Sophora microphylla	kowhai	-	-	●	●	10
Vitex lucens	puriri	-	-	-	●	20
Weinmannia silvicola	towai	-	-	●	●	15
Ferns						
Asplenium		shining splwt	-	●	●	.5
Blechnum species "1"	kiokio	-	-	●	●	.5
Cyathea dealbata	ponga	silver fern	-	●	●	10
Cyathea medullaris	mamaku	black tr frn	-	●	●	20
Dicksonia squarrosa	wheki-ponga	-	-	●	●	2-6
Doodia media	pukupuku	-	-	●	●	.5
Pteridium esculentum	rahurahu	bracken	-	●	●	1
Pteris tremula	turawera	shaking brake	-	-	●	.5
Pyrrosia eleagnifolia	-	leatherleaf	-	-	●	.1
Grasses						
Stipa stipoides	-	needle grass	●	-	-	1
Sedges						
Baumea juncea	-	glauc.seg	●	-	-	0.5
Bolboschoenus	kukuraho	marsh cl.r.	●	-	-	1
Carex flagellifera	-	-	-	●	●	.5
Gahnia lacera	-	cutty grass	-	●	●	1
Isolepis cernua	-	slender cl.r	●	rock	-	.2
Isolepis nodosa	-	knobby cl.r	●	-	-	.5
Machaerina sinclairii	tuhara	-	-	●	-	1
Rushes						
Juncus maritimus	wiwi	sea rush	●	-	-	.5
Leptocarpus similis	oioi	jointd wire r	●	-	-	0.5
Other monocotyledonous herbs						
Dianella nigra	turutu	-	-	●	●	1
Phormium tenax	harakeke	NZ flax	-	●	●	2
Dicotyledenous herbs						
Cotula coroniopifolia	-	batch's btn	●	-	-	0.2
Samolus repens	maakoako	salt-mead pr	●	rock	-	0.2
Sarcocornia	-	glasswort	●	-	-	0.2

Kawau Island - Botanical Dilemma

Carol McSweeney

There is always a certain amount of anxiety when a mid-winter field trip involves a boat trip to an off-shore island. However the Botanical Society field trip to Kawau Island led by Rhys Gardner in July 1997 presented no problems and we were blessed with a still, mostly sunny day.

This island has a unique flora in the Auckland region. There is a fascinating array of historical plantings and these are one of the most obvious landscape features as the ferry pulls into Mansion House Bay. Lance Goffat-Hall is reporting below on the historic species visited on this trip. There is a proliferation of naturalised plant species on the island and this gives us some insight into the possible future of ecosystem composition in the Auckland region if weed species are not controlled. The effect of wallaby and possum browsing on species composition is a vivid reminder of the selective pressure these pest species have on the native and introduced flora.

Naturalised Plant Species on Kawau

One of the most dominant naturalised species in the Mansion House Bay catchment is radiata pine *(Pinus radiata)*. These are establishing into a "natural" pine forest and having a major effect on the species that are regenerating. The pine seems to have some resistance to browsing from wallaby

and this probably explains its success. Macrocarpa *(Cupressus macrocarpa)* seedlings are appearing on Momona Point which indicates this species is also starting to naturalise.

Naturalised weed species are very common on the route that we took. Many of the species found on the mainland are also well established here. The sweet pea shrub *(Polygala myrtifolia)* is dominant in the under-story particularly on Momona Point but it is also creeping onto the coastal cliffs around the copper mine where it is reducing the habitat for other native species such as patotara *(Cyathodes fraseri)* and *Asplenium flaccidum* subsp. *haurakiense. Agapanthus praecox* is abundant on Momona Point but has not spread into other areas yet. Other species, such as Kahili ginger *(Hedychium gardnerianum),* mignonette vine *(Anredera cordifolia),* and tree privet *(Ligustrum lucidum),* are well naturalised in the vicinity of Mansion House. The Brazilian buttercup *(Senna septemtrionalis)* is common under the pine forest as is boneseed *(Chrysanthemoides monilifera).* The Cape honey flower *(Melianthus major)* is obvious throughout the pine forest and in other open places.

There are some particularly interesting naturalisations that have developed directly from the early plantings around Mansion House. One that appears to be creating a problem is the brush cherry *(Syzygium australe)* . There is an old specimen tree in the lawn at Mansion House and the other parent trees are at the dairy site at the top of the Redwood Track (Gardner 1993). We notice numerous mature specimens of this tree. The fruit is apparently very tasty to birds and Rhys tells us the foliage appears to be unpalatable to possum and wallaby. This combination suggests that this tree could develop into a major problem species in the future on Kawau and the mainland.
Some other direct naturalisations from historic plantings are Mauritius hemp *(Furcraea foetida),* and cabbage palm *(Liverstona australis).* In New Zealand Mauritius hemp has only naturalised on Kawau and the Kermadec Islands (Flora of NZ Vol III) and on Kawau it covers the hillside under the pines along the Redwood track. This species is apparently unpalatable to possum and wallaby and is forming a dense, impenetrable under-story. It is not dispersed by seeds but the vegetative spread is very successful.

We see numerous cabbage palm seedlings on our route and this species now appears to be part of the landscape. Once again the Flora of NZ Vol III records that it is freely naturalised on Kawau Island. There are records of seedlings appearing on the mainland which have possibly been sourced from Kawau (Alistair MacArthur pers. comm.).

It appears that the wasp required to pollinate the Morton Bay fig *(Ficus macrophylla)* has arrived on Kawau as there is a seedling growing in each of the Chilean wine palms on the front lawn of Mansion House; first recorded by Ewen Cameron (1997). This species could well now naturalise on Kawau.

Selective Pressure Caused by Browsing

One of the other unique features of the Kawau Island flora is the selective pressure at work on both the native and naturalising species. This pressure is coming from the grazing by possum and wallaby.

As already noted the radiata pine appears to be successful because of its ability to resist browsing. The native species regenerating under the pine forest must be resistant to browsing and able to tolerate the habitat provided by a canopy of pines. The native species that are thriving in these conditions are the silver fern *(Cyathea dealbata),* kawakawa *(Macropiper excelsum),* mingimingi *(Cyathodes fasciculata),* and kanuka *(Kunzia ericoides).* There is a noticeable lack of seedling pohutakawa *(Metrosideros excelsa),* karaka *(Corynocarpus laevigatus)* and puriri *(Vitex lucens)* despite there being seed trees in the vicinity. One puriri sapling about 2m high is noted on the Redwood Track ridge but it is an isolated specimen and probably indicates other seedlings have been grazed out. There are reasonable numbers of taraire *(Beilschmiedia taraire)* seedlings along the pine forest margins but as there are no saplings we assume these too are grazed or unable to survive for some other reason.

If there is no future control of possum or wallaby in this area it would be fascinating to do a longitudinal study to measure the evolutionary processes occurring in this forest as it experiences these particular selective pressures.

The dilemma for Kawau Island is in its future management. Do we try to restore the habitat so as to reflect a more indigenous situation or do we leave it to reflect its history of plant and animal introductions?

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Notable Trees of Mansion House, Kawau Island

Lance Goffart-Hall

A number of the trees located around Mansion House and within the surrounding grounds are notable due to their historic association, age and species. Many of these were either planted by Sir George Grey during the mid 1800's or remain as descendants to these original specimens.

The following trees are only a sample of the diverse tree population found at Mansion House. They are mostly uncommon species which have developed into large specimens and have historical significance or botanical importance.

Australian fan palm *Livistona australis* - family Arecaceae (Palmae)
Located around the ponds to the south of Mansion House is a large stand of Australian fan palms. In their native origin the species grows well in swampy situations, forming dense populations. This niche is recaptured here at Kawau and features as a most impressive collection. The fan fplm grows well in temperate zones and is resistant to frost. Fine examples grace the many parks and gardens throughout New Zealand.

Bloodwood *Baloghia inophylla* - Euphorbiaceae
A native of the Pacific Islands, this species has naturalised on Kawau and has formed a small stand on the hillside to the west of Mansion House. At first appearance the species looks like a karaka but its distinct foliage is oppositely arranged; it exudes a clear sap when severed. Bloodwood is not commonly found in New Zealand except in sporadic locations such as a specimen on the lower slopes of One Tree Hill.

Bunya pine *Araucaria bidwillii* - Araucariaceae (Section Bunya)
This fine specimen is located just to the east of Mansion House. The Bunya pine originates from Queensland Australia and is best known for having the largest cone in the world (30-40cm diam). There are numerous examples of this species throughout New Zealand due to their attractive form and stature.

Chilean wine palm *Jubaea chilensis* - Arecaceae (Palmae)
Mansion House boasts two of the largest and best-formed specimens found in New Zealand. The pair of wine palms are located just west of the house and dominate the formal garden. *Jubaea* being a monotypic genus of palm is endemic to Chile where it is now rare. The name 'wine' palm refers to the distilled beverage (palm honey) which is extracted from the trunk after felling the tree. Another fine example of *Jubaea* is found at Monte Cecilia in Hillsborough (Auckland).

Cook's pine *Araucaria columnaris* - Araucariaceae (Section Eutacta)