolystichum glabellum* (syn. *Lastreopsis glabella*) (T, W)
- Parapolystichum microsorium* (syn. *Lastreopsis microsora*) (W)
- Pneumatopteris pennigera* (H, M, W)
- Pteridium esculentum* (F, H, L, M, W)
- Pteris cretica* * (T, W)
- Pteris macilenta* (F, M, W)

Pteris saxatilis (W)
Pteris tremula (F, L, M, W)
Ptisana salicina (W)
Pyrrosia elaeagnifolia (F)
Tmesipteris elongata (M)
Tmesipteris lanceolata (M, W)
Tmesipteris tannensis (M, W)

CONIFERS

Agathis australis (M, W, cult.)
Araucaria heterophylla * (F, cult.)
Cupressus lusitanica * (W, cult.)
Dacrycarpus dacrydioides (M, T, W)
Dacrydium cupressinum (M, T)
Phyllocladus trichomanoides (M, T)
Pinus radiata * (F, H, L, M, W, cult.)
Podocarpus totara (M, W, cult.)
Prumnopitys ferruginea (T, W)

MONOCOTS

Agapanthus praecox subsp. *orientalis* * (F, H, L, M)
Agave attenuata * (F, garden discard; W, garden discard)
Agrostis capillaris * (M)
Agrostis stolonifera * (L, M, W)
Aira caryophyllea * (M)
Alocasia brisbanensis * (W)
Allium neapolitanum * (W)
Allium triquetrum *
Anthoxanthum odoratum * (H, M)
Apodasmia similis (F, HE, L)
Archontophoenix cunninghamiana * (T, W, cult.)
Aristea ecklonii * (M, W)
Arundo donax * (W)
Asparagus aethiopicus 'Sprengeri' * (H)
Asparagus scandens * (F, L, M, T, W)
Astelia banksii (F, H, HE, L, M, W)
Austroderia fulvida (W, cult.)
Austroderia splendens (HE, L, M)
Austrostipa stipoides (HE)
Axonopus fissifolius * (H, L, M)
Bambusa oldhamii * (F)
Bolboschoenus medianus (W)
Briza maxima * (M)
Briza minor * (H, L, M)
Bromus catharticus var. *catharticus* (syn. *B. willdenowii*) *
Bromus hordeaceus * (H, M)
Carex banksiana (M, T, W)
Carex dissita (L, W)
Carex divulsa * (W)
Carex flagellifera (F, M)
Carex lambertiana (L, M, W)
Carex lessoniana (L, M, W)
Carex ochrosaccus (L, W)

Carex testacea (HE)
Carex uncinata (L, M, W)
Carex virgata (L, W)
Cenchrus clandestinum * (H, L)
Cordyline australis (M, W)
Cordyline banksii (F, H, HE, M, W)
Cordyline pumilio (H, L, M)
Cordyline rubra * (T, W)
Cortaderia selloana subsp. *jubata* * (F, L, M, Cameron 2001)
Cortaderia selloana subsp. *selloana* * (F, L)
Crocsmia × crocosmiiflora * (F, L)
Cynodon dactylon * (L)
Cyperus congestus * (L)
Cyperus eragrostis * (H, L, M)
Cyperus ustulatus (HE, L, M)
Dactylis glomerata *
Danthonia decumbens * (M)
Deyeuxia quadriseta (H, L, M)
Dianella nigra (H, L, M)
Dichelachne crinita (F, H, L, M)
Digitaria sanguinalis * (L)
Ehrharta erecta *
Eleocharis acuta * (L)
Eleusine indica * (H)
Eragrostis brownii * (M)
Ficinia nodosa (F, M)
Freycinetia banksii (M, T, W)
Gahnia lacera (F, HE, L, M)
Gahnia setifolia (F, L, M, W)
Gladiolus undulatus * (M)
Glyceria declinata * (L, W)
Hedychium gardnerianum * (F, L, T, W)
Holcus lanatus * (HE)
Iris foetidissima * (T)
Isachne globosa (L)
Isolepis cernua (F, HE, L, M)
Isolepis inundata (L)
Isolepis levynsiana * (M)
Isolepis sepulcralis * (L, W)
Juncus articulatus * (H, HE, L)
Juncus australis (M)
Juncus bufonius *
Juncus effusus * (L)
Juncus planifolius (L)
Juncus prismatocarpus (L)
Juncus tenuis * (HE, L)
Kyllingia brevifolia * (L, M)
Lachnagrostis billardiarei (HE, M)
Lachnagrostis filliformis (L)
Lepidosperma australe (L, M)
Lepidosperma laterale (L, M, W)

*Lilium formosanum** (F)
*Lolium multiflorum** (L, M)
*Lolium perenne** (M)
Machaerina rubiginosa (L)
Machaerina sinclairii (F, L, M)
Machaerina tenax (M)
Machaerina teretifolia (W, M)
Microlaena avenacea (W)
Microlaena stipoides (H, L, M, W)
Microtis unifolia (M)
*Musa basjoo** (W)
Oplismenus hirtellus (F, L, W)
*Paspalum dilatatum** (H, L, M)
*Paspalum urvillei** (H, L)
Phormium cookianum (F, H, HE, L, M)
Phormium tenax (F, HE, L, M, W)
Phyllostachys nigra var. *henonis** (W)
Poa anceps (F, HE, L, M)
*Poa annua**
*Poa trivialis**
*Polypogon fugax** (M)
*Polypogon viridis** (W)
Pterostylis banksii (M)
Pterostylis graminea (M, T)
Pterostylis trullifolia (M)
Rhopalostylis sapida (F, M, W)
Ripogonum scandens (M, T, W)
*Romulea rosea** (M)
Rytidosperma biannulare (H, L, M)
Rytidosperma gracile (M)
Rytidosperma unarede (M)
*Schedonorus arundinaceus** (HE, M)
Schoenus apogon (L, M)
Schoenus maschalinus (H, L, M, W)
Schoenus tendo (L, M, W)
*Setaria pumila** (M, W)
Thelymitra pauciflora (M)
Tetraria capillaris (M)
*Tradescantia fluminensis** (F, HE, T, W)
Triglochin striata (W)
Typha orientalis (L)
*Vulpia bromoides**
*Vulpia myuros** (H, M)
Watsonia meriana subsp. *bulbillifera** (L)
Yucca gigantea (syn. *Y. guatemalensis*)* (F)
*Zantedeschia aethiopica** (L)

Alectryon excelsum (M, W)
*Alnus jorullensis** (T, cult.)
Aleuosmia macrophylla (T)
Avicennia marina subsp. *australasica* (F)
Brachyglottis repanda (M, T, W)
*Callistachys lanceolatum** (M)
Calystegia sepium (H, HE, L, M, W)
*Calystegia silvatica** (M)
Calystegia tuguriorum (L, M)
Carpodetus serratus (L, T, W)
*Casuarina cunninghamiana** (W cult.)
*Cestrum nocturnum** (W)
*Chrysanthemoides monolifera** (L)
*Cinnamomum camphora** (M cult., W cult.)
Coprosma arborea (M)
Coprosma crassifolia (W)
Coprosma grandifolia (T)
Coprosma lucida (H, L, T, M)
Coprosma macrocarpa (F, H, HE, L, W)
Coprosma repens (pl.)
Coprosma rhamnoides (M)
Coprosma robusta (F, H, L, M, W)
Corynocarpus laevigatus (F, M, W)
*Cotoneaster glaucophyllus** (F, L)
*Cotoneaster microphyllus** (M)
Dodonaea viscosa (cult. L, M)
Dracophyllum sinclairii (F, M)
Dysoxylum spectabile (L, M, W)
Elaeocarpus dentatus (T)
Entelea arborescens (M cult.)
*Eucalyptus botryoides** (W, cult.)
*Euonymus japonicus** (F)
*Fatsia japonica** (F)
*Ficus elastica** (W)
Gaultheria antipoda (W), R.Cooper AK 50466, 1954
[not seen by us]
Geniostoma ligustrifolium (F, H, L, M, T, W)
*Genista monspessulana** (T)
*Grevillea robusta** (W)
Griselinia littoralis (W, cult.)
*Hakea salicifolia** (M)
*Hakea sericea** (M, W)
Hedycarya arborea (H, L, M, T, W)
Hoheria populnea (M, W)
Hydrangea macrophylla (lacecap form)* (F)
Ipomoea cairica (W)
*Jasminum polyanthum** (F)
Knightia excelsa (M, T, W)
Korthalsella salicornioides (L, M)
Kunzea robusta (F, HE, L, M, T, W)
*Lagunaria patersonii** (L cult.)

DICOT TREES, SHRUBS, CLIMBERS & HEMI-PARASITES

*Acacia longifolia** (F, L, W)
*Acacia mearnsii** (L, W)
*Acacia verticillata** (F, L)

Leptecophylla juniperina (F)
Leptospermum morrisonii 'Copper Sheen' * (H cult.)
Leptospermum scoparium (HE, M)
Leucopogon fasciculatus (F, H, L, M, W)
Ligustrum lucidum * (L, W)
Ligustrum sinense * (L, T, W)
Lophostemon confertus * (M cult, W cult.)
Magnolia grandiflora * (W cult.)
Mahonia japonica * (M)
Melicope ternata (M, W)
Melicytus ramiflorus (H, HE, M, L, W)
Meryta sinclairii (W, seedling)
Metrosideros diffusa (M, T)
Metrosideros excelsa (F, H, HE, L, M, W)
Metrosideros fulgens (T, W)
Metrosideros perforata (T, W)
Myrsine australis (F, H, HE, L, M, W)
Nestegis lanceolata (W)
Olearia furfuracea (F, H, HE, L, M, W)
Parsonsia heterophylla (T, W)
Piper excelsum (F, H, HE, L, M, W)
Pittosporum crassifolium (F, H, L, M)
Pittosporum ralphii (L cult.)
Pittosporum tenuifolium (L, M, W)
Plagianthus divaricatus (W)
Planchonella costata (M)
Platanus acerifolia * (W)
Pomaderris amoena (M)
Pomaderris kumeraho (M)
Prunus campanulata * (HE, M)
Prunus serrulata * (T, W)
Pseudopanax arboreus (M, W)
Pseudopanax lessonii (F, H, HE, L, M, W)
Psoralea pinnata * (M)
Quercus canariensis * (W cult.)
Quercus palustris * (L cult.)
Rhabdothamnus solandri (M)
Rhaphiolepis umbellata * (F)
Rhamnus alaternus * (M)
Rubus cissoides (M, W)
Salix × fragilis * (W)
Schefflera digitata (L, M, T, W)
Senecio angulatus * (F)
Solanum mauritianum (L, M, T)
Sophora chathamica (HE, M, T, W)
Streblus banksii (M cult.)
Streblus heterophyllus (M)
Syzygium australe * (W cult.)
Syzygium paniculatum * (W cult.)
Syzygium smithii * (M, W cult., T)
Tecomanthe speciosa (L cult.)

Toxicodendron succedaneum * (M)
Ulex europaeus * (F, H, HE, L, M)
Veronica × affinis (*V. macrocarpa* × *V. stricta*) R.C.Cooper, AK 221975, 1954 [not seen by us]
Veronica corriganii (W) R.C.Cooper, AK 50467, 1954 [not seen by us]
Veronica macrocarpa (M, W)
Veronica stricta (F)
Vitex lucens (L, M, T, W)
Weinmannia sylvicola (T)

DICOT HERBS

Alternanthera philoxeroides * (L, W)
Anthemis cotula * (L)
Apium prostratum (F, HE, M)
Apium "white denticles" (W)
Bellis perennis *
Callitriche stagnalis * (W)
Cardamine flexuosa *
Centaureum erythraea * (H, L, M)
Centella uniflora (H, L, M)
Cerastium glomeratum *
Ciclospermum leptophyllum * (F, H, L, M)
Cirsium vulgare * (H, L)
Crepis capillaris * (H, L)
Cymbalaria muralis * (L, F, W)
Daucus carota * (H)
Drosera auriculata (M, T)
Epilobium ciliatum * (M)
Epilobium cinereum (M, W)
Epilobium obscurum * (M)
Epilobium tetragonum * (W)
Erigeron karvinskianus * (M)
Erigeron sumatrensis * (H, M)
Euphorbia peplus *
Fumaria capreolata * (L)
Galium aparine *
Galium divaricatum * (M)
Galium palustre * (L)
Galium propinquum (L, M)
Galinsoga quadriradiata * (M)
Gamochaeta calviceps * (L)
Gamochaeta coarctata *
Gamochaeta simplicicaulis * (L)
Geranium dissectum *
Geranium homeanum
Haloragis erecta * (L)
Helminthotheca echioides *
Hydrocotyle moschata (M, L, W)
Hydrocotyle tripartita * (HE, M, W)
Hypochaeris radicata *
Impatiens walleriana * (H, W, garden encroachment)

Lapsana communis * (H)
Leontodon saxatilis *
Leucanthemum vulgare *
Lobelia anceps (F, H, HE, L, M, T, W)
Lobelia erinus * (W)
Lotus pedunculatus * (L)
Lotus suaveolens *
Lysimachia arvensis (syn. *Anagallis arvensis*) *
Lythrum hyssopifolia * (L, M)
Mentha pulegium * (L, M)
Myosotis discolor * (M)
Myosotis sylvatica * (W)
Oenanthe pimpinelloides * (L)
Oxalis corniculata * (H, M)
Oxalis purpurea * (M)
Parentucellia viscosa * (M)
Persicaria capitata * (F, on basalt sea wall)
Physalis peruviana * (L)
Phytolacca octandra * (L, W)
Plantago lanceolata *
Plantago major *
Plectranthus ciliatus * (F)
Portulaca oleracea * (H)
Potentilla reptans * (L)
Prunella vulgaris * (L)
Pseudognaphalium luteoalbum
Ranunculus parviflorus * (M)
Ranunculus repens *
Ranunculus sardous *
Raphanus raphanistrum * (HE, M)
Rorippa nasturtium-aquaticum * (L)
Rumex crispus *
Rumex obtusifolius *
Rumex pulcher *
Rumex sagittatus * (W)
Sagina procumbens * (F)
Samolus repens (HE, M)
Sarcocornia quinqueflora (F, HE)
Selliera radicans (M)
Senecio bipinnatisectus (M)
Senecio esleri (M, W)
Senecio hispidulus (H, M)
Senecio skirrhodon * (M)
Senecio sylvaticus * (M)
Sherardia arvensis *
Solanum americanum (incl. *S. nodiflorum*) (L)
Solanum nigrum * (L, M)
Sonchus oleraceus *
Stachys arvensis * (M)
Taraxacum officinale *
Tetragonia tetragonioides (M)
Trifolium dubium *
Trifolium pratense *
Trifolium repens *
Verbena bonariensis *
Veronica arvensis *
Veronica persica *
Vicia tetrasperma *
Wahlenbergia violacea (H, M)

Fern flora of Maungakiekie (One Tree Hill) and Cornwall Park

Anthony E. Wright

Given their combined area of 220 ha of plant-filled, big-city recreational space, it is remarkable that only seven articles with substantive mention of the plants of Maungakiekie (One Tree Hill) and the surrounding Cornwall Park have appeared in the Society's *Journal*. Laurie Millener (1985) noted the various hilltop trees together with some of Sir John Logan Campbell's plantings in his article on Historic Trees of Auckland; Rhys Gardner (1983) writes of the two species of *Ficus* in his account of Australian *Ficus* wild in Auckland; Anne Grace (1995) wrote up a Bot Soc field trip to look at the mostly planted tree flora of the combined reserve; Mike Wilcox and Doug Rogan include mentions of One Tree Hill and Cornwall Park plants in their account of Auckland's wall flora (Wilcox & Rogan 1999); Doug Rogan (2000)

described the epiphytic flora comprising pohutukawa and 11 species of lichen on the former One Tree Hill summit pine tree; Mike Wilcox (2013) described the rush invading the pastures of Cornwall Park and One Tree Hill; and last year I wrote of finding the fern *Arthropteris tenella* surviving 97 years since the previous collection on Maungakiekie (Wright 2016), the precursor to this full treatment of the ferns. In this account, I use the term maunga (mountain) to describe the combined extent of Cornwall Park and the One Tree Hill Domain (Fig. 1).

When our family moved from Onehunga to Korokino Road in One Tree Hill in 1967, Cornwall Park and Maungakiekie became a frequent after-school and weekend playground. Collecting ferns –