forest - of rimu, miro, hinau, kauri, and tanekaha- can be seen as stumps, branches, log fragments, and also moulds, in the cliffs.

Another interesting geological feature here is that pieces of "foreign" rocks can be found in the volcanic tuff, including Te Kuiti limestone, greywacke, jasper, and Waitemata sandstone. These are thought to have been blasted out from deep down in the Maungataketake volcano.

The Hayward family has made an intensive study of these fossil forests (Hayward & Hayward 1995), and we greatly appreciated Bruce's impressive detective powers in interpreting for us from various subtle clues, the events here of the past. Bruce takes a great interest also in the conservation of Auckland's geological treasures. As well as the steady demise of Ellett's Mountain by quarrying, there is another threat to this unique place - the eventual construction of a second runway at the Auckland Airport. Hopefully a way will be found to protect the fossil forests and to allow continued access for interested visitors.

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Native vegetation of Ihumatao Cliffs, Mangere

E.K. Cameron

In 1991 I searched around the Mangere Purification Works for any remaining native vegetation and was struck by how little remained in the general Mangere area. At that time I wrote an article on a small forest remnant by the Mangere Oxidation Pond No. 1 (Cameron 1991) and briefly visited the pohutukawa cliff forest at the end of Renton Road, Ihumatao, nearly 2km away on the edge of the Manukau Harbour. On 15 February 1997 Bot Soc visited the Ihumatao fossil forest at the end of Renton Road lead by Bruce Hayward. For an account of these fossil beds see Hayward & Hayward (1995), and for an account of our visit see Wilcox (1997).

The coastal cliffs studied are about 0.5 km long and are composed of tuff from the adjacent Maungtaketake (Ellett's Mt) which was active about 29,000 years ago (Hayward & Hayward 1995). By the concrete steps at the end of Renton Rd the cliffs are about 6 m tall, they decrease in height going east (away from the volcanic source). To the west of the steps for some 300 m they reach their maximum height of c. 8 m. Large pohutukawa, up to 8 m tall, perch on the top of these cliffs and others are rooted lower down. Kingfishers are common along the coastline with an ideal cliff to nest in. High tide reaches the bottom of the cliffs.

During the Bot Soc visit members could not resist climbing up the pohutukawa-clad cliffs to look at the living vegetation as well as the fossilised below. Bot Soc visited the same area back on 15 May 1982 and compiled a species list which includes both native (34 spp.) and naturalised vascular plants (see Bowie 1983). This current list adds 17 native species to the earlier list and confirms all but *Hebe macrocarpa* and *Juncus maritimus,* which may have been recorded in error for *H. stricta* and *Isolepis nodosa.* Herbarium vouchers have also been searched for and added to the list, three of these records were not seen by me on the cliffs.

During the February 1997 trip whole sections of the cliff had recently collapsed, with puhutukawa trees and all. Unfortunately the native vegetation hardly extends behind the cliffs and weeds are common in the area, making it unlikely that native vegetation will ever regain much of these bare cliff faces. Because so little native vegetation exists in the general area this is quite a tragedy. Concensus of opinion was that the very wet winter of 1996 was probably the cause of the large scale slumping. Although the naturalised flora is

not included in the species list below, boxthorn (*Lycium ferocissimum*) which was not recorded in 1982 (Bowie 1983) is now locally common on the cliffs because it is also used as a hedge plant adjacent to the clifftop. Both boxthorn and smilax (*Asparagoides asparagoides*) are common on the cliffs; gorse (*Ulex europaeus*) is occasional; periwinkle (*Vinca major*), Kikuyu grass (*Pennisetium clandestinum*) and onion weed (*Allium triquetrum*) are more local; and pampas grass (*Cortaderia ?selloana*) is scarce.

The present day flora contrasts with the leaf fossils found locally at the bottom of the cliffs by Hayward & Hayward (1995): rimu, hinau, miro, kauri and tanekaha. Because it is such a different habitat today it is not surprising that none of the fossil species are now present.

The two most interesting species recorded are *Blechnum* "Green Bay" and toetoe (*Cortaderia fulvida*) which are both local in their distribution in the Auckland Region. Karo (*Pittosporum crassifolium*) may not be of local provenance because there are hedges of it by the other end of Renton Road.

Vascular native plants, Ihumatao Cliffs by Renton Road, Mangere

a = abundant
c = common
o = occasional
l = local
s = scarce (<5 plants seen)

m = margin of study area

Ferns (13)		
Adiantum cunninghamii	o-lc	
Asplenium oblongifolium	o	AK 214857
Blechnum "Green Bay"	o-lc	AK 95094-95, 164590
Cyathea dealbata	s	
C. medullaris	s	
Dicksonia squarrosa	s (sporling)	
Doodia media	l	
Phymatosorus diversifolius	o	
Polystichum richardii	o	AK 164591, 223135
Pteridium esculentum	l	
Pteris macilenta		Wright, AK 220196
P. saxatilis	s	AK 164592, 220303
P. tremula	o	
Dicots 24		
Apium prostratum	o-lc	
Avicennia marina	m	AK 129240
Brachyglottis repanda	o-lc	
Calystegia soldanella	lc	AK 129455
C. sepium	lc	
Coprosma macrocarpa	o	
C. repens	s	
Corynocarpus laevigatus	o	
Dichondra repens	lc	
Entelea arborescens	m	Wright, AK 159003
Geniostoma rupestre	o	
Haloragis erecta	o	AK 129176
Hebe stricta	s	
Lobelia anceps	lc	
Macropiper excelsum	c	
Melicytus ramiflorus	l	
Metrosideros excelsa	ac	
Muehlenbeckia complexa	c	
Pittosporum crassifolium	o	
Pseudognaphalium luteoalbum	s	
Samolus repens	lc	AK 129334
Sarcocornia quinqueflora	l	AK 129456
Selliera radicans	lc	
Senecio lautus	lc	
Monocots (14)		
Bolboschoenus medianus		Goulding, AK 129238

Carex flagellifera	c	
Cordyline australis	s	
Cortaderia fulvida	o-lc	AKU 22725
Cyperus ustulatus	lc	AK 129239
Gahnia lacera	o	
Isolepis cernua	c	AK 129459
I. nodosa	c	AK 129236
Leptocarpus similis	lc	AK 129237
Phormium tenax	c	
Poa anceps	lc	
Stipa stipoides	lc	AK 129234
Uncinia uncinata	s	
Zostera muelleri	lc on tidal mud flats	AK 182105

The herbarium voucher specimens were collected by P. Hynes (1963), F.M. Warren (1970), J.H. Goulding (1971), A.E. Wright (1976 & 1981), R.O. Gardner (1983) and E.K. Cameron (1991).

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Duders Regional Park (South Auckland) ABS Field Trip 21 September 1996

Sandra Jones

A perfect Spring day. Three or four days of sunshine had been enough to dry out the quagmire underfoot that was a legacy of Auckland's wettest(?) August on record and wettest winter since ...., well, since before my time, anyway.

The most recent addition to the Auckland Regional Parks network is a farm park just south of Maraetai, across the Tamaki Strait from Waiheke Island. The park sits astride a headland jutting out into the Hauraki Gulf, with spectacular views from its high points. It consists of steep rolling green pasture with a couple of patches of remnant bush, a wetland and a salt marsh. Still nameless at the time, three options were being considered: **Duder's**, after the long-established family who sold the land to the ARC, and who still farm next door; **Whakakaiwhara**, after Whakakaiwhara Point at the end of the headland; and **Umupuia**, after the nearby marae and beach (which is also known locally as "Duder's Beach". Anne the wag proposed a compromise: **Whaka-Duder-Puia**, which you have to admit does have a certain ring about it.

We followed a farm road around the southern side of the peninsula, at one point stepping down off the built-up road (constructed by the Air Force in 1942) into the wetland which grades into salt marsh (or 'mud flats', as it is described on the map). The salt marsh is fenced off from farm stock (and from us) but we identified, from a distance, *Stipa stipoides*, *Juncus maritimus* (sea rush), *Isolepis nodosa* (knobby clubsedge), and *Plagianthus divaricatus* (saltmarsh ribbonwood). Some shrubs of the latter species on "our" side of the fence were in flower, though it took someone with a 10x hand lens to point this out. We were so distracted by this that we didn't think to check the flowers for their reputed fragrance. I think that they were only partially open anyway. *Leptocarpus similis* (jointed wire rush or oioi) was also flowering. The stem isn't 'jointed' at all. The leaves are reduced to dark sheaths, which, because they are small and cling to the stem some distance apart, give the