ζ* *Verbena offcinalis*	vervain	R	
ζ *W. littoricola* subsp. *vernicosa*	harebell	R	AK 232806
ζ *Wahlenbergia violacea*	harebell	S	

Total Taxa: 492 spp. and hybrids

Clarks Beach and Waiau Pa
Indigenous Vascular Plants – 1 November 1999

Steve Benham

Clarks Beach lies on the southern shores of the Manukau Harbour surrounded by water on the north, south and west. I have included for the purpose of these notes the coastal margins from Camp Morley on the north facing shore, east of the Clarks Beach township to the Waiau Pa Wharf settlement on the south side. The southern side is influenced by the Taihiki River estuary. The area of coastline surveyed is approximately 5 km in length and 0.5 km at the widest point.

Several taxa are very sparsely represented and indicate a biota in rapid decline. This decline is evidence of an extremely modified habitat brought about by a land area with a long history of Maori and European settlement. There appears to be no vestige of native vegetation surviving inland from the coast. This area is either being farmed, used for leisure activities or has been urbanised. Fortunately the western tip of the peninsular is occupied by a golf course and motor camp, alleviating somewhat the human pressures brought about by the otherwise high density housing.

Within this relatively small area there are several habitats varying from pohutukawa fringed cliffs, dune trapped seepages, tidal mangrove 'forests', saltmarsh communities, esplanade reserves and exotic pine plantations.

Observations for this survey start at Camp Morley, which is a relatively rural area bordered by farmland. A windbreak of radiata pine (*Pinus radiata*) slopes gently down before reaching a damp seepage enclave with rafts of oioi - *Apodasmia similis.* As well, *Baumea articulata,* together with *Plagianthus divaricatus, Muehlenbeckia complexa, Typha orientalis, Cyperus ustulatus,* several ti kouka - *Cordyline australis,* with perhaps the most significant being the two sole remaining manuka (*Leptospermum scoparium*) plants in Clarks Beach/Waiau Pa. Within the high water zone an area of the noxious halophytic *Spartina alternifolia* has established. In the publication 'Memoirs of Clarks Beach' 1925-1992 by Phil Fausett, it is mentioned that in 1925 there were paddocks of 'tea tree' between the present Stevenson and Torkar Roads. Within the dryness of the pine plantation there was one colony of *Doodia australis,* several regenerating *Coprosma robusta, Corynocarpus laevigatus* and *Myrsine australis* together with larger specimens of *Leucopogon fasciculatus, Macropiper excelsum, Pittosporum crassifolium* and a single specimen of *Asplenium flaccidum* within the crotch of a triple leader pine. Moving out from this plantation and walking west, we see the first subdivisions that occur on Crispe Road, with a deep watercourse between two properties where naturally occurring *Cyathea dealbata, Dicksonia squarrosa* and *Melicytus ramiflorus* remain. These subdivisions continue along Torkar Road almost down to the Clarks Beach boat ramp at the tip of the peninsular. The varied landforms in this stretch allow properties to garden to the high water mark or where there are cliffs to the edge, with environmental weeds spreading down the cliff faces, and nearer to the boat ramp there is an area of esplanade reserve. Low 'white' cliffs of rhyolitic sediment, consisting of rhyolitic ash and alluvium brought down by the Waikato River appear at the beginning of Torkar Road. In several areas these 10-12m. high cliffs are suffering from severe erosion exposing carbonised timber engulfed by the sediments. The cliff tops are fringed with pohutukawas - *Metrosideros excelsa.*

A single specimen of *Lobelia anceps* was found to be clinging tenaciously to a wet seepage on the cliff with *Coprosma repens* enjoying the dryness under the pohutukawa canopy. Thickets of the fabaceous adventive *Paraserianthes lophantha* are to be found on these cliffs.

Near to Halls Walkway the land falls back to sea level and the most abundant taxa are *Metrosideros excelsa* and *Pittosporum crassifolium* together with an area of harakeke - *Phormium tenax* which is competing with the noxious *Ipomoea indica* vine. Past Wilsons Walkway there are some large karaka - *Corynocarpus laevigatus* surviving with *Muehlenbeckia complexa* on low cliffs behind some of the original baches and newer properties and amongst the pohutukawas. The cliffs continue, but nearer the sea, where *Astelia banksii, Microsorum*

pustulatum and *Pyrrosia eleagnifolia* epiphytically cling to the large pohutukawas with a few clumps of *Adiantum cunninghamii*, *Carex testacea*, *Doodia australis*, *Geniostoma ligustrifolium*, *Myrsine australis* and *Olearia furfuracea* grow beneath. Nearby is a mature and layered *Hebe speciosa* growing on the roots of pohutukawa. Introduced?

The remaining cliffs leading to the peninsular tip are home to some remarkable and venerable pohutukawas, one specimen in particular is noted for its thick wads of aerial roots. These trees are interspersed with *Cupressus macrocarpa* which are due for removal when the pohutukawas which are planted behind are larger enough to fill the gaps.

Thirty metres from the cliff edge there is an elderly specimen of puriri - *Vitex lucens* whose trunk has almost been naturally 'grafted' with a pohutukawa. This was the site of the original Clarks farmhouse.

Several clumps of *Stipa stipoides* occur on the esplanade above the high water. This survey now carries on and along the southern coast bordered by the Clarks Beach Motor Camp and Golf Course. This area merges into the tidal estuary of the Taihiki River where substantial mangrove 'forests' have established and smaller areas of saltmarsh plant communities can be found.

The motorcamp cliffs are fringed mainly with *Cupressus macrocarpa* but provide tolerable habitats for *Tetragonia trigyna* in abundance with a few *Stipa stipoides*, *Myrsine australis* and *Muehlenbeckia complexa*. The occasional pohutukawa act as hosts for *Asplenium flaccidum*, *A. oblongifolium*, *A. polyodon*, *Astelia banksii*, *Microsorum pustulatum* and *Pyrrosia eleagnifolia*.

The entire coastline of the golf course is bordered with the most amazing old pohutukawa trees with the occasional natural hybrid interspersed. This area is known as Ngahere Bay (Tii ngahere = *Cordyline banksii*). Under one particular tree there is a patch of *Pyrrosia eleagnifolia* covering several square metres. Below and on the muddy substrate covered by all tides the salt-loving (halophytes) such as the common tiny sedge *Isolepis cernua*, *Sarcocornia quinqueflora*, and *Samolus repens* the sole NZ. member of the Primulaceae family are in abundance.

Protruding out of the low cliff and partly submerged in the tidal muds is a well preserved and obviously ancient and substantial tree bole measuring 1.8 m across. Close by and in the crotch of a pohutukawa is the largest clump of the sickle spleenwort - *Asplenium polyodon* along this stretch of coast. There are many native species planted in this area including a lone kauri - *Agathis australis*, said to have originated as a seedling from an 'original' tree (pers comm. P. Fausett). Competing with exotic grasses are plants of *Doodia australis*, *Carex testacea* and *Haloragis erecta*.

The shore is densely populated with *Avicennia marina* and within this area between the mangroves and the shallow cliff there is a substantial area of *Plagianthus divaricatus*, *Apodasmia similis*, *Lepidosperma laterale* and the exotic *Spartium alternifolia*, before reaching a more open habitat for *Stipa stipoides*. This flat terrain has several streams draining off the golf course and the only plants on this southern shore of *Baumea articulata* occur here. At the end of October these plants were in flower and each panicle appeared to have either all staminate or pistillate flowers. *Apium prostratum*, *Triglochin striata* and *Cotula coronopifolia* were to be found on the raised sediments.

Beyond Ngahere Bay the golf course has relatively high cliffs colonised by *Pteridium esculentum*, several plants of *Hebe stricta*, *Olearia furfuracea*, *Griselinia lucida* and *Dianella nigra*. The aerial roots on several pohutukawas measured 5 m in length. Within a sheltered cliff enclave *Cyathea dealbata*, *Leucopogon fasciculatus*, *Geniostoma ligustrifolium*, *Astelia banksii*, *Asplenium oblongifolium* and *Dichondra repens* survive as remnants with nowhere else to go to.

Opposite the mangroves and on the 2 m high cliffs there is an assortment of naturally occurring *Metrosideros* hybrids, probably F2 hybrid generation rata *Metrosideros robusta*. The largest tree measured 234 cm dbh and 8-9 m high. An eroding Maori shell midden protrudes from the cliff. Herbarium voucher specimens were recently collected and lodged at the AK Herbarium.

Immediately before Waiau Beach there is a small radiata pine plantation with an abundance of *Dianella nigra*, *Geniostoma ligustrifolium*, *Phormium tenax* and the occasional *Cyathea medullaris*. A single plant of *Gahnia*, tentatively identified as *G. setifolia* was in direct competition with thickets of a small-leaved *Acacia* species and a white form of the South African *Dipogon lignosus* vine. On the sandy shoreline, *Suaeda novae-zelandiae* plants belonging to the Chenopodiaceae flourished.

These notes on the botany of Clarks Beach/Waiau Pa are by no means an exhaustive account of this remnant of lowland coastal vegetation but it is intended as a pre-cursor of a more thorough botanical survey and as a historical record. Throughout these notes there are references to adventive taxa, but to list them all would require

another and much more extensive article. In the near future it is envisaged that a beachcare group will be established in Clarks Beach and Waiau Pa Wharf to help with the urgently needed ecological restoration.

Addendum 11/11/1999: Three plants of the less abundant *Tetragonia tetragonioides* have since been located on the north-facing beach at Clarks Beach. To my knowledge these are the only three plants in this area of Clarks Beach and Waiau Pa. One fruiting plant, 35 cm in diameter, with its characteristic angled, horned fruit was found on the coastal sands, washed at high tide and adjacent to the Wiksons Walkway. The two smaller plants were approximately 80 m away. The more abundant *Tetragonia trigyna* differs from *Tetragonia tetragonioides* in having succulent, globose fruits with no horns. This area has recently undergone disturbance caused by the construction of a sea defence wall. Could the seed have been lying dormant from a previous population and brought to the surface by this construction work, or is it a garden escape?

Indigenous Vascular Plant List of Clarks Beach and Waiau Pa.

Adiantum cunninghamii
Apium prostratum
Apodasmia similis
Asplenium flaccidum
Asplenium oblongifolium
Asplenium polyodon
Astelia banksii
Avicennia marina
Baumea articulata
Carex testacea
Coprosma repens
Coprosma robusta
Cordyline australis
Corynocarpus laevigatus
Cotula coronopifolia
Cyathea dealbata
Cyathea medullaris
Cyperus ustulatus
Dianella nigra
Dichondra repens
Dicksonia squarrosa
Doodia media
Gahnia ?setifolia
Geniostoma ligustrifolium
Griselinia lucida
Haloragis erecta
Hebe stricta
Isolepis cernua
Juncus maritimus var. *australiensis*
Leptospermum scoparium
Leucopogon fasciculatus
Lepidosperma laterale
Lobelia anceps
Macropiper excelsum
Melicytus ramiflorus
Metrosideros excelsa
Microsorum pustulatum
Muehlenbeckia complexa
Myrsine australis
Olearia furfuracea
Oplismenus imbecillis
Phormium tenax
Pittosporum crassifolium
Plagianthus divaricatus
Pteridium esculentum
Pyrrosia eleagnifolia
Samolus repens
Sarcocornia quinqueflora
Selliera radicans
Stipa stipoides
Suaeda novae-zelandiae
Tetragonia trigyna
Triglochin striatum
Typha orientalis
Vitex lucens

Queensland kauri (*Agathis robusta*) in Auckland

E.K. Cameron

Introduction

Australian native members of the primitive conifer family, Araucariaceae, are in three genera: *Agathis* spp. (*A. atropurpurea, A. microstachya, A. robusta*), two *Araucaria* spp. (*A. bidwillii, A. cunninghamii*) and *Wollemia nobilis*. New Zealand's only member (excluding the fossil record) is kauri (*Agathis australis*). Queensland kauri (*Agathis robusta*) is confined to two separate areas of Queensland rainforest: Cook and Kennedy districts of northern Queensland, and at Wide Bay, south-eastern Queensland (Hill 1998). All the older specimens cultivated in New Zealand come from the more southern population and can be recognised by their smaller catkins; and trees by Auckland's southern motorway and the one at View Road have longer catkins and are probably from northern Queensland (G.C. Platt pers. comm., and from his talk to Auckland Bot. Soc. in May 1999). [From Platt: fresh catkins <5 cm long are from south Queensland, 8-9 cm are from northern Queensland.] With their smooth grey trunks, towering heights, Queensland kauri are among the most magnificent trees in Auckland. They are especially prominent in Epsom and in the Auckland Domain.

Tree at Diocesan School threatened with removal

Auckland City Council received an application for a resource consent under the Resource Management Act from Diocesan School for Girls to remove a scheduled 41 m tall Queensland kauri from their grounds in Epsom. The school wants the tree removed because it over-hangs a school path and some branches have fallen in the past. In August 1999 the Auckland Bot. Soc. was invited to make a submission (along with others interested parties), which we have done, opposing the proposal. At the time of writing the hearing has yet to be scheduled. To gauge the importance of this tree I checked out and measured the circumference and estimated the height of all the other old Queensland kauri around Auckland. A total of 16 trees (see Appendix 1).