The flora of Margans Bush, Papakura, Auckland

Nick Goldwater

Margans Bush (*c.*1.9 ha) is situated on low relief volcanic hills on the south-east fringe of urban Papakura, South Auckland, and falls within both the Manukau and Hunua Ecological Districts (ED) (Fig. 1). It contains a small but floristically diverse forest habitat that is representative of a significant forest class – taraire (*Beilschmiedia tarairi*) forest on volcanic hills - which has been greatly reduced from its former extent (Tyrell *et al.* 1999). The reserve is located a few hundred metres to the north of Red Hill Scenic Reserve, which has been identified as a Recommended Area for Protection (RAP), and is the best example of lowland mature taraire forest on volcanic hills in the Hunua ED (Tyrell *et al.* 1999).

A group of local volunteers known as Friends of Margan Bush has worked alongside the Papakura Lions Club to build tracks, bridges and steps through the bush reserve, as well as plant hundreds of indigenous plants. The next step in the restoration of the reserve is for Auckland Council to assist the Friends of Margans Bush to control pest animals.

An ecological assessment of Margans Bush was undertaken for Auckland Council on 15 and 18 November 2011 with the aim of guiding the management of the reserve (Wildland Consultants Ltd 2011). The assessment included a botanical survey and the establishment of a network of tracking tunnels to monitor the identity and abundance of pest animal species. A total of 107 vascular plants were recorded during the survey, comprising 67 indigenous species and 40 naturalised species (see Appendix). Seventeen of these are aggressive environmental weeds, which should be controlled before they increase in abundance.

Residential properties surround most of Margans Bush and collectively they provide a significant buffer

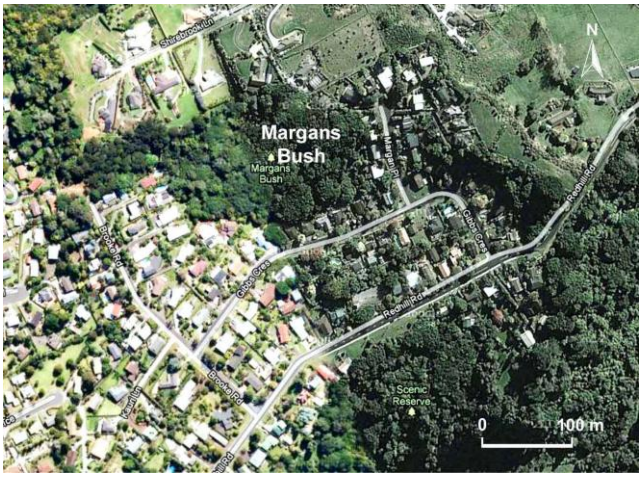

Fig. 1. Location of Margans Bush, Papakura. Map produced by Angela Robinson and Joshua Salter. 2012 aerials sourced from Google Maps.

Fig. 2. A large taraire, the dominant canopy species at Margans Bush, towers over nikau in the sub-canopy. Photo: N. Goldwater, 15 Nov 2011.

of indigenous vegetation. Two streams (one permanent main stream and one intermittent tributary), both well-shaded by the overhead vegetation, flow through the reserve.

The forest of Margans Bush is primarily comprised of broadleaved species dominated by old growth taraire (Fig. 2) and puriri (*Vitex lucens*) (canopy *c.*15-18m tall), with occasional emergent kahikatea (*Dacrycarpus dacrydioides*), rewarewa (*Knightia excelsa*) and pukatea (*Laurelia novae-zelandiae*). Basal diameters of some puriri exceed 1 m. Ponga (*Cyathea dealbata*) and nikau (*Rhopalostylis sapida*) are frequent in the sub-canopy, while kohekohe (*Dysoxylum spectabile*) and tawa (*Beilschmiedia tawa*) occur in smaller amounts.

Nikau saplings are the most common species in the understorey, often forming monocultures in parts of the forest. One king fern (*Ptisana salicina*) was observed in the reserve, growing on a shady stream bank. King fern is a nationally threatened plant, classified as 'At Risk-Declining' (de Lange *et al.* 2009). Ponga and hangehange (*Geniostoma ligustrifolium*) occur frequently in the understorey. The ground tier largely comprises ferns such as *Asplenium lamprophyllum* (Fig. 3) and climbing hard

Fig. 3. *Asplenium lamprophyllum* growing amongst seedlings of karaka, kawakawa and nikau in the forest interior. Photo: N. Goldwater, 15 Nov 2011.

Fig. 4. Ponga and mamaku growing under an open canopy of kanuka near the western boundary of Margans Bush. Photo: N. Goldwater, 15 Nov 2011.

fern (*Blechnum filiforme*). No indigenous herbs were observed on the forest floor. Supplejack (*Ripogonum scandens*) occurs frequently throughout Margans Bush, often forming dense tangles of near-impenetrable vineland.

Kanuka (*Kunzea ericoides*) (c.6-8 m in height) is locally common near the western boundary of the reserve. The fragmented canopy has allowed a dense understorey to establish, comprising frequent mahoe (*Melicytus ramiflorus*) and hangehange, and occasional ponga and mamaku (*Cyathea medullaris*) (Fig. 4). Kohia (*Passiflora tetrandra*) is locally common in this part of the reserve. Exotic species dominate a small clearing on the true right of the main stream within the kanuka forest; tradescantia (*Tradescantia fluminensis*) and selaginella (*Selaginella kraussiana*) are abundant, while jasmine (*Jasminum polyanthum*) and herbs such as hedge woundwort (*Stachys silvatica*), Australian hydrocotyle (*Hydrocotyle tripartita*) and the indigenous *Callitriche muelleri* occur frequently.

Seventeen weed species were identified during the survey, 14 of which are listed in the Auckland Regional Pest Management Plan 2007-2012 (ARC 2007). Most pest plants present at Margans Bush are relatively shade-tolerant, bird-dispersed species such as monkey apple (*Syzygium smithii*), wild ginger (*Hedychium gardnerianum*), fatsia (*Fatsia japonica*), loquat (*Eriobotrya japonica*), and Chinese privet (*Ligustrum sinense*). Tradescantia is the most abundant pest plant in the reserve and is most likely to have spread from neighbouring gardens. Pampas (*Cortaderia* sp.) and gorse (*Ulex europaeus*) are rare and, barring any major disturbance, do not threaten the integrity of the reserve. Possums (*Trichosurus vulpecula*) and ship rats (*Rattus rattus*) are the key pest mammals in the reserve. Ship rats are particularly numerous and will most likely be having significant impacts on indigenous invertebrates, lizards, seeds/fruit, and possibly birds.

Margans Bush supports common indigenous bird species such as kereru (*Hemiphaga novaeseelandiae*), silvereye (*Zosterops lateralis*), fantail (*Rhipidura fuliginosa*), grey warbler (*Gerygone igata*), tui (*Prosthemadera novaeseelandiae*), and kingfisher (*Todiramphus sanctus vagans*).

Together with Red Hill Scenic Reserve to the south and small, privately owned remnants to the north, Margans Bush forms part of a network of local natural areas. The reserve is strategically important as a good quality habitat located on the fringe of urban Papakura and would be an important 'stepping stone' for birds travelling between the urban area, the Hunua foothills and Ranges beyond. Significant ecological gains will be achieved by controlling weeds and pest animals through a sustained management programme, involving Auckland Council, Friends of Margans Bush, the Papakura Lions Club, and other interested local residents. In order to reduce the spread of weeds, neighbouring residents need to be aware of any potentially invasive weeds present in their gardens.

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Appendix: Vascular Plant List for Margans Bush.

* = exotic; † = cultivated

Ferns & lycophytes

Asplenium bulbiferum
Asplenium flaccidum
Asplenium lamprophyllum
Asplenium oblongifolium
Asplenium polyodon
Blechnum discolor
Blechnum filiforme
Blechnum novae-zelandiae
Cyathea dealbata
Cyathea medullaris
Dicksonia squarrosa
Doodia australis
Hymenophyllum demissum
Lastreopsis glabella
Lastreopsis hispida
Leptopteris hymenophylloides
Microsorum pustulatum
Microsorum scandens
Paesia scaberula
Pteris tremula
Ptisana salicina
Pyrrosia eleagnifolia
Selaginella kraussiana *

Gymnosperms

Agathis australis †
Dacrycarpus dacrydioides
Dacrydium cupressinum
Phyllocladus trichomanoides

Dicotyledons

Acer pseudoplatanus *
Alectryon excelsus
Alseuosmia macrophylla
Beilschmiedia tarairi
Beilschmiedia tawa
Brachyglottis repanda
Callitriche muelleri
Cardamine hirsute *
Carpodetus serratus
Cirsium vulgare *
Conyza sumatrensis *
Coprosma arborea
Coprosma areolata
Coprosma grandifolia
Coprosma robusta
Corynocarpus laevigatus
Dysoxylum spectabile
Eriobotrya japonica *
Fatsia japonica *
Geniostoma ligustrifolium
Hedera helix *
Hedycarya arborea
Helminthotheca echioides *
Hoheria populnea
Hydrocotyle tripartite *
Jasminum polyanthum *
Knightia excelsa
Kunzea ericoides
Laurelia novae-zelandiae
Lepidium didymium *
Leucanthemum vulgare *
Lotus pedunculatus *
Lotus suaveolens *
Lythrum hyssopifolia *
Mycelis muralis *
Ligustrum lucidum *
Ligustrum sinense *
Macropiper excelsum
Melicytus ramiflorus
Metrosideros diffusa
Metrosideros fulgens
Metrosideros perforata
Myrsine australis
Nestegis lanceolata
Oxalis incarnata *
Passiflora tetrandra
Pittosporum crassifolium
Pseudopanax crassifolius
Pseudopanax discolor

Pseudopanax lessonii
Prunella vulgaris *
Ranunculus repens *
Senecio bipinnatisectus *
Sonchus oleraceus *
Stachys sylvatica *
Syzygium smithii *
Taraxacum officinale *
Tecomaria capensis *
Ulex europaeus *
Vicia sativa *

Monocotydelons

Allium triquetrum *
Carex dissita
Carex divulsa *
Carex ?*lambertiana*
Carex ?*ochrosaccus*
Collospermum hastatum
Cordyline australis
Cortaderia sp.*
Crocosmia ×crocosmiiflora *
Cyperus eragrostis *
Earina mucronata
Ehrharta erecta *
Freycinetia banksii
Hedychium gardnerianum *
Juncus tenuis *
Microlaena avenacea
Oplismenus hirtellus
Rhopalostylis sapida
Ripogonum scandens
Tradescantia fluminensis *
Zantedeschia aethiopica *

A Preliminary Account of the Lichens of Tuhua (Mayor Island)

Peter J. de Lange, Gillian M. Crowcroft, Theo J. de Lange, Finn J. de Lange

Introduction

Tuhua (Mayor Island), despite its large size (1277 ha), ease of access and long history of botanical investigation (see summary in Wilcox et al. 2012a) does not seem to have been seriously investigated by a lichenologist. Prior to the January 2012 Auckland Botanical Society Anniversary Weekend field trip there (see Wilcox et al. 2012a) we undertook an electronic survey of the three main New Zealand Herbaria (AK, CHR, WELT) to determine what lichens had been collected from there. Even when appreciating that not all of these herbaria's lichen collections have been electronically data based, only five lichen collections (representing four taxa, all held at AK, and all collected by A.E. Wright) were located.[1] Further, as Tuhua (Mayor Island) is not mentioned as a lichen locality in Galloway (1985, 2007); it seems "safe" for us to assume that the lichen mycobiota of Tuhua (Mayor Island) was, prior to our 2012 investigation, virtually unknown.

This article reports on the lichens we collected during two and half day's field work undertaken between the 27th and 30th January 2012. During that time we collected 170 packets of lichens. We also stress that our survey was not comprehensive, particularly as one of us (PdL) was also tasked by the Department of Conservation with surveying the island's bryophyte flora (de Lange et al. 2012a), while assisting with observations on the island's vascular flora and in collecting seaweeds as well (see Wilcox et al. 2012a; Wilcox et al. 2012b). Therefore, we tended to collect that which was "big and obvious", genera that we knew, or what looked to us "interesting".

Results

At the time of writing (17 September 2012) we recognise for Tuhua (Mayor Island) c.103 lichen taxa (see Appendix - noting that identifications of a few other "difficult" specimens are still pending) from 25 fungal families. Although our collections are in no way representative of the lichen diversity on the island the dominant families we collected were (in decreasing order): Parmeliaceae (28 taxa), Lobariaceae (17 taxa), Physciaceae (11 taxa) and Pannariaceae (eight taxa) which more or less reflects established patterns of lichen diversity in New Zealand (de Lange et al. 2012b). The two

[1] For the record the four lichens collected by Wright were an undetermined species of *Bacidia*, *Cladonia floerkeana*, *Pseudocyphellaria dissimilis* and *Ramalina celastri* (two collections). With the possible exception of the *Bacidia*, the rest are all common species typical of northern New Zealand coastal forest.