

according to past survey profiles (Pegman 1996), together with erosion of about 80 metres of the *Spinifex/Desmoschoenus* foredunes (this sand appears to have moved north according to the NZAM 2000 aerial photograph). Accelerating coastal erosion such as this can be caused by decreased sediment supply to the area and/or transportation of substrate away by sea currents (Williams 1977).

The sea is now starting to encroach on the fresh-water dune-slacks landward of the foredunes. As a result, the southern Whatipu coastal outline is now at approximately the same limit as the 1949 progradation front (NZAM 1949), and it is possible there may be imminent loss (or lagoon formation) of a major portion of the beach. Many of the dune-slack and bare sand

areas are below apparent sea level according to the 1996 survey profiles, so future storms and high tides could continue the process of sea invasion into these areas and result in widespread sand and vegetation loss. This was the fate of a similar beach (with extensive sand and lakes) at South Manukau Head, recorded as verbal tradition by Waiuku Maori (Smith 1878).

Fortunately many of the rare small plants at Whatipu such as *Eleocharis neozelandica*, *Schoenus nitens* (AK 228445), and *Schoenus concinnus* (AK 228444) reside mostly on the mid to northern Whatipu sands (Cameron & Pegman 1996) where they are protected (for now) by recent active net progradation there.

References

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Beech on Upper Harbour Drive, Greenhithe

Chris McKain

While looking for the distribution limits of the *Blechnum discolor* (piupiu) and *Litsea calicaris*, (mangeao), (previously not known to me on the North Shore), between 75 and 139 Upper Harbour Drive, in 1995, I found *Nothofagus truncata* (hard beech) close by. I was climbing towards the main road between the mangeao and piupiu area, rested against a single 'ricker' and was amazed to find it could be beech. The leaf sample confirmed it as hard beech.

I contacted the owner (who requests people not visit the property) and arranged for a closer look. I then found a huge *Metrosideros robusta*, (northern tree rata), still growing in this area.

Because of the tree rata, I carried out a possum monitor to determine whether any control is needed. While setting and checking the traps, it quickly became apparent just how diverse this piece of bush was. Fortunately, the monitor showed few possums were present. I wanted to explore the 11.5 ha property properly, and went back a fourth time to do a survey.

This area had been a Ngati Whatua settlement, prior to the Crown purchasing it as part of the large Mahurangi block, in the 1840s. Maori middens and other earth works show signs of early human presence, however on the whole it has remained untouched for some 60 years. Before the existing road was formed, the only vehicle access was by a coach track that followed this escarpment. Parts of this track are still visible. I suspect *Agathis australis* (kauri) was

scarce amongst the broad-leafed forest, so it was not cut over like the rest of the area.

The whole northern escarpment of Oruamo Creek is an *Alectryon excelsus* (titoki) and *Dysoxylum spectabile* (kohekohe) association forest. The vegetation changes noticeably as you move along the coast. This block is an exception, with the two main species, titoki and kohekohe, being uncommon. Another uncommon species is *Macropiper excelsum* (kawakawa). A few dwellings occupy the ridge, before the majority of the property descends towards a large bay with numerous mangroves (*Avicennia marina*), mapped as Sunset Bay. The bush contains one of the largest gullies of this escarpment, and in parts falls 40 m on *Phyllocladus trichomanoides* (tanekaha) and *Kunzea ericoides* (kanuka) covered 'drop off', before forming a *Dacrycarpus dacrydioides* (kaikikatea)-prominent mini flood plain.

Recent human impact on the upper area is evident as wide tracks (vehicle access) on the edge of the slopes. This modified area contains plants common to other parts of Greenhithe and the North Shore. Noticeable additions are the *Blechnum discolor* covering the banks and *Gahnia xanthocarpa* in abundance. I saw a sole 1.5 m *Pomaderris rugosa* on the edge of some ricker kauri. Also visible were *Brachyglottis kirkii* var. *angustior*, *Pittosporum cornifolium* and *Pimelea longifolia*.

Seven hard beech trees and a 1 m seedling were discovered initially, with a further six found on the opposing side of the ravine, slightly down stream. Other beech on the North Shore, grow on the south-facing side of banks, these 6 new ones are on a north-facing slope.

Growing around the beech is good-sized kauri, for regenerating forest. A large *Astelia* grows in abundance, which was identified by Ewen Cameron as *A. trinervia* with leaves up to 2.79 m. Also there are other kauri association plants like *Phebalium nudum*, *Corokia buddleioides*, and tanekaha. The odd *Pinus radiata* is also present and two *Dacrydium cupressinum* (rimu) along with seedlings. Rimu are

very rare naturally on the North Shore. So far I have only seen three natural in the Greenhithe area.

Weeds are a constant part of my work, and this property has its share. The main exotics of concern are, *Elaeagnus x reflexa*, *Hedychium gardnerianum*, *Acmena smithii*, *Eriobotrya japonica*, *Solanum mauritianum*, *Ligustrum lucidum*, and *Erigeron karvinskianus*. The elaeagnus is starting to climb up the tree rata, which may kill it before the possums do. Some program needs to be sought for the weed problem, to help the landowners keep this fine example of Waitemata coastal forest from being invaded by weeds.

Species list

Ferns and fern allies

Adiantum fulvum
Asplenium bulbiferum
Asplenium flaccidum
Asplenium oblongifolium
Asplenium polyodon
Blechnum chambersii
Blechnum discolor
Blechnum filiforme
Blechnum fraseri
Blechnum novae-zealandiae
Cyathea dealbata
Cyathea medullaris
Doodia australis
Gleichenia dicarpa
Hymenophyllum demissum
Lastreopsis hispida
Lycopodium cernuum
Lycopodium deuterodensum
Lycopodium volubile
Lygodium articulatum
Microsorium pustulatum
Microsorium scandens
Paesia scaberula
Pneumatopteris pennigera
Pteridium esculentum
Pteris macilentia
Tmesipteris sp.

Gymnosperms

Agathis australis
Dacrycarpus dacrydioides
Dacrydium cupressinum
Phyllocladus trichomanoides
 **Pinus radiata*
Prumnopitys ferruginea

Dicots

**Acacia mearnsii*
 **Acmena smithii*
 **Ageratina riparia*
Alectryon excelsus
Alseuosmia macrophylla
Avicennia marina
Beilschmiedia tawa
Brachyglottis repanda

Brachyglottis kirkii var. *angustior*
Calystegia sp. (no flower)
Carmichaelia australis
Carpodetus serratus
Centella uniflora
 **Cestrum nocturnum*
 **Cirsium vulgare*
Clematis paniculata
Coprosma grandifolia
Coprosma lucida
Coprosma rhamnoides
Coprosma robusta
Coprosma spathulata
Corokia buddleioides
Coronopus didymus
Corynocarpus laevigatus
Dracophyllum sinclairii
Dysoxylum spectabile
 **Elaeagnus x reflexa*
Elaeocarpus dentatus
 **Erigeron karvinskianus*
 **Eriobotrya japonica*
 **Euonymus japonicus*
Geniostoma rupestre
 **Gnaphalium simplicicaule*
Gonocarpus incanus
Griselinia lucida
 **Hakea salicifolia*
 **Hakea sericea*
Haloragis erecta
Hebe stricta
Hedycarya arborea
 **Impatiens sodenii*
Knightia excelsa
Kunzea ericoides
Laurelia novae-zealandiae
Leptospermum scoparium
Leucopogon fasciculatus
 **Ligustrum lucidum*
 **Ligustrum sinense*
Litsea calicularis
 **Lonicera japonica*
 **Lotus pedunculatus*
Macropiper excelsum
Melicetytus ramiflorus

Metrosideros robusta
Metrosideros excelsa
Metrosideros fulgens
Metrosideros perforata
Muehlenbeckia australis
Myoporum laetum
Myrsine australis
Myrsine salicina
Nertera depressa
Nestegis lanceolata
Nothofagus truncata
Olearia rani
 **Paraserianthes lophantha*
Parsonsia heterophylla
 **Passiflora mollissima*
Passiflora tetrandra
Phebalium nudum
Pittosporum cornifolium
Pittosporum tenuifolium
 **Plantago lanceolata*
Pomaderris kumeraho
Pomaderris rugosa
Pimelea longifolia
Prunella vulgaris
Pseudopanax aboreus
Pseudopanax crassifolius
Pseudopanax lessonii
Rhabdothamnus solandri
Rubus australis
 **Rubus fruticosus* agg.
Rubus schmidelioides
 **Rununculus repens*
Schefflera digitata
 **Senecio bipinnatisectus*
 **Senecio jacobaea*
Solanum americanum
 **Solanum mauritianum*
Sophora chathamica
 **Thunbergia alata*
Toronia toru
 **Trifolium repens*
 **Ulex europaeus*
Vitex lucens
Weinmannia silvicola

Monocots (excl. orchids & grasses)

**Asparagus scandens*
Astelia banksii
Astelia trinervia
Carex dissita
Collospermum hastatum
Cordyline australis
 **Cyperus eragrostis*
Cyperus ustulatus
Dianella nigra
Freyinetia banksii
Gahnia lacera
Gahnia setifolia
Gahnia xanthocarpa
 **Gladiolus undulatus*
 **Hedychium gardnerianum*
 **Juncus effusus*
Lepidosperma laterale
Leptocarpus similis
Morelotia affinis
 **Phoenix canariensis*
Phormium tenax
Rhopalostylis sapida
Ripogonum scandens
Schoenus tendo
 **Tradescantia fluminensis*
Typha orientalis
Uncinia uncinata
 **Zantedeschia aethiopica*

Orchids

Acianthus sinclairii
Pterostylis banksii
Pterostylis trullifolia

Grasses

Austrostipa stipoides
 **Cortaderia jubata*
 **Cynodon dactylon*
 **Dactylis glomerata*
Oplismenus hirtellus
 **Paspalum urvillei*
 **Pennisetum clandestinum*

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References

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