

# Botanical Society Field Trip to the Otuataua Stonefields, April 2001

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The Otuataua Stonefields were purchased by Manukau City Council to preserve an unique nationally significant archaeological and cultural heritage site. The site is now a Historic Reserve, and a waahi tapu site. Contributions were made by the Department of Conservation, Auckland Regional Council and the NZ Lottery Grants Board. A Memorandum of Agreement between the Manukau City Council, ARC and DoC outlines their obligations towards the management of this unique asset. A reserve management plan, to which the Botanical Society has made submissions, is due to be adopted in the middle of the year. An extensive weed control programme is planned. The need for this, and the difficulties associated with weed control, became apparent during our field trip.

The site lies on the shores of the Manukau Harbour, downstream of Ambury Park and the Puketutu Island/Mangere Treatment Works, and upstream of Auckland International Airport. The park was opened to the public in February 2001, and gives Aucklanders access to extensive areas of the Manukau hinterland. Access is via Ihumatao Quarry Road off Oruarangi Road.

On 21 April 2001, 45 Auckland Botanical Society members met to explore this highly individual landscape, and experience the results of over 800 years of settlement on the native vegetation of this region. We were blessed with good weather and knowledgeable leadership, being ably led by Mike Wilcox. While at first glance there did not appear to be much of interest, as most of the 100 hectare site is in pasture, unusual details and the flavour of the site were discovered as we investigated more closely.

The group became familiar with maawhai, (*Sicyos australis*), the native cucumber, locally a rare plant. The main colony sprawled amid various weeds on the old rock wall next to the avocado orchard. It was found again on rocky ground beneath the trees in a narrow band of rock forest, passed if you take the signed botanical route round the site. It is an annual and there were both flowers and spiky fruits on the plants at this time.

Maawhai is generally restricted to the northern offshore islands and the Kermadecs, and also occurs in Australia. It was first found at Otuataua in June 1991 (Cameron 1991). There was an earlier unconfirmed report by Katie Mays of finding *Sicyos* at Whatipu in 1961, but this turned out to be the introduced cucurbit, *Citrullus lanatus*, AK 73354 (Ewen Cameron pers. comm.). Otherwise, it is not believed to have been sighted on the Auckland mainland since 1866.

Another scrambler found flourishing in the rock forest was *Calystegia tuguriorum*, a native bindweed. Both plants would benefit from managed weed control. How to achieve this long term will be a challenge.

There are a large number of introduced weed species, some particularly conspicuous ones being woolly mullein (*Verbascum thapsus*), moth mullein (*V. blattaria*), apple of Sodom (*Solanum linnaeanum*), tobacco weed (*S. mauritianum*), and, perhaps most pervasive of all, smilax (*Asparagus asparagoides*), which smothers the ground in both the rock forest and rock outcrops in the open.

The native broadleaf coastal forest is reduced to small remnant areas hugging the rock spines and slopes of the site. Pohutukawa occurs only near the shore, the dominant trees being titoki, karaka, with some puriri, pigeonwood, ngaio and mahoe. Associated plants were kawakawa, coastal karamu and whau. On a site opened up by the elimination of privet (*Ligustrum lucidum*), whau seedlings have appeared in abundance.

There was a good variety of native ferns growing within the forest and rocks, including down some holes in the ground. Access to the holes was prevented by grilles set into the rock; whether to protect the hapless visitor or the plants was not determined. Some sheep appeared to have not been so fortunate, but no doubt provided good nutrient recycling. On rocky outcrops in the open, colonies of *Cheilanthes distans* were thriving.

Evidence of the European aspects of settlement was apparent in the barberry hedges and spreading Moreton Bay fig trees. These splendid specimens provided both shade and excellent seating for our lunch stop, and stood out as landmarks in the open land. Seedlings of these trees were found established in the native rock forest remnants.

The volcanic bones of the site stood out clearly, remnants of lava flows, caves, tuff rings, cones and craters. These were further emphasised by stone walls, part of the centuries of cultivation that have taken place. The Otuataua Pa and terraces overlooks the site. There is a geological trail and an historic trail, in addition to a botanical trail, marked by different coloured rocks and information panels, to explain some of the landforms we encountered. The volcanic nature of the Auckland landscape was even more apparent from the surrounding views. These are extensive, taking in the Manukau harbour, Mount Wellington, Mangere Mountain and Maungakiekie, as well as Puketutu Island. Though the native forest vegetation here is limited, and quarrying is still active on the adjoining lands, the

site is a wonderful addition to Auckland's open spaces.

## Reference

Cameron, E. K. 1991: Mangere – a small forest remnant and *Sicyos australis*. *Auckland Botanical Society Journal* 46(2): 83-84.

A species list was started, mainly covering the inland area. The coastal margins remain to be explored and documented on another occasion. My thanks to Sandra Jones and Mike Wilcox for later additions and corrections. Otuaatua Stonefields 20 Apr 01, 12 May 01.

### A Preliminary Plant Species List (excluding coastal margin) \* = introduced; p = planted; EC = addition by Ewen Cameron.

#### Ferns

<i>Adiantum cunninghamii</i>	common maidenhair	
<i>Adiantum hispidulum</i>	rosy maidenhair	
<i>Arthropteris tenella</i>	jointed fern	
<i>Asplenium flabellifolium</i>	necklace fern	
<i>Asplenium flaccidum</i>	hanging spleenwort	
<i>Asplenium oblongifolium</i>	shining spleenwort	
<i>Asplenium polyodon</i>	sickle spleenwort	
<i>Cheilanthes distans</i>	woolly cloak fern	
<i>Doodia australis</i>	rasp fern	
<i>Microsorium pustulatum</i>	hound's tongue	
<i>Nephrolepis cordifolia</i>	Tuber sword-fern	EC
<i>Pellaea rotundifolia</i>	tarawera	
<i>Pteridium esculentum</i>	bracken	
<i>Pteris tremula</i>	shaking brake	
<i>Pyrrhosia eleagnifolia</i>	leather-leaf fern	

#### Conifers

<i>Araucaria heterophylla</i> *	Norfolk pine	p
<i>Chamaecyparis lawsoniana</i> *	lawsoniana	p
<i>Cupressus macrocarpa</i> *	macrocarpa	p
<i>Pinus radiata</i> *	radiata pine	p

#### Dicot trees & shrubs

<i>Berberis glaucophylla</i> *	barberry	
<i>Buddleja davidii</i> *	buddleia	
<i>Coprosma macrocarpa</i>	coastal karamu	
<i>Coprosma repens</i>	taupata	
<i>Coprosma robusta</i>	karamu	
<i>Corynocarpus laevigatus</i>	karaka	
<i>Crataegus monogyna</i> *	hawthorn	p
<i>Dodonaea viscosa</i>	akeake	
<i>Entelea arborescens</i>	whau	
<i>Erythrina x sykesii</i> *	coral tree	p
<i>Euonymus japonicus</i> *	Japanese spindle-tree	p
<i>Ficus macrophylla</i> *	Moreton Bay fig	p
<i>Geniostoma rupestre</i> var. <i>ligustrifolium</i>	hangehange	
<i>Hedycarya arborea</i>	pigeonwood	
<i>Ligustrum lucidum</i> (eliminated?)		
<i>Ligustrum sinense</i> *	Chinese privet	
<i>Lycium ferocissimum</i> *	boxthorn	
<i>Macropiper excelsum</i>	kawakawa	
<i>Meliccytus ramiflorus</i>	mahoe	
<i>Metrosideros excelsa</i>	pohutukawa	
<i>Myoporum laetum</i>	ngaio	
<i>Olea europaea</i> *	olive	p
<i>Olearia paniculata</i>	golden akeake	p

<i>Persea americana</i> *	avocado	p
<i>Pittosporum crassifolium</i>	karo	p
<i>Populus x canadensis</i> *	hybrid poplar	p
<i>Prunus persica</i> *	peach	p
<i>Rosa canina</i> *	dog rose	
<i>Rubus fruticosus</i> *	blackberry	
<i>Solanum linnaeanum</i> *	apple of Sodom	
<i>Solanum mauritianum</i> *	tobacco weed	
<i>Tecomaria capensis</i> *	Cape honeysuckle	p
<i>Ulex europaeus</i> *	gorse	
<i>Vitex lucens</i>	puriri	

#### Dicot climbers

<i>Andredera cordifolia</i> *	Madeira vine	
<i>Araujia sericifera</i> *	moth plant	
<i>Calystegia tuguriorum</i>	native bindweed	
<i>Muehlenbeckia complexa</i>	pohuehue	
<i>Sicyos australis</i>	maawhai, native cucumber	

#### Dicot herbs

<i>Achillea millefolium</i> *	yarrow	
<i>Amaranthus lividus</i> *	purple amaranth	
<i>Anagallis arvensis</i> *	scarlet pimpernel	
<i>Arctotheca calendula</i> *	Cape weed	
<i>Carduus pycnocephalus</i> *	slender winged thistle	
<i>Centaureum erythraea</i> *	centaury	
<i>Chenopodium murale</i> *	nettle-leaved fat-hen	
<i>Cirsium vulgare</i> *	Scotch thistle	
<i>Conium maculatum</i> *	hemlock	
<i>Conyza albida</i> *	broad-leaved fleabane	
<i>Coronopus didymus</i> *	twin cress	
<i>Crassula decumbens</i> *	Cape crassula	
<i>Crepis capillaries</i> *	hawksbeard	
<i>Cuscuta epithimum</i> *	dodder	
<i>Daucus carota</i> *	wild carrot	
<i>Dichondra repens</i>	Mercury Bay weed	
<i>Echium plantagineum</i> *	Paterson's curse	
<i>Epiolbium billardierranum</i> ssp. <i>cinereum</i> *		EC
<i>Erodium cicutarium</i> *	storksbill	
<i>Euphorbia characias</i> *	Wulfen spurge	
<i>Euphorbia peplus</i> *	mikweed	
<i>Foeniculum vulgare</i> *	fennel	
<i>Fumaria muralis</i> *	scrambling fumitory	
<i>Galium aparine</i> *	cleavers	
<i>Galium divaricatum</i> *	slender bedstraw	
<i>Geranium dissectum</i> *		

<i>Geranium purpureum</i> *	small herb Robert	
<i>Gnaphalium simplicicaule</i> *	tall cudweed	
<i>Haloragis erecta</i>	Toatoa	
<i>Helminthotheca echioides</i> *	Oxtongue	
<i>Hypochoeris radicata</i> *	Catsear	
<i>Leontodon taraxacoides</i> *	Hawkbit	
<i>Linaria purpurea</i> *	purple linaria	
<i>Linum bienne</i> *	pale flax	
<i>Lotus pedunculatus</i> *	lotus	
<i>Malva sylvestris</i> *	large-flowered mallow	
<i>Medicago arabica</i> *	spotted medick	
<i>Mentha pulegium</i> *	pennyroyal	
<i>Modiola caroliniana</i> *	creeping mallow	
<i>Nasturtium officinale</i> *		EC
<i>Orobanche minor</i> *	broomrape	
<i>Oxalis corniculata</i> *	horned oxalis	
<i>Oxalis exilis</i>	native oxalis	
<i>Peperomia urvilleana</i>		
<i>Physalis peruviana</i> *	cape gooseberry	
<i>Phytolacca octandra</i> *	inkweed	
<i>Plantago lanceolata</i> *	narrow-leaved plantain	
<i>Plantago major</i> *	broad-leaved plantain	
<i>Polycarpon tetraphyllum</i> *	allseed	
<i>Polygonum arenastrum</i> *	small-leaved wireweed	
<i>Polygonum aviculare</i> *	wireweed	
<i>Portulaca oleracea</i> *	purslane	
<i>Prunella vulgaris</i> *	selfheal	
<i>Pseudognaphalium luteo- album</i> *	native cudweed	
<i>Ranunculus muricatus</i> *	buttercup	
<i>Ranunculus repens</i> *	creeping buttercup	
<i>Rumex acetosella</i> *	sorrel	
<i>Rumex obtusifolius</i> *	broad-leaved dock	
<i>Senecio hispidulus</i>	fireweed	
<i>Senecio quadridentatus</i> *		EC
<i>Silybum marianum</i> *	variegated thistle	
<i>Sisymbrium officinale</i> *	hedge mustard	
<i>Solanum americanum</i> *	native nightshade	
<i>Solanum nigrum</i> *	black nightshade	
<i>Sonchus oleraceus</i> *	sow thistle, puwha	
<i>Spergula arvensis</i> *	spurrey	
<i>Spergularia rubra</i> *	sand spurrey	
<i>Stachys arvensis</i> *	staggerweed	
<i>Stellaria media</i> *	chickweed	
<i>Taraxacum officinale</i> *	dandelion	
<i>Tolpis barbata</i> *	a yellow daisy	
<i>Torilis arvensis</i> *	spreading hedge-parsley	
<i>Trifolium dubium</i> *	suckling clover	
<i>Trifolium repens</i> *	white clover	
<i>Trifolium subterranean</i> *	subclover	
<i>Verbascum blattaria</i> *	moth mullein	
<i>Verbascum thapsus</i> *	woolly mullein	
<i>Verbena bonariensis</i> *	purpletop	
<i>Veronica anagallis-aquatica</i> *		EC
<i>Veronica persica</i> *	scrambling speedwell	
<i>Vicia tetrasperma</i> *	smooth tare	
<i>Vinca major</i> *	periwinkle	
<i>Xanthium spinosum</i> *		EC
<b>Monocots</b>		
<i>Allium triquetrum</i> *	three-cornered garlic	
<i>Anthoxanthum odoratum</i> *	sweet vernal	
<i>Arum italicum</i> *	Italian arum	
<i>Asparagus asparagoides</i> *	smilax, florist's asparagus	
<i>Astelia solandri</i>	bush lily	
<i>Bromus lithobius</i> *	Chilean brome	
<i>Carex divulsa</i> *	grey sedge	
<i>Collospermum hastatum</i>	tank lily	
<i>Cortaderia selloana</i> *	pampas grass	
<i>Cynodon dactylon</i> *	Indian doab	
<i>Cyperus eragrostis</i> *	green umbrella sedge	
<i>Dactylis glomerata</i> *	cocksfoot	
<i>Eleusine indica</i> *	crowsfoot grass	
<i>Holcus lanatus</i> *	Yorkshire fog	
<i>Lolium multiflorum</i> *	Italian ryegrass	
<i>Lolium perenne</i> *	perennial ryegrass	
<i>Microlaena stipoides</i> *	meadow rice grass	
<i>Paspalum dilatatum</i> *	paspalum	
<i>Pennisetum clandestinum</i> *	kikuyu grass	
<i>Phalaris minor</i> *	lesser canary grass	
<i>Phoenix canariensis</i> *	Phoenix palm	
<i>Phormium tenax</i>	NZ flax	
<i>Rytidosperma racemosum</i> *	danthonia	
<i>Setaria gracilis</i> *	knot-root bristle grass	
<i>Sporobolus africanus</i> *	ratstail	
<i>Thelymitra</i> sp.	sun orchid	
<i>Zantedeschia aethiopica</i> *	arum lily	

### Photographs of *Sicyos australis*, at Otuataua Stonefields (21 Apr 2001).

Opposite page.

1. **Leaves, tendrils, and inflorescence.** (Mike Wilcox, trip leader).
2. **Leaves and male flowers.** (Alistair MacArthur).
3. **Male Flower.** (Alistair MacArthur).
4. **Detail of fruit bristles.** (Alistair MacArthur).
5. **Fruit cluster.** (Alistair MacArthur).

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