

Field trip to Awhitu Regional Park's wetlands, 21 April 2018

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Participants: Tricia Aspin (leader), Lisa Clapperton, Frances Duff, Philip Moll, Joshua Salter, Chevelle Sands, Sam Sutherland, Val Tomlinson, Alison Wesley, Elizabeth Walker, Ian Whitehouse, Maureen Young. All photos taken on 21 April 2018 by Phillip Moll (PM), Joshua Salter (JS) and Chevelle Sands (CS).

Awhitu Regional Park is 116 ha and comprises areas of working farmland, pine plantations, regenerating bush slopes, wetlands, harbourside vegetation, salt meadows and many planted areas. The land was purchased by the Auckland Regional Authority in 1971 and plantings began soon after. The official opening was not until 1975. The Brook family took up the land in 1869 and son, Frank, had a particular interest in trees and planted many exotics as well as natives. It became a tradition to plant a kauri (*Agathis australis*) to mark a family event. The north-western section of the park has been leased by the Awhitu Golf Club since 1980. In all it is an area providing a wide diversity of plant communities in a controlled situation (Aspin 2008).

Time limited how much of the Park we could cover and so our aim was to explore the two main wetlands and also note some of the original Brook plantings in passing (see Appendix). Many of these original trees are still in existence.

We began by taking the walkway from the main carpark noting numerous kingfisher nesting-holes in the bank before looking at the salt marsh below. Since the removal of the floodgate the whole of the flat area becomes flooded with salt water on the highest tides, and many salt marsh species and mangroves (*Avicennia marina*) have established in what was once drained pastureland. The recent very high king tides saw the whole of this regenerating wetland inundated with salt water (Fig. 1). Species noted here along with mangroves were oioi (*Apodasmia similis*), *Machaerina juncea*, *Juncus kraussii*, *Plagianthus divaricatus*, *Selliera radicans*, *Samolus repens*, *Triglochin striata*, and along the base of the wooded slope a few *Lobelia anceps* with an occasional flower (Fig. 2).

We walked along the causeway fringed with planted flax (*Phormium tenax*), pohutukawa (*Metrosideros excelsa*) and cabbage trees (*Cordyline australis*). The original ngaio (*Myoporum laetum*) has succumbed to the salt water and only a small one remains. From here we could glimpse Kauritutahi Island, formerly known as Brook's Island and botanised by Ewen Cameron 22 years ago while on a Cub Camp (Cameron 1996) (Fig. 3). Instead of

venturing along the beach we then negotiated the still-flooded track behind the shore dune to cross the first major wetland (Fig. 4). On the beach side was much *Machaerina juncea* and occasional *Ficinia nodosa* intertwined with *Muehlenbeckia complexa*. Noted were occasional bachelor's buttons (*Cotula coronopifolia*) and the exotic buck's horn plantain (*Plantago coronopus*). As gumboots were the order of the day we could venture through patches of *Juncus kraussii* into the main saltmarsh area and observe large areas colonised by glasswort (*Salicornia quinqueflora*). It was commented that the presence of this species indicates the limit of the highest tides (Fig. 5). *Samolus repens* and *Selliera radicans* are still present here but seem in less quantity than prior to so much flooding by salt water (P. Aspin pers. obs.) (Fig. 6). Further inland nearer the old fenceline, swathes of oioi appeared golden-hued in contrast (Fig. 7).

Staying within the reach of the wetland we took the track leading below the slope down from the homestead area. In from the beginning of the track and away from salt water influence was a patch of *Cyperus ustulatus* and along here we sheltered from a shower of rain while observing some of the Brook plantings. Of interest was the red stringybark eucalypt (*Eucalyptus macrorrhynca*). Mike Wilcox identified this species several years ago and said that it is an inland species seldom seen in New Zealand. Of note trackside was a large specimen of swamp cutty grass (*Gahnia xanthocarpa*) which provided some shelter from the last of the rain drops (Fig. 8). Several *Dianella latissima* were of interest with extra-long leaf blades (Fig. 9). On either side both tangle fern species, *Gleichenia dicarpa* and *D. microphylla*, were present. *Gleichenia dicarpa* was distinguished by the rounded, pouched segments and paired sporangia on the undersides of the pinnae, in contrast to the mostly silver-backed flat pinnae of *D. microphylla* which had a few yellow sporangia still present. Swamp millet (*Isachne globosa*), intermingled with *Centella uniflora*, was here also. Bracken fern (*Pteridium esculentum*), rasp fern (*Doodia australis*) and *Pteris tremula* were present on the slope side. Apart from the large kauri and natural regeneration (e.g. *Geniostoma ligustrifolium*, *Leucopogon fasciculatus* and *Myrsine australis*) most of the large trees along here, including kahikatea (*Dacrycarpus dacrydioides*) and rewarewa (*Knightia excelsa*), are part of the original Park plantings from the 1970s. Alison noted a mahoe sapling on the south side and identified it as the large-leaved mahoe (*Melicactus macrophylla*). There were three here, the largest being approximately 2 m tall. It could be assumed that they have been part of some

later plantings along with *Pittosporum eugeniioides*, *Coprosma lucida* and *C. robusta*, as *M. macrophylla* is previously unrecorded in the Awhitu District (cf. Aspin 2008).

We took the mown side track leading deep into the regenerating wetland and more ferns became notable. We observed *Blechnum minus* with many upright fertile fronds, *Cyathea dealbata*, *C. medullaris*, *Deparia petersenii*, *Dicksonia squarrosa*, *Diplazium australe*, *Histiopteris incisa*, *Hiya* (*Hypolepis*) *distans*¹, *Hypolepis ambigua* and *Paesia scaberula*. Of special note was the abundance of *Hiya distans*. Although known in several Awhitu wetlands this regenerating area is proving to be a stronghold for the species (Fig. 10).

Returning along the track Chevelle noted a large dark brownish/black caterpillar with rows of spots along its body nestled among the mown grass. Subject of much interest we thought it could be that of the Convolvulus Hawk Moth (*Agrius convolvuli*), known to be in the Park, but it had no spur on the tail end (Fig. 11). Josh and I later identified it (from the internet) as the caterpillar of one of the armyworm (*Spodoptera*) species and the life-size illustration in "Which New Zealand Insect?" (Crowe 2005) confirms it as the exotic self-introduced tropical armyworm (*S. litura*). Armyworm is known to have been a pest in the Awhitu District in the past (P. Aspin pers. comm.).

By now it was time for lunch and we continued up the track to the campground area. On entering the homestead section we saw that one of the old original macrocarpa trees (*Cupressus macrocarpa*) had partially succumbed to the ravages of the recent severe storm in the Auckland Region. Fortunately the renowned giant one had weathered the winds and we gathered underneath for a group photo (Fig. 12). We lunched on the verandah of the historic Brook homestead (Fig. 13) and observed more original Brook plantings including the hedgerow of very tall Lawson's cypress (*Chamaecyparis lawsoniana*), an Italian cypress (*Cupressus sempervirens* 'Stricta'), a camellia (*Camellia japonica*) and a tall nikau (*Rhopalostylis sapida*). Contrary to what one would believe from information in the Awhitu Regional Park brochure, the Japanese cedars (*Crytomeria japonica*) were not part of the original Brook plantings but were put in during the layout of the 1970s (P. Aspin pers. obs.).

The second, more southern wetland is in marked contrast, with much less salt water influence, apart from the tidal creek, and has regenerated with the

more usual freshwater species. The inland fringes were extensively planted with kahikatea (*Dacrycarpus dacrydioides*) in the 1970s and the areas along the shoreline more recently with manuka (*Leptospermum scoparium*). After crossing the bridge (hoping to hear fernbirds among the *Plagianthus divaricatus* here) we took the track through the manuka and then went inland across towards the base of Lookout Hill. We noted the bright green of *Isolepis prolifera* in the drains on both sides of the walkway. As this wetland is impenetrable we explored along a drier finger of manuka which enabled us to observe the main species more closely. *Machaerina rubiginosa* and *Carex virgata* were noted and a large area of *M. articulata* was deeper in the wetland. Of concern was the large area of choking gypsywort (*Lycopus europaeus*) preventing the establishment of more desirable native species.

We left the track and headed uphill to the lookout which gave good views back to the wetland, Kauritutahi Island and across the Manukau Harbour to Auckland City (Fig. 14).

To head back we took the track down through "The Valley of the Settlers", an area planted out in 2004 to commemorate 150 years since the arrival of European settlers to the Awhitu District. Groves of kauri representing the small schools of the area were planted by descendants of the original families. At the base of the slope the lead-in valleys of the southern wetland were observed west of the metal track as we crossed the head of the wetland. Dense swathes of *Machaerina rubiginosa* and raupo (*Typha orientalis*) were dominant.

We then crossed paddocks to enter the small foot track on the southern side of the lake formed by damming the natural waterway in the late 1980s. Wetland species noted included *Isachne globosa* and reedbeds of *Eleocharis sphacelata* (Fig. 15), and a large patch of *Deparia petersenii* was noted at the head of the lake (Fig. 16). Flax and cabbage trees were common plantings along the lake shore (Fig. 17). The track on the northern side is above the shoreline through a variety of trees with many ferns regenerating underneath. The small herb *Hydrocotyle elongata* was noted on the northern side (as well as the exotic *H. tripartita* on the mown section). Near the eastern end of the track *Coprosma crassifolia*, a small-leaved species with whitish undersides (Fig. 18), was of interest. This species, not known to occur naturally in the Awhitu District, was part of the lakeside plantings and has now naturalised in close proximity to the original specimens.

The road from the carpark crosses the dam and we looked at the fish ladder on the harbour side and then were fascinated by the 'tame' longfin eels at the small ramp on the SE edge of the lake (Fig. 19). We

Footnote 1: The fern so familiar to us as *Hypolepis distans* has been renamed *Hiya distans*, because research has shown it to be closer to tropical species in the genus *Hiya*, than to other New Zealand species of *Hypolepis* (Perrie et al. 2018).



Figs. 1-11: **1.** Regenerating wetland featuring the salt-tolerant species *Apodasmia similis*, *Juncus kraussii* and mangroves. Photo: JS. **2.** *Lobelia anceps* in flower below the wooded slope on the edge of the wetland. Photo: PM. **3.** View out to Kauritutahi Island from the walkway. Photo: JS. **4.** The walkway across the wetland towards the homestead was still flooded from the recent high tides. Photo: PM. **5.** Dense beds of *Salicornia quinqueflora* and looking inland beyond the old fenceline. Photo: JS. **6.** *Juncus kraussii* and bright green *Selliera radicans* fronted by blue-green *Salicornia quinqueflora*. Photo: JS. **7.** The golden hues of *Apodasmia similis* are in contrast to the dull *Juncus kraussii* and mangroves begin to colonise the original farm drains now that high tides reach far inland. Photo: PM. **8.** *Gahnia xanthocarpa* provides a little shelter from the last of the rain. Photo: JS. **9.** Lisa shows the extraordinary length of a leaf blade of *Dianella latissima*. Photo: JS. **10.** The abundance of the fern, *Hiya distans*, is a strong feature at Awhitu Park. Photo: JS. **11.** The large caterpillar spotted by Chevelle was later identified as that of the tropical army worm. Caterpillar (approx. 5 cm long) posing on Val's sleeve. Photo: JS.



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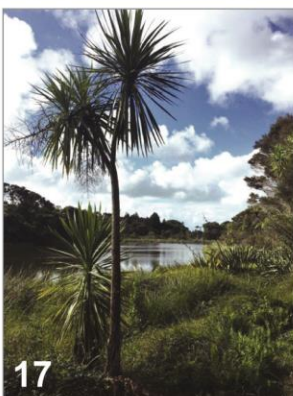
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Figs. 12-19: **12.** Our group under the large macrocarpa near Brook's Homestead. Photo: CS using Philip Moll's camera. **13.** Lunchtime in relative comfort on the verandah of Brook's Homestead. Photo: JS. **14.** Looking north-east, back across the second wetland and the Manukau Harbour to Auckland City, on the way up to the lookout. Photo: JS. **15.** Looking to the wooded north side of the lake across beds of *Elaecharis sphacelata* intertwined with *Isachne globosa*. Photo: JS. **16.** Tree ferns and *Deparia petersenii* at the head of the lake. Photo: JS. **17.** Looking eastwards down from the head of the lake. Photo: CS. **18.** Two domatia show on the whitish undersides of the small leaves of *Coprosma crassifolia*. Photo: JS. **19.** Longfin eels gather at the SE end of the lake. Note also the mats of the exotic bladderwort, *Utricularia gibba*. Photo: JS.

were unable to judge the length of the fins, but they were identified by the mouth extending past the eye, and the inner curve of the bent body forming wrinkles – features of the longfin (McDowall 2000). Notable here too, were tangled mats of *Utricularia gibba* accumulated near the water's edge. This exotic species had been recorded in a neighbouring farm dam in 2011 (AK 326702) where it was presumed to

have been introduced by waterfowl. A short walk back up to the carpark completed the day's circuit.

Birds noted were fantail, harrier hawk, pied oystercatcher, tui, waxeye, white-faced heron.

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References:

- Aspin, P.A. 2008: *Maoro to Manukau Heads*. Tricia Aspin, Waiuku. 208p.
 Cameron, E.K. 1996: Flora of Kauritūhā Island, Awhitu. *Auckland Botanical Society Journal* 51: 34-36.
 Crowe, Andrew 2005: *Which New Zealand Insect?* Penguin Books (NZ).
 McDowall, R.M. 2000: *The Reed Field Guide to New Zealand Freshwater Fishes*. Reed Books, Auckland. 224p.
 Perrie, L.R.; Shepherd, L.D.; Brownsey, P.J. 2018: *Hiya distans* (Dennstaedtiaceae), a new combination for an Australasian fern previously classified in *Hypolepis*. *New Zealand Journal of Botany*. DOI: 10.1080/0028825X.2018.1526807 [currently only available online].

Appendix: Vascular plants species list (native only): Awhitu Regional Park (including adjoining beach and road frontages). See NZ Topo50 BB31 467939. Records from P.A. Aspin, July 2010, and a few from Shona Myers in 2003. List compiled from plants naturally occurring in the region (N), those planted by the Brook family (B) and by the ARC from 1973 onwards (A). Many planted species are now naturalised.

ABS = those added by Auckland Botanical Society, April 2018

◆ = only known in the Awhitu Ecological District from planted material

LYCOPODS and FERNS				DICOTYLEDONS	
<i>Adiantum cunninghamii</i>	N	<i>Lycopodium</i>	N	<i>Alectryon excelsus</i>	A
<i>Adiantum hispidulum</i>	N	<i>deuterodensum</i>		<i>Apium prostratum</i> var.	N
<i>Asplenium flaccidum</i>	N	<i>Lycopodium volubile</i>	N	<i>prostratum</i>	
<i>Asplenium oblongifolium</i>	N	<i>Microsorium pustulatum</i>	N	<i>Avicennia marina</i>	N
<i>Asplenium polyodon</i>	ABS	<i>Microsorium scandens</i>	N	<i>Beilschmiedia tarairi</i>	A
<i>Blechnum filiforme</i>	N	<i>Paesia scaberula</i>	N	<i>Beilschmiedia tawa</i>	A
<i>Blechnum novae-zelandiae</i>	N	<i>Pneumatopteris pennigera</i>	N	<i>Brachyglottis repanda</i>	A
(incl. <i>B. minus</i>)		<i>Pteridium esculentum</i>	N	<i>Calystegia sepium</i> subsp.	N
<i>Cyathea dealbata</i>	N	<i>Pteris macilenta</i>	N	<i>roseata</i>	
<i>Cyathea medullaris</i>	N	<i>Pteris tremula</i>	N	<i>Calystegia sepium</i> ×	N
<i>Deparia petersenii</i>	N	<i>Pyrrosia elaeagnifolia</i>	N	? <i>C. tuguriorum</i>	
<i>Dicksonia squarrosa</i>	N	<i>Rumohra adiantiformis</i>	N	<i>Calystegia soldanella</i>	N
<i>Diplazium australe</i>	ABS	GYMNOSPERMS		<i>Cardamine debilis</i>	N
<i>Doodia australis</i>	N	<i>Agathis australis</i>	B, A	<i>Carpodetus serratus</i>	A
<i>Gleichenia dicarpa</i>	N	<i>Dacrydium cupressinum</i>	B, A	<i>Centella uniflora</i>	N
<i>Gleichenia microphylla</i>	ABS	<i>Dacrycarpus dacrydioides</i>	A	<i>Coprosma arborea</i>	ABS
<i>Histiopteris incisa</i>	N	<i>Halocarpus kirkii</i> ◆	A	<i>Coprosma crassifolia</i> ◆	A
<i>Hiya distans</i>	N	<i>Libocedrus plumosa</i>	A	<i>Coprosma ?foetidissima</i> ◆	A
<i>Hypolepis ambigua</i>	ABS	<i>Phyllocladus</i>	B, A	<i>Coprosma lucida</i>	A
<i>Lastreopsis hispida</i>	N	<i>trichomanoides</i>		<i>Coprosma macrocarpa</i>	ABS
<i>Lycopodiella cernua</i>	N	<i>Podocarpus totara</i>	B, A	<i>Coprosma repens</i>	A
		<i>Prumnopitys ferrugineus</i>	A	<i>Coprosma rhamnoides</i>	N

<i>Coprosma robusta</i>	N, A	<i>Olearia furfuracea</i>	N	<i>Dianella latissima</i>	ABS
<i>Coprosma tenuicaulis</i>	N	<i>Olearia traversiorum</i> ♦	A	<i>Dianella nigra</i>	N
<i>Coprosma</i> sp. x 2	A	<i>Oxalis exilis</i>	N	<i>Dichelachne crinata</i>	N
<i>Corokia cotoneaster</i>	A	<i>Parsonsia heterophylla</i>	N	<i>Eleocharis acuta</i>	N
<i>Corynocarpus laevigatus</i>	A	<i>Persicaria decipiens</i>	N	<i>Eleocharis sphacelata</i>	N
<i>Cotula coronopifolia</i>	N	<i>Piper exelsum</i>	N	<i>Ficinia nodosa</i>	N
<i>Dichondra repens</i>	N	<i>Pittosporum crassifolium</i>	A	<i>Gahnia lacera</i>	N
<i>Dodonaea viscosa</i>	A	<i>Pittosporum eugenioides</i>	A	<i>Gahnia xanthocarpa</i>	ABS
<i>Dysoxylum spectabile</i>	A	<i>Pittosporum ralphii</i> ♦	A	<i>Gastrodia sesamoides</i>	N
<i>Entelea arborescens</i>	A	<i>Pittosporum tenuifolium</i>	A	<i>Isachne globosa</i>	N
<i>Epilobium pallidiflorum</i>	N	<i>Plagianthus divaricatus</i>	N	<i>Isolepis prolifera</i>	N
<i>Geniostoma ligustrifolium</i>	N	<i>Planchonella costata</i>	A	<i>Isolepis reticularis</i>	ABS
<i>Gonocarpus incanus</i>	N	<i>Pomaderris amoena</i>	N	<i>Juncus australis</i>	N
<i>Gonocarpus micranthus</i>	ABS	<i>Pseudopanax arboreus</i>	A	<i>Juncus edgariae</i>	N
<i>Griselinia littoralis</i>	A	<i>Pseudopanax crassifolius</i>	A	<i>Juncus kraussii</i>	N
<i>Haloragis erecta</i>	N	<i>Pseudopanax lessonii</i>	A	<i>Juncus pallidus</i>	N
<i>Hebe macrocarpa</i>	N	<i>Salicornia quinqueflora</i>	N	<i>Juncus planifolius</i>	N
<i>Hebe stricta</i>	A	<i>Samolus repens</i>	ABS	<i>Lachnagrostis billardierei</i>	N
<i>Hebe</i> sp.	A	<i>Schefflera digitata</i>	A	<i>Lepidosperma australe</i>	N
<i>Hedycarya arborea</i>	A	<i>Selliera radicans</i>	N	<i>Lepidosperma laterale</i>	N
<i>Hoheria populnea</i>	A	<i>Spergularia marina</i>	N	<i>Libertia grandiflora</i>	N
<i>Hydrocotyle dissecta</i>	N	<i>Solanum americanum</i>	N	<i>Machaerina articulata</i>	N
<i>Hydrocotyle elongata</i>	ABS	<i>Sophora chathamica</i>	B	<i>Machaerina juncea</i>	N
<i>Knightia excelsa</i>	B, A	<i>Suaeda novae-zelandiae</i>	N	<i>Machaerina rubiginosa</i>	N
<i>Kunzea robusta</i>	N, A	<i>Syzygium maire</i>	N?	<i>Machaerina teretifolia</i>	N
<i>Laurelia novae-zelandiae</i>	A	<i>Tetragonia tetragonioides</i>	N	<i>Machaerina tenax</i>	N
<i>Leptecophylla juniperina</i>	N	<i>Toronia toru</i>	A	<i>Microlaena stipoides</i>	N
<i>Leptospermum scoparium</i>	N, A	<i>Vitex lucens</i>	A	<i>Microtis unifolia</i>	N
<i>Leucopogon fasciculatus</i>	N	<i>Wahlenbergia violacea</i>	N	<i>Morelotia affinis</i>	N
<i>Leucopogon fraseri</i>	N	MONOCOTYLEDONS		<i>Oplismenus hirtellus</i>	N
<i>Lilaeopsis novae-zelandiae</i>	N	<i>Acianthus sinclairii</i>	N	<i>Phormium cookianum</i>	A
<i>Litsea calcaris</i>	A	<i>Apodasmia similis</i>	N	<i>Phormium tenax</i>	N, A
<i>Lobelia anceps</i>	N	<i>Astelia banksii</i>	N	<i>Poa anceps</i>	N
<i>Melicope ternata</i>	A	<i>Austrostipa stipoides</i>	N	<i>Potomageton cheesemanii</i>	N
<i>Melicytus macrophyllus</i> ♦	ABS	<i>Bolboschoenus medianus</i>	N	<i>Pterostylis albula</i>	N
<i>Melicytus ramiflorus</i>	A	<i>Carex banksiana</i>	N	<i>Rhopalostylis sapida</i>	A
<i>Metrosideros excelsa</i>	N, A	<i>Carex dissita</i>	N	<i>Rytidosperma biannulare</i>	N
<i>Muehlenbeckia australis</i>	N	<i>Carex lessoniana</i>	N	<i>Rytidosperma unarede</i>	N
<i>Muehlenbeckia complexa</i>	N	<i>Carex lambertiana</i>	N	<i>Schoenus tendo</i>	N
<i>Myoporum laetum</i>	A	<i>Carex secta</i>	N	<i>Tetraria capillaris</i>	N
<i>Myriophyllum propinquum</i>	ABS	<i>Carex solandri</i>	N	<i>Thelymitra longifolia</i>	N
<i>Myrsine australis</i>	N	<i>Carex uncinata</i>	N	<i>Thelymitra pauciflora</i>	N
<i>Myrsine salicina</i>	A	<i>Carex virgata</i>	N	<i>Triglochin striata</i>	N
<i>Nertera depressa</i>	N	<i>Cordyline australis</i>	N, A	<i>Typha orientalis</i>	N
<i>Olearia albida</i>	A	<i>Cyperus ustulatus</i>	N		