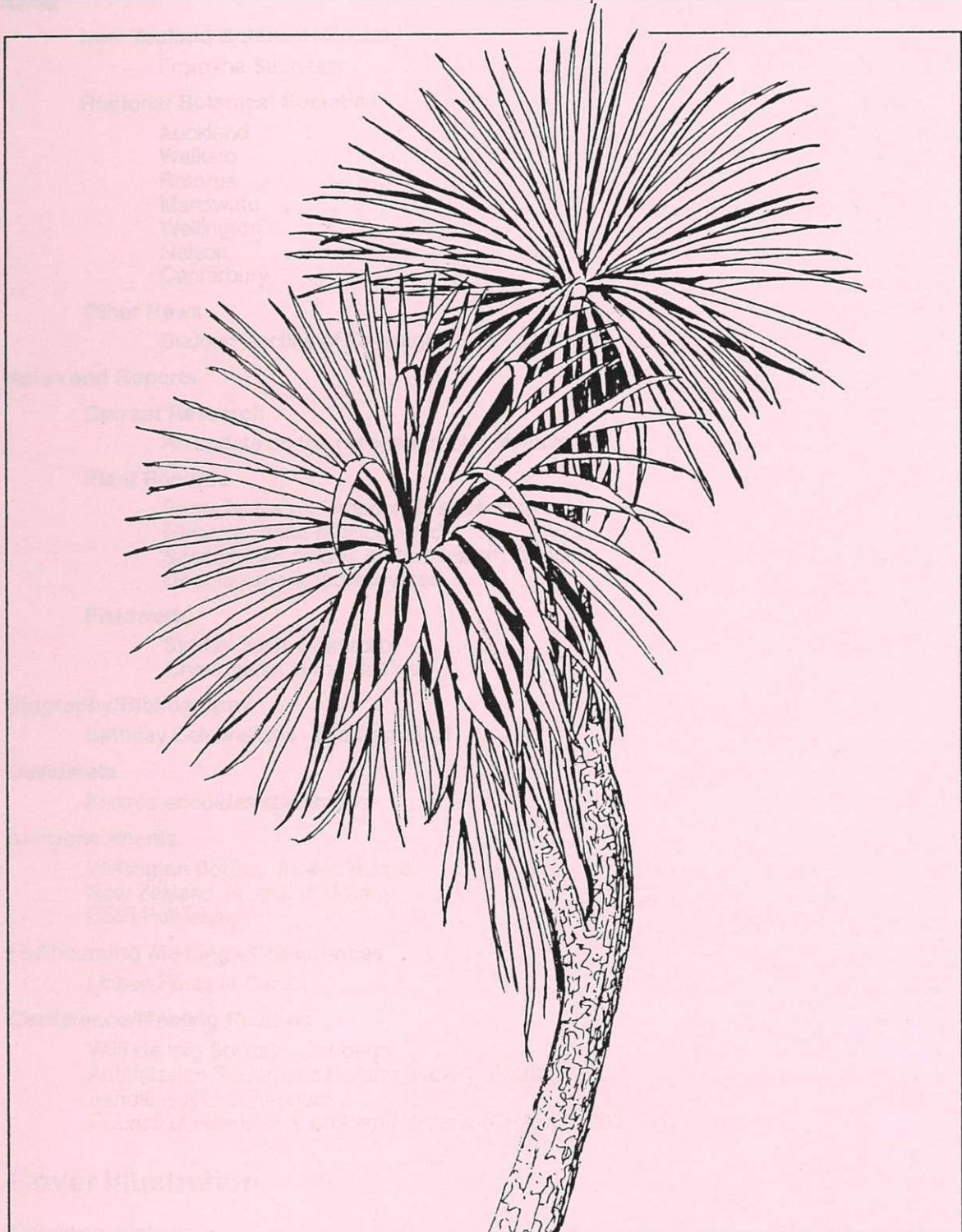


NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 22

DECEMBER 1990



NEW ZEALAND BOTANICAL SOCIETY
N E W S L E T T E R
NUMBER 22 DECEMBER 1990

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Cover Illustration

Cordyline australis

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 1991 ordinary and institutional subs are \$12 (reducible to \$10 if paid by 28 February 1991). The 1991 student sub, available to full-time students, is \$6 (reducible to \$5 if paid by 28 February 1991).

Back issues of the *Newsletter* are available at \$2.50 each - from Number 1 (August 1985) to Number 21 (September 1990). 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 previous year, which offers a reduction in subscription 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 March 1991 issue (Number 23) is 25 February 1991.

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

NEWS

New Zealand Bot Soc News

■ From the Secretary

Nominations for Officers and Committee positions for the New Zealand Botanical Society received by the closing date of 20 November 1990 were:

President	Dr Eric Godley
Secretary/Treasurer	Anthony Wright
Committee	Sarah Beadel
	Colin Webb
	Carol West

As the number of nominations equalled the number of vacancies there was no need for a ballot, and the above are declared elected.

The 1991 subscriptions have been held at the same level as 1990; details can be found on p. 2. An invoice for your 1991 subscription comes attached to this issue of the *Newsletter*.

Anthony Wright, Secretary/Treasurer NZBS, c/- Auckland Institute & Museum, Private Bag, Auckland 1

Regional Bot Soc News

■ Auckland Botanical Society

Programme: mid-December 1990 - March 1991

Wednesday 6 March 1991: AGM

Friday 25 - Wednesday 30 January 1991: North Head, Kaipara Harbour Bush reserves, dune lakes, sand dune vegetation. Bookings please to Anthony Wright, c/- Auckland Institute & Museum, Private Bag, Auckland.

Saturday 16 February: Waitakere swamp

Saturday 16 March: Te Arai Scenic Reserve, Wellsford.

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

■ Waikato Botanical Society

Mosses and estuarine plants have provided the focus for interesting workshops and fieldtrips in recent months, and the combined trip with Rotorua and Auckland Botanical Societies to Torehape peat bog was thoroughly enjoyed by the large number of people who attended. Members recently mapped roadside specimens of *Pomaderris hamiltonii* in the Miranda area and were pleasantly surprised by the large number of plants. Nearly all those that we saw, however, are under threat from the local roadmender.

Our programme for 1991 is in process of being finalised and includes a limestone trip (combined with Rotorua) and our annual jaunt with Rotorua and Auckland, this year to Mt Donald McLean. Details will appear in the next issue.

We have sold good numbers of "Plants of the Whangamarino Peat Bogs", but still have a few copies left. Anyone wishing to buy one should send \$12.50 (incl P&P) to the address below.

We wish everyone a very happy and botanical Christmas.

Secretary Waikato Botanical Society, c/- Biological Sciences Dept, University of Waikato, Private Bag 3105, Hamilton

■ Rotorua Botanical Society

Field Trip Programme 1991:

Anniversary Weekend Jan 26-28: Ruahine Range - Mark Smale (073) 483-022

February 24: Lake Rotomahana - Clive Howard-Williams (074) 85-806

March 17: Raroa (Waimana River) - Willie Shaw (073) 24-546

Easter March 29 - April 1: Te Araroa (Pukeamaru S/R and others) - Family Camp, contact Robyn Irving (073) 24-625.

April 13 (or 14th): Motiti Island - Barry Spring-Rice

May 18: Waione (Minginui) - John Nicholls

June 16 (AGM): Utuhina Stream - Chris Ecroyd

July 20: Fern Workshop (Fri Herbarium) - John Smith Dodsworth (Contact Chris Ecroyd)

August 18: Carrie Gibbons Reserve - Lin. Gibbons

Barry Spring-Rice, Banksia Place, R.D.4, Rotorua

■ Manawatu Botanical Society

The last three months have seen a start on the compilation of a master species list, for vegetation remnants in the Manawatu region, which is progressing slowly. Members had a workshop to get to grips with identification of rushes and sedges and an armchair visit to the Fairchild Botanical Gardens in Florida. Interspersed between meetings were several field trips to local reserves and privately owned forest remnants.

The programme for the following three months is:

Thursday 6 December, 1990: Meeting - Robyn Simcock, Soils Department, Massey University, on "The use of native plants to revegetate railway cuttings in Tongariro National Park".

Saturday 8 - Sunday 9 December, 1990 - Revegetation at Tongariro: Weekend field trio to see the areas being revegetated following the realignment of the main trunk railway line through Tongariro National Park.

Thursday 7 February, 1991: Meeting - Department of Conservation's public lecture series: Dr Colin Ogle talk on the conservation of the wild horse area and further afield (Maowhango and Rangitikei). The meeting starts at 7.30pm in the Bradfield room of the Palmerston North Library.

Saturday 9 February, 1991: Field excursion - to the small grottoes in the foothills of Apiti. Depart at 10am Museum carpark.

Saturday 2 March, 1991: Simpson's Bush: Field Excursion jointly with the Wanganui Museum Botanical Group. Depart at 8.30am, Museum carpark.

Jill Rapson (ph. 89088) and **Peter van Essen** (ph. 81793), Palmerston North

■ Wellington Botanical Society

Programme December 1990 - March 1991:

Thursday 27 December - Sunday 6 January: Field Trip - Upper Wairau Valley, Marlborough. Transport organiser: Rodney Lewington (ph. 753-145); Leader in the field: Tony Druce (ph. 287-853) for further information.

Friday 18 - Monday 21 January: Field Trip - Southern Kaimanawa Mountains. Transport organiser: Tony Druce; Leader in the field: Geoffrey Rogers (ph. 073 475-495).

Saturday 2 February: Field Trip - Te Marua Matai Working Bee - maintenance of this reserve in conjunction with Wellington Regional Council staff. Leader: Barbara Mitcalfe (ph. 757-149).

Monday 18 February: Evening Meeting - The Vegetation and Flora of the Te Uruwera National Park. Willie Shaw - DoC, Rotorua.

Friday (evening) 1 - Sunday 3 March: Field Trip - Bryophyte workshop with emphasis on Mosses. Tutor: Patrick Brownsey; booking: Rodney Lewington.

Monday 18 March: Evening Meeting - Problem Plants of Protected Natural Areas. Susan Timmins, DoC.

Carol West, 9 Mamari Street, Rongotai, Wellington 3 (ph. 878-398)

■ Nelson Botanical Society

In July we visited Delaware Inlet. A small stand on river outwash containing kowhai (*Sophora microphylla*), large turepo (*Streblus heterophyllus*), small totara (*Podocarpus totara*) and matai (*Prumnopitys taxifolia*) also included the almost leafless lawyer, *Rubus squarrosus* and the parasite *Ileostylis micranthus* growing on bare hawthorn (*Crataegus monogyna*). On Bishops Peninsula we saw several large patches of the winter flowering orchid *Pterostylis alobula*, abundant hangehange (*Geniostoma rupestre*), a small patch of bamboo rice grass, *Microlaena polynoda* and *Doodia media*, the latter three locally uncommon.

In August we visited Carluke Scenic Reserve, in the Rai Valley. It was tremendously interesting small patch of river terrace forest, dominated by tall matai (*Prumnopitys taxifolia*). The diversity of small shrubs provided an excellent opportunity to examine the closely similar divaricating shrubs. Interesting finds included many hybrids between *M. micranthus* and mahoe (*M. ramiflorus*), and a rather uncommon parasite, *Korthasella lindsayi*.

In September we visited Moncrieff Scenic Reserve, near Okiwi Bay. This is a very rich piece of lowland forest between the road and the sea. It is dominated by tawa (*Beilschmeidia tawa*) but contains many podocarps. One large old rimu (*Dacrydium cupressinum*) contained three different tree orchids perching amongst the keikei (*Freycinetia baueriana*) and *Collospermum hastatum*. We were also very fortunate to see several plants of *Pittosporum cornifolium* in full flower in coastal scrub. This plant is usually only seen as a distant epiphyte perching high up in a tree.

The Labour weekend camp at Clarence Bridge enjoyed fine weather. We visited Blue Duck scientific reserve, Woodside gorge, the Shingle Fans, and Stewart Gully. We saw many of the plants specifically confined to southern Marlborough and several other plants growing at or near their southern limits. *Hebe hulkeana* in full flower was particularly spectacular in the Shingle Fans, often carpeting steep faces. The October trip up Mt Duppa was generally uninteresting except for the discovery of several plants of *Pseudopanax edgerleyi* and the uncommon *Grammitis pseudociliata*.

Next field trips:

December 16: Mt Robert

January 1-6: D'Urville Island

January 20: Rolling River/Billies Knob

February 2-6: Isolated Hill

Graeme Jane, 136 Cleveland Terrace, Nelson

■ Canterbury Botanical Society

Hanmer Springs Camp

This will be held in the Hanmer Springs Forest Camp from the evening of Friday 14 December to Sunday 16 December. Accommodation is mainly in two-berth cabins, but some three-berth cabins are available. All have mattresses and pillows. The costs are \$12 per night for adults and \$5 per night for children. No meal is provided on the Sunday evening, but all meals from Saturday breakfast to Sunday lunch are included. Those attending are asked to bring something for the Saturday evening dinner. For this camp, one will need a sleeping bag or equivalent bedding, pillowcase, eating utensils and a tea-towel. Excursions of varying degrees of exertion are planned, including inspecting rare orchids in a plantation forest and a visit to Mount St Patrick for scree and alpine plants. Those interested should contact the camp leader, Geof Henderson (0502) 38 984 or the Secretary, Roger Keey (03) 358 8513.

Summer Camp

This will take place from Friday 4 January to Friday 11 January 1991 at Karamea on the Nelson West Coast. The Society has booked the Karamea Area School, and classrooms will be used for accommodation, with access to their hall, science laboratory, home science area (for cooking) and toilet facilities including showers. The cost is \$10 per person. However, there is space in the school grounds for tents and campervans.

Air mattresses, stretchers or safari beds will be needed. There will be opportunity to explore the start of the Heaphy track, various valley systems and caves. It is hoped to enhance the West Coast floristic database. Those interested should contact the associate camp leaders, David Norton (051) 638 801 or Neil O'Brien (03) 358 8148, or the Secretary, Roger Keey (03) 358 8513.

Roger Keey, P.O. Box 8212, Riccarton, Christchurch

Other News

■ Sudden Decline of Cabbage Trees - an update

The recent deaths of large numbers of cabbage trees (*Cordyline australis*), especially in the northern half of the North Island, has aroused widespread concern. DSIR Plant Protection first became involved, in spring 1987, on fielding an enquiry from Rodney District Council as to why trees were dying in its region. Residents were suggesting that council herbicide spraying was the cause. While we could not substantiate the residents' claim, no acceptable alternative explanation was found. Some three years on the trees are still dying, speculations as to the cause have proliferated, and we still have no satisfactory explanation as to why.

A brief account of the disorder, which we have named Sudden Decline, and results of preliminary investigations of the cause, have been summarised recently by Rees-George et al. (N.Z.J.Bot. 28:363-366, 1990). Suffice to say the symptomology is that of a wilt disease, suggesting a biotic rather than abiotic cause, but readily isolatable fungi or bacteria do not seem to be implicated.

In May 1990 the Department of Conservation (DoC) established an Officials Committee with responsibility to recommend a co-ordinated approach to Government's work on the problem. This committee, comprising representatives from DoC, DSIR Plant Protection, DSIR Land Resources' Botanical Institute, the Forest Research Institute, and the Ministry of Forestry, duly met and prepared a strategy. The Committee agreed that the problem was of such urgency that a major research thrust should be mounted to assess the present health of cabbage trees throughout the country, find the cause, identify associated environmental factors, and devise management responses. However, because departmental budgets for the 1990/91 year were by then firmly in place, and reallocation of resource was not possible without severely distorting other research programmes, they recommended additional public funds should be made available. This recommendation was accepted and funds have now been approved.

Dr Philip Simpson of DoC will co-ordinate the proposed programme and ensure the advocacy element is addressed. The research effort comprises three main aspects involving both DSIR and Ministry of Forestry. First DSIR Plant Protection will attempt to find the cause. A review of the literature indicates that diseases of woody monocotyledons, with some symptoms at least superficially resembling Sudden Decline of cabbage tree, can be caused by a diverse range of pathogens. As well as "regular" plant pathogens such as fungi, readily isolatable bacteria and "orthodox" viruses, candidates to be assessed include nematodes (cause of Red Ring Disease of coconut), trypanosomes (cause of Hartrot of coconut, Sudden Wilt of oil palm), fastidious bacteria (cause of Ratoon Stunting of sugar cane), mollicutes including MLOs (cause of Phormium Yellow Leaf, Lethal Yellows of coconut palm) and spiroplasmas (cause of Corn Stunt disease), ss DNA viruses (cause of Banana Bunchy Top, Foliar Decay of coconut) and viroids (cause of Cadang-Cadang disease of coconut). In particular, modern molecular biology DNA techniques for identification of many of these more obscure organisms will be applied. Second, Forest Research Institute will co-ordinate a nation-wide survey of cabbage tree health, looking particularly to find patterns in the distribution of cabbage trees and of Sudden Decline. This will underpin more detailed studies of selected stands looking more closely for environmental correlations, and also work by DSIR Land Resources focussing on the ecological implications of the decline. As indicated above, we consider that a pathogen is involved in Sudden Decline but appreciate that any disease is the result of a complex interaction between host, the pathogen, and the environment (the "disease triangle"). Thus effort will also be put into identifying environmental factors, including nutrition, that could explain why so many trees are dying now.

Few botanists travelling in New Zealand north of Taupo can fail to see evidence of Sudden Decline. Many have made observations and offered possible explanations. Further observations on the distribution of decline in the lower North Island and the South Island are welcome, especially if accompanied by photographic evidence and some counts. Acceptable evidence is the severe wilting and leaf fall from at least half the tufts on a tree in the absence of obvious causes, such as firing, herbicide damage or severe frost. Likewise we would welcome observations on the occurrence of decline elsewhere in the world. A few mature trees showing typical symptoms have been seen in the Sydney area (G I Robertson, pers. comm.), and we have reports from Canberra and as far afield as Spain. Of even more interest would be observations, including the anecdotal, of past occurrences of widespread cabbage tree death in New Zealand. For example, Grehan & Nixon (N.Z. Entomologist 6:399-400, 1978) noted cabbage tree death resembling Sudden Decline associated with *Platypus* (Coleoptera) in the Wairarapa in the mid 1970s. We are also interested in new hypotheses about the cause of Sudden Decline - but be warned, we have heard plenty, including one attributing the problem to wasp urine and another suggesting nesting mynahs were

the cause. Comments may be sent to Dr Philip Simpson (Dept of Conservation, PO Box 10420, Wellington), Dr Gordon Hosking (Forest Research Institute, Private Bag, Rotorua) who is co-ordinating the survey work, or to myself as co-ordinator of the pathology effort.

Ross E. Beever, DSIR Plant Protection, Private Bag, Auckland

NOTES AND REPORTS

Current Research

■ An update on the cytogeography of *Pratia*

Thanks to the efforts of fellow members who responded to our request (N.Z. Botanical Newsletter 18:12-13) for living material of the endemic species of *Pratia* for a cytotaxonomic study, we have been able to examine more than 110 different collections. The majority of these are *P. angulata* agg. (84 collections) with smaller numbers of *P. arenaria* (5 collections), *P. macrodon* (7 collections), *P. perpusilla* (3 collections), and putative hybrids (12 collections). *P. physaloides* (*Colensoa physaloides*) was excluded because it does not have a base chromosome number of 7 and is morphologically quite different.

The chromosomes of *Pratia* species are, with the exception of *P. macrodon*, small and numerous, but with an extended pretreatment with paradichlorobenzene it has been possible to get excellent spreads where the chromosomes can be counted unambiguously. Observations on *P. macrodon* and *P. arenaria* have produced few surprises, the former is diploid with $2n = 2x = 14$ and the latter is decaploid with $2n = 10x = 70$. ("*P. Garvie*" of A.P. Druce Checklist has to date not been included in this study.) The situation in *P. angulata* and *P. perpusilla* is however much more complex. Beuzenberg & Hair (N.Z.J. Science, 2: 531-538, 1959) reported *P. angulata* as having 70 chromosomes and *P. perpusilla* with 42 which would make them decaploid and hexaploid respectively. In *P. angulata* we have found that there is a 20-ploid ($2n = 20x = 140$) race in addition to the decaploid one and both these chromosome races appear to be widely distributed throughout both islands. Unlike many groups of polyploids, there does not appear to be any pattern to their distribution, and populations with 70 and 140 chromosomes are often found growing quite close to each other, although we have not yet found examples where both chromosome races grow in the same locality. On the basis of chromosome number and morphology we also have evidence for hybridization between *P. angulata* and *P. perpusilla*. These putative hybrids have 91 chromosomes and therefore are probably the result of crossing the 20-ploid race of *P. angulata* ($n = 70$) with *P. perpusilla* ($n = 21$). From our sample the 20-ploid appears to hybridize more frequently as plants with 91 chromosomes have been found from five localities. Whether the 70 chromosome race also forms hybrids is unclear, but we have *P. perpusilla*-like plants from Lake Whangape, Waikato with $2n = 77$, a number that would make them 11-ploid, *P. angulata* plants with $2n = 70$ and *P. perpusilla* plants with $2n = 42$ have been also found at this site. It is possible that the 77 chromosome plants have been formed by the fusion of an unreduced gamete from *P. perpusilla* with a normal reduced gamete from the 70 chromosome race of *P. angulata*. Meiotic analyses of all these plants with unusual chromosome numbers should give a clearer insight into their genomic constitution.

A brief description of our material of the *P. angulata*/*P. perpusilla* complex (more than one third of which have now flowered) is as follows:

P. angulata ($2n = 70$) 35 collections ranging from the Waitakere Ranges (W. Auckland) to central Otago; from sea level to 1080 m. Flower width varies from 10-27 mm and flower colour also varies. All plants are glabrous; leaf shape is mainly orbicular, leaf size is variable.

P. angulata ($2n = 140$) 45 collections ranging from N. Whangaroa Harbour to Milford Sound; from sea level to 1615 m. Flower width varies from (6.5)-14-19mm and flower colour is variable. Plants are usually glabrous but occasionally hairs are present on the leaves, leaf size and shape is variable.

"*P. Woodhill*" ($2n = 70$) Single collection from N. Woodhill (N.W. Auckland); 10-140m above sea level. Flowers are 7-8.5mm across, all leaves have stiff, white hairs on the upper leaf surface and leaf margin. Leaves are orbicular to spatulate and the lamina is wider than long. The petals are pink-veined on the outer surface. Ecologically it differs from other entities in this group as it grows on consolidated sand dunes (not in the hollows) under kanuka.

P. perpusilla ($2n = 42$) 3 collections from Waikato and Canterbury; from 10-842m above sea level. Our plants are about to flower. The stem and leaves vary from glabrous to hairy on the same plant; leaf shape

is very variable and leaves generally have prominent veins on the upper surface.

P. angulata x *P. perpusilla*? (2n = 91) 7 collections from Waikato, Rotorua and Lake Wairarapa; from near sea level to 280m. Flower width varies from 16-18 mm and at least some petals have a central blue stripe. All plants are glabrous and leaf shape is mainly oval. Much of the seed of the Rotorua plants collected *in situ* was aborted.

P. angulata x *P. perpusilla*? (2n = 77) 4 collections all from L. Whangape (Waikato); about 10m above sea level. Flower width varies from 11-12.5mm and most petals have a central blue stripe. The stems and leaves vary from glabrous to hairy, leaf shape is orbicular to oval.

Although we have not made a detailed examination of all our material and not all specimens have flowered, we have not yet found any evidence to confirm previous reports of dioecy in the genus.

Future work will centre around population studies from the locations where hybrids and other unusual plants have been found and we would welcome material from other areas where *P. angulata* and *P. perpusilla* grow together, in addition to material from other locations. *P. angulata* is very variable in morphology and this variation will also be studied as it is probable that some taxonomic rearrangements will be required once our studies are completed.

B.G. Murray and E.K. Cameron, Department of Botany, University of Auckland, Private Bag, Auckland

Plant Records

■ Some Notes on *Fimbristylis squarrosa*

Fimbristylis squarrosa is a small, usually annual sedge with faintly to heavily pubescent leaves and leaf sheaths. Treated as rare by Given (1981), *Fimbristylis* is a widespread tropical species which has been only sparingly recorded in New Zealand from swampy ground at the Bay of Islands, Auckland, Port Waikato, Lower Waikato and from geothermal sites at Ngawha, Rotorua and Taupo (Cheeseman, 1925; Moore & Edgar, 1976; Beadel, 1988). Never overly abundant, *Fimbristylis* is one of those species which like *Bidens pilosa*, *Hibiscus trionum* and *Solanum americanum* is subject to periodic debate which I suspect will never be fully settled either way.

I first became familiar with the species at Ngawha Springs near Kaitiaki where I saw several plants on the track to Lake Waiparaheka Scientific Reserve in early January 1988. Later I again found *Fimbristylis* growing abundantly around fumaroles at Karapiti (Craters of the Moon) near Taupo. This latter site was subsequently destroyed by the hydrothermal eruptions of the 25 April 1988. Recent visits in 1989 and 1990 have failed to relocate it there, although this is not to say it is extinct there for the species is easily overlooked. The species bears an uncanny resemblance to toad rush (*Juncus bufonius*) and *Cyperus tenellus*, which is sufficient that those unfamiliar with *Fimbristylis* could easily overlook its existence in sites where it grows with either of these species.

Such is the case in Hamilton where I was amazed to see *Fimbristylis squarrosa* mixed with *Cotula australis*, *Juncus bufonius* and *Cyperus tenellus* amongst gravel and cracked asphalt at the edge of a carpark in Hillcrest (CHR 464578). Subsequent searches have located occasional *Fimbristylis* plants along footpaths, old construction sites and wasteland throughout parts of inner Hamilton. Later in January 1990 a visit to Motukauere Island, Lake Whangape with Paul Champion (MAF (Qual)), located numerous *Fimbristylis* plants (CHR 466163) growing on freshly exposed mud left by receding lake levels. Here *Fimbristylis* was gathered amongst mercer grass (*Paspalum distichium*), indian doab (*Cynodon dactylon*), toad flax and poniu (*Rorippa palustris*). Oddly *Fimbristylis* plants were only noted around the island, searches of similar sites on the mainland lake shore failed to locate plants.

During February 1990, *Fimbristylis* was again discovered amongst consolidated gravel at the Tryphena Wharf, Shoal Bay, Great Barrier Island (CHR 466151). Here it was associated with toad flax and *Juncus tenuis*. These chance discoveries suggest *Fimbristylis* is probably more widespread than has previously been thought. It is quite likely that diligent searching in sites commonly occupied by toad flax will result in further *Fimbristylis* discoveries especially in the northern half of the North Island.

Beadel, S.M. 1988: A register of threatened and local plant taxa in the eastern region, Department of Conservation - their distribution and status. Department of Conservation technical report series No. 6, (75 p).

Cheeseman, T.F. 1925: Manual of the New Zealand Flora, Second Edition. Government Printer, Wellington, N.Z., 1163 pp.

Given, D.R. 1981: Rare and endangered plants of New Zealand A.H. & A.W. Reed, Wellington, 154 pp.
Moore, L.B. Edgar, E. 1976: Flora of New Zealand, Volume II Government Printer, Wellington, 354 pp.

Peter J de Lange, Science & Research, Department of Conservation, P.O. Box 10420, Wellington

■ *Glyceria striata* rediscovered

During a Waikato Botanical Society field trip to the Tikotiko Valley, Glen Murray in February 1989 a peculiar grass with tall, fine "wispy" seed heads and a creeping habit was discovered in a number of shaded remnants of kahikatea (*Dacrycarpus dacrydioides*). Material was gathered and deposited in WAIK (9832) with a duplicate (AK 184307) sent to AK for identification. Attempts to identify the grass there failed and the specimen was sent to Dr Edgar (DSIR, Botany Division) for identification. During November 1989 I was delighted to receive a note from Dr Edgar identifying the grass as *Glyceria striata* a North American species referred to as Fowl Manna Grass. The species was apparently first collected from Whangarei where H.H. Allan subsequently first recorded it for the country as *Glyceria nervata* (Allan, 1935, T.R.S.N.Z. 65:2). The species was later discovered along the Kaawa Creek and at Matiri Scenic Reserve (Raglan County). At this stage CHR had only four collections of the species so in April 1990 I set out to obtain further specimens. Material was gathered from the Tikotiko valley and deposited at AKU, AK, WAIK, NZFRI, WELTU, WELT, CHR, & CANU. Additional specimens were discovered along the Whangamarino Rd (de Lange & Crowcroft AK 197806) and near Lake Whangape. A visit to Matiri also rediscovered the species there (WAIK, AK, CHR - as yet not accessioned) and it is expected that *Glyceria striata* is probably locally common in suitable habitat throughout the Raglan County. The species can be readily identified by its tussocky habit, short culms (up to 80cm), open, nodding panicles, with 3-7 flowered purplish spikelets (mm long) with the lemmas prominently seven-nerved. A feature of mature inflorescences is a tendency for the seeds to fall off at the slightest touch. I would like to thank Dr Edgar for her identification and helpful discussion about the species.

Peter de Lange, Science and Research, Department of Conservation, P.O. Box 10-420, Wellington

■ *Senecio diaschides* in the Western Waikato

The distribution cited by Webb *et al.* (1988) for *Senecio diaschides* records the species as occurring from Coromandel Northwards. During 1983 *Senecio diaschides* was discovered on a slip face at Tiritirimatangi Peninsula, Kawhia Harbour. A sheet containing two specimens was lodged in the Te Kauri Lodge Herbarium of the Hamilton Junior Naturalist Club (Inc) (de Lange, 1983). A subsequent visit to the area in 1989 noted the species had greatly increased its range since 1983 (CHR 466080, WAIK 11685).

Further South at Kiritehere along the Marokopa Coast, the species was again discovered (1989) (CHR 466089) in roadside scrub suggesting the species is further extending its southern range.

de Lange, P.J. 1989: *Senecio diaschides* Drury at Kawhia, Te Kauri Journal p. 24-25

Webb, C.J. Sykes, W.R., Garnock-Jones, P.J. 1988: Flora of New Zealand volume IV - naturalised Pteridophytes, Gymnosperms, Dicotyledons, Botany Division, DSIR Christchurch, NZ. (1365 pp).

Peter J de Lange, Science & Research, Department of Conservation P.O. Box 10420, Wellington

■ *Doodia aspera* rediscovered

Parris (1972) recognised the presence of *Doodia aspera* in New Zealand following examination of Carse specimens incorrectly attributed to *D. media* by Carse. The specimens had been collected from Tom Bowling Bay during December 1926. Parris (1972) stated that *D. aspera* could be easily distinguished from *D. media* by the "adnate lower and decurrent upper pinnae, by at least some of the indusia being kidney shaped and about half the size, and by the usually glabrous tuberculate stipes and rhaces". Later in 1980 Parris further noted the stoloniferous nature of *D. aspera* following the examination of a live plant from Waiomio (Parris, 1980). This feature was not evident in the Carse specimens which consist of fronds only.

Recently *D. aspera* has only been reported from Waiomio (Parris, 1980; Bartlett, 1980; Given, 1981; Wilson & Given (1989). Records by Chinnock (1976) and Wilson & Given, 1989 of *D. aspera* from Maraetai and Chelsea are misidentifications of aberrant *D. media* ssp. *australis* (Parris, 1980, P. Brownsey pers. comm. 1990). Following the destruction of the Waiomio site *Doodia aspera* has been listed as extinct in New Zealand (Wilson & Given, 1989), although some material of the Waiomio population is in cultivation. As

for the Carse site the current literature appears to suggest that this species is extinct at the Tom Bowling Bay site although I personally know of no specific surveys of the site having been conducted.

During January 1990 Shannel Courtney, Alison Davies and Peter Bellingham made a visit to North Cape while on a Wellington Botanical Society field trip. They chose to walk down to Tom Bowling Bay via Tomakanga Pa and in doing so rediscovered *Doodia aspera* and *Christella dentata* s.s. near Waitangi Stream. (A. Davies pers. comm. 1990). More recently still Maureen Young gathered *D. aspera* from the Pa site depositing several fronds in AK(!) and WELT(!). These specimens exhibited the same crested morphology evident in the Carse collections of 1926. Unfortunately material illustrating the stoloniferous nature of the fern was not gathered, nor any precise idea of the population size noted. During October this year Lisa Forester (DoC, Northland) and I visited the site to gain some idea of the population size and distribution.

The main concentration of the population occurs in a small valley immediately south of the Pa, here between 3 and 7ha of *D. aspera* grows luxuriantly across the valley floor under a moderately dense canopy of kanuka (*Kunzea ericoides* var. *lineare*). Further populations dominate slip scars, old pig rootings and rough pasture/shrubland on the eastern flanks of Tomakanga. Approximately 70% - 80% of the population exhibits "crested" fronds, while the stoloniferous habit was clearly evident in specimens trailing down a bank on a recent slip. While plants in the more exposed sites were of the dimensions noted by Parris (1972) for Carse's collections those of the valley floor were between 85cm - 1.5m in height. To say one had to literally wade through the fern was no exaggeration!

Although *Doodia media* ssp. *australis* was frequently found associated with *D. aspera* we could find no obvious evidence of hybridisation. Never-the-less many *D. aspera* fronds had a slight pubescence along the stipe and rachis. This feature is occasionally seen in *D. aspera* (Parris, 1972) so may not be evidence of hybridisation, although clearly further study is desired (P. Brownsey pers. comm. 1990).

As well as the *Doodia*, scattered specimens of *Ranunculus urvilleanus* and some seriously browsed *Hibiscus diversifolius* were noted previously by other workers.

In the interim while we now know *Doodia aspera* occurs in a large, relatively secure population, it is hoped to survey other suitable sites nearby in the not-too-distant future to see whether the species occurs elsewhere in Te Pahi.

Vouchers of *D. aspera* will be lodged in AKU, AK, WAIK, NZFRI, WELT, CHR.

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Fieldwork

■ Strides Bush, Pokororo

Strides Bush lies on the west bank of the Motueka River about 30 km from the river mouth and just up river from the mouth of the Graham Valley. It is about 5 ha in extent and occupies river terrace from the bank to only 3-4m above the normal flow.

The origin of the bush is typical of many lowland remnants. They were set aside by the first settlers to provide firewood and perhaps timber for the property and for this reason were usually located close to the

homestead. Haycocks Bush and the Emmaus covenant nearby are similar stands. It has however been heavily used in the past with much of the totara (*Podocarpus totara*) removed and perhaps quite a bit of matai (*Prumnopitys taxifolia*). Casual removal of trees has occurred until recently when the property changed owners but the area is still used to shelter stock or provide grazing, particularly on the margins where a grass fringe is well developed.

The forest contains many plants typical of river terraces. At present kahikatea (*Dacrycarpus dacrydioides*), abundant matai and titoki (*Alectryon excelsus*) predominate but in the past numerous stumps suggest that totara was probably the most important tree. Nevertheless the stand still contains a few very large grand old totara, some rimu (*Dacrydium cupressinum*), and miro (*Prumnopitys ferruginea*). The sub-canopy is dominated by mahoe (*Melicytus ramiflorus*) with some titoki, kaikomako (*Pennantia corymbosa*) and pigeonwood (*Hedycarya arborea*).

The forest contains several huge, emergent totara, abundant matai and some rimu, kahikatea and miro. The sub-canopy is dominated by mahoe with some titoki, kaikomako and pigeonwood. But there are several distinctive areas. To the south there is a small group of tawa and red beech (*Nothofagus fusca*) and towards the house there is a patch of lowland ribbonwood and along the northern edge titoki is more common.

The presence of abundant totara and titoki and closeness to the river suggests that much of the stand is relatively young, resulting from past flood damage, while at the southern end the presence of tawa, rimu and red beech indicate remnants of an older more mature stand.

The bush, although in a highly modified state, was found to contain an extraordinary number of locally rare and unusual plants. The patch contains seven species of very limited distribution in Nelson and several of these are very uncommon in the South Island. These were *Deparia petersenii*, *Lastreopsis microsora*, *Diplazium australe*, *Teucrium parvifolium*, *Coprosma rubra*, tawa (at its southern limit in Nelson), and a good stand of lowland ribbonwood (*Plagianthus regius*).

The four trees of tawa seen are the southernmost plants currently known in Nelson and the only ones known along the Motueka river. They probably represent the last remnants of formerly much more widespread forest that occurred on the river flats of the Motueka River and the Waimea Plains. The nearest large areas of tawa forest are found in the gullies of Hira forest near Nelson.

Lowland ribbonwood seedlings and saplings are abundant throughout the bush and there is a good group of mature trees, at least 6 near the house. The plant is known from only four or five other localities in Nelson and is confined to river terraces, most of which have been cleared for farming. Mature trees are very rare in the Nelson area.

Teucrium parvifolium is known from only 5 or 6 places in the Nelson/Marlborough area. Only one plant was found in the bush. At other localities where it is known it is often particularly common on the forest edges when stock are excluded.

Coprosma rubra is quite abundant in the bush particularly along the old dry watercourse where it lines the banks in several places. The species is found in only 3 or 4 places in the Nelson area, and nationally is very local in its occurrence.

Lastreopsis microsora is abundant and forms quite large patches under the trees. This is the only known locality for the fern in the Tasman Bay area and the patches are some of the largest known in the South Island. Elsewhere it is very local in coastal areas of the South Island although it becomes quite common in northern North Island.

Only a few *Deparia petersenii* were found amongst patches of other ferns. It is very rare in the South Island and this is one of three known locations for it in the Nelson area. Some specimens strongly resembling *D. tenuifolia* were also found.

Diplazium australe forms quite tall thick stemmed clumps of fronds and is abundant in open areas of the bush. The species is known from only one or two other localities in the Nelson area. It is common in the North Island but rare in the South Island.

In addition to these species the bush contains quite a high diversity of plants. We recorded 93 species which is a high number for such a small area. Other plants of interest included many divaricating shrubs

and good examples of an undescribed button fern resembling *Pellaea falcata*, known from other localities around Nelson. It has quite oblong leaflets and very long fronds, to over 50 cm long.

Grazing of the area has prevented many plants from establishing. The contrasting area along the roadside, especially towards the river away from grazing included shrubs such as kawakawa (*Macropiper excelsum*), kowhai (*Sophora microphylla*), rangiora (*Brachyglottis repanda*), raurekau (*Coprosma grandifolia*) and several ferns.

The area poses many problems for management. *Robinia pseudacacia* has been planted and is now forms quite a large patch of mature trees. Old man's beard is present but most of the larger plants (as well as other native climbers) have recently been cut and seedlings are possibly kept under partial control by stock. Complete removal of stock without further action will result in rapid invasion by old man's beard throughout and blackberry on the margins. To prevent this it has been suggested that in open areas restoration planting be carried out using local species with gradual removal of stock. Within the main stand stock removal may result in substantial invasion by lowland ribbonwood, as is already occurring in less accessible weedy patches.

But any such management depends on the enthusiasm and dedication of the landowner. At present the area has no protective status and approaches by the local representative of the QEII trust have been unsuccessful. One can only hope that outside interest in the area and encouraging visits by interested groups will build the enthusiasm of the landowner.

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■ Cryptogams in the Catlins - a report of a visit by the Wellington Moss Mob, 10-15 November 1990

Prior to the John Child Bryophyte Workshop, four members of the Wellington Moss Mob (Patrick Brownsey, Rodney Lewington, Barbara Polly and Darea Sherratt), together with an honorary Auckland associate (Jessica Beever), spent four days in the Catlins area of S.E. Otago based at the Royal Forest and Bird Lodge, Tautuku.

Our first experience of the extensive forest still surviving in this area, and in particular the untouched podocarp forest on old dune systems and former estuaries, was the Pounaweia Scenic Reserve near Owaka at the mouth of the Catlins River itself. Here there is remnant vegetation grading from salt marsh through a shrub zone to mature podocarp forest, with totaras growing, in places, right out on the beach front. Within the forest, we were excited to find several patches of a remarkable form of *Camptochaete* growing in unattached clumps on the forest floor. The patches appeared to be in damp hollows, each of them extending over several square metres. Although the existence of these "loose" clumps has been known for many years, not only in *Camptochaete* but also in *Thuidium* and *Echinodium*, their exact relationship to known species and the reason for their characteristic growth form, has remained unresolved. One has the impression that the larger clumps may be very old.

At the Purakaunui Falls Scenic Reserve, we became aware of the general scarcity of *Fissidens* species in this part of the country, but were surprised to find the most common species to be the nerveless *F. dealbatus*, a rarity in the North Island. Another common moss here, but unusual for North Islanders, was *Goniobryum subbasilare*. At the Falls themselves we spent some time investigating the abundant epiphytes on shrubs overhanging the stream, notably *Daltonia angustifolia*, *Tetraphidopsis pusilla* and *Eriodon cylindritheca*. Returning to the cars, some of the party found the luminescent protonemata of *Mittenia plumula* under an overhanging clay bank.

At Tahakopa Bay Scenic Reserve we were able to explore one of the podocarp dune forest areas that we had seen from above, on the road leading down to the coast at Papatowai. In this virgin forest many species seem to have grown extraordinary trunks. Numerous specimens of hybrids between the crape fern (*Leptopteris hymenophylloides*) and Prince of Wales Feathers fern (*L. superba*) were found, all with extensive trunks up to a metre in length, indicating extreme age. Fine examples of *Hypnodendron marginatum*, *H. comatum* and *H. kerrii* were found in an around a small swamp, some of them on very long stems. A recently fallen rimu allowed us to investigate the upper parts of the trunk without risking life and limb, and we were rewarded by good specimens of *Schlotheimia knightii* (quite common in these southern parts) and *Isopterygium limatum* which, for North Islanders accustomed to seeing this species in alpine areas, was a remarkable find at sea level.

Once established at Tautuku Lodge, we were able to explore the Lenz Scenic Reserve which is owned by the Royal Forest and Bird Society. Although extensively logged, mature rimu forest remains in some areas

and a good range of mosses was found. Particularly good patches of *Hypnodendron*, including *H. spininervium*, occurred on the river banks. *Camptochaete* species were much in evidence, and some extremely large unattached clumps up to 25 x 10cm were found growing on a seepage, the whole plant resembling a green wig! A rare fern, *Hypolepis amaurochis*, was also collected from a muddy part of the track, the first time it has been found outside Fiordland and the subantarctic islands.

The Catlins area has no really high ground, but on Back Stream Road, near Tahakopa, we were able to climb to just under 600m through podocarp/kamahai forest to silver beech forest. However, even at this altitude *Sphagnum* grows in abundance. We found both *S. australe* and *S. falcatum*, with a third species, *S. cristatum* gleaned from a drying rack in the village of Tahakopa where *Sphagnum* is harvested commercially. Fine fruiting specimens of *Drepanocladus* were found in abundance, attesting to the permanent wetness of this area, and capsules were also seen on *Chrysoblastella chilensis*, another rare sight for North Islanders.

The newly described *Dicnemon dixonianum* appeared to be the most common species of this genus in the silver beech forest, whilst at lower altitudes *Echinodium umbrosum* and *Leptodon smithii* were unexpected finds. *Fissidens* once again proved elusive, none being found above 400m or before 4 p.m. in the afternoon!

Our last day was divided between the spectacular McLean Falls, dropping about 40m over an almost sheer face, and Tautuku Beach. An unlikely fern on the track to the falls was *Hypolepis distans*, only the second collection south of Banks Peninsula. Also found here were *Eurhynchium asperipes* and large patches of *Orthorrhynchium elegans*.

At Tautuku Beach, we were fooled by some depauperate specimens of *Lembophyllum divulgum* which we initially took to be *Pseudoleskea imbricata*. *Muelleriella crassifolia* also proved elusive, even though it is known from the area, but we were rewarded by good material of *Macromitrium longirostre* and "loose" clumps of *Echinodium*.

Altogether over 100 species were collected in the four days spent in the Catlins, indicating that this must be a rewarding place to return to in the future.

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BIOGRAPHY/BIBLIOGRAPHY

■ Birthday Celebrations - Ella Campbell

On Sunday the 28 October, 1990, Ella Campbell celebrated her 80th birthday, a remarkable achievement in any life, but the more so given Ella's long and active contribution to botany in New Zealand, as both a teacher and a scientist. Ella has contributed to science during her long academic career at the Universities of Otago, Victoria and Massey (biography below), and despite her official retirement, continues to a most active publisher in her field (publication and conference paper lists below). She retains an office in the Department of Botany and Zoology, Massey University, and it's a most unusual day when she is not present for 4 or 5 hours, researching, and answering queries from colleagues around the world.

Her birthday was marked locally by a (surprise) birthday lunch, on the 29th, organised for Ella at the Department of Botany and Zoology, Massey University, by her friends Heather Outred and Barbara Just. Keen assistance and participation was provided by a host of friends and colleagues from the University and Palmerston North. Ella was feted with a floristically iced fruit cake, a huge bouquet of flowers, and the presentation of two books, *Flowering Plants of New Zealand* by Webb, Johnson and Sykes, and *Moa's Ark* by Bellamy, Springett and Hayden.

Biography

Ella Orr Campbell was born and educated in Dunedin, and spent her early post-school years becoming a trained teacher while studying a wide range of subjects, including Latin and English, for her MA degree in which she obtained Honours in Botany in 1934. After one year on the staff of Waitaki Girls High School, the Reverend J.E. Holloway, FRS, the senior botanist at Otago University, recommended her for a temporary position as lecturer in Botany at Victoria University College. In 1937, Ella returned to a similar position in Otago, which she held for 8 years. In March 1945, Ella moved to Massey and took up the



teaching of BAgSc, Dip Hort, Dip Farming, and later, Science students. She still retains contact with many former students, several of whom now hold prestigious positions overseas.

Ella has a wide range of research interests, beginning with work on embryo and stelar development in ferns in 1936, and continuing through systematics of New Zealand marine algae, New Zealand liverworts, fungal associations of "leafless" orchids, restiad (jointed rush) peat bogs of northern New Zealand, and variability of life forms of green algae in polluted waterways. She has a still increasing list of publications - liverworts (37), orchids (14), wetlands (5), miscellaneous (10). Of recent years Ella has made important contributions to liverwort biochemistry in conjunction with overseas colleagues. Ella is the joint author of the textbook *Agricultural Botany* (Yeates and Campbell, 1954), written at the request of the Technical Correspondence School. She has also made important contributions of chapters in recent major texts on bryology, mires and heathlands. Recently she has been collaborating with K.C. Vaughan of Stoneville, Mississippi, V. Sarafis of the University of Western Sydney, and D.H. Hopcroft of DSIR, working on ultrastructural features of the hornworts.

Ella has travelled to and worked in many parts of the world during her career - Bishop

Museum (Honolulu), Botany School (Cambridge), and universities and research institutions in Michigan, Cincinnati, Canada, and Australia. She has made first-hand studies of the vegetation of many regions - Europe, Australia, India, Malaysia, Nepal, and Japan. She did valuable work on a collection of Hepaticae from Fiji, and has attended many international congresses (World Orchid Conference at Singapore, Durban, Miami, Sydney, Bangkok, Tokyo, Budapest, and Geneva), giving papers at several of these. In 1987 she took part in the celebrations to mark the 80th birthday of Dr W. Steere at the New York Botanical Garden.

Ella's early interest in German led, in part, to her attendance at the 300th anniversary of the Berlin Botanical Gardens in 1979, and to the honour of receiving a medal on behalf of George Alphonso of the Singapore Botanical Garden. Ella has been a member of the Goethe Institute and a vocal member of a Palmerston North German conversation group.

Ella is a very active participant in botanical field trips - of late, bryological forays to Pelorus Bridge (1983) and the Akatarawas (1984), Cass (1987), Hobart (1988), Pirongia (1989), where her knowledge is valuable and in demand by younger botanists, and her energy continues to leave many in the rear. Ella has also been willing to share her knowledge with many Native Flora, Botanical and Forest and Bird groups in the area.

In 1976 Ella was made fellow of the Royal New Zealand Institute of Horticulture marking a long association which started with tuition of horticultural trainee students at the Botanic Gardens, Dunedin, and later on as an examiner in Horticultural Botany. In 1976 there came perhaps the most prestigious of her accolades, the award of Doctor of Science from Otago University.

Ella retired from teaching at Massey University in 1976 after 31 years service. Nevertheless she continues to daily work in her office at Massey, producing a steady stream of high quality publications in her many areas of expertise.

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- 1986 Opening address Soroptimist International New Zealand Central Conference, Tatum Park.

Jill Rapson, Department of Botany and Zoology, Massey University, Palmerston North

DESIDERATA

■ *Kunzea ericoides* specimens

Anthony Wright has received a request for specimens from Dr Hellmut Toelken, Senior Botanist at The Botanic Gardens of Adelaide and State Herbarium, who is undertaking a revision of the New Zealand species of *Kunzea*. Hellmüt writes:

My work on the New Zealand species of *Kunzea* is progressing perhaps not as fast as I had hoped but I have already delimited a few species. There are, however, great gaps in my knowledge, because this must be the least collected plant in New Zealand presumably because everybody knows what *K. ericoides* in its broad sense is. Since the flowering time is starting shortly I would be pleased if you could encourage anybody who is doing field work particularly on the North Island to collect more specimens. Of particular interest to me are specimens from or around the volcanic area in the centre, Little Barrier Island, and between Whangarei and Bay of Islands.

Every specimen accompanied with the necessary information (see instructions below) will provide a better insight in the distribution of the possibly seven species I envisage at present. I would be grateful for any additional information.

Collecting instructions

Before collecting any specimens check the bark of a number of reasonably rigid trees to assess whether considerable variation between flaking, peeling or stringy-corky bark can be observed. This is usually a good indication of a population of hybrids and is usually supported by an unusually broad range of variation. If a putative hybrid stand is suspected one branch of each plant within 300 m² is ideally collected.

When collecting *Kunzea ericoides* please include the following information:

1. Habit of trees (conical or rounded crown).
2. A piece of bark off a branch 5-10 cm in diameter and another from the base of the trunk.
3. Include at least one twig from the upper parts of the tree with mainly long shoots if possible and a lower shaded one with short shoots predominating.
4. The number of stamens can easily be assessed with a hand lens when starting with those opposite to the petals and then an often variable group opposite to the sepals. For instance, the following formula [(2)3 + 4,5(6)] x 5 means 3 rarely 2 stamens opposite the petals and 4 or 5 rarely 6 stamens opposite the sepals. The latter stamens remain in some species consistently incurved (this information precludes the need for preserved material).

Collectors may either send material to Anthony Wright, Auckland Museum, Private Bag, Auckland 1 for forwarding, or direct to:

Dr H. R. Toelken, The Botanic Gardens of Adelaide and State Herbarium, North Terrace, Adelaide, South Australia 5000, Australia

■ Wellington Botanical Society Jubilee Award - 1990

The inaugural Jubilee Award of Wellington Botanical Society has been made jointly to Rotorua Botanical Society towards the cost of their publication "The Botany of Rotorua", and to Hugh Wilson towards the cost of the Canterbury Botanical Society's book "Field Guide to New Zealand's Small-leaved Shrubs". The recipients were awarded \$500.00 each.

The Society thanks the applicants and reminds people to think about preparing their applications for 1991.

The Jubilee Award fund has not yet reached its target capital amount and further donations would be appreciated.

Carol West 9 Mamari St, Rongotai, Wellington 3

■ New Zealand Journal of Botany

The New Zealand Journal of Botany provides the latest information on a wide range of botanical topics with an emphasis on New Zealand Flora. The Journal is published regularly, four times a year. If you wish

to subscribe, fill in the order form at the rear of this newsletter.

The issue of page charges for publishing in the Journal has been resolved. The policy, which is now in effect, is as follows.

"Authors who are current subscribers when they submit their manuscript for publication are not required to pay page charges. The special subscription rate for authors is US/NZ\$50 per year. In the event that a non-subscribing author wishes to publish, page charges will be incurred at a rate of \$50 per page, payable when page proofs are sent for checking. For all purposes, the "author" will be assumed to be the corresponding author of a paper."

This notice can be found on the inside front cover from Vol. 28(3) onwards.

The response to this system has been very favourable, and non-subscribing authors have generally opted to subscribe to the Journal. Note that the subscription rate for authors is the same as the special rate offered to Botanical Society members - regional and national.

Carol West, Editor, New Zealand Journal of Botany, DSIR Publishing, P.O. Box 9741, Wellington

■ DSIR Publishing

DSIR Publishing has recently been restructured and no longer publishes books. The size of the unit has been reduced to 10.5 full-time staff whose responsibilities are to produce the six scientific journals of primary research, and the Alphas (educational material for the secondary school science syllabus).

The unit will be relocated in the new year, but its destination is not yet known. The site of relocation and funding for the journals will be determined as a result of the review of the DSIR journals which is to be delivered to the Cabinet Committee on Education, Science and Technology by 17 December 1990.

Carol West, Editor, New Zealand Journal of Botany, DSIR Publishing, P.O. Box 9741, Wellington

FORTHCOMING MEETINGS/CONFERENCES

■ Lichen Foray at Cass

Last year David Galloway, author of the lichen volume of the *Flora* and now with the British Museum, led a workshop on lichens at the University of Canterbury's Cass field station near Arthur's Pass. The workshop was so successful that even before he left New Zealand, David was planning to return again this summer. The dates and venue for this season's workshop have now been set - it will run from the evening of Friday, February 15 through to lunch on Tuesday, 19 February, again at the well-equipped and comfortable Cass Field Station. Field trips will be made to Arthurs Pass National Park and several areas near Cass that have unusual and rich lichen floras.

The workshop is being organised by Philippa Horn of Lincoln University, and is expected to cost about \$120. Some transport from Christchurch to Cass will be available on the Friday.

Places are limited to 35 on a first-come basis, and we expect keen interest, so anybody who wishes to attend should contact Bill Malcolm soon, by post at Box 320, Nelson, or by phone at 054-521-660.

Bill Malcolm, Box 320, Nelson

CONFERENCE/MEETING REVIEWS

■ Willi Hennig Society IX Meeting, Canberra Australia August 1990

The Willi Hennig Society, the international society for cladistics, met in Canberra from 23-27 August. New Zealand was well represented by a variety of systematic and evolutionary biologists, not solely by panbiogeographers as the President, Chris Humphries, suggested in his opening address. Like other

newcomers to the society in the past, I felt some trepidation at mixing with the big names of cladistics, some of whom have reputations for aggressive disputation second to none (see Hull, D.L., "Science as a process", University of Chicago Press, 1989, for the details).

Well, I needn't have worried. Certainly the heat has gone out of the phenetics vs. cladistics debate so old contentious topics such as recognition of paraphyletic groups rarely surfaced, but I feel that the venue had a lot to do with the friendly nature of the conference. The distance from the northern hemisphere meant that some of the well-known cladists didn't come, but more importantly those who did seemed tempered by the Australians and by Australia.

The meeting was divided into symposia, none of which overlapped. I can't do justice to all the papers so will mention a few highlights for each symposium and other papers relevant to New Zealand.

The use of phylogenetic information in ecology and evolutionary studies was treated first. Most papers dealt with either coevolution or with the problems of making evolutionary inferences when phylogenies are unknown. "Pattern before process" has been a catch-cry of transformed cladistics, and a view that has been misrepresented as a rejection of natural selection. Susan Weller demonstrated some lucid and beautifully illustrated cladistic studies based largely on the genitalia of moths, mixed with humorous and anthromorphic speculations about moth mating. Her most speciose clades were the ones where sexual selection had arisen in the ancestor; could sexual selection have given a boost to speciation?

Demonstrations of phylogenetic software have become a feature of Hennig conferences and this time we were treated to the two major contenders in the field, Steve Farris' HENNIG86 and Dave Swofford's PAUP. Both programs are very fast because they no longer consider all the alternative configurations of unresolved polytomies, a big improvement over PHYLIP which has now largely faded from the scene. HENNIG86 runs on IBM and is very simple once the eclectic commands have been mastered. Kevin Nixon's CLADOS is a DOS program to turn cladograms into printable form from programs such as HENNIG86; with colour for direct photographing from the screen it becomes very good for slides. The latest version of PAUP runs on Macs only at present and is very user-friendly, especially when used in conjunction with Maddison and Maddison's MacCLADE, also demonstrated. Normal Platnick assessed the programs and recommended using both HENNIG86 and PAUP for larger data sets; PAUP tends to find more cladograms, but is more likely than HENNIG86 to miss the shortest one.

Austral Biogeography took all the second day, although biogeography was included in many papers on other days as well. Prof. J. Veevers put Australia and other Gondwanaland continents into their geological setting throughout the Phanerozoic. Of interest was the number of small fragments that have separated from Australia to lodge in such places as the Himalayas, Southern China, and Malesia, although most of these were probably too early to influence Angiosperm distributions. Pacifica and the expanding earth were not supported. The biogeographers there were more concerned with the geography of areas than with the geography of organisms, and consequently, although its existence was not denied, dispersal was considered as uninformative and untestable. This is fair enough for questions of areas, but dispersal is of interest, and is demonstrable with cladistics, albeit only as one possible cause of incongruity in an otherwise explainable pattern. Most of the cladistic biogeographers were using a program called COMPONENT developed by Rod Page of Auckland University. COMPONENT is considered preferable to other approaches in that it allows for dispersal as a possible explanation of widespread distributions. In a more direct New Zealand contribution, Ian Henderson outlined some objections to cladistic biogeography, adding some examples of tracks and nodes and their panbiogeographic analysis towards the end. Ian had no trouble selling the copies of the recent panbiogeography symposium (N.Z.J.Zool. 16: 471-815) he had brought; Australian readers will find there more detailed explanations of the approach (see e.g. the paper by Climo).

Studies on Austral flora and fauna were to the fore on the third day, and most papers were excellent. Peter Linder demonstrated the value of anatomical characters in cladistic studies on Restionaceae. Jenny Chappill took on the legumes and has made interesting progress in only a year, with a lot still to do. David Morrison kept us entertained and informed with his presentation of a paper with Jocelyn Powell on Epacridaceae. A highlight was the paper by Kevin Thiele and Pauline Ladiges on *Banksia* cladistics and biogeography, which won Kevin the prize for the best student paper. Among the fauna papers Eugene Gaffney's on turtles stood out. He had a wonderful pictures and a very good story to tell, and of course he couldn't resist referring to the Teenage Ninja Mutants.

The final day treated two complex topics, molecular systematics and parsimony analysis and character weighting. Molecular systematics had been covered last year at an ASBS symposium in Sydney; the proceedings have just appeared in *Australian Systematic Botany*. Getting the data is becoming easier

with new developments such as the polymerase chain reaction, but its analysis is still equivocal. Parsimony and weighting generated some heat. Steve Farris showed himself to be a very upfront person with an incisive mind here, but any offense he may have caused to the more retiring among us was dispelled by his excellent paper at the end of the day where he lucidly cut through the complexities of likelihood assessments of parsimony methods. Clearly there are traps for young players here.

The conference concluded with an evening session on Biodiversity and Cladistics. Joel Cracraft put biodiversity into a political context saying we will save diversity by fighting poverty, providing true equality and employment for women, and stopping militarism. He had statistics to support these claims and I believe them, but you had to be there. I'm ashamed to say I crawled off to bed before Peter Raven's talk.

The final event was the field trip, ably led by Ian Telford. Ian took a bus-load to the main divide to see Gondwanic rainforests of *Eucryphia* and *Atherosperma* with a *Cyathea australis* understory and epiphytic *Tmesipteris* and *Fieldia*. For the zoologists there were *Peripatus*, an *Echidna*, and a pair of lyre birds, and we all enjoyed Ian's catering arrangements - chicken, salad and champagne under gum trees in Deua National Park.

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

■ Australian Systematic Botany Society Meeting - "Indo-Pacific Biogeography: at the crossroads"

This was a day and a half of papers held after the Willi Hennig meeting, but attended by fewer zoologists plus some botanists who were not at the former meeting. Again the geological setting was considered as the appropriate way to begin, presented this time by Clive Burrett and Nathan Duhig. Cladistic methodology was less evident, so some papers reflected their author's unsubstantiated opinions, though backed up by much experience, on the evolution of their groups. Are Australians over-reacting to years of colonialism and colonial biogeography by claiming an Australian origin for almost everything? Time will tell, but some good cases were made. Groups covered included Solanaceae (David Symon), Loranthaceae (Bryan Barlow), *Elaeocarpus* (Mark Coode; Andrew Rozefelds and David Christophel), and *Euphrasia* (Bill Barker).

Peter Martin and Julie Dowd looked at inferred nucleotide sequences from several vicariant Gondwanic groups in terms of the known times of breakup of the supercontinent. The message? Don't give up on the molecular clock just yet! Joel Cracraft presented a broad-brush biogeographic analysis of Australian vertebrates, based on existing taxonomic and published distributions. Although it contained no phylogenetic data, beyond what may have been inherent in the original classifications, there seemed to be some meaning and trends in the patterns that could not be explained by the ecology alone. Gary Nelson criticised this as an almost Croizatian approach.

Jennifer Read's paper on *Nothofagus* was different from the rest; she has studied ecophysiology and ecology of the genus in South America, Australia, New Guinea, and New Caledonia. Tropical *Nothofagus*, belonging in subgenus *Brassopora*, show few ecophysiological differences from the temperate species, but typically have a lower tolerance of extremes. I enjoyed seeing photographs of beeches doing in New Guinea what they do here: occupying ridges and covering the floor with seedlings waiting for a light gap (although *Pandanus* in the understory was a surprise!).

The society dinner was held at The Great Wall Restaurant. After dinner speaker David Morrison entertained us with tales of field work in New Caledonia with Peter Weston and Roger Carolin. Roger let the opportunity to respond in kind pass when he gave the Nancy Burbidge memorial lecture the following day, and gave instead an inspiring and educating account of the history of taxonomy from Theophrastus to Hennig and its influence on ideas and knowledge. Watch for this to be published in the ASBS Newsletter.

There was a strongly supported suggestion that the Australian Systematic Botany Society meet in New Zealand in 1992, and Patrick Brownsey and I agreed to look into the idea. We are thinking of a meeting in Christchurch, probably in early December, with several themes including cryptogamic plants and phylogeny. Ideas, suggestions and volunteers to help are needed please.

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

■ Sandflies and Sphagnum - a report on the 7th John Child Bryophyte Workshop, Borland Lodge, Fiordland, 15-20 November 1990

As bryologists began to gather for this, the southern-most ever of the John Child Workshops, the TV weather news gave Te Anau, just 60 km up the road, the highest temperature for the whole of the country, at 25°. Having been warned by organiser Ray Tangney, of Otago University, to bring both sun-tan lotion and mittens, we felt the workshop was beginning at the right end of the weather spectrum. Fourteen participants from all parts of New Zealand were joined by Paddy Dalton from Tasmania, Bob Coveny from Sydney, Judith Curnow and Heino Lepp from Canberra, and Marie Hicks from North Carolina, USA.

A wide range of habitats were explored for bryophytes during four days: subalpine tussock/shrubland, swamp, river-flat, and a variety of *Nothofagus* forests, the most beautiful perhaps being that in the upper reaches of Pig Creek where huge limestone bluffs loomed amongst the beech trees.

On our first day in the field, in the Grebe River Valley, finds of particular interest included *Climacium dendroides* on swampy ground near the river, and what may be the first record of capsules on *Pohlia ochii*, under boulders at the river edge. In neighbouring beech forest the beautiful white fruits of the monocot *Luzuriaga parviflora* stood out on a deep carpet of *Ptychomnion aciculare*, *Dicranoloma* spp, *Trichocolea mollissima* and *Lepidozia pendulina*, with *Sphagnum austral* in the damper sites. The following morning was spent in and near a small stream in the subalpine zone on Mt Burns. Here robust plants of *Ditrichum strictum*, their black foliage and black calyptrae contrasting with tall pale setae, made a splendid sight at the water's edge. The finding of the rare *Ptychomnion densifolium*, with *Ptychomnion aciculare* growing nearby, provided opportunity to compare these two species in the field. Two very different species of *Distichophyllum* were recorded: the dark reddish-brown *Distichophyllum krausei* in crevices under boulders in the stream, and the bright green *Distichophyllum pulchellum* var *ellipticifolium*, with its terete shoots, on the bank amongst tussocks. The recently named *Brachythecium fontanum* was found growing, just as Allan has described (Fife, 1990) on "waterlogged muck". A non-bryological highlight was the abundance of *Ranunculus lyalli*, in full bloom. In the afternoon slow progress was made on a river flat of the Borland Burn. Bryophytes dominated the landscape (at least to bryologists' eyes). Carpets of the acrocarpous mosses covering the alluvial debris included *Ditrichum buchananii*, *Pohlia camptotrachela* with its distinctive gemmae among the upper leaves, dark red swards of *Ceratodon purpureus* and the bright lime-green stars *Chrysoblastella chilensis*. Beautiful fruiting material of *Psilopilum australe* was found on eroding soil clumps at the river's edge, and a wealth of Orthotricaceae (later identified as both hairy and naked calyptra forms of *Orthotrichum tasmanicum* var. *tasmanicum*, together with a species of *Ulota* clothed the branches of equally puzzling divaricating shrubs. It proved unnecessary, however, to have travelled far to contribute to the list of "most exciting finds": Bob Coveny, who opted to stay behind to sort out his specimens that day, showed us *Buxbaumia aphylla* on our return home to the Lodge, collected "a few 100 yards down the road" - though later weary searchers with shorter leges vowed they must have been Australian yards.

Sunday found us back in the beech forest, at Pig Creek. The sight of a long row of people standing with their noses to the limestone cliff might have seemed curious to an outsider, but was simply a response to Allan's pointing out the presence of the minute *Seligeria cardotti*, its leaves less than 2mm long and its tiny capsules on setae about 1.75 mm long (and that is our larger species of *Seligeria*!). Other finds on the limestone included *Entodon truncorum*, *Gymnostomum calcareum*, *Fissidens leptocladus* and *Eucladium irroratum*, plus Ray's discovery of *Catharomnion ciliatum*, growing both on limestone and on adjacent soil and humus. This beautiful little hairy moss, common in other parts of the country on trunks of the tree-fern *Cyathea medullaris*, but found occasionally on other substrates, was certainly a surprising addition to the list. This record is probably the southern-most for the species.

Our last day began wet and cold, and lab work seemed an attractive proposition. However, with the promise of hot soup at lunch-time from Lawre Taylor, a number of forays into neighbouring beech forest, swamp, frog-pond and rough pasture were undertaken, where interesting new finds included *Dicranoloma fasciatum* on rotting wood in beech forest (another southern-most record?), *pseudoscleropodium purum* amongst roadside grasses, some puzzling swamp *Campylopus* specimens, and more fruiting *Pohlia ochii* on a riverside slip.

As a northerner I particularly enjoyed several features of the Fiordland habitats we visited: the wealth of small epiphytes on twigs over streams (genera like *Daltonia*, *Hampeella*, *Tetraphidopsis* and even *Sematophyllum*); the presence of a variety of *Sphagnum* species on which to apply tips for field identification learnt last year in England (e.g. a stem cross section mad by simply snapping a stem and applying the hand lens); and time to look at other things because *Fissidens* was so uncommon!

Evenings were spent in the lab, and a number of slide shows were given: Allan Fife showed us bryophytes we had or might yet find in Fiordland; Pat Brownsey described a project demonstrating the value of herbarium collections - an analysis of the flavonoid content of *Bryum argenteum* specimens collected at various times in Antarctica, and the potential of the method for determining past ozone levels in the atmosphere; Paddy Dalton reminded us of the beauty of the Tasmanian wilderness and its bryophytes, and (as we sat under the high tension wires bringing power from the Manapouri Station), the damage which has been done to the environment by power schemes there; Marie Hicks described her work on hepatics in northern Queensland, with interesting comments on distribution patterns; and I discussed aspects of my current work on *Fissidens*. Two regular participants who were not able to attend this workshop sent slides: Chris Spragg of mosses from Little Barrier Island, and David Glennly of the botany of Solomon Islands where he is at present a VSA worker. We were sorry also to receive a last minute cancellation from Tom Moss due to ill-health.

Borland Lodge, a former Ministry of Works construction camp, proved to be an ideal venue for this type of workshop, with a variety of habitats easily accessible, and the facilities to set up separate lab, lecture and dining areas in spacious comfort. In spite of a rather loose fit of the window screens meant to deter sandflies, and some very noisy nocturnal frogs, the experience of living in a former Ministry of Works single man's cabin proved very pleasant. Grateful thanks are due to our excellent cook, Jocelyn Eason, and to Ray, for his superb organisation and his quiet leadership skills.

I'm sure all participants would agree they learnt a lot in four days, in a most enjoyable fashion. Sadly, apart from the organiser, no student attended. With "biodiversity" now a fashionable work (if an old concept), an effort must be made to attract to these workshops budding young biologists with a wish to tell one plant from another, by the simple technique of looking carefully at them.

As we departed fresh snow lay down to the tree-line, and temperatures had plummeted: we promised to meet next year in Canberra. In 1991 there will be no John Child Workshop, in order not to detract support from the Bryophyte Workshop to be held at the National Botanic Gardens, Canberra. Details are available from Judith Curnow, A.N.B.G., P.O. Box 1777, Canberra City 2061, A.C.T., Australia. In 1992 the 8th John Child Workshop is planned to take place in the central North Island, on Mt Ruapehu. For further details contact Pat Brownsey, National Museum of New Zealand, P.O. Box 467, Wellington.

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Jessica Beever, DSIR Land Resources, Private Bag, Auckland

■ Council of Heads of Australian Herbaria (CHAH), Melbourne, October 1990

The heads of all Australian Federal, State and Territory herbaria gathered for the 18th annual meeting in Melbourne, 16-17 October 1990. For the last ten or so years, a New Zealand observer has attended CHAH meetings to report on the achievements (and problems) of the substantial network of herbaria in this country, and to report back discussions on the numerous issues of relevance to the annual meetings of New Zealand herbarium curators.

A few points which may be of general interest are:

- talk of producing latitude and longitude from free text of existing herbarium labels by means of an algorithm;
- Australian herbaria sent out 49,500 specimens on loan last year; the costs involved may have to be written into research grant applications;
- the meeting roundly denounced Clifford, Rogers and Dettman's attack on herbarium holdings which appeared in Nature 16 August 1990;
- publication of all the vascular plant volumes of the Flora of Australia is still intended to happen by the year 2001; volumes 35 and 50 are due this financial year, and volumes 2, 15 and 17 next year;
- the news that maintenance of a database of 100,000 specimens at Perth required a full-time staff member.

The meeting was held at the National Herbarium of Victoria, resplendent in its greatly expanded and well-furnished building set in Melbourne's meeting by providing a range of surrounding social events.

Anthony Wright, Herbarium Curator, Auckland Institute & Museum, Private Bag, Auckland

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