

Appendix II: List of Vascular Plant Species in David Lawrie's Bush, Mill Road, Bombay.

Compiled by J Shanks in 2010; + = additional species seen by Auckland Botanical Society on 18 May 2013.

Ferns and fern allies

Asplenium bulbiferum
Asplenium flaccidum
Asplenium gracillimum
Asplenium lamprophyllum
Asplenium oblongifolium
Asplenium polyodon
Blechnum chambersii
Blechnum discolor
Blechnum filiforme
Blechnum fraserii
Blechnum membranaceum
Blechnum novae-zelandiae
Cyathea dealbata
Cyathea medullaris
Cyathea smithii +
Dicksonia squarrosa
Doodia australis
Hymenophyllum demissum +
Hymenophyllum dilatatum
Hymenophyllum revolutum +
Lastreopsis glabella
Lastreopsis hispida
Leptopteris hymenophylloides
Loxogramme dictyopteris +
Lygodium articulatum
Microsorium pustulatum
Microsorium scandens
Plegmariurus varius
Pneumatopteris pennigera
Pteridium esculentum
Pteris macilenta +
Pyrrosia eleagnifolia

Rumohra adiantiformis +
Tmesipteris elongata
Tmesipteris lanceolata
Trichomanes venosum

Gymnosperms

Dacrycarpus dacrydioides
Dacrydium cupressinum
Phyllocladus trichmanoides
Podocarpus totara
Prumnopitys ferrugineus

Dicotyledons

Acaena novae-zealandiae
Alectyron excelsus
Aristotelia serrata
Bielschmeidia tarairi
Bielschmeidia tawa
Coprosma grandifolia
Coprosma spathulata
Corynocarpus laevigatus
Dysoxylum spectabile
Entelea arborescens
Geniostoma ligustrifolium
Hedycarya arborea
Knightia excelsa
Laurelia novae-zealandiae
Melicytus ramiflorus
Metrosideros diffusa
Metrosideros fulgens
Metrosideros perforata
Muehlenbeckia australis
Mysine australis
Nestegis cunninhamii

Nestegis lanceolata
Olearia rani
Peperomia urvilleana
Piper excelsum +
Pittosporum cornifolium
Pseudopanax crassifolius
Schefflera digitata
Vitex lucens

Monocotyledons

Astelja solandri
Carex dissita
Carex secta
Carex virgata
Collopermum hastatum
Earina mucronata
Freycinetia banksii
Microlaena avenacea
Oplismenus hirtellus
Rhopalostylis sapida
Ripogonum scandens
Uncinia zotovii +

Exotic Plants

Asparagus scandens
Bambusa oldhamii
Berberis glaucocarpa
Camellia japonica
Delairea odorata
Fatsia japonica
Rhododendron ponticum
Tradescantia fluminescens

Flora of Dingle Dell Reserve, St Heliers

Mike Wilcox, Ewen Cameron, John Braggins, Jessica Beever,
Dan Blanchon, Rick Kooperberg and Clive Shirley

Dingle Dell Reserve in St Heliers, Auckland, is an Auckland Council reserve of 9 ha (Fig. 1). It is popular for walking, a venue for outdoor concerts, it protects the headwaters of a stream draining into the sea at St Heliers Bay via an underground pipe down Dingle Road and the Parade, and it is an ecologically significant fragment of urban forest.

History

Wikimapia gives the following account of Dingle Dell (wikimapia.org/5142421/Dingle-Dell-Reserve):

"Prior to 1840 the vegetation on Tamaki Isthmus consisted of fern and manuka on the ridges and slopes, forest remnants in the gullies and flax and raupo in the swamps. All the significant original vegetation had been destroyed by pre European occupation and cultivation. The area now known as Dingle Dell was once part of one of Major Thomas Bunbury's four farms purchased by him in 1842. During his occupation he planted hawthorn hedges and shelter belts, oaks, weeping willows and other exotics. Many of these plantings and other

introductions such as gorse, blackberry, privet and pine trees became rampant and dominant on the land.

"About 1880, the Northcote and St Heliers Land Company bought about 600 acres [243 ha] of land including the holding of Major Bunbury, to develop a model seaside suburb of Auckland. The requirement by law for the company to set aside a certain area of land for public recreation resulted in approximately 21 acres [8.5 ha] of the hilly slopes at the head of the main valley being set aside for this purpose. Grazing by horses and cattle continued. Another reserve set aside was the foreshore park (now known as Vellenoweth Green).

"By memorandum of agreement dated 23 September 1904 the N.Z. River Plate Land Mortgage Company Limited (which had presumably taken over the interests of the Northcote and St. Heliers Land Company), the area was formally transferred to the "Inhabitants of Tamaki West Road District". The present Dingle Dell reserve was to be held in trust and used "as a reserve of native bush" and to be managed in the same manner as if it were a reserve set apart for recreation purposes within the meaning of the Public Reserves Act 1881 Amendment Act 1885, the Reserves and Domains Act 1953, now the Reserves Act, 1977, having superseded the 1881 statute.

"On the 1 April 1928 the Tamaki West Road Board was merged with the Auckland City Council. In February 1930 the title of the two reserves was transferred to the Council. The regenerating native flora in the reserve at this time was manuka, kanuka, red matipo, cabbage tree and raupo in the swamp. During the depression of the thirties an employment scheme formed Fern Glen and Dingle Roads with the excavated material being used to fill the swamp, thus making the present dry lower lawn areas. Local fund-raising about this time enabled a man to be employed by the district to cut a track linking Parkside and Dingle Roads. In 1933 following submissions from Mr Todd Smith since 1925, the Council accredited the reserve with the present name. It is believed the name of the Dingle Road leading to the reserve may have inspired some residents familiar with the works of Charles Dickens to combine it with the word "Dell". Thus Dingle Dell, which is reminiscent of Dingly Dell, the fictional name which Dickens gave to both a town in Kent and to the manor farm of the "Pickwick Papers" At the same time, animals were excluded by fencing and Messrs. Kealy and Goldsboro took the initiative in planting a selection of natives including pohutukawa, tree ferns, rimu, totara, nikau, tanekaha, kohekohe and silver beech. The latter did not survive. Resultant of this planting is a fine stand of kohekohe and tanekaha at the head of the main valley.

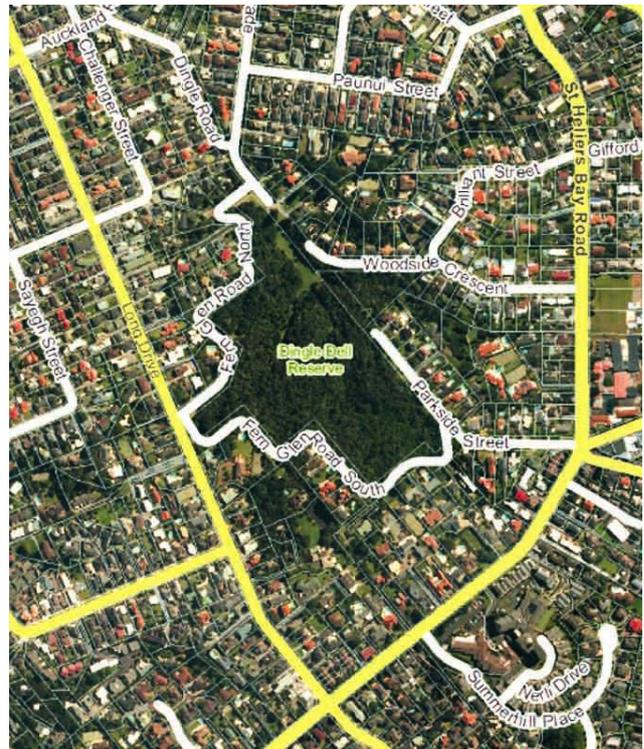


Fig. 1. Location of Dingle Dell Reserve, based on aerial image from ALGii (Auckland Council).

"In 1950 the St Heliers Beautifying & Progressive Association was formed by Miss Winifred Huggins and with a close liaison with the Council's Parks Department, planting schemes and development were accelerated. Existing tracks were upgraded and extended tracks constructed; selective thinning of inferior vegetation was carried out to allow better growth of selected specimens; weed infestations were reduced; and specific plantings were undertaken to commemorate events and persons. In 1953 Miss Huggins formed the Tree Society, with its main initial project being tree planting in Dingle Dell. A major planting of kauri was undertaken to commemorate King George VI who died in 1952."

Margaret Esson's survey, 1960

Esson (1960) provides an account of the vegetation and flora of Dingle Dell as it was 55 years ago (see Appendix). The main vegetation types then were (a) kanuka (*Kunzea ericoides*) with cabbage tree (*Cordyline australis*) on the ridges and upper slopes, with an undergrowth of abundant mapou (*Myrsine australis*), hangehange (*Geniostoma ligustrifolium*), kawakawa (*Piper excelsum*) and coastal cutty grass (*Gahnia lacerata*); (b) karaka (*Corynocarpus laevigatus*), kohekohe (*Dysoxylum spectabile*) and mahoe (*Melicactus ramiflorus*) in the damper gullies (Fig. 2). Mention is made of tree fuchsia (*Fuchsia excorticata*) growing beside the streams. Cranwell (1981) also mentions tree fuchsia, and kohekohe ("some very large"). Esson suggests that the large cabbage trees throughout the reserve may have been planted by the Maori.



Fig. 2. Gully forest of kohekohe, karaka and mahoe, 23 Feb 2012, Mike Wilcox.

BioBlitz 30 April – 1 May 2004

The first Auckland BioBlitz was held in the Auckland suburb of St Heliers on 30 April – 1 May 2004 during very wet weather. In a remnant of native forest at Dingle Dell reserve, 925 separate species (all organisms) were found (including 241 vascular plant species), and 631 species (including 262 vascular plant species) were found in a native bush gully at Meadowbank Primary School. The higher plants survey was led by Ewen Cameron, with assistance from Mei Nee Lee, Leslie Haines, Jenny Lux, Elaine Marshall and Joshua Salter. Lists were compiled of mosses (Jessica Beever), liverworts (John Braggins), lichens (Dan Blanchon, Carol Elliott and Rick Kooperberg), and fungi (Peter Buchanan, Peter Johnston, Eric Mckenzie and Nick Waipara).

Bot Soc visit, 20 July 2013

Those present were Chris Ashton; Romily Atkinson; Dan Blanchon; John Braggins; Colleen & Warren Brewer; Jan Butcher; Ewen Cameron; Neil Davies; Gael Donaghy; Anna Gavin; Leslie Haines; Peter Hutton; Graeme Jane; Rick Kooperberg; Tim, Annabelle and Shepard Martin; Michelle Moloney; Vivienne Paterson; Juliet Richmond; Clive Shirley; Vijay Soma; Nathaniel Su; Harold Waite; Alison Wesley; Mike Wilcox (leader); David and Helen Yang. The group thoroughly checked out all parts of the reserve, noting additions to the plant lists (Fig. 3).

Fungi & Myxomycetes

This year the Auckland region has had a poor fungi season. Whether or not this was due to the drought this past summer is not known. As expected, fungi present in July 2013 were very few; those found being mostly on decaying wood (Fig. 4) or on the decaying fronds of the nikau palms. A little brown mushroom was found in association with *Kunzea ericoides*. While the fungi have been very sparse this season the same cannot be said for myxomycetes which were very abundant. The visit to Dingle Dell on 20 July 2013 proved to be very successful with 15 species being found (see Appendix).

Lichens

The lichen flora of Dingle Dell is an interesting mix of urban lichens (i.e. forest edge species), humid native forest species and lichens characteristic of coastal forest. Some of the common species in Dingle Dell, such as *Parmotrema perlatum* and *P. reticulatum*, *Ramalina celsa* and *Usnea rubicunda* are also found in high light situations in urban gardens and on street trees. Some humid forest species such as *Coenogonium implexum* and *Porina exocha* were reasonably common on trunks of karo and kohekohe, but the forest interior had a fairly poor selection of lichens, possibly due to the sparse understory of the forest. Coastal forest species found at Dingle Dell include *Crocodia aurata* and *C. poculifera*, *Heterodermia japonica* and *H. obscurata*, *Pannaria elixii* and *Usnea nidifica*. Several of the species at the reserve, such as *Parmotrema austrocestratum*, *Lobarina scrobiculata*, *Sclerophora sanguinea* and *Graphis elegans* are not commonly seen in urban Auckland.

None of the species we found are considered to be endangered, although some are listed by de Lange et al. (2012) as 'At Risk', including a number that are 'Naturally Uncommon', such as *Crocodia poculifera*, *Parmotrema subtinctorium*, *Pseudocyphellaria wilkinsii*, *Teloschistes sieberianus* and *Usnea nidifica*. Species such as *Buellia demutans*, *Graphis elegans*, *Heterodermia microphylla* and *Sclerophora sanguinea* are listed as 'Data Deficient'. The most important substrate tree species were *Cordyline australis* (Fig. 5 & 6), *Dacrycarpus dacrydioides*, *Kunzea ericoides* and *Quercus* species. The original count of lichen species from the 2004 BioBlitz was 45, and collections from the recent Botanical Society trip has brought the total to 55.

Liverworts

A preliminary list of liverworts was made in 2004 as part of the BioBlitz centered on the area. At the time of this work the weather was at best unkind and the frequent heavy rain made collecting and identifying difficult. Two subsequent visits in 2013, and some other collecting, have resulted in a better picture of

the liverworts of this urban site. The list of species is limited, only 21 having been identified at this time.

Among the more obvious liverworts are *Lunularia cruciata* which is common along the stream banks and open areas between the grassed flats and the bush margin. This is a thalloid liverwort, the plant body not having leaves, whereas most liverwort species are both smaller and leafy. It is also one of two introduced liverworts and is a common weed on pot plants.

Other liverworts that form quite large patches are *Chiloscyphus semiteres* found here on the bases of trees in the open. This is one of the toughest liverworts we have and persists even when totally dried up each summer. It has two rows of similar leaves, one on each side of the stem, and smaller different ones along the stem underside.

Heteroscyphus supinus has the same leaf arrangement, and somewhat similar leaves to the last species, but forms sizeable patches on soil or clay, especially on low banks.

On tree trunks we get a range of tiny species of *Lejeunea* and larger related ones such as *Archilejeunea*, the latter particularly on more shaded trunks. Also here in damp sites we get the largest of the liverworts in Dingle Dell, *Plagiochila arbuscula*, sometimes almost completely feathering tree trunks (Fig. 7). On more exposed trunks *Frullania* species, which may be dark red, are most common along with the thalloid (leafless) *Metzgeria*.

In general the range of species is limited and many are not all that common, often being confined to particular areas of the reserve. However, as the site has several more or less permanent streams and forest of considerable stature, the range and number of species may be increasing.

Mosses

Forty-one moss species were found in Dingle Dell during the BioBlitz of 2004. In 2013 more precise identifications were obtained for mosses in three genera, *Hypopterygium*, *Racopilum* and *Weissia*, and two additional species were recorded. The additional species were *Zygodon menziesii*, growing on a rock wall, and a species of *Trachyloma*, growing as an epiphyte. It is possible that these two taxa were overlooked in 2004; no other changes were noted in the moss vegetation. Indeed, the somewhat ephemeral monotypic endemic moss, *Bryobeckettia bartlettii*, was still present where it had been found 9 years previously. The moss was growing lightly shaded on bare soil, at the margin of the planted native shrubbery along the stream bank, in the lower part of the reserve. A.J. Fife (pers. comm., 10 Sep 2013) describes the habitat of this endemic moss as being "On damp, often recently disturbed soil of various textures, often at the margins of streams or

drainage ditches". Signs of recent flooding at Dingle Dell, and the abrupt margin between the bare soil and the adjacent lawn (indicative of weedicide treatment), suggest that suitable conditions for the moss are currently being maintained. There are scattered records of *B. bartlettii* from Whangarei to Southland on the New Zealand mainland (data from herbaria AK and CHR, Sep 2013), and it was found on Pitt Island during the Auckland Botanical Society trip to the Chatham Islands in 2007. There, it was growing on compacted soil, with the exotic moss *Eurhynchium praelongum*, at the entrance to an aviary in the Ellen Preece Reserve. In the Tamaki Ecological District we know of no records other than those at Dingle Dell. Bryophytes associated with *B. bartlettii* at Dingle Dell were *Lunularia cruciata*, *Tortula truncata*, *Calliergonella cuspidata*, *Dicranella* sp. (probably *D. jamesonii*), and a species of *Bryum*.

Two conspicuous mosses on shaded soil in the reserve were *Racopilum robustum* (Fig. 8) and *Fissidens taxifolius*. *Racopilum robustum*, an endemic species, formed luxuriant mats on thin soil over rock, on gravel washings from a path, and on the vertical cut banks at track edges. A further substrate it had colonised was well-weathered timber forming part of a track support. *Racopilum robustum* grew in association with *Fissidens leptocladus*, with the liverwort *Heteroscyphus supinus*, and with a more slender species of *Racopilum*, probably *Racopilum strumiferum* (which was identified to species level from fertile material elsewhere in the Reserve). *Fissidens taxifolius* is an invasive introduced species which is very common in Auckland City.

In the lower part of the reserve *Tortula muralis* was common on concrete and mortar of rock walls, growing sometimes with *Thuidiopsis sparsa*. Found on the rock itself, were the diminutive *Zygodon menziesii*, several species of *Bryum* (including *Bryum capillare*) and *Weissia controversa* var. *gymnostoma*, living up to its common name of 'Petrie's wall moss'. This common name was acquired because the type specimen, sent to H.N. Dixon in England, was collected by Donald Petrie from "stone walls, Auckland suburbs, New Zealand" (*in herb.*), where, "judging from considerable material sent me it would appear to be very common in the neighbourhood of Auckland" (Dixon 1923).

Another moss common in Auckland City, found in the Reserve, is a species of *Hypopterygium*, tentatively identified as *H. tamarisci* (Fig. 9). Although we have access to a very detailed monograph of the family *Hypopterygiaceae* by H. Kruijer (2002), which includes many New Zealand specimens, we still have difficulty in identifying our local species. As well as being found on shaded, sloping, soil banks, *Hypopterygium* was seen in an unusual situation, on the trunk of a large nikau

(*Rhopalostylis sapida*), where it grew with *Racopilum* sp. and the liverworts *Archilejeunea olivacea* and *Plagiochila arbuscula*.

The Bryophyte Report for the 2004 BioBlitz (J.E. Beever & J.E. Braggins unpub.) noted that forest mosses were well represented in the list for Dingle Dell; these included the umbrella moss *Mniodendron colensoi* (formerly *Hypnodendron colensoi*), and epiphytes such as *Orthorrhynchium elegans*, two species of *Papillaria*, and three species of *Macromitrium*. To these can now be added a species of *Trachyloma*. All are indicative of mature native forest. Although they may have survived as relics from the original gully flora, all can produce spores and/or gemmae, and may thus have colonised the Dingle Dell Reserve during the regeneration of this urban forest remnant.

Lycophytes and ferns

The native fern flora has increased considerably to 28 species since the early list (19 species) compiled by Esson (1960). Not present then were *Lastreopsis microsora* and *L. glabella*, *Deparia petersenii*, *Diplazium australe* and *Pteris macilenta*, all now firmly established along the streams. Of considerable interest was the critically endangered fern *Christella dentata* (Fig. 10) growing fairly commonly along the main stream on the southern side (first recorded there by Peter de Lange in January 2013), and vigorous maturing plants of king fern (*Ptisana salicina*) thriving and regenerating in several places in the stream gullies on the western side. These latter two ferns were not recorded in the 2004 BioBlitz, and we suspect the king ferns had originally been planted. Other new discoveries made by our group on the day were *Tmesipteris lanceolata* and *Trichomanes venosum*. We found no sign of the previously recorded *Pellaea rotundifolia* (Esson 1960). Overall, the commonest ferns in the reserve at present are *Adiantum hispidulum* (Fig. 11), *Blechnum membranaceum*, *Cyathea dealbata*, *C. medullaris*, *Doodia australis*, *Lastreopsis glabella*, *L. microsora*, *Pneumatopteris pennigera*, *Pteris macilenta* and *Pteris tremula*. The only reasonably common climbing fern present is *Blechnum filiforme*.

Five adventives were noted. *Selaginella kraussiana* was commonly present in a number of places though by no means rampant; ladder fern (*Nephrolepis cordifolia*) has a localised foothold; *Adiantum raddianum* has established on banks beside some of the paths and creeks; *Pteris cretica* (Fig. 12) was common along the creeks in the open or where lightly shaded; and an Australian tree fern, *Cyathea cooperi* (Fig. 13), has become well established near the streams on the southern slopes and eastern (see Gardner (1994) for New Zealand's first wild record of this from Onehunga).

Native trees and shrubs

From the account by Esson (1960), and activities of the Tree Society, it is certain that the following native trees found in the reserve were planted: kauri (*Agathis australis*), rimu (*Dacrydium cupressinum*), totara (*Podocarpus totara*), tanekaha (*Phyllocladus trichomanoides*), kawaka (*Libocedrus plumosa*), pohutukawa (*Metrosideros excelsa*), Kermadec pohutukawa (*M. kermadecensis*), puriri (*Vitex lucens*) and rewarewa (*Knightia excelsa*). These plantings have done well. Totara have attained a diameter of 50 cm, with the other conifers in the 25-45 cm range. Esson also states that nikau was planted, although it is now abundant and regenerating freely along the main gullies and appearing natural (Fig. 14).

Other native trees or shrubs in the reserve that have been planted are tree daisy (*Olearia albida*), golden akeake (*O. paniculata*), whau (*Entelea arborescens*), ngaio (*Myoporum laetum*), broadleaf (*Griselinia littoralis*), puka (*G. lucida*), pukaniu (*Meryta sinclairii*), pukatea (*Laurelia novae-zelandiae*), *Elingamita johnsonii*, swamp maire (*Syzygium maire*), kowhai (*Sophora microphylla*), wharangi (*Melicope ternata*) and *Pseudopanax discolor*. Lemonwood (*Pittosporum eugenioides*), karo (*P. crassifolium*) and kohuhu (*P. tenuifolium*) are common and are also most likely planted.

The dominant fully wild native trees present are kanuka and cabbage tree on the upper slopes and karaka, kohekohe and mahoe in the gullies. Rhys Gardner has studied the sexuality of kohekohe here and found most of them to be males (Gardner 2009). Many of the cabbage trees are large and moribund. One large kowhai may well be natural. Less common are pigeonwood, pate (*Schefflera digitata*), taraire and titoki (both mainly as seedlings). The main undergrowth shrubs are mapou, hangehange (*Geniostoma ligustrifolium*), kawakawa (*Piper excelsum*), houpara (*Pseudopanax lessonii*), lacebark (*Hoheria populnea*) and coastal karamu (*Coprosma macrocarpa*). Woody lianes are not very common here, the ones we noted being supplejack (*Ripogonum scandens*), bush lawyer (*Rubus cissoides*), pohuehue (*Muehlenbeckia australis*) and *Parsonsia heterophylla*. Perching epiphytes (such as *Astelia* and *Collospermum*) are notably absent.

Several species present earlier seem to have disappeared. Both Esson (1960) and Cranwell (1981) remark on *Fuchsia excorticata*, with Esson stating that it is found beside all the streams. That was some 55 years ago, and there is now no sign of it. Perhaps it has been over-topped and suppressed by other plants, or possibly it was wiped out by possums which are known to defoliate and kill tree fuchsia. Other plants listed by Esson which no longer



Fig. 3. Bot Soc members exploring the fringes of the grassed area, 20 July 2013, Mike Wilcox.



Fig. 4. Wood ear fungus (*Auricularia cornea*) on decaying mahoe, 15 June 2013, Mike Wilcox.



Fig. 5. *Collema kauaiense* on cabbage tree trunk, 15 June 2013, Mike Wilcox.



Fig. 6. *Pseudocyphellaria carpoloma* on cabbage tree trunk, 20 July 2013, Mike Wilcox.



Fig. 7. *Plagiochila arbuscula*, 13 June 2013, Mike Wilcox.



Fig. 8. *Racomitrium robustum*, Dingle Dell, 19 August 2013, Mike Wilcox.



Fig. 9. *Hypopterygium tamarisci*, Dingle Dell, 13 June 2013, Mike Wilcox.



Fig. 10. *Christella dentata*, Dingle Dell, 20 July 2013, Mike Wilcox.



Fig. 11. *Adiantum hispidulum*, 19 Aug 2013, Mike Wilcox.



Fig. 12. *Pteris cretica*, Dingle Dell, 20 July 2013, Mike Wilcox.



Fig. 13. *Cyathea cooperi*, Dingle Dell, 19 Aug 2013, Mike Wilcox.



Fig. 14. Regeneration of nikau, Dingle Dell, 19 August 2013, Mike Wilcox.

seem to be present are akeake (*Dodonaea viscosa*), shining karamu (*Coprosma lucida*), akepiro (*Olearia furfuracea*), rangiora (*Brachyglottis repanda*), ramarama (*Lophomyrtus bullata*), milk tree (*Streblus heterophyllus*), kumarahou (*Pomaderris kumeraho*) and mingimingi (*Leucopogon fasciculatus*).

Exotic trees and shrubs

Hawthorn trees (*Crataegus monogyna*) occur in numbers in the bush on the eastern side of the reserve and are probably descendants of Major Bunbury's introductions (Esson 1960). Fringing the main grassed valley are fine individual planted specimens of black bean (*Castanospermum australe*), golden weeping willow (*Salix × sepulcralis* 'Chrysocoma') and Turkey oak (*Quercus cerris*), and also a group of Lombardy poplar (*Populus nigra* 'Italica'). There is a concentration of planted exotic trees on the western margin adjoining Fern Glen Road North, the most prominent being silver birch (*Betula pendula*), ginkgo (*Ginkgo biloba*), dawn redwood (*Metasequoia glyptostroboides*), Japanese cedar (*Cryptomeria japonica*), sawara cypress (*Chamaecyparis pisifera*), Sitka spruce (*Picea sitchensis*), camphor laurel (*Cinnamomum camphora*), pin oak (*Quercus palustris*), pedunculate oak (*Q. robur*), sweet gum (*Liquidambar styraciflua*), tulip tree (*Liriodendron tulipifera*), silver elm (*Ulmus minor* 'Variegata'), coral tree (*Erythrina × sykesii*) and English ash (*Fraxinus excelsior*). A number of Australian trees have also been planted in the reserve, namely Sydney blue gum (*Eucalyptus saligna*), narrow-leaved black peppermint (*E. nicholii*), bottlebrush (*Callistemon pallidus*), willow bottlebrush (*C. salignus*), black sheoak (*Allocasuarina littoralis*) and swamp sheoak (*Casuarina glauca*). A large monkey apple (*Syzygium smithii*) with unusually small leaves (identified as "var. *minor*") occurs deep in the bush and is probably planted.

On the Parkside Road margin is a grove of Dutch elm (*Ulmus × hollandica*) and individual specimens of Illawarra flame tree (*Brachychiton acerifolius*) and trident red maple (*Acer rubrum* var. *trilobum*). Other naturalised exotic shrubs and trees recorded included tree privet (*Ligustrum lucidum*), avocado (*Persea americana*), elaeagnus (*Elaeagnus × reflexa*), loquat (*Eriobotrya japonica*), queen of the night (*Cestrum nocturnum*), boneseed (*Chrysanthemoides monolifera*), hill cherry (*Prunus serrulata*) and woolly nightshade (*Solanum mauritianum*). Exotic creepers or climbers present are moth plant (*Araujia hortorum*), blue morning glory (*Ipomoea indica*), ivy (*Hedera helix*), climbing jasmine (*Jasminum polyanthum*) and honeysuckle (*Lonicera japonica*).

An interesting naturalised species found during the 2004 BioBlitz survey was camphor laurel (*Cinnamomum camphora*) seedlings (>30) on the NE-facing bush ridge (NW part of the reserve) under kanuka and planted gum trees. Seeds were

presumed to be brought in by birds because no adult plant was seen. It is a declared pest plant in eastern Australia where it replaces native vegetation and invades pasture and disturbed riparian systems. So far in New Zealand there have been only a few naturalised occurrences. In 2013 we could find no evidence that these 2004 Dingle Dell seedlings survived.

Three species of exotic palm have been planted: bangalow (*Archontophoenix cunninghamiana*), Canary Island date palm (*Phoenix canariensis*) and Chinese windmill palm (*Trachycarpus fortunei*). Two massive Canary Island date palms had recently been poisoned by drilling herbicide into the trunks – their wild seedlings were locally common.

Herbs, grasses and sedges

Most prominent were the sedges *Gahnia lacerata* (which is pervasive), *Uncinia uncinata*, *Carex lambertiana*, and the grass *Oplismenus hirtellus*. The weedy exotic sedges *Cyperus eragrostis* and *Carex divulsa* were much in evidence, and Australian sedge (*Carex longebrachiata*) is also present. Veldt grass (*Ehrharta erecta*) is abundant on well-lit margins and stream banks. Climbing asparagus (*Asparagus scandens*), onion weed (*Allium triquetrum*) and wandering jew (*Tradescantia fluminensis*) are present but fortunately not abundant. Kikuyu grass (*Cenchrus clandestinum*) dominates the open grass field.

Various herbs are present on the reserve edges, beside the paths, and along the creeks. Native herbs include *Australina pusilla* (discovered there in Jan 2013 by Peter de Lange), *Dichondra repens*, parataniwha (*Elatostema rugosum*) – with several healthy colonies along the creeks, *Haloragis erecta*, and *Hydrocotyle moschata*. There is a long list of introduced herbaceous weeds, ones we noted as being particularly common during our visits (Jun-Sep 2013) being nipplewort (*Lapsana communis*), bittercress (*Cardamine hirsuta*), puha (*Sonchus oleraceus*), Indian strawberry (*Potentilla indica*), small herb Robert (*Geranium purpureum*) and horned oxalis (*Oxalis corniculata*).

The creek at the head of the grassed area has a small wetland supporting a patch of watercress (*Nasturtium officinale*), floating sweet grass (*Glyceria declinata*), swamp willow weed pepper (*Persicaria decipiens*), water purslane (*Ludwigia palustris*), creeping buttercup (*Ranunculus repens*), and native starwort (*Callitriche muelleri*).

Birds and Lizards

During BioBlitz in 2004 twelve bird species were recorded, mainly by John Innes († = birds also seen by the authors in 2013): black-backed gull, spotted dove (wrongly recorded as collared dove in 2004?)†, eastern rosella†, grey warbler†, tui†, fantail†,

silvereye, blackbird†, starling, myna†, dunnoek, and chaffinch†. Additional species seen by the authors during 2013: kereru, kingfisher and house sparrow. Two lizards were recorded during BioBlitz by Graham Ussher: copper skink (*Cyclodina aenea*) and ornate skink (*C. ornata*).

Concluding remarks

Dingle Dell has a surprisingly rich flora considering that it was once a rather degraded fragment of native vegetation, and has been artificially enriched by planting of native and exotic trees. Its main ecological interest is now on the future development of the native flora and vegetation. Mosses, liverworts and lichens are plentiful. So far there has been little natural regeneration of any of the native conifers planted there 50-60 years ago. However, seedlings

and saplings can be found of broadleaf trees such as puriri, karaka, taraire and kohekohe, and also nikau, so these are likely to predominate in the future. The ancient kanuka and cabbage trees exhibit declining health, but beneath them is a dense scrub forest of small trees such as lacebark, mapou and houpara. The rather open nature of much of the vegetation exposes the upper slopes to wind and drought, where hardy plants such as *Gahnia lacera*, *Doodia australis* and *Adiantum hispidulum* provide the main ground cover.

The narrow, steep-sided stream heads are still mostly kept bare by the scouring action of stormwater, but several species of fern have nonetheless colonised this unstable habitat.

References

- Cranwell, L.M. 1981: *The Botany of Auckland*. Auckland Institute and War Memorial Museum, Auckland.
 de Lange, P.J.; Galloway, D.J.; Blanchon, D.J.; Knight, A.; Rolfe, J.R.; Crowcroft, G.M.; Hitchmough, R. 2012: Conservation status of New Zealand lichens. *New Zealand Journal of Botany* 50: 303-363.
 Esson, M.M. 1960: A description of the vegetation of Dingle Dell Reserve, St Heliers Bay, Auckland. *Tane* 8: 55-64.
 Gardner, R.O. 1994: *Cyathea cooperi* naturalised in Auckland. *Auckland Botanical Society Journal* 49: 43-44.
 Gardner, R.O. 2009: Sexuality of *Dysoxylum spectabile* (Meliaceae). *New Zealand Natural Sciences* 34: 63-68.

Species list for Dingle Dell, St Heliers, Auckland

Symbols:

* = exotic naturalised species

pl. = planted

pl.&w = planted and wild (usually planted adults and wild seedlings and saplings).

Esson 1960 = recorded by Margaret Esson (1960) – some uncertain taxa are omitted.

BBz 2004 = recorded during BioBlitz in 2004 (data held by Landcare Research) with a few additions recorded by Mike Wilcox in 11 Feb 2004.

2012 & 2013 = recorded during Bot Soc and author visits in 2013 with a few additions recorded by Mike Wilcox in 29 Feb 2012.

[AK] = liverwort reference specimens held at Auckland Museum Herbarium.

[UNITEC] = lichen reference specimens, where collected, held at Unitec Herbarium.

() = recorded originally as a different species and now assumed to be this species.

YYYY = year given for vouchered collections (in AK herbarium) when species not recorded in 1960, 2004, 2012 or 2013.

Taxa	Esson 1960	BBz 2004	2012 & 2013				
Fungi							
<i>Apiospora bambusae</i> (<i>A. tintinnabula</i>) on <i>Gahnia</i> sp.		+					+
<i>Armillaria novae-zelandiae</i>			+				
<i>Auricularia cornea</i>			+				
<i>Beltrania rhombica</i> on <i>Cordyline australis</i>		+					
<i>Calocera fusca</i>			+				
<i>Chalara stipitata</i> on <i>Cordyline australis</i>		+					
<i>Circinotrichum maculiforme</i> on <i>Cordyline australis</i>		+					
<i>Dactylaria</i> sp. on <i>Gahnia lacera</i>		+					
<i>Helicomycetes roseus</i> on <i>Cordyline australis</i>		+					
<i>Marasmius rhopalostylidis</i>							+
<i>Melampsora coleosporioides</i>						+	
<i>Melampsora larici-populina</i> on <i>Populus</i> sp.						+	
<i>Melampsoridium betulinum</i>						+	
<i>Miyagia pseudosphaeria</i> on <i>Sonchus oleraceus</i>						+	
<i>Periconia minutissima</i> on <i>Uncinia</i> sp.						+	
<i>Periconiella phormii</i> on <i>Phormium tenax</i>						+	
<i>Phaeoisaria clematidis</i>						+	
<i>Phakopsora apoda</i>						+	
<i>Phragmocephala atra</i> var. <i>stenophora</i> on <i>Cordyline australis</i>						+	
<i>Phragmocephala atra</i> var. <i>stenophora</i> on <i>Gahnia lacera</i>						+	

<i>Pleurotus</i> sp.			+	<i>Dirinaria applanata</i>			+	+
<i>Pluteus</i> sp.			+	[UNITEC 5930]				
<i>Pseudocercospora</i> <i>atromarginalis</i>		+		<i>Flavoparmelia haysomii</i>			+	+
<i>Pseudopeziza trifolii</i>		+		[UNITEC 4197]				
<i>Pseudospiropes simplex</i> on decorticated wood		+		<i>Graphis elegans</i>				+
<i>Pseudospiropes simplex</i> on <i>Ripogonum scandens</i>		+		[UNITEC 5925]				
<i>Puccinia coronata</i> on <i>Poa annua</i>		+		<i>Heterodermia japonica</i>				+
<i>Puccinia crepidicola</i> on <i>Crepis capillaris</i>		+		[UNITEC 5931, 5951]				
<i>Puccinia hieracii</i> var. <i>hieracii</i> on <i>Taraxacum officinale</i>		+		<i>Heterodermia microphylla</i>			+	
<i>Puccinia lagenophorae</i>		+		<i>Heterodermia obscurata</i>				+
<i>Puccinia uncinarium</i> on <i>Uncinia</i> sp.		+		[UNITEC 5934]				
<i>Sporoschisma mirabile</i> on decorticated wood		+		<i>Heterodermia speciosa</i>				+
<i>Stachybotrys parvispora</i> on <i>Knightia excelsa</i>		+		<i>Hyperphyscia adglutinata</i>			+	+
<i>Stenella gahniae</i> on <i>Gahnia</i> sp.		+		<i>Lecanactis subfarinacea</i>			+	+
<i>Tranzschelia discolor</i> on <i>Prunus</i> sp.		+		[UNITEC 5952]				
<i>Trichobotrys</i> sp. on <i>Gahnia</i> sp.		+		<i>Lecanora argentata</i>			+	+
<i>Tubeufia helicoma</i> (<i>Helicosporium pannosum</i>) on <i>Cordyline australis</i>		+		[UNITEC 5928]				
<i>Wiesneriomyces javanicus</i>		+		<i>Lepraria incana</i>			+	+
				[UNITEC 4183]				
				<i>Leptogium aucklandicum</i>			+	+
				[UNITEC 4196, 5956]				
				<i>Leptogium cyanescens</i>			+	+
				[UNITEC 4195, 5955]				
				<i>Leptogium denticulatum</i>				+
				[UNITEC 5940]				
				<i>Lobarina scrobiculata</i>				+
				[UNITEC 5935]				
				<i>Normandina pulchella</i>			+	
				<i>Pannaria elixii</i>				+
				[UNITEC 5937]				
				<i>Parmotrema austrocetratum</i>				+
				[UNITEC 5954]				
				<i>Parmotrema perlatum</i>			+	+
				<i>Parmotrema reticulatum</i>				+
				[UNITEC 5953]				
				<i>Parmotrema subtinctorium</i>			+	+
				[UNITEC 4202]				
				<i>Pertusaria</i> sp.			+	+
				<i>Phaeographis mucronata</i>				+
				[UNITEC 4182]				
				<i>Physcia adscendens</i>				+
				[UNITEC 5950]				
				<i>Porina exocha</i>			+	+
				[UNITEC 4201, 5946]				
				<i>Pseudocyphellaria carpoloma</i>			+	+
				[UNITEC 4192, 4199, 5941]				
				<i>Pseudocyphellaria crocata</i>			+	+
				[UNITEC 4193, 5942]				
				<i>Pseudocyphellaria multifida</i>			+	
				[UNITEC 4187]				
				<i>Pseudocyphellaria wilkinsii</i>			+	+
				[UNITEC 5944]				
				<i>Punctelia subrudecta</i>			+	
				<i>Pyrenula cyrtospora</i>			+	
				<i>Ramalina celsa</i>			+	+
				<i>Ramalina geniculata</i>			+	
				[UNITEC 4204]				
				<i>Ramalina peruviana</i>			+	+
				[UNITEC 4188, 5949]				
				<i>Sclerophora sanguinea</i>				+
				[UNITEC 5932]				
				<i>Sticta fuliginosa</i>			+	
				[UNITEC 4200, 4203]				
				<i>Sticta limbata</i> [UNITEC 4190]			+	
				<i>Sticta squamata</i> [UNITEC 5938]			+	+
				<i>Teloschistes chrysophthalmus</i>			+	+
				<i>Teloschistes sieberianus</i>			+	+
				[UNITEC 4184]				
				<i>Thelotrema lepadinum</i>				+
				[UNITEC 5933]				
				<i>Usnea nidifica</i>			+	
Myxomycetes (slime moulds)								
<i>Arcyria denudata</i>			+					
<i>Arcyria ferruginea</i>			+					
<i>Arcyria incarnata</i>			+					
<i>Dictydiaethalium plumbeum</i>			+					
<i>Didymium iridis</i>			+					
<i>Didymium listeri</i>			+					
<i>Didymium melanospermum</i>			+					
<i>Hemitrichia calyculata</i>			+					
<i>Metatrichia floriformis</i>			+					
<i>Physarum compressum</i>			+					
<i>Physarum</i> sp.			+					
<i>Stemonitis fusca</i>			+					
<i>Trichia decipiens</i>			+					
<i>Trichia favoginea</i>			+					
<i>Trichia varia</i>			+					
Lichens								
<i>Amandinea punctata</i>		+	+					
<i>Buellia demutans</i> [UNITEC 5926]			+					
<i>Chrysothrix candelaris</i>		+	+					
<i>Cladonia darwinii</i> [UNITEC 5939]		+	+					
<i>Coenogonium implexum</i> [UNITEC 4191, 5947]		+	+					
<i>Coenogonium luteum</i> [UNITEC 4331]		+						
<i>Collema kauaiense</i>		+	+					
<i>Crocodia aurata</i> [UNITEC 5936]		+	+					
<i>Crocodia poculifera</i> [UNITEC 4189, 4198, 5945]		+	+					
<i>Dictyographa cinerea</i> [UNITEC 4194]		+						

<i>Usnea rubicunda</i> [UNITEC 4281, 5948]		+	+		<i>Hypopterygium tamarisci</i>		+	+	
<i>Xanthoparmelia scabrosa</i> (on the road)		+	+		<i>Leptostomum macrocarpum</i>		+		
<i>Xanthoria parietina</i>		+	+		<i>Macromitrium prorepens</i>		+		
Liverworts					<i>Macromitrium gracile</i>		+		
<i>Acrolejeunea mollis</i> [AK 286425]		+			<i>Macromitrium ligulare</i>		+		
<i>Archilejeunea olivacea</i> [AK 286178]		+	+		<i>Mniodendron colensoi</i> [Colenso's umbrella moss]		+		
<i>Chiloscyphus helmsianus</i> [AK 341504]			+		<i>Orthorrhynchium elegans</i>		+		
<i>Chiloscyphus semiteres</i> var. <i>semiteres</i> [AK 341510]			+		<i>Papillaria crocea</i>		+		
<i>Chiloscyphus subporosus</i> var. <i>subporosus</i> [AK 286173]		+			<i>Papillaria flavolimbata</i>		+		
<i>Cololejeunea</i> aff. <i>cucullifolia</i> [AK 286428]		+			<i>Papillaria flexicaulis</i>		+		
<i>Fossombronia</i> sp. [AK 286422]		+	+		<i>Pendulothecium punctatum</i>		+		
<i>Frullania rostellata</i> [AK 347974]		+	+		<i>Pseudoscleropodium purum</i> *		+		
<i>Heteroscyphus cunestipulus</i> [AK 286431]		+	+		<i>Ptychomnion aciculare</i>		+		
<i>Heteroscyphus normalis</i> [AK 286172]		+	+		<i>Racopilum robustum</i>		+	+	
<i>Heteroscyphus renistipulus</i> [AK 286426]		+			<i>Racopilum strumiferum</i>		+	+	
<i>Heteroscyphus supinus</i> [AK 347973]			+		<i>Rhaphidorrhynchium amoenum</i>		+		
<i>Lejeunea sinclairii</i> [AK 341507]			+		<i>Rhynchostegium tenuifolium</i>		+		
<i>Lopholejeunea</i> sp. [AK 286437]		+			<i>Syntrichia papillosa</i>		+		
<i>Lunularia cruciata</i> * [AK 312014]		+	+		<i>Thuidiopsis sparsa</i>		+	+	
<i>Metalejeunea cucullata</i> [AK 286119]		+	+		<i>Tortula muralis</i>		+	+	
<i>Metzgeria furcata</i> [AK 286432]		+	+		<i>Tortula truncata</i> *		+	+	
<i>Plagiochila arbuscula</i> [AK 321074]		+	+		<i>Trachyloma</i> sp.			+	
<i>Radula silvosa</i> [AK 286180]		+	+		<i>Weissia controversa</i> var. <i>gymnostoma</i> [Petrie's wall moss]		+	+	
<i>Symphyogyna tenuinervis</i> [AK 286176]		+	+		<i>Zygodon menziesii</i>			+	
Mosses					Lycophytes				
<i>Bryobeckettia bartlettii</i>		+	+		<i>Selaginella kraussiana</i> * [African clubmoss]		+	+	+
<i>Bryum argenteum</i> [silver moss]		+			Ferns				
<i>Bryum capillare</i>		+	+		<i>Adiantum cunninghamii</i> [maidenhair fern]		+	+	+
<i>Bryum</i> sp.		+			<i>Adiantum hispidulum</i> [rosy maidenhair fern]		+	+	+
<i>Calliargonella cuspidata</i> * [pointed spear-moss]		+			<i>Adiantum raddianum</i> * [Delta maidenhair fern]				+
<i>Camptochaete pulvinata</i>		+			<i>Asplenium bulbiferum</i> [hen & chickens fern]		+		+
<i>Campylopus clavatus</i>		+			<i>Asplenium flaccidum</i> [hanging spleenwort]		+	+	+
<i>Campylopus introflexus</i>		+			<i>Asplenium oblongifolium</i> [shining spleenwort]		+	+	+
<i>Dicnemon calycinum</i>		+			<i>Blechnum chambersii</i>			+	+
<i>Dicranella jamesonii</i>		+			<i>Blechnum filiforme</i> [thread fern]		+	+	+
<i>Dicranoloma menziesii</i>		+			<i>Blechnum membranaceum</i>		+	+	+
<i>Echinodium hispidum</i>		+			<i>Blechnum novae-zelandiae</i> [kiokio]		(+)		+
<i>Eurhynchium praelongum</i> *		+			<i>Christella dentata</i>				+
<i>Eurhynchium speciosum</i> (*?)		+			<i>Cyathea cooperi</i> * [scaly tree fern]				+
<i>Fissidens curvatus</i>		+			<i>Cyathea dealbata</i> [silver fern]		+	+	+
<i>Fissidens leptocladus</i>		+	+		<i>Cyathea medullaris</i> [mamaku]		+	+	+
<i>Fissidens taxifolius</i> *		+	+		<i>Deparia petersenii</i>				+
<i>Fissidens tenellus</i>		+			<i>Dicksonia squarrosa</i> [wheki]		+	+	+
<i>Hypnum cupressiforme</i>		+			<i>Diplazium australe</i>				+
					<i>Doodia australis</i> [rasp fern]		+	+	+
					<i>Lastreopsis glabella</i>			+	+
					<i>Lastreopsis microsora</i>			+	+
					<i>Microsorium pustulatum</i> [hound's tongue fern]		+	+	+

<i>Microsorium scandens</i>		+	+		<i>Beilschmiedia tarairi</i> [taraire]		+	+
<i>Nephrolepis cordifolia</i> * [ladder fern]			+	+	<i>Bellis perennis</i> * [lawn daisy]		+	+
<i>Pellaea rotundifolia</i>	+				<i>Beta vulgaris</i> var. <i>cicla</i> * [silver beet]			+
<i>Pneumatopteris pennigera</i> [feather fern]	+	+	+		<i>Betula pendula</i> * [silver birch] pl.		+	+
<i>Pteridium esculentum</i> [bracken]	+	+	+		<i>Brachychiton acerifolius</i> * [Illawarra flame tree] pl.		+	+
<i>Pteris cretica</i> *				+	<i>Brachyglottis repanda</i> [rangiora]	+		
<i>Pteris macilentata</i>			+	+	<i>Callistemon pallidus</i> * [bottlebrush] pl.		+	+
<i>Pteris tremula</i> [shaking brake]	+	+	+	+	<i>Callistemon salignus</i> * [willow bottlebrush] pl.			+
<i>Ptisana salicina</i> [king fern] pl.&w				+	<i>Callitriche muelleri</i> [native starwort]		+	+
<i>Pyrrhosia eleagnifolia</i> [leather-leaf fern]	+	+	+		<i>Callitriche stagnalis</i> *[starwort]		+	+
<i>Tmesipteris lanceolata</i>				+	<i>Calystegia tuguriorum</i>			+
<i>Trichomanes venosum</i>				+	<i>Calystegia sepium</i> [pink bindweed]	(+)	+	+
Gymnosperms								
<i>Agathis australis</i> [kauri] pl.	+	+	+		<i>Campanula poscharskyana</i> * [Serbian bellflower]			+
<i>Agathis robusta</i> * [Queensland kauri] pl.			+	+	<i>Cardamine hirsuta</i> * [bittercress]		(+)	+
<i>Chamaecyparis pisifera</i> * [sawara cypress] pl.			+	+	<i>Carmichaelia australis</i> [native broom]	+		
<i>Cryptomeria japonica</i> * [Japanese cedar] pl.				+	<i>Castanospermum australe</i> * [black bean] pl.		+	+
<i>Dacrycarpus dacrydioides</i> [kahikatea] pl.&w	+	+	+		<i>Casuarina glauca</i> * [swamp sheoak] pl.		(+)	+
<i>Dacrydium cupressinum</i> [rimu] pl.	+	+	+		<i>Centaurea erythraea</i> * [centaury]		+	
<i>Ginkgo biloba</i> * [ginkgo] pl.			+	+	<i>Cerastium glomeratum</i> * [mouse-eared chickweed]		+	+
<i>Libocedrus plumosa</i> [kawaka] pl.			+	+	<i>Cestrum nocturnum</i> * [queen of the night]		+	+
<i>Metasequoia glyptostroboides</i> * [dawn redwood] pl.			+	+	<i>Chrysanthemoides monolifera</i> * [boneseed]		+	+
<i>Phyllocladus trichomanoides</i> [tanekaha] pl.	+	+	+		<i>Cinnamomum camphora</i> * [camphor laurel]		+	
<i>Picea sitchensis</i> * [Sitka spruce] pl.				+	<i>Cirsium vulgare</i> * [Scotch thistle]		+	+
<i>Podocarpus totara</i> [totara] pl.&w	+	+	+		<i>Clematis paniculata</i> [puawhananga]	+	+	+
<i>Prumnopitys ferruginea</i> [miro] pl.	+	+	+		<i>Conyza sumatrensis</i> * [fleabane]		+	+
<i>Thuja occidentalis</i> * [white cedar]		(+)	+		<i>Coprosma crassifolia</i> × <i>C.</i> <i>repens</i> pl.		+	
Dicots								
<i>Acaena anserinifolia</i> [bidibidi]	+				<i>Coprosma grandifolia</i> [raurekau]	+	+	+
<i>Acanthus mollis</i> * [bear's britches]			+	+	<i>Coprosma macrocarpa</i> [coastal karamu]	(+)	+	+
<i>Acer rubrum</i> var. <i>trilobum</i> * [trident red maple] pl.				+	<i>Coprosma repens</i> [taupata] pl.		+	+
<i>Albizia julibrissis</i> * [silk tree] pl.			+	+	<i>Coprosma rhamnoides</i>	+	+	+
<i>Alectryon excelsus</i> [titoki]			+	+	<i>Coprosma robusta</i> [karamu]	+	+	+
<i>Allocasuarina littoralis</i> * [black sheoak]				+	<i>Corokia buddleioides</i>	+		
<i>Anagallis arvensis</i> s.str.* [scarlet pimpernel]				+	<i>Corokia buddleioides</i> × <i>C.</i> <i>cotoneaster</i> pl.			+
<i>Anredera cordifolia</i> * [Madeira vine]			+	+	<i>Corynocarpus laevigatus</i> [karaka]	+	+	+
<i>Aphanes inexpectata</i> * [parsley piert]				+	<i>Cotoneaster lacteus</i> *			+
<i>Araujia hortorum</i> * [moth plant]			+	+	<i>Crassula multicava</i> * [fairy crassula]		+	+
<i>Artemisia verlotiorum</i> * [mugwort] 1984 (AK 171345, <i>G.M. Taylor</i>)				+	<i>Crataegus monogyna</i> * [hawthorn]	+	+	+
<i>Australina pusilla</i> 2013 (AK 336330, <i>P.J. de Lange</i>)				+	<i>Crepis capillaris</i> * [hawksbeard]		+	
<i>Baloghia inophylla</i> * [brush bloodwood]			+		<i>Cymbalaria muralis</i> * [ivy-leaved toadflax]			+
					<i>Daucus carota</i> *[wild carrot]		+	
					<i>Dichondra repens</i> [Mercury Bay weed]			+

<i>Diospyros virginiana</i> * [persimmon] pl.		+	+	<i>Kunzea ericoides</i> [kanuka]	+	+	+
<i>Dodonaea viscosa</i> [akeake]	+			<i>Lamium purpureum</i> * [red dead nettle]		+	
<i>Dysoxylum spectabile</i> [kohekohe]	+	+	+	<i>Lapsana communis</i> * [nipplewort]		+	+
<i>Elatostema rugosum</i> [parataniwha]	+	+	+	<i>Laurelia novae-zelandiae</i> [pukatea] pl.		+	+
<i>Elaeagnus</i> × <i>reflexus</i> * [elaeanus]		+	+	<i>Lavandula dentata</i> * [lavender]			+
<i>Elingamita johnsonii</i> pl.			+	<i>Leontodon taraxacoides</i> * [hawkbit]		+	+
<i>Entelea arborescens</i> [whau] pl.			+	<i>Lepidium didymum</i> * [twin cress]		+	+
<i>Epilobium ciliatum</i> * [willow herb]		+		<i>Leptospermum scoparium</i> [manuka]	+	+	+
<i>Erigeron karvinskianus</i> * [Mexican daisy]		+	+	<i>Leucopogon fasciculatus</i> [mingimingi]	+		
<i>Eriobotrya japonica</i> * [loquat]			+	<i>Ligustrum lucidum</i> * [tree privet]		+	+
<i>Erythrina</i> × <i>sykesii</i> * [coral tree] pl.			+	<i>Ligustrum sinense</i> * [Chinese privet]	(+)	+	+
<i>Eucalyptus nicholii</i> * [narrow- leaved black peppermint] pl.		(+)	+	<i>Linaria purpurea</i> * [purple linaria]			+
<i>Eucalyptus saligna</i> * [Sydney blue gum] pl.		(+)	+	<i>Liquidambar styraciflua</i> * [swamp gum] pl.		+	+
<i>Euonymus japonicas</i> * [spindle tree] pl.		+		<i>Liriodendron tulipifera</i> * [tulip tree] pl.		+	+
<i>Euphorbia depauperata</i> var. <i>pubescens</i> *		+	+	<i>Lonicera japonica</i> * [honeysuckle]	+	+	
<i>Euphorbia peplus</i> * [milk weed]		+	+	<i>Lophomyrtus bullata</i>	+		
<i>Fraxinus excelsior</i> * [English ash] pl.		+	+	<i>Lotus pedunculata</i> *[lotus]		+	
<i>Fuchsia excorticata</i> [tree fuchsia]	+			<i>Lotus suaveolens</i> * [hairy birdsfoot trefoil]		+	
<i>Fumaria capreolata</i> * [rampant fumitory]		+	+	<i>Ludwigia palustris</i> * [water purslane]			+
<i>Galium aparine</i> * [cleavers]		+	+	<i>Malus prunifolia</i> * [pear-leaf crabapple] pl.		+	
<i>Galium divaricatum</i> *		+	+	<i>Malva</i> sp.*		+	+
<i>Geniostoma ligustrifolium</i> [hangehange]	+	+	+	<i>Medicago Arabica</i> * [spotted bur medick]		+	
<i>Geranium homeanum</i>		+	+	<i>Melia azedarach</i> * [Persian lilac] pl.		+	+
<i>Geranium molle</i> * [dove's foot cranesbill]		+	+	<i>Melicope ternata</i> [wharangi]	+	+	+
<i>Geranium purpureum</i> * [small herb Robert]		+	+	<i>Melicytus ramiflorus</i> [mahoe]	+	+	+
<i>Gomphocarpus fruticosus</i> * [swan plant]		+		<i>Meryta sinclairii</i> [pukanui] pl.			+
<i>Griselinia littoralis</i> [broadleaf] pl.		+	+	<i>Metrosideros excelsa</i> [pohutukawa] pl.&w		+	+
<i>Griselinia lucida</i> [puka] pl.		+	+	<i>Metrosideros kermadecensis</i> [Kermadec pohutukawa] pl.			+
<i>Haloragis erecta</i>	+	+	+	<i>Modiola caroliniana</i> * [creeping mallow]		+	+
<i>Hedera helix</i> * [ivy]		+	+	<i>Muehlenbeckia australis</i> [pohuehue]	+		+
<i>Hedycarya arborea</i> [pigeonwood] pl.&w		+	+	<i>Muehlenbeckia complexa</i> [pohuehue] pl.&w	(+)	+	+
<i>Helianthus annuus</i> * [sunflower]		+		<i>Myosotis sylvatica</i> * [garden forget-me-not]			+
<i>Helminthotheca echioides</i> * [oxtongue]		+	+	<i>Myoporum laetum</i> [ngaio]	+		+pl.
<i>Hoheria populnea</i> [lacebark]	+	+	+	<i>Myrsine australis</i> [mapou]	+	+	+
<i>Hydrocotyle moschata</i> [hydrocotyle]		+	+	<i>Nasturtium officinale</i> * [watercress]		+	+
<i>Hydrocotyle tripartita</i> * [Australian hydrocotyle]		+		<i>Nerium oleander</i> * [oleander] pl.		+	+
<i>Hypericum androsaemum</i> * [tutsan]	+	+	+	<i>Nestegis lanceolata</i> [white maire]		+	+
<i>Hypochoeris radicata</i> * [catsear]		+	+	<i>Oenanthe pimpinelloides</i> * [parsley dropwort]		+	+
<i>Ipomoea indica</i> * [blue morning glory]		+	+	<i>Olearia albida</i> var. <i>angulata</i> pl.		+	+
<i>Jasminum polyanthum</i> * [climbing jasmine]		+		<i>Olearia furfuracea</i> [akepiro]	+		
<i>Juglans regia</i> * [walnut] pl.		+	+	<i>Olearia paniculata</i> [golden akeake] pl.	+	+	+
<i>Knightia excelsa</i> [rewarewa] pl.&w		+	+	<i>Oxalis corniculata</i> * [horned oxalis]			+

<i>Oxalis exilis</i> [creeping oxalis]			+	+	<i>Rosa</i> sp.* [wild rose]	+		
<i>Oxalis incarnata</i> * [lilac oxalis]			+	+	<i>Rubus australis</i>	+		
<i>Oxalis latifolia</i> * [fishtail oxalis]			+		<i>Rubus cissoides</i> [bush lawyer]	+	+	+
<i>Oxalis pes-caprae</i> * [Bermuda buttercup]				+	<i>Rubus fruticosus</i> * [blackberry]	(+)	+	+
<i>Oxalis purpurea</i> * [South African oxalis]			+	+	<i>Rumex crispus</i> * [curled dock]			+
<i>Paraserianthes lophantha</i> * [brush wattle]				+	<i>Rumex obtusifolius</i> * [broad-leaved dock]		+	+
<i>Parsonsia heterophylla</i>	+		+	+	<i>Rumex pulcher</i> * [fiddle dock]		+	+
<i>Passiflora caerulea</i> * [passionfruit]			+	+	<i>Rumex sagittatus</i> * [climbing dock]			+
<i>Pericallis × hybrida</i> * [cineraria]				+	<i>Salix × sepulcralis</i> `Chrysocoma`* [golden weeping willow]	(+)	+	+
<i>Persea americana</i> * [avocado]				+	<i>Schefflera digitata</i> [pate]	+	+	
<i>Persicaria decipiens</i> [swamp willow weed]			+	+	<i>Senecio bipinnatisectus</i> * [Australian fireweed]			+
<i>Physalis peruviana</i> * [cape gooseberry]			+	+	<i>Senecio esleri</i> *		+	
<i>Phytolacca octandra</i> * [inkweed]			+	+	<i>Senecio vulgaris</i> * [groundsel]		+	+
<i>Piper excelsum</i> [kawakawa]	+		+	+	<i>Solanum lycopersicum</i> * [tomato]		+	
<i>Pittosporum crassifolium</i> [karo]	+		+	+	<i>Solanum mauritianum</i> * [woolly nightshade]		+	+
<i>Pittosporum eugenioides</i> [lemonwood] pl.			+	+	<i>Solanum nigrum</i> * [black nightshade]		+	+
<i>Pittosporum tenuifolium</i> [kohuhu]	+		+	+	<i>Solanum nodiflorum</i> [small-flowered nightshade]		+	+
<i>Plagianthus regius</i> [ribbonwood] pl.				+	<i>Solanum pseudocapsicum</i> * [Jerusalem cherry]		+	+
<i>Planchonella costata</i> [tawapou] pl.				+	<i>Sonchus oleraceus</i> * [puha, sow thistle]		+	+
<i>Plantago lanceolata</i> * [narrow-leaved plantain]			+	+	<i>Sophora microphylla</i> [kowhai]	+	+	+
<i>Plantago major</i> * [broad-leaved plantain]			+	+	<i>Stachys arvensis</i> * [staggerweed]		+	
<i>Plectranthus ciliatus</i> *			+		<i>Stachys byzantine</i> * [lamb's ears]		+	
<i>Plectranthus ecklonii</i> *			+	+	<i>Streblus heterophyllus</i> [milk tree]	+		
<i>Pomaderris kumeraho</i> [kumarahou]	+				<i>Syzygium australe</i> * [brush cherry]			+
<i>Potentilla indica</i> * [Indian strawberry]	(+)		+	+	<i>Syzygium maire</i> [swamp maire] pl.			+
<i>Populus nigra</i> `Italica`* [Lombardy poplar] pl.			+	+	<i>Syzygium smithii</i> var. `minor`** [small-leaved monkey apple]			+
<i>Prunella vulgaris</i> * [selfheal]			+	+	<i>Syzygium smithii</i> * [monkey apple]		+	+
<i>Prunus campanulata</i> * [Taiwan cherry]				+	<i>Taraxacum officinale</i> * [dandelion]		+	+
<i>Prunus × domestica</i> * [plum]			+		<i>Trifolium dubium</i> * [suckling clover]		+	
<i>Prunus persica</i> * [peach]				+	<i>Trifolium repens</i> * [white clover]		+	+
<i>Prunus serrulata</i> * [hill cherry]			+	+	<i>Tropaeolum majus</i> * [climbing nasturtium]		+	+
<i>Pseudopanax arboreus</i> [five-finger]	+		+	+	<i>Ulex europaeus</i> * [gorse]	+	+	+
<i>Pseudopanax crassifolius</i> [lancewood]	+			+	<i>Ulmus × hollandica</i> * [Dutch elm] pl.	(+)	+	+
<i>Pseudopanax crassifolius</i> × <i>P. lessonii</i>	+		+	+	<i>Ulmus minor</i> `Variegata`* [variegated elm] pl.		(+)	+
<i>Pseudopanax discolor</i> pl.				+	<i>Veronica arvensis</i> * [wall speedwell]		+	+
<i>Pseudopanax lessonii</i> [houpara]	+		+	+	<i>Veronica persica</i> * [speedwell]			+
<i>Quercus cerris</i> * [Turkey oak] pl.			+	+	<i>Veronica serpyllifolia</i> * [turf speedwell]			+
<i>Quercus palustris</i> * [pin oak] pl.			+	+	<i>Veronica stricta</i> [koromiko] pl.	+	+	+
<i>Quercus robur</i> * [pedunculate oak] pl.	(+)		+	+	<i>Vicia sativa</i> * [vetch]		+	+
<i>Ranunculus parviflorus</i> * [small-flowered buttercup]			+		<i>Vicia tetrasperma</i> * [vetch] 1974 (AK181934, Asteridge & Esler)			
<i>Ranunculus reflexus</i>	+				<i>Vitex lucens</i> [puriri] pl.&w	+	+	+
<i>Ranunculus repens</i> * [creeping buttercup]			+	+	<i>Vasconcellea pubescens</i> * [mountain pawpaw]		+	
<i>Raphanus raphanistrum</i> * [wild radish]				+				
<i>Rhaphiolepis umbellata</i> * [Yeddo hawthorn]			+	+				

<i>Wahlenbergia violacea</i> [violet harebell]			+		<i>Cyperus ustulatus</i> [giant umbrella sedge]	+	+	
Monocots					<i>Dactylis glomerata</i> * [cocksfoot]		+	
<i>Agapanthus praecox</i> subsp. <i>orientalis</i> * [agapanthus]		+	+		<i>Dianella nigra</i> [NZ blueberry] pl. [several, all planted]	+		+pl.
<i>Allium triquetrum</i> * [onion weed]		+	+		<i>Digitaria ciliaris</i> * [summer grass]			+
<i>Anthoxanthum odoratum</i> * [sweet vernal]		+			<i>Digitaria sanguinalis</i> * [summer grass]		+	+
<i>Apodasmia similis</i> [oioi] pl.		+	+		<i>Earina mucronata</i>	+		
<i>Archontophoenix</i> <i>cunninghamiana</i> * [Bangalow palm] pl.		+	+		<i>Ehrharta erecta</i> * [veldt grass]		+	+
<i>Arthropodium bifurcatum</i> [rengarenga lily] pl.			+		<i>Gahnia lacera</i> [coastal cutty grass]	+	+	+
<i>Asparagus aethiopicus</i> * [emerald asparagus fern]		+			<i>Glyceria declinata</i> * [floating sweet grass]			+
<i>Asparagus asparagoides</i> * [smilax]			+		<i>Hedychium gardnerianum</i> * [wild ginger]		+	+
<i>Asparagus scandens</i> * [climbing asparagus]		+	+		<i>Iris foetidissima</i> * [stinking iris]		+	
<i>Astelia banksii</i> pl.			+		<i>Isolepis reticularis</i>			+
<i>Austroderia fulvida</i> [toetoe]	+				<i>Isolepis sepulcralis</i> *		+	
<i>Axonopus fissifolius</i> * [narrow-leaved carpet grass]			+		<i>Juncus australis</i>			+
<i>Carex divulsa</i> * [grey sedge]		+	+		<i>Juncus effusus</i> * [soft rush]		+	
<i>Carex flacca</i> * [carnation grass]			+		<i>Juncus tenuis</i> * [track rush]			+
<i>Carex flagellifera</i>	+	+	+		<i>Lepidosperma australe</i>			+
<i>Carex inversa</i>			+		<i>Lolium perenne</i> * [perennial rye grass]		+	+
<i>Carex lambertiana</i>		+	+		<i>Lomandra longifolia</i> Tanika* pl.			+
<i>Carex lessoniana</i>	(+)		+		<i>Microlaena stipoides</i> [meadow rice grass]		+	+
<i>Carex longebrachiata</i> * [Australian sedge]		+			<i>Narcissus tazetta</i> * [polyanthus narcissus]		+	
<i>Carex secta</i> pl.			+		<i>Oplismenus hirtellus</i> [panic grass]	+	+	+
<i>Carex solandri</i>		+			<i>Paspalum dilatatum</i> * [paspalum]		+	+
<i>Carex testacea</i>		+			<i>Phoenix canariensis</i> * [Canary Is. date palm] pl.&w		+	+
<i>Carex virgata</i>	+	+	+		<i>Phormium tenax</i> [flax]	+	+	+
<i>Cenchrus clandestinum</i> * [kikuyu grass]		+	+		<i>Poa annua</i> *[annual poa]		+	+
<i>Clivia miniata</i> * [Natal lily] pl.		+	+		<i>Rhopalostylis sapida</i> [nikau] pl.&w	+	+	+
<i>Cordyline australis</i> [cabbage tree]	+	+	+		<i>Ripogonum scandens</i> [supplejack]	+	+	+
<i>Cordyline rubra</i> *[palm lily] pl.		+			<i>Rytidosperma racemosum</i> * [wallaby grass]		+	+
<i>Cortaderia selloana</i> * [pampas]		+	+		<i>Setaria pumila</i> * [yellow bristle grass]			+
<i>Crinum × powellii</i> * [swamp lily] pl.		+			<i>Trachycarpus fortunei</i> * [Chinese windmill palm] pl.		+	+
<i>Crocasmia × crocosmiiflora</i> * [montbretia]		+			<i>Tradescantia fluminensis</i> * [wandering Jew]	+	+	+
<i>Cynodon dactylon</i> * [Bermuda grass]		+			<i>Uncinia distans</i>		+	
<i>Cyperus brevifolius</i>		+			<i>Uncinia uncinata</i> [hook sedge]	+	+	+
<i>Cyperus congestus</i> * [brown umbrella sedge]		+	+		<i>Zantedeschia aethiopicum</i> * [arum lily]		+	
<i>Cyperus eragrostis</i> * [green umbrella sedge]	(+)	+	+					

Compiled by Ewen Cameron, Leslie Haines, Jenny Lux, Elaine Marshall, Mei Nee Lee, Joshua Salter, Jessica Beever, John Braggins, Rick Kooperberg, Dan Blanchon, Carol Lockett, Peter Buchanan, Peter Johnston, Eric Mckenzie, Nick Waipara (BioBlitz, 30 April – 1 May 2004); Mike Wilcox (11 Feb 2004, 29 Feb 2012, 15 Jun, 8 July, 19 Aug 2013); Bot Soc (20 Jul 2013); Clive Shirley (20 Jul 2013); Jessica Beever and John Braggins (19 Aug 2013); Ewen Cameron (15 Sep 2013).