Field Trip: University Reserve, Kellys Road, Oratia. 16/4/05

Anne Grace, Sandra Jones & Jeff McCauley

The Auckland Botanical Society's previous visits to the University Reserve at Oratia took place in August 1977, September 1981 and September 1987. After a 17 year gap, it was high time for another foray into this wonderfully diverse 22 acre (8-9ha) private bush reserve.

The reserve was established in 1940 when Mr Herbert Dearsley gifted 2 large bush sections to the University of Auckland. Lot 11 fronts on to Kellys Road, Lot 7 on to West Coast Road, forming the reserve's "T" configuration. In 1966 a further section was added alongside Lot 11 following the death of Mr Emile Victor Albert who bequeathed a house and land on Kellys Road to the University (opposite the reserve). With the permission of Mr Albert's family, these were sold and Lot 10 was purchased with the proceeds (Thomas & Ogden 1983).

Vegetation Descriptions

The University uses the reserve as a location for research. The vegetation was described by Shirley (1968). Because the site consists of a varied topography of two main ridges and two valleys, which have had different types of land management ranging from complete clearance to selective removal of tea tree for firewood (Thomas & Ogden 1983), the vegetation and patterns of regeneration are varied. Ogden (1983) provides a quantitative analysis of the vegetation. Sandra Jones and Helen Cogle have compiled lists of plant species for the reserve arising from personal visits to the reserve, including ABS trips, and incorporating the results of various studies, e.g., Beever (1988) – mosses. Sandra's list, which has been updated as a result of this 2005 field trip, is presented as Appendix I. It includes a preliminary list of fungi prepared by Petra White and an updated list of liverworts prepared by John Braggins. The reserve vegetation was identified as nationally important in the Protected Natural Areas Survey of the Waitakere Ecological District on account of the presence of the two scarce conifer species, *Halocarpus kirkii* and *Lagarostrobos colensoi*.

Field Trip

Bot Soc field trips are usually sedate affairs. This one started out that way with about 25 people parking their cars and congregating at the intersection of Kellys Road and Forest Hill Road. By the time we had walked down to the reserve, the numbers had swelled to 33. The roadside introduction to the reserve was not quite finished when a passing motorist informed us that the police were investigating our vehicles at the top of the road. So much for sedate affairs! The drivers made haste back up the road whilst the rest of us began botanizing at our usual perambulatory pace. After we'd gone about 20m, the drivers returned, having established that there were no tickets on the vehicles and that the police were visiting a neighbouring property!

Botanising then began in earnest with much discussion about the *Halocarpus kirkii* (manoao), *Mida salicifolia* (NZ sandalwood), and the relative abundance of *Coprosma spathulata*. Pam Dale had the first new record of the day – *Melicytus micranthus* – which elicited debate about the identifying characteristics of divaricating plants (duck's foot *Pennantia corymbosa*, fiddle leaf *Streblus heterophyllus*, etc.) and musing about the evolutionary pressure put on these plants by the peacocks which live nearby, being the modern day equivalent of moas. Jeff McCauley, a.k.a. "Young Jeff", showed us a fine specimen of *Lagarostrobos colensoi* (silver pine) with its pale bark. Geoff the Elder failed to win a chocolate fish with his unconvincing specimen: consensus determined it to be a kahikatea.

Fig. 1. Jeff McCauley beside a big *Halocarpus kirkii* tree.

Energetic Young Jeff vanished into the nether regions of the property in search of more botanical delights. The first few members of the party had just crossed the bog in the first valley and were marvelling at the huge *Laurelia novae-zelandiae* (pukatea) in fruit and *Syzygium maire* (maire-tawake), when Young Jeff called us back. Likened to a boisterous puppy by one member, he led us a merry dance back up the hill to

see "The Mother of All *Halocarpus kirkii*" (an awesome 1.96m girth measured at Alistair's breast height). On reflection, it may have been "The Father of All *Halocarpus*", this species being dioecious (Fig. 1).

Back on track again, we made our way through kauri and fan ferns, *Schizaea dichotoma,* up to the main ridge. Some of us went for a quick foray westward along the ridge to see *Nestegis montana*, *Uncinia banksii*, and many other wondrous kauri forest species. Geoff the Elder went into chocolate fish deficit with another possible *Lagarostrobos* specimen. We ate lunch in the company of *Schizaea bifida* (comb fern) and a flowering *Ichthyostomum pygmaeum* which Steve Benham had found. Some people learned that you should still bring your lunch on a so-called "short" ABS trip because they never end up that way!

After lunch, Young Jeff led us to the highlight of the day – another *Lagarostrobos colensoi,* complete with two seedlings that are reminiscent of young rimu. Leslie Haines added *Alectryon excelsus* (titoki seedling) to the species list. Somehow the party managed to split into two and a further new record, *Quintinia serrata*, was found independently by each party. Geoff the Elder redeemed himself by finding one of them, achieving chocolate fish break-even for the day. We reunited in the second valley for a lesson on *Tmesipteris* (sporangia, a.k.a. "funyergularfonkers", look like "bums" in 3 species and "boats" in *T. tannensis*).

Finally, it was cross-country back to Kellys Road, carefully avoiding the deadly pitfall traps laid by a PhD student to catch invertebrates. Fortunately, botanists are not spineless so, according to Mike's reckoning, we all emerged unscathed.

Subsequently, a very small group of 4 diehards went for a quick trek around Anne's place at 202 Forest Hill Road to see some additional species, e.g., *Dracophyllum sinclairii* and *Lycopodiella lateralis*.

The participants were: Chris Ashton, Harry Beacham, Steve Benham, Duncan Benzie, John Braggins, Jan Butcher, Lisa Clapperton, Geoff Davidson, Brian Cumber, Pam Dale, Frances Duff, Colleen Foster, Anne Grace (co-leader – navigation and entertainment), Sharen Graham, Leslie Haines, Peter Hutton, Joan Kember, Elaine Marshall, Mei Nee Lee, Carol McSweeney, Garry McSweeney, Alistair MacArthur, Marjorie Newhook, Sandra Jones (co-leader – botanical wizardry), Jeff McCauley (co-leader – spectacular specimens), Ivan Pickens, Juliet Richmond, Josh Salter, Pat Seyb, Alison Wesley, Petra White, Mike Wilcox, Tony Williams.

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References

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Species List (Compiled by Sandra Jones)

List compiled from various sources (S Jones unpublished, ABS Journals 1964, 1968, 1977, 1982, 1988, *Tane* 1983, J Braggins (ferns) unpublished, JW Shirley (Botany project 1968)**;** ABS field trip visit 16 Apr 05. Some dubious records have been excluded.

Ferns & Fern Allies

Anarthropteris lanceolata
Asplenium bulbiferum
Asplenium flaccidum
Asplenium oblongifolium
Asplenium polyodon
Blechnum chambersii
Blechnum discolor
Blechnum filiforme
Blechnum fraseri
Blechnum novae-zelandiae
Cyathea dealbata
Cyathea medullaris
Dicksonia squarrosa
Doodia australis
Gleichenia dicarpa
Gleichenia microphylla
Histiopteris incisa
Huperzia varia
Hymenophyllum demissum
Hymenophyllum dilatatum
Hymenophyllum flabellatum
Hymenophyllum multifidum
Hymenophyllum revolutum
Hymenophyllum sanguinolentum
Lastreopsis hispida
Leptopteris hymenophylloides
Lindsaea linearis
Lindsaea trichomanoides
Lycopodium deuterodensum
Lycopodium volubile
Lygodium articulatum
Microsorum pustulatum
Microsorum scandens
Pneumatopteris pennigera
Pteridium esculentum
Rumohra adiantiformis
Schizaea bifida
Schizaea dichotoma
Schizaea fistulosa
Sticherus cunninghamii
Tmesipteris elongata ssp. *elongata*
Tmesipteris lanceolata
Tmesipteris sigmatifolia
Tmesipteris tannensis

Trichomanes elongatum
Trichomanes reniforme
Trichomanes venosum

Gymnosperms

Agathis australis
Dacrycarpus dacrydioides
Dacrydium cupressinum
Halocarpus kirkii
Lagarostrobos colensoi
Phyllocladus trichomanoides
Podocarpus hallii
Podocarpus ?totara
Prumnopitys ferruginea
Prumnopitys taxifolia

Dicotyledons

Alectryon excelsus (seedling only)[ABS field trip 16 Apr 05]
Alseuosmia macrophylla
Aristotelia serrata
Beilschmiedia tarairi
Beilschmiedia tawa
Brachyglottis kirkii var. *angustior*
Brachyglottis repanda
Carpodetus serratus
Centella uniflora
Clematis paniculata
Coprosma arborea
Coprosma grandifolia
Coprosma lucida
Coprosma rhamnoides
Coprosma robusta
Coprosma spathulata
Coriaria arborea
Corokia buddleioides
Corynocarpus laevigatus
Drosera auriculata
Dysoxylum spectabile
Elaeocarpus dentatus
Elatostema rugosum
Geniostoma ligustrifolium
Griselinia lucida
Hedycarya arborea
Ixerba brexioides [8 May 2005]
Knightia excelsa
Kunzea ericoides
Laurelia novae-zelandiae
Leptecophylla juniperina
Leucopogon fasciculatus
Litsea calicaris
Melicytus micranthus [ABS field trip 16 Apr 05]
Melicytus ramiflorus
Metrosideros diffusa
Metrosideros fulgens
Metrosideros perforata
Metrosideros robusta
Mida salicifolia
Myrsine australis
Myrsine salicina
Nertera depressa
Nertera dichondrifolia
Nestegis lanceolata
Nestegis montana
Olearia furfuracea
Olearia rani
Pittosporum tenuifolium
Pseudopanax arboreus
Pseudopanax crassifolius
Quintinia serrata [ABS field trip 16 Apr 05]
Rubus australis
Rubus cissoides
Schefflera digitata
Syzygium maire
Toronia toru

Monocots excl. grasses & orchids

Astelia solandri
Astelia trinervia
Collospermum hastatum
Cordyline australis
Cordyline banksii
Cordyline pumilio
Dianella nigra
Freycinetia banksii
Gahnia pauciflora
Gahnia setifolia
Gahnia xanthocarpa
Rhopalostylis sapida
Ripogonum scandens
Schoenus tendo
Uncinia banksii
Uncinia uncinata
Uncinia zotovii

Orchids

Caladenia sp.
Cyrtostylis oblonga
Earina mucronata
Ichthyostomum pygmaeum
Pterostylis agathicola
Pterostylis alobula
Pterostylis banksii
Pterostylis brumalis
Pterostylis graminea
Pterostylis trullifolia
Singularybas oblongus

Grasses

Microlaena avenacea
Oplismenus hirtellus ssp. *imbecillis*

Mosses ABS Journals 1977, 1982 (J Beever), 1988 (J Beever) (names updated from *The Mosses of NZ* , Beever, Allison & Child)

Achrophyllum dentatum
Achrophyllum quadrifarium (syn. *Pterygophyllum*)
Breutelia pendula
Bryum billardierei
Calomnion complanatum (syn. *C. laetum*)
Camptochaete arbuscula
Campylopus clavatus
Campylopus introflexus
Campylopus pyriformis (syn. *C. torquatus*)
Ctenidium pubescens
Cyathophorum bulbosum
Dicnemon calycinum
Dicranoloma billardierei
Dicranoloma fasciatum
Dicranoloma menziesii
Eurhynchium muriculatum
Fissidens pallidus
Fissidens tenellus
Hymenodon pilifer
Hypnodendron arcuatum
Hypnodendron colensoi
Hypnodendron comatum (was incl. in *Mniodendron dendroides*)
Hypnodendron menziesii
Hypnodendron spininervium
Hypnum chrysogaster
Hypnum cupressiforme
Hypopterygium rotulatum
Leptostomum macrocarpum
Leucobryum candidum
Lopidium concinnum
Macromitrium longipes
Macromitrium prorepens
Pendulothecium auriculatum (syn. *Homalia auriculata*)
Pendulothecium oblongifolium (syn. *Porotrichum*)
Pyrrhobryum bifarium (syn. *Rhizogonium*)
Ptychomnion aciculare
Racopilum convolutaceum (syn. *R. strumiferum*)
Rhizogonium novae-hollandiae
Sematophyllum amoenum
Tayloria callophylla
Thuidium furfurosum
Wijkia extenuata
Zygodon intermedius

Liverworts List provided by J E Braggins 16 Apr 05, based on the uphill section of the reserve only. Records are to be lodged in AK herbarium) * indicates species records from an earlier list; these vouchers have not been located.

Acromastigum colensoanum
Archilejeunea olivacea
*Balantiopsis rosea** (probably *B. diplophylla*)

Bazzania adnexa
Bazzania tayloriana
Cheilolejeunea sp.
Chiloscyphus muricatus
Frullania aterrima
Frullania patula
Frullania rostrata
Harpalejeunea latitans
Heteroscyphus allodontus
Heteroscyphus lyallii
Lejeunea flava
Lepidolaena clavigera
Lepidolaena taylorii
*Marsupidium knightii**
Mastigolejeunea anguiformis
Metalejeunea cucullata
Metzgeria furcata
Metzgeria sp.
*Plagiochila lyallii**
Saccogynidium australe
Symphyogyna hymenophyllum
Telaranea patentissima
Telaranea tetradactyla
*Trichocolea hatcheri**
*Trichocolea mollissima**
Zoopsis argentea

Fungi List provided by Petra White 16 Apr 05

Calocera sp.
Cyclomyces tabacinus
Favolaschia calocera
Ganoderma cf. *applanatum*
Isaria sinclairii
Lachnum sp.
Podoscypha petalodes ssp. *floriformis*
Ramariopsis kunzei

A botanist follows a linguist through the New Zealand bush: origins of Maori plant-names

Rhys Gardner

Introduction

The southwards-venturing Polynesians of a thousand years ago found in New Zealand a diverse and mostly novel flora. The ways in which they apportioned names to it has been set out in a notable essay by linguist and scholar, the late Professor Bruce Biggs (1990, 1991)[1]. Here I repeat his explanations, then discuss some names that still puzzle.

The core of the Maori's central-eastern Pacific Ocean (CEP) homeland is generally considered to be the Cook Islands (CI). Its plant-names, current and obsolete, have been compiled by Whistler (1990), and I have drawn on that invaluable work freely. New Zealand Maori plant-names, gathered up by Beever (1991) from a number of sources (including the Banks & Solander ms. NZ Flora); are nearly all to be found in the standard dictionary of Williams (1997). Other references are given where necessary.

Firstly, a simplification: a pair of names (say, in New Zealand Maori and Tahitian) are said here to be "the same" where a linguist would say they are "cognate". That is, they have a common source in some ancestral language — they resemble one other because of inheritance, not just by chance or through borrowing from some third language. Similarly, a biologist might say that particular structures or modes of development in two organisms are "the same" as a briefer way of saying "they correspond in an evolutionary sense" or "they are homologous".

The worlds of linguistics and biology are much alike. A language is a community of interacting words which are interrelated in their history. Words group together in taxa of varying degrees of size and distinctness, as seen for example in modern English, which has gained vocabulary from several earlier languages.

Words can be thought of as corresponding to biological species; a biological individual then would correspond to the use of a particular word in the lifetime of a particular human individual — a "word-individual". Phonemes, that is, units of sound/meaning in a particular word, are seen to be "the same as" an organism's genes, and they mutate, just as genes do. In fact, their rate of mutation is comparatively frantic — one only has to think of the Americanization of English to see that a "word-individual" can change in sound and shape considerably within its lifetime.

Linguists have found that parallelism is very common in language evolution. That is, as a language evolves it will generally undergo regular and widespread change in the sounds of its vowels and consonants. The recency of splitting up of the proto-Polynesian language, and the regularity with which its sounds did or did not change as today's Polynesian languages came into being, has made for good agreement on which words in these languages might be "the same".

Modes of origin of Maori plant-names

One kind of origin was where the name of a CEP plant could be transferred directly to the New Zealand scene, because of the near identity of the plants involved. *Dodonea viscosa* here would have immediately been recognized as the homeland's 'ake, *Geniostoma ligustrifolium* as its 'ange, *Lepidium* spp. as nau, *Metrosideros robusta* as rata, *Solanum americanum* as poro, *Freycinetia banksii* as kiekie, *Astelia* spp. as whara (ie. *Pandanus* spp. in Polynesia), etc., etc.

Direct transference of a CEP name to the New Zealand situation however is often based on what a botanist would regard as superficial similarity. For example, pukatea (literally, the "white broad-leaf") applies to *Pisonia grandis* in the Pacific but to *Laurelia novae-*

[1] Pawley (2001) discusses Biggs's life and work, and gives a bibliography arranged by subject.