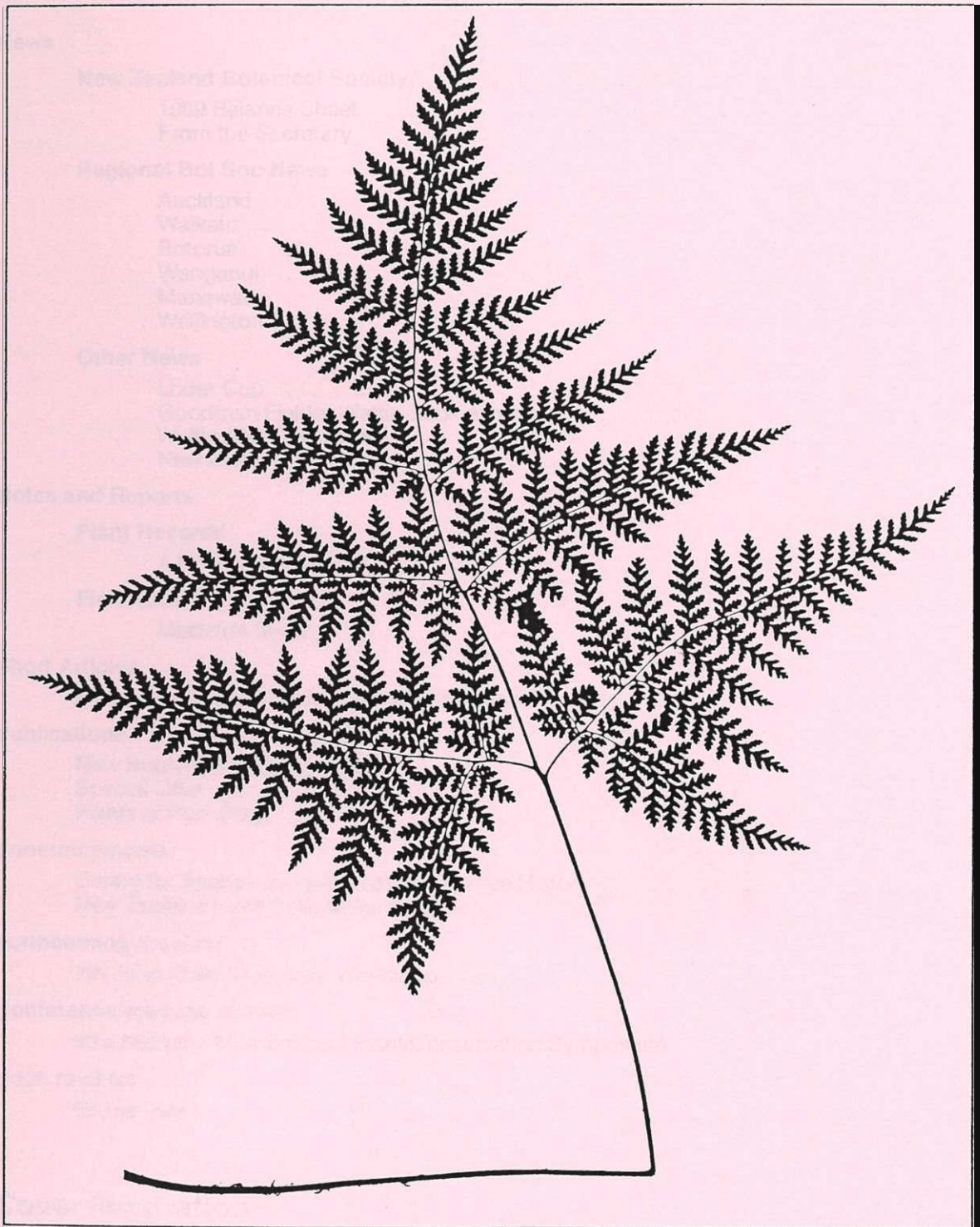


NEW ZEALAND BOTANICAL SOCIETY
NEWSLETTER

NUMBER 21

SEPTEMBER 1990



NEW ZEALAND BOTANICAL SOCIETY
N E W S L E T T E R
NUMBER 21 SEPTEMBER 1990

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Cover Illustration

Lastreopsis velutina, velvet fern, approximately 1/2 natural size.

New Zealand Botanical Society

President: Dr Eric Godley
Secretary/Treasurer: Anthony Wright
Committee: Sarah Beadel, Colin Webb, Carol West
Address: New Zealand Botanical Society
c/- Auckland Institute & Museum
Private Bag
AUCKLAND 1

Subscriptions

The 1990 ordinary and institutional subs are \$12. The 1990 student sub, available to full-time students, is \$6.

Back issues of the *Newsletter* are available at \$2.50 each - from Number 1 (August 1985) to Number 20 (June 1989). Since 1986 the *Newsletter* has appeared quarterly in March, June, September and December.

New subscriptions are always welcome and these, together with back issue orders, should be sent to the Secretary/Treasurer (address above).

Subscriptions are due by 28 February of each year for that calendar year. Existing subscribers are sent an invoice with the December *Newsletter* for the next year's subscription which offers a reduction if this is paid by the due date. If you are in arrears with your subscription a reminder notice comes attached to each issue of the *Newsletter*.

Deadline for next issue

The deadline for the December 1990 issue (Number 22) is 26 November 1990

Please forward contributions to: Dr Wendy Nelson, Editor
NZ Botanical Society Newsletter
c/- National Museum
PO Box 467
WELLINGTON

NEWS

New Zealand Botanical Society

■ Balance sheet for the financial year 01 January - 31 December 1989

INCOME		EXPENDITURE	
B/fwd from 1988	2445.66	Printing No. 15	825.00
1989 Subscriptions	2658.14	Postage No. 15	125.20
1989 Student Subs	63.00	Printing No. 16	756.00
1989 Donations	235.00	Postage No. 16	121.20
Back Issue Sales	122.50	Printing No. 17	832.50
1990 Subs in advance	156.00	Postage No. 17	123.60
Post-1990 Subs in advance	307.89	Postage No. 18	252.80
Interest cheque account	2.66	Incorporation Fee	22.00
Interest investment account	314.10	Seal	33.85
		ECO Subscription	65.00
		Overdraft interest (cheque account)	2.25
		Cheque duty	1.50
	<u>\$6304.95</u>		<u>\$3161.70</u>

Balance carried forward to 1990 \$3143.25 (represented by cheque account balance of \$14.58 and investment account balance of \$3128.67)

Notes to accompany accounts:

1. Cheque for \$830.25 for printing of No. 18 not presented until 1990.
2. 1989 subs figure not a multiple of the subscription figure due to remittances in foreign currency.
3. Balance sheet for 01 January - 31 December 1988 can be found on p. 3 of *Newsletter* No. 15 (March 1989).

Anthony Wright, Treasurer, New Zealand Botanical Society

12 March 1990

■ From the Secretary

To obviate the need for a formal committee meeting several matters requiring committee decisions have been dealt with by postal ballot. The 1989 balance sheet given above was approved for publication, and the Society's 1990 subscription to ECO was paid.

Dr Lucy Cranwell Smith of Tucson, Arizona, who has generously supported the New Zealand Botanical Society since its inception, has made a further donation of over \$500. The committee has decided to tag this sum of money as the "Lucy Cranwell Fund" within the accounts in order to acknowledge its source. There are no plans as yet for particular application of the funds - they will remain available to the Committee for pursuit of the Society's objectives.

The Society's constitution allows for cooptions to the Committee in order to achieve better regional representation. Due to the lack of business, the Committee has decided not to coopt any further members for 1990.

Members should note the availability of a high quality "poster presentation" promoting the New Zealand Botanical Society. Its various components require display board space of some two square metres, and it is suitable for display at conferences and meetings; if interested please contact:

Anthony Wright, Secretary, New Zealand Botanical Society, c/- Auckland Institute & Museum, Private Bag, Auckland 1

■ Auckland Botanical Society

Programme: Mid September - December 1990. Evening meetings:

Wednesday 3 October: Lucy Cranwell Lecture: "New Zealand Ferns" - Patrick Brownsey.

Wednesday 7 November: Workshop on plant families.
Wednesday 5 December: Pot luck dinner.

Field trips:

Saturday 15 September: Gumlands on private property, Hatfields Beach.
Saturday 13 October: Torehape Peat Bog, Hauraki Plains (joint Auckland, Rotorua & Waikato Bot Socs).
Saturday 17 November: Pollen Island, Waitemata Harbour.
Friday 25 - Wednesday 30 January 1991: North Head, Kaipara Harbour [Bookings essential: non-members contact Secretary in first instance].

Sandra Jones, Secretary, Auckland Botanical Society, 14 Park Road, Titirangi, Auckland 7 (ph. 09 817-6102)

■ **Waikato Botanical Society**

Our big news is the publication of the book "Plants of the Whangamarino Peat Bogs" produced by Cathy Jones and Paul Champion (refer "Publications" section of this newsletter for full details).

Forthcoming events:

Tuesday 18 September: Elementary workshop on mosses. Come along whether you know a little or a lot. This will be an excellent chance to learn the basics with the expert guidance of moss expert Jessica Beever. 7.30, University E Block, Advanced Biology lab D1.12.
Sunday 23 September: Field trip to Pirongia - southwestern track. Depart 8.30am from University gate 8. Contact: Paul Champion ph. 68-249.
Saturday 13 October: (Jointly with Auckland and Rotorua Bot Soc's) Torehape peat bog. Leader: Robyn Irving.
Tuesday 20 November: Workshop on estuarine plants. 7.30pm.
Saturday 24 November: Field trip to a Kawhia Marsh.

Vivienne Robson, Secretary, Waikato Botanical Society, BioSciences Department, Waikato University, Private Bag 3105, Hamilton

■ **Rotorua Botanical Society**

The Society's major project, a book on the botany of the Rotorua Lakes Ecological District, is at editorial stage and it is hoped that it will be published by the end of the year. One of the results of this project, published separately as a special issue (No 1 June 1990) of the Rotorua Botanical Society Newsletter, is the "Annotated List of Vascular Plants in the Rotorua Lakes Ecological District" prepared by C.E. Ecroyd, B.D. Clarkson and M. Wilcox. It is noted in the introduction to the special issue that the provisional species list has been published in the hope that it will stimulate interest in the botany of the district. Additions, corrections and comments on the provisional list would be appreciated.

Copies can be obtained, at \$5.00/copy from Stewart Wallace, Old Tauranga Road, R.D. 2, Rotorua.

On the June field trip to Mokoia Island in Lake Rotorua about 28 plants of *Rorippa divaricata* were found. The only other location in the Rotorua Lakes Ecological District of this rare species is around the Blue Lake where a few plants have been found.

The field trip and evening meeting programme to the end of the year is as follows:

Saturday 13 October: Torehape Peat Bog, Leader Robyn Irving (ph. 073 24-625).
Thursday 8 November: Landscapes and plants of Western Nelson - Evening address by Tony Druce.
Friday 9 - Sunday 11 November: Table Mountain and the Pinnacles, Kaueranga Valley, Thames. Leader: John Smith-Dodsworth (ph. 0843 58-618).
Sunday 2 December: Lake Okataina. Leaders Lindsay Gibbon (ph. 075 33-657) and Vicki Froude (ph. 073 470-879).

For further information contact:

Sarah Beadel, Secretary, Okere Road, R.D.4 Rotorua (ph. 073 24-804)

■ Wanganui Museum Botanical Group

At the Annual General Meeting held on July 3rd, Alf King was not available for re-election as Chairman. Officers for the 1990/91 year are:

Chairman:	Ian Bell: 115 Mt View Road, Wanganui (ph. 064 37-686)
Secretary:	Miss E.J. Bell: 15 Moore Avenue, Wanganui (ph. 064 57-160)
Treasurer:	Mrs Betty Andrews

It was agreed to increase the annual subscription to \$7.50 single and \$10.00 family.

Programme to end of December 1990:

Saturday 29 September: visit to S. Taranaki to look at some plants of the coast near Manaia and Pihama.

Leader: Colin Ogle (ph. 064 58-593).

Tuesday 2 October: Alf King: Classification for beginners.

Saturday 3 November: Christie's Lake to look at a Wetland area.

Tuesday 6 November: Dr Jill Rapson (Massey) "Plant patterns and plant/environment relations in some NZ wetlands".

Sunday 2 December: Visit a small area of privately owned bush. Details in November.

Tuesday 4 December: A festive supper and fun programme.

Museum Garden: Work parties at Museum garden 9.30 am on 13 October, 10 November and 8 December.

Meetings are held in Museum classroom at 8pm on the first Tuesday of the month.

Alf King, 180 No. 2 Line, R.D. 2, Wanganui

■ Manawatu Botanical Society

A wet winter hasn't deterred members from making a number of interesting trips over the last three months. Activities for the next three months are as follows:

Thursday 6 September - Meeting: Species list workshop. The aim is to compile a master species list for the reserves and other indigenous vegetation remnants in the Manawatu.

Saturday 8 September - Excursion: Species list, validation Trip 1: Totara Reserve depart 9am.

Thursday 4 October - Meeting: Mr Cory Matthew (Agronomy Department, Massey University) will give us an introduction to rushes and sedges.

Sunday 9 October - Excursion: Wetland areas around Foxton, depart 9am.

Thursday 1 November - Meeting: "A Botanist Abroad" Jill Rapson will talk about her recent sabbatical travels in North America, Japan and China.

Saturday 3 November - Excursion: Mystery trip, a botanical expedition to an area so sensitive we can't publicise its name. Depart 9am.

For further information contact:

Peter van Essen, Department of Botany & Zoology, Massey University, Palmerston North (after hours ph. 063 81-793)

■ Wellington Botanical Society

Monday 17 September: Evening Meeting "Aspects of the Vegetation of Fitzgerald River National Park, Western Australia." Speaker: Jeff Fox, Contract Technician in the Botany Department of the National Museum and previously at the National Herbarium, Canberra. An illustrated talk on the characteristic plants of the area, many of them confined to particular mountain outcrops within the park.

Saturday 6 October: Field Trip - Southern Walk. Meet at the Oriental Parade end of the Southern Walk at 9.00am. You may wish to use public transport to get to Oriental Parade. Along the walk we will compile a species list. The focus will mainly be on adventives. Bring lunch, drink, hand-lens, notebook. The trip will finish mid-afternoon irrespective of our location along the walk.

Monday 15 October: Evening Meeting - "Fungi" Speaker: Dr Ann Bell, Victoria University.

Saturday 3 November: Laboratory - "Fungi", Victoria University. Meet 9.00am at the 5th floor lab, Room K501, New Kirk Building. Leader: Ann Bell.

Monday 19 November: Evening Meeting - "DOC into the 90s". Speaker: Dave McKerchar, Regional Conservator, Department of Conservation, Wellington.

Saturday 1, Sunday 2 December: Two One-day Field Trips - 1. Kapiti Island. Meet at 8.00am at Paraparaumu Beach carpark. Bring lunch and drink, towel, dry clothing. Cost: \$25.00 for boat (price may rise before the trip). Please make cheques payable to Wellington Botanical Society. Payment due by Monday 19 November to the Secretary, 9 Mamari Street, Rongotai, Wellington 3. Numbers strictly limited to 45 people.

2. Hemi Matenga Scenic Reserve, Waikanae. Meet 10.00am at Tui Crescent, Waikanae. Bring lunch and drink.

Organiser for both trips: Jeremy Rolfe, phone and fax 856-347. Jeremy will not be available to lead these trips, so a leader is sought for them. Someone please volunteer. There is a camping ground at Queen Elizabeth Park, Paekakariki. People attending both trips may wish to camp there. If so, please make your own arrangements.

Carol West, Secretary, 9 Mamari St, Rongotai, Wellington 3

Other News

■ Loder Cup

Congratulations to Dr Brian Molloy, Scientist at DSIR Land Resources, and winner of the 1990 Loder Cup. The announcement of this award was made by the Minister of Conservation, Mr Woollaston who said "this prestigious award goes to a man whose work has lead us to a better understanding and appreciation of our botanical world".

■ Goodman Fielder Wattie Book Award Finalists

Congratulations to Bill and Nancy Malcolm on having their book "The Forest Carpet" selected as one of ten finalists for the prestigious Goodman Fielder Wattie Book Award, and on receiving third prize.

It is good to see botanical works reaching a wide audience and receiving recognition from the book industry.

■ Wellington Civic Award

Congratulations to Winsome Shepherd who was recently presented with a Wellington Civic Award by Mayor Jim Belich in recognition of her work promoting the history of Wellington's trees, and for her work on the Wellington Botanic Gardens.

■ New Element Discovered

The heaviest element known to science was recently discovered by physicists at Turgid University. The element, tentatively named Administratium, has no protons or electrons, and thus has an atomic number of 0. However, it does have 1 neutron, 125 assisant neutrons, 75 vice-neutrons, and 111 assistant vice-neutrons. This gives it an atomic mass number of 312. These 312 particles are held together in the nucleus by a force that involves the continuous exchange of meson-like particles called morons.

Since it has no electrons, Administratium is inert. However, it can be detected chemically as it impedes every reaction it comes into contact with. According to the discoverers, a minute amount of Administratium caused one reaction to take over 4 days to complete, when it would normally occur in less than one second.

Administratium has a normal half-life of approximately 3 years, at which time it does not actually decay, but instead undergoes a reorganization in which assistant neutrons, vice-neutrons, and assistant vice-neutrons exchange places. Some studies have shown that the atomic mass number actually increases after each reorganization.

Research at other laboratories indicates that Administratium occurs naturally in the atmosphere. It tends to condense and concentrate at certain points such as government agencies and universities, and can usually be found in the newest, best-appointed, and best maintained buildings.

Scientists point out that Administratium is known to be toxic at any level of concentration, and can easily destroy any productive reactions where it is allowed to accumulate. Attempts are being made to determine how Administratium can be controlled to prevent irreversible damage, but results to date are not promising.

NOTES AND REPORTS

Plant records

■ A New Grass Record

Colin Ogle noticed an unusual grass in a garden in Wanganui. It was identified by Dr. Elizabeth Edgar as *Ehrharta longiflora*. This was the first record in New Zealand but the grass occurs in Australia. South Africa is its country of origin.

Alf King, 180 No. 2 Line, R.D.2, Wanganui

Fieldwork

■ Mistletoe Survey, Parapara Highway, Wanganui

Several members of the Wanganui Botanical Group and two American Field Service scholars assisted staff of the Department of Conservation in a one-day survey of mistletoe, *Ileostylus micranthus*, in its only known location in the Rangitikei-Wanganui-Taranaki districts.

At this site, the mistletoes grow on hawthorn shrubs scattered over several hectares of hillside pasture. We labelled each tree with mistletoes, and each mistletoe that we could reach, with an individual numbered tag. All mistletoes and host trees were measured, and notes were made of other factors such as sign of possum browsing and presence of mistletoe fruit or flower buds. A total of 65 mistletoes was found, on 32 host trees. The average diameter of a mistletoe plant was 70cm. Possum browsing was seen in some plants, particularly where they grew on or close to thick branches of hawthorn which had few thorns.

We intend to re-survey this mistletoe population in a year or two. The survey was undertaken in July, because the mistletoes are easier to spot on deciduous hawthorn bushes.

Colin Ogle, Department of Conservation, Wanganui

SHORT ARTICLE

■ Motuhora (Whale Island) Planting Programme 1984-1989

by Mike McGlynn
East Coast Conservancy
Department of Conservation
P.O. Box 668
Gisborne

Introduction

Motuhora (Whale Island) is of volcanic origin, situated approximately seven kilometres off the eastern Bay of Plenty coastline, near Whakatane. It is 143 hectares in area and rises to a height of 347m above sea level. The terrain ranges from undulating to very steep, with an extensive area of cliffs on the northern side of the island. Rainfall averages between 1200 and 1300mm per year and the climate is frost free. Motuhora is within the White Island Ecological District, in the Northern Plateau Ecological Region (refer to McEwen 1987 for a description).

Vegetation Background

In 1984 when the Crown purchased Motuhora the vegetation was in a highly modified state. Many years of human habitation, fires and infestation by goats, rabbits and Norway rats had taken their toll on the island's fauna and flora. Only small areas of forest and other indigenous vegetation remained.

The plant communities that had developed by 1984 consisted of large areas of intensively browsed grassland, sizeable areas of bracken fern (*Pteridium esculentum*), kanuka shrubland (*Kunzea ericoides*),

scattered pohutukawa (*Metrosideros excelsa*), and coastal forest consisting mainly of pohutukawa, mahoe (*Melicactus ramiflorus*), and ngaio (*Myoporum laetum*), with small numbers of fuchsia (*Fuchsia excorticata*) and whau (*Entelea arborescens*). A forest of pohutukawa, kanuka and tutu (*Coriaria arborea*) was present on cliffs, and a small colony of manuka (*Leptospermum scoparium*) was slowly regenerating on the south-west slopes of Pa Hill. A list of vascular plants and descriptions of the various vegetation types is provided by Ogle (in press).

Whilst regeneration of some species was occurring, others were on the brink of extinction or had little opportunity to expand. Some species were poorly represented as can be seen from the following: one pate (*Schefflera digitata*), approximately forty cabbage trees (*Cordyline australis*), approximately twenty flax plants (*Phormium tenax*), low numbers of all *Coprosma* species, all of which survived on inaccessible cliffs, less than forty houpara (*Pseudopanax lessonii*), six kohekohe (*Dysoxylum spectabile*), five karaka (*Corynocarpus laevigatus*), two kawakawa (*Macropiper excelsum*), one mangeao (*Litsea calicaris*), and thirty karo (*Pittosporum crassifolium*) trees and seedlings. The species diversity of the vegetation types remaining on the island in 1984 was extremely low when compared to nearby Kohi Point on the mainland.

Objectives

The potential for Motuhora as a site for establishing viable populations of threatened species of fauna plus protection of the existing colony of grey-faced petrels was recognised long before the island came into Crown ownership in 1984. It was only then that active management could be seriously considered. A planting programme was initiated by the Wildlife Service with several objectives; to accelerate rates of natural succession by introducing new species, to enlarge the population size of existing species, to create buffer zones to minimize the risk of fire, and to expand the food resource and habitat available for wildlife.

Planting Programme

A planting strategy was formulated in keeping with the above objectives. Several planting sites were selected and plant material (seed and/or cuttings) was collected and grown at Matawhero Nursery (Department of Conservation, Gisborne).

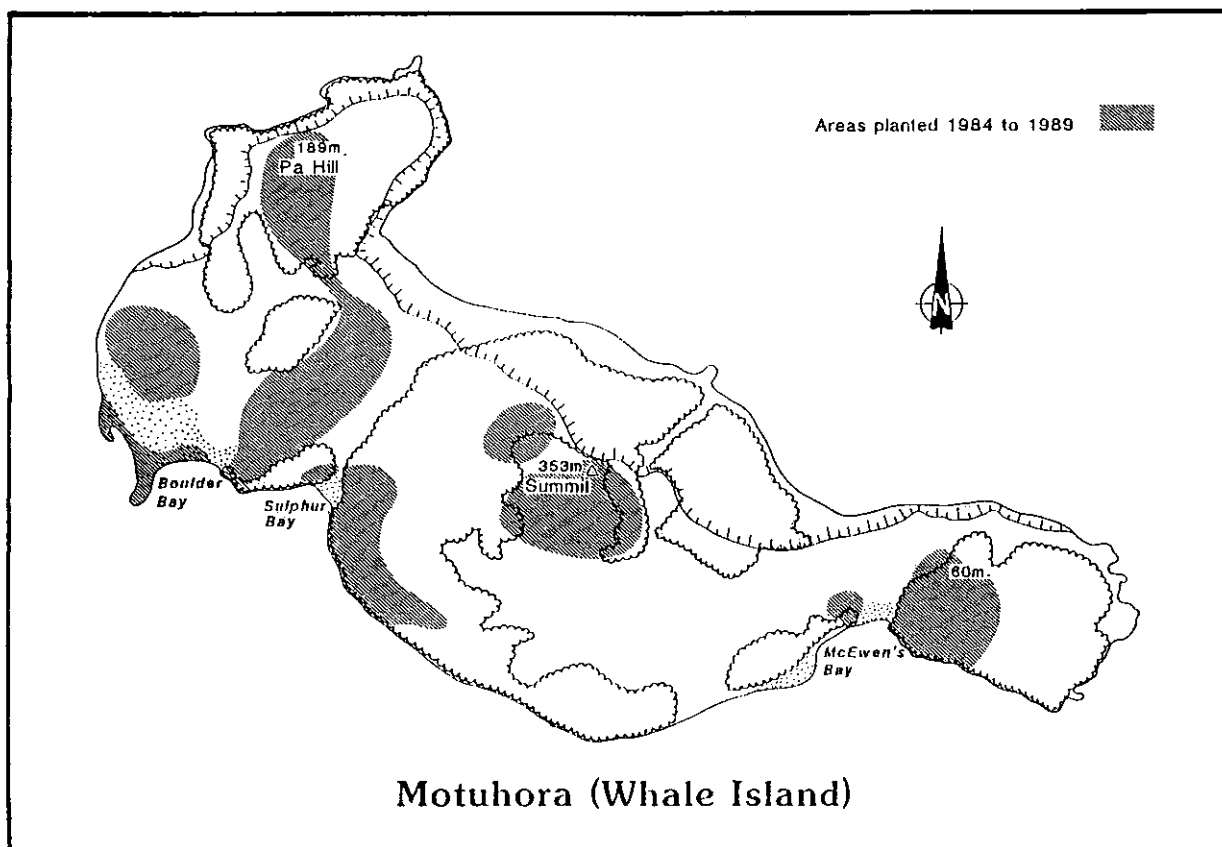


Figure 1. Planting sites (1984-1989) on Motuhora (Whale Island)

Those sites that had been designated as having a high fire risk, e.g. landing sites traditionally used by the public, were planted with fire resistant species such as taupata and karamu. These sites tended to be among regenerating kanuka scrub. Open sites, e.g. grassland with the potential of being a fire hazard, were planted with species such as ngaio, karo, flax, taupata and karamu.

The majority of planting sites had a kanuka or pohutukawa canopy to act as a nurse crop. Initially these sites had to be relatively close to the coast, as all plants were transported by boat and then carried to their respective plots. Species that were favoured for these sites included puriri (*Vitex lucens*), fivefinger (*Pseudopanax arboreus*), pate, kawakawa, kamahi (*Weinmannia racemosa*), pigeonwood (*Hedycarya arborea*), wharangi (*Melicope ternata*) and mapou (*Myrsine australis*).

It should be emphasised that it was never intended to replant the whole island. What was intended was to select a few key areas and concentrate on them with the eventual aim of establishing viable seed sources. (Refer to Figure 1 for planting sites). Some species, e.g. *Coprosma* spp. are now producing seed and regenerating of their own accord.

The logistical problems of planting during 1984 to 1987 were made more difficult because finance was not available for helicopter hire. A vast amount of time was used loading and unloading trucks and boats, and then carrying the plants to their planting sites. One site involved a one kilometre carry and another a near-vertical climb off a beach whilst trying to juggle plastic milk crates packed with trees. Each plant was handled at least five times, more if sea conditions were rough. Helicopters, with crates slung underneath, were used in 1988 and 1989 to transport all plants to the planting sites. This was a great improvement, as all stock arrived in perfect condition, fewer people were required, and the operations were carried out relatively quickly.

Planting over the six year period was carried out by members of the Whakatane Branch of the Forest and Bird Society, other volunteers, Wildlife Service staff, and Department of Conservation staff. One of the major problems involved with the planting was adequate supervision of those planters who lacked skills in plant identification and knowledge of the species' habitat requirements. General guidelines on site selection were given beforehand, but in some years it was impossible to check all planting due to the large number of seedlings involved. On the completion of every planting session, staff with botanical knowledge checked the areas planted to ensure that the planting had been done correctly. Some examples of poor planting that had to be rectified were titoki (*Alectryon excelsus*) planted a metre apart in a straight line, and three puriri spaced less than half a metre apart in a triangular fashion.

Planting dates varied from year to year, from early May to late September. Figures in parentheses indicate the number of seedlings planted each year; September 1984 (200), August 1985 (592), May and September 1986 (2438), July 1987 (4581), June 1988 (2673), and August 1989 (1406).

In total 11,890 container grown seedlings were planted on Motuhora between 1984 and 1989. There were 45 species, 29 of which were introduced from within the Whakatane Ecological Region, with all seed or cutting material collected within a 25km radius of the island. (Refer to Appendix II for a complete list of species, number and plant material source). Where possible, seed was used in preference to cutting material to promote genetic diversity. Some species were very difficult to obtain and in a few cases only a small number of seeds were collected. Kawakawa provides an interesting example; the two plants that had survived on Motuhora were fortunately a male and a female. Cuttings were taken off both plants, isolated and eventually planted back in mixed groups to ensure pollination. Karo seed was difficult to find because of competition from birds and the small number of adult trees surviving on a cliff face. One important species that proved difficult was kohekohe; all cuttings failed and no seed was ever found. However one wild seedling was observed on the summit in August 1989.

To date, the survival rate of planted stock has been very high; in excess of 90%. This can be attributed to a variety of factors; soil, favourable climate, and sturdy container-grown plants planted out relatively quickly. The only planting that was not successful was the initial one in 1984 when 200 karaka seedlings were decimated by rabbits. Fortunately rabbit numbers declined rapidly over the following year and were eventually eradicated by poisoning. The age of potted stock varied considerably according to species; cutting grown sand coprosma (*Coprosma acerosa*) were large enough for planting out within seven months, but nikau palm (*Rhopalostylis sapida*) required fifty two months (refer to Appendix I for a full list of growth rates and propagation methods).

The planting programme has now wound down, although scope still exists for establishing rare and endangered plant species on the island. There are also several species that are still "missing" which could

be beneficial to the island ecosystem: *Pomaderris* species, *Olearia* species, supplejack (*Ripogonum scandens*), tawapou (*Planchonella costata*) and milk tree (*Streblus* spp.)

Conclusions

There are at least two schools of thought with regard to island revegetation; one is to allow only natural regeneration to take place while the other supports human interference and planting to manipulate or increase rates of succession. The latter approach was chosen for Motuhora because the island had been grossly modified by human activities and agencies. The rate of natural regeneration on the island has been phenomenal since the removal of goats (1977), rabbits and rats (1986) however without the introduction of new plant species, or supplementary planting of resident species, the vegetation would have been dominated by only a few species for a very long period of time. Many species had undoubtedly been lost from the island, and adventive plants have dominated or were likely to dominate some areas not already in forest.

The main planting programme has been completed. Results to date appear very favourable with a high survival rate at relatively low cost; however a longer period of time will be required to evaluate whether the desired objectives have been achieved. Consideration could now be given to using Motuhora as a site for marooning appropriate threatened species.

Acknowledgements

I am grateful to Colin Ogle (Department of Conservation, Wanganui), and Willie Shaw (Department of Conservation, Rotorua) for their encouragement and helpful criticisms in preparing this text, and to John Galilee (Department of Conservation, Gisborne), for his advice and comments.

References

- McEwen, W.M. 1987: Ecological Regions and Districts of New Zealand. Third revised edition. Sheet 2. Publication No. 5, N.Z. Biological Resources Centre, Department of Conservation, Wellington.
- Ogle, C.C. in press: Changes to the Vegetation and Vascular Flora of Motuhora (Whale Island). Tane 32. (Department of Conservation Scientific Paper No. 9).

Appendix I. Propagation methods of Species Planted on Motuhora (Whale Island) 1984-1989

Botanical Name	Common Name	Propagation Method		Duration Nursery Cultivation (Months)
		Seed	Cutting	
<i>Alectryon excelsus</i>	titoki	x		24
<i>Beilschmieda tawa</i>	tawa	x		27
<i>Calystegia soldanella</i>	pohuehue	x		6
<i>Carmichaelia aligera</i>	NZ broom	x		14
<i>Carpodetus serratus</i>	putaputaweta	x		16
<i>Cassinia leptophylla</i>	tauhinu	x		6
<i>Coprosma acerosa</i>	sand coprosma		x	7
<i>Coprosma lucida</i>	shining karamu	x		15
<i>Coprosma macrocarpa</i> x robusta			x	15
<i>Coprosma propinqua</i>	mingimingi	x	x	15
<i>Coprosma propinqua</i> x robusta			x	15
<i>Coprosma repens</i>	taupata	x	x	15
<i>Coprosma robusta</i>		x	x	15
<i>Coprosma spathulata</i>		x		15
<i>Cordyline australis</i>	ti kouka	x		13
<i>Corynocarpus laevigatus</i>	karaka	x		15
<i>Dacrycarpus dacrydioides</i>	kahikatea	x		39
<i>Desmoschoenus spiralis</i>	pingao	x		17
<i>Dodonaea viscosa</i>	akeake	x		13
<i>Entelea arborescens</i>	whau	x		13
<i>Freycinetia baueriana</i> subsp. banksii	kiekie	x	x	41
<i>Fuchsia excorticata</i>	tree fuchsia		x	15
<i>Hebe parviflora</i> var. arborea	hebe	x		15
<i>Hebe stricta</i>	koromiko		x	15

<i>Hedycarya arborea</i>	pigeonwood	x		16
<i>Knightia excelsa</i>	rewarewa	x		38
<i>Litsea calicaris</i>	mangeao	x		29
<i>Machaerina sinclairii</i>		x		14
<i>Macropiper excelsum</i>	kawakawa		x	17
<i>Melicope ternata</i>	wharangi	x		29
<i>Melicytus novae-zelandiae</i>	coastal mahoe	x	x	40
<i>Metrosideros carminea</i>	rata vine		x	40
<i>Muehlenbeckia complexa</i>	pohuehue		x	15
<i>Myoporum laetum</i>	ngaio	x		15
<i>Myrsine australis</i>	mapou	x		27
<i>Phormium tenax</i>	flax	x		27
<i>Pittosporum crassifolium</i>	karo	x		24
<i>Pittosporum tenuifolium</i>	kohuhu	x		26
<i>Pratia angulata</i>		x		14
<i>Pseudopanax arboreus</i>	fivefinger	x		15
<i>Pseudopanax lessonii</i>	houpara		x	25
<i>Rhopalostylis sapida</i>	nikau	x		52
<i>Schefflera digitata</i>	pate	x		16
<i>Vitex lucens</i>	puriri	x		14-26
<i>Weinmannia racemosa</i>	kamahi	x		27

Appendix II. Plant Material Source of Species Planted on Motuhora (Whale Island) 1984-1989

Botanical Name	Common Name	Plant Material Source	Number Planted
<i>Alectryon excelsus</i>	titoki	Matekerepu	300
<i>Beilschmiedia tawa</i>	tawa	White Pine Scenic Reserve	150
<i>Calystegia soldanella</i>	pohuehue	Rurima Rocks	9
<i>Carmichaelia aligera</i>	NZ broom	Mokorua Scenic Reserve	15
<i>Carpodetus serratus</i>	putaputaweta	Ohope Scenic Reserve	105
<i>Cassinia leptophylla</i>	tauhinu	Whale Island	119
<i>Coprosma acerosa</i>	sand coprosma	Rurima Rocks	125
<i>Coprosma lucida</i>	shining karamu	Ohope Scenic Reserve	249
<i>Coprosma macrocarpa</i> x <i>robusta</i>		Whale Island	335
<i>Coprosma propinqua</i>	mingimingi	Ohineteraraku Scenic Reserve	137
<i>Coprosma propinqua</i> x <i>robusta</i>		Whale Island	61
<i>Coprosma repens</i>	taupata	Whale Island	2202
<i>Coprosma robusta</i>	karamu	Whale Island	853
<i>Coprosma spathulata</i>		Ohineteraraku Scenic Reserve	38
<i>Cordyline australis</i>	ti kouka	Whale Island	477
<i>Corynocarpus laevigatus</i>	karaka	Whale Island	762
<i>Dacrycarpus dacrydioides</i>	kahikatea	Ohope Scenic Reserve	57
<i>Desmoschoenus spiralis</i>	pingao	Whakatane Airport	440
<i>Dodonaea viscosa</i>	akeake	Ohiwa Harbour	190
<i>Entelea arborescens</i>	whau	Whale Island	97
<i>Freycinetia baueriana</i> subsp. <i>banksii</i>	kiekie	White Pine Science Reserve	5
<i>Fuchsia excorticata</i>	tree fuchsia	Whale Island	30
<i>Hebe parviflora</i> var. <i>arborea</i>	hebe	Ohope Scenic Reserve	88
<i>Hebe stricta</i>	koromiko	Whale Island	15
<i>Hedycarya arborea</i>	pigeonwood	Waiotahi Spit	160
<i>Knightia excelsa</i>	rewarewa	Kohi Point	53
<i>Litsea calicaris</i>	mangeao	Kohi Point	21
<i>Machaerina sinclairii</i>		Ohope Scenic Reserve	50
<i>Macropiper excelsum</i>	kawakawa	Whale Island	144
<i>Melicope ternata</i>	wharangi	Ohineteraraku Scenic Reserve	40
<i>Melicytus novae-zelandiae</i>	coastal mahoe	Rurima Rocks	162
<i>Metrosideros carminea</i>	rata vine	Whale Island	30
<i>Muehlenbeckia complexa</i>	pohuehue	Rurima Rocks	39
<i>Myoporum laetum</i>	ngaio	Whale Island	472
<i>Myrsine australis</i>	mapou	Ohope Scenic Reserve	546

<i>Phormium tenax</i>	flax	Whale Island	746
<i>Pittosporum crassifolium</i>	karo	Whale Island	696
<i>Pittosporum tenuifolium</i>	kohuhu	Ohope Scenic Reserve	150
<i>Pratia angulata</i>		Ohope Scenic Reserve	60
<i>Pseudopanax arboreus</i>	fivefinger	Ohope Cliffs	392
<i>Pseudopanax lessonii</i>	houpara	Whale Island	40
<i>Rhopalostylis sapida</i>	nikau	White Pine Scenic Reserve	320
<i>Schefflera digitata</i>	pate	Matekerepu Scenic Reserve	285
<i>Vitex lucens</i>	puriri	Ohineteraraku Scenic Reserve	350
<i>Weinmannia racemosa</i>	kamahi	Kohi Point	275
		Total	11,900

PUBLICATIONS

■ New Book on Flowering Plants

As part of DSIR's contribution to the celebration of New Zealand's sesquicentennial, three botanists from DSIR Land Resources have produced a popular reference for everyone wanting to appreciate New Zealand plants. The book contains 52 important families of flowering plants treating each with an informative text and superb colour illustrations.

Plants with flowers are an important part of the world around us. They dominate the earth's vegetation, and provide most of the essentials for human life. The flowers themselves are a key to recognising the diverse families which have evolved independently, each with its own properties, uses, and appeal. If you want to know more about the plants that dominate the world around you, this is the ideal introductory text. If you already know all about plants, then the book is worth having for the plant photos alone.

As a special offer to Botanical Society members copies are available for \$33.95 (15% discount off the retail price) from:

Information Officer, DSIR Land Resources, Private Bag, Christchurch

■ Special Offer

Bill and Nancy Malcolm have produced two beautifully illustrated books "The Forest Carpet" and "New Zealand Alpine Plants Inside and Out" which are now available as a package offer for \$40.00. This offer lasts until December 1990. Write to:

Craig Potton Publishing, P.O. Box 555, Nelson

■ Plants of the Whangamarino Peat Bogs

A comprehensive Field Guide of 32 species of bog plants of the Whangamarino peat bogs has just been published by the Waikato Botanical Society. Each species is represented by a detailed description by Paul Champion and drawings by Cathy Jones. A full key is included. This book is 86 pages, spiral bound with a laminated cover and available for \$12.50 (including p&p) from:

Catherine Beard, Waikato Botanical Society, C/- Department of BioSciences, University of Waikato, Private Bag 3105, Hamilton

ANNOUNCEMENTS

■ Centre for Studies on New Zealand Science History

On 3 May 1990 Dr Andy Thomson established an independent centre for studies on N.Z. Science History from his home in Christchurch. The aim of the centre is to record and assess the contribution of our science and scientists, and in so doing help enhance the public perception of our science. The Centre's symbol is modified from the original (and now obsolete) Botany Division logo. The stylised trimerous symmetry of the N.Z. iris flower (*Libertia*) is meant to indicate that a major interest of the centre is in plant science history. The Centre's origin from Botany Division is also inferred by the symbol. The Centre has an honorary advisory board of Dr E.J. Godley, Dr H.C. Smith, Mr J.G. Gregory and Dr M.E. Hoare. It is hoped to sustain the Centre on grants and contracts and the first major project is the completion of the full biography of Leonard Cockayne. Mrs Diane Thomson is the administrator and the Centre is working on an initial project to prepare indexes to the plant, people and place names mentioned in the Cockayne letters that were summarised and annotated in 1979 and 1980.

This initial project is to assist in the uniting of the Cockayne biography. However, the indexes may be of use to botanists in general and they will be published in due course.

Dr Andy Thomson, 5 Karitane Drive, Christchurch

■ New Zealand Plant Collections Scheme

During the past twelve months the Royal New Zealand Institute of Horticulture, along with other organisations and individuals, has been working on the establishment of a New Zealand Plant Collections Scheme. The mission and goals of this Scheme are as follows:

Mission

To participate in a global strategy for conserving plant genetic diversity by monitoring, preserving and enhancing the resource in New Zealand.

Goals

1. To establish which plants exist in New Zealand and to establish a common system of documentation and plant recording. The system will need the capacity to network with international systems.
2. To determine those collections which currently exist in New Zealand and when necessary, advise on appropriate action to encourage their preservation in co-operation with other bodies active in this field.
3. To provide authoritative advice as to the intrinsic value and importance of ensuring the preservation of both collections and individual plants.
4. To act as an information source regarding the location and availability of propagating material, reference works, nursery catalogues and other pertinent materials.
5. To facilitate the establishment of plant collections.
6. To encourage in all possible ways the education of, and participation in, plant conservation.
7. To facilitate and encourage the development and use of sampling, propagating and curatorial techniques which enhance plant genetic resources.
8. To liaise with international bodies who have aims and objectives sympathetic to those of the NZPCS.

The Scheme will co-ordinate plant conservation efforts in New Zealand and ensure expertise and resources are available where needed.

At this stage we would like your views on the Scheme and whether you support its goals. Your support is essential if the Scheme is going to succeed. Please write to:

Mike Oates, Chairman, Plant Collections Steering Committee, Royal NZ Institute of Horticulture National Executive, P.O. Box 12, Lincoln University, Canterbury

FORTHCOMING MEETING

■ 7th John Child Bryophyte Workshop

The workshop this year is to be held at Borland Lodge, near Lake Monowai on the eastern boundary of Fiordland National Park, from dinner time Thursday, November 15 to after breakfast Tuesday November 20. Total cost is expected to be about \$100 NZ. Accommodation is in bunk rooms and domestic chores will be rostered.

The Lodge is about 60 km south of Te Anau. Transport will be available from Te Anau airport. The vegetation of the area adjacent to the Lodge is lowland beech forest and trips are planned to subalpine and alpine areas. There is a diversity of rock types within walking distance of the Lodge including sandstone, limestone and gneiss.

Organisation is being undertaken by:

Ray Tangney, Department of Botany, University of Otago, P.O. Box 56, Dunedin

CONFERENCE/MEETING REVIEWS

■ 90's Natives - New Zealand Native Plant/Conservation Symposium

The Symposium, held at Bay of Plenty Polytechnic on 31 July and 1 & 2 August, was attended by a wide range of people, mostly horticulturists, landscape designers, conservationists and botanists. It originated from a suggestion by Bob Edwards, editor of "Commercial Horticulture", who is planning to publish the proceedings. The idea was to get together people involved with native plants in different spheres and that aim was achieved. The meeting did not reach any concrete conclusions, largely because there was no clear agreed goal and because there was no time for discussion after most papers. Nevertheless the ideas aired and contacts made may well yield fruit in unpredictable ways in the future.

My overall impression was of a paucity of science, but this was never intended as a purely scientific meeting. However, I was disappointed that two or three papers included anti-scientific sentiments, which reinforced the oft-stated view that scientists must do more to educate and inform the public and private and government organisations.

Many of the speakers spoke of an emotional involvement with native plants, an aspect which, unfortunately, is often treated as of no account in conservation debates. Des Kahotea (Waikato University) spoke of the Maori viewpoint and gave an interesting introduction to the pre-European world of the Maori which explained why native plants are such important symbols to the tangata whenua. Graeme Platt (Platt's Nursery, Albany) demonstrated in his lecture that pakeha New Zealanders too have an emotional tie to this land and plants are important symbols for them also.

Commercial growers and garden centres were well represented. Dermott Malley (Duncan and Davies) outlined the research needs of his industry as: breeding new cultivars, developing new production techniques and packaging methods, reducing the use of chemicals and non-renewable resources, and developing ideas to help growers cope with the Resource Management Act. He saw the breeder as a very important person who should be nurtured by the industry, and bemoaned the current methods of research funding which allow concentration only on projects where either the question or the answer is known. Jenny Oliphant (Cyclone Flora) also opposed current funding methods as leading to an imprisonment of knowledge equivalent to the burning of the library at Alexandria. Her paper on tissue culture of native plants was a good overview of the successes and potential of this method of propagation.

Warwick Harris (DSIR Land Resources) spoke on selection, breeding and evaluation of native plants for European markets, based on his recent trip to Angers, France. As one of the few speakers to leave time for discussion he had to respond to an accusation from Del Wihongi (Pu Hao Rangi) that scientists were trying to exploit indigenous plants for pakeha profit. The audience was clearly irritated by this attitude, but the Treaty of Waitangi is an important issue. I wish there had been more time for discussion on that topic and perhaps a presentation from Mrs Wihongi.

Herwie Scheltus (DoC, Taupo) gave an interesting account of the work he and others were doing on restoring vegetation damaged by road and railway works in the central North Island. His concern with using local seed sources and his innovative methods for protecting seedlings were of great interest to many delegates.

Lawrie Metcalf (Invercargill City Corporation) spoke on Hebe cultivars and Phil Garnock-Jones (DSIR Land Resources) outlined current taxonomic research on the genus, New Zealand's largest. Both felt that development of hebes for cultivation had not been systematically organised and that there is an enormous commercial potential in the genus.

Philip Simpson (DoC, Wellington), introduced Tu Kakariki, the New Zealand Tree Program, and spoke of New Zealand's biota living in harmony in pre-human New Zealand, where struggle was never part of life. His view saw Gaia stirring New Zealand into new relationships, restoring its mauri (life force), while Gaia Ecology is helping people change from destroying nature to becoming part of it. He advocated permaculture in New Zealand's farms and forests, with revegetation based on sound ecological principles. His coauthor, Ronda Cooper, spoke of the human and organisational side of the program, providing a valuable introduction to the scheme.

There were a number of workshops on various topics. Some suffered from not having enough time and were dominated by presentations from their convenors, according to accounts I heard. The latter criticism was not true of the workshop I attended, where David Given (DSIR Land Resources) encouraged full participation on the topic of native plant collections and some interesting ideas were drawn together. The workshop on "Te Wao Nue A Tane - the Ethnobotanical Garden" was well attended and the speakers, Murray Parsons (DSIR Land Resources) and Del Wihongi, were very pleased with the attentive questions and supportive suggestions from the participants.

The symposium began with a powhiri in the Rex Williams centre, which provided a sense of togetherness and a firm beginning to the meeting. In another important ceremony, the Loder Cup was presented to Brian Molloy for his conservation work by the Director-General of Conservation, Bill Mansfield. The final event was a tree planting field trip to Gammon's reserve, which links the Mangarewa and Puwhenua native forests with the Kaimai-Mamuku State Forest, and is home to about 300 kokako. About 250 rimu and kahikatea trees were planted.

The new facilities at Bay of Plenty Polytechnic make an excellent conference venue, which was only slightly marred by the lack of nearby accommodation. Charmian Brown and her team there are to be commended for their smooth organisation of the meeting.

Phil Garnock-Jones, Botany Institute, DSIR Land Resources, Private Bag, Christchurch

BOOK REVIEW

- **Glossarium Polyglottum Bryologiae, a Multilingual Glossary for Bryology.** Editor R.E. Magill, Missouri Botanical Garden, P.O. Box 299, St Louis, Missouri, USA. 1990, 297 pages. US \$12.00 + \$2.00 postage for one book and .50c for each additional book.

Following upon a paper delivered by me at the instigation of the then president, S.W. Greene, the meeting of the International Association of Bryologists at Geneva in 1979 adopted a proposal to prepare a multilingual glossary of bryological terms. A committee was duly set up for this purpose.

Eleven years on and with input from bryologists of many countries, extensive work by R.E. Magill and resources made available by the Missouri Botanical Garden this task has now been completed. It was originally intended that illustrations be included but owing to the cost involved this has not been possible. However, there is compensation in the form of references to genera showing a particular feature, illustrations of which are readily available in many books and papers.

The English version was prepared first by R.E. Magill and R.E. Stotler. It is useful in providing a list of the generally accepted terms in use today and their meanings. In addition there are versions in French, German, Japanese, Latin, Russian and Spanish accompanied by cross references to the English version.

Many of the terms listed, such as ciliate and caespitose, will be of interest to all botanists whereas other, such as alar cells and coelocaula are specialised terms used in bryology. The multilingual nature of the book should prove of particular value to many scientists, as specialised terms and their accepted meanings are not usually included in dictionaries and yet many papers have been written in these languages.

R.E. Magill is to be congratulated on the successful completion of this project which should enable easier communication amongst bryologists of all countries and so enhance progress and understanding.

Ella O. Campbell, Department of Botany and Zoology, Massey University, Palmerston North

Acknowledgements: Kathleen Ryan typed the text in record time and Marcel Smits produced the camera-ready copy using the Ventura desk-top publisher.

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