NEW ZEALAND BOTANICAL SOCIETY

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Cover illustration

Tupeia antarctica a hemi-parasitic shrub belonging to Loranthaceae. Found in lowland and montane forest and scrub throughout New Zealand on a wide variety of hosts (see article by Norton, de Lange, Ladley & Malcolm page 6). Illustration of fruiting branch at Omori Scenic Reserve, Lake Taupo (19 September 1994) by **Cathy Jones**.

New Zealand Botanical Society

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Back issues of the *Newsletter* are available at $2.50 each - from Number 1 (August 1985) to Number 36 (June 1994). 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 1994 issue (Number 38) is 30 November 1994.

Please forward contributions to: Bruce & Beverley Clarkson, Editors
NZ Botanical Society Newsletter
7 Lynwood Place, HAMILTON

Regional Botanical Society News

■ Nelson Botanical Society

June Field Trip

Haulashore Island and the tip of the Boulderbank are prominent landmarks from much of Nelson City yet not heavily visited. The island has an arc of pine trees along its backbone which shelter a central lagoon. Here there are a variety of intertidal plants including the locally important estuary tussock, *Stipa stipoides*. The most interesting native shrub was a local variety of kowhai scarcely more than 2 m tall. Planted species included Chatham Island akeake (*Olearia traversii)* and the Australian ngaio (*Myoporum insulare*) but perhaps the most striking adventive was silver beet, growing prolifically near the high tide mark.

By comparison the Boulderbank is quite barren and appears a repository for all the garden weeds and cast-offs of the city, deposited here by the Maitai River. The most prominent plant was Hotentot fig (*Carpobrotus edulis*) but there were also quite large areas of nettle (*Urtica urens*) on the bird nesting sites and the large yellow-flowered *Oxalis pes-caprae*.

August Field Trip

We had a brilliant warm spring day for our annual visit to forest remnants, this year in the upper Motueka River. Two areas were visited, one near Tapawera, the other at Stanley Brook. The first area was rolling hill forest, mainly of red beech but with silver mountain and black beech in the lower slopes and matai, pokaka and the odd narrow-leaved ribbonwood on the lower margins. The latter, rather open area was heavily infested with old man's beard. In the lower part the understorey was dominated by *Coprosma rotundifolia* but on damper shaded slopes *Leptopteris hymenophylloides* was quite common. The highlight of this area was seeing many fresh young fronds of *Botrychium biforme*.

The second area was 80 ha of the now rather rare terrace matai forest spread along about 2 km of river. A fringe of mountain beech and red beech covered footslopes which gave way above to pine forest. Along the river narrow-leaved ribbonwood was quite common and one *Plagianthus regius* was seen. The area has been fenced for about 15 years and all that now remains of the scattered blackberry clearings are plants which are liane-like and often dead. The highlight of this area was a patch of *Scutellaria novae-zelandiae*. This is the western most record of the species in the Waimea Basin. Its nearest neighbour is over 20 km away. The location suggests the species may be present in parts of the Motueka River, and in the past probably occurred over a wide area of the Moutere Hills.

Programme

18 September	Whangamoa mouth
16 October	Takaka Hill or Doubles (weather dependent)
Labour weekend camp	Kekerengu
20 November	Carluke Scenic Reserve
18 December	Moa Park

Graeme Jane, 136 Cleveland Terrace, Nelson

■ Rotorua Botanical Society

The programme over June/July and August has reflected the unreliability of the local weather at this time of year; most field trips have been at least partly indoors.

The Annual General Meeting of the Rotorua Botanical Society was held on Saturday evening 18 June and was preceded by a workshop on grass identification. This was ably directed by FRI herbarium director Chris Ecroyd and attended by approximately 14 people. It was a particularly useful workshop in view of the limited range of available texts on grass identification.

Following the formal business of the AGM on Saturday evening, Chris Ecroyd provided another excellent contribution with a talk on his research into *Dactylanthus taylorii* and the short-tailed bat in the Central

North Island. Chris described the damaging effects that rats and possums are having on the *Dactylanthus* and bats.

The evening closed with a photo competition won by John Smith-Dodsworth.

The July field trip took the form of a Car Rally, in which accurate observation of roadside plants was the main objective, (as well as reaching the lunchtime and final destinations). The morning portion of the field trip had participants heading south of Rotorua to the Ngakuru, Horohoro and Waikite Valley areas. Most species that were required to be identified were common exotic trees or shrubs in the roadside landscape south of Rotorua where few of the native forest or scrubland species have survived the effects of pastoral farming; but the field trip also showed just how much of the region's road fringes are colonized by exotic weed species.

The August field trip was attended by some members of the Horticultural Society and included visits to the Rotorua District Council Nursery and Glasshouses; a garden of carnivorous and similar plants, and a specialist cactus nursery. In all cases the plants of note were warmth loving species originating from tropical or desert environments; many genera having no connection with New Zealand's native or naturalised plants but interesting nevertheless.

Many of the plants grown in the covered buildings of the Rotorua District Council Nursery are used for interior display/pot plant purposes. We admired the impressive, arching leaves of *Asplenium nidus*, (very different to New Zealand aspleniums) and forms of the winter flowering succulent *Kalanchoe* spp. (originating from China). The Council also grows a wide range of palms suitable for indoor use - we admired specimens of *Chrysalidocarpus* sp. and *Howea* sp.

In the glasshouses of Cor Schipper we were shown a wide diversity of bromeliads e.g., *Guzmania sanguinea* (with blood red floral bracts); and *Tillandsia recurvata* - extracting most of its water and food from the air rather than the soil. As a premier grower of insect-eating plants Cor Schipper propagates several species which have extremely limited numbers in the wild, in an endeavour to maintain the genetic diversity of these intriguing plants.

The final visit of the day was to the Cactus Garden/Nursery of Cez Miehe. We admired dozens of different forms of cactus, from tiny pebble like *Lithops* (Living Stones); tall cylindrical *Cleistocactus*, and the distinctive lobed structure of *Opuntia* (Prickly Pear).

Thanks to the Rotorua District Council, Cor Schipper, and Cez Miehe, for the opportunity to visit these gardens.

Grant Milligan, P.O. Box 1168, Rotorua

■ Wanganui Museum Botanical Group

Recent activities

At the evening meeting of 3rd May, Mrs Pat Robinson talked about studying extra-murally. Pat has completed a B.Sc. course with Massey University. We were impressed by her staying power and also by the tremendous help and support provided by the University staff and the books etc, supplied. We noted the great increases in costs to the extra-mural students during the years of her study; this must be a great deterrent to those considering extra-mural studies.

In June there was an herbarium meeting. Alf King described the sequence of events from the plant in the field to the plant press and the mounted specimen. Then members tried their hands at preparing specimens for the press.

We heard Dr Carol West talk about Raoul Island at the July meeting. It was a most interesting talk around an excellent selection of slides. Dr West answered all our questions and by the meeting's end we felt that we knew just about all there is to know about Raoul Island and its problems.

The June outing was to Anderson's bush, an area which had first been visited just after it had been fenced off, then again about five years later when ground cover was almost total. There were few supplejacks or kawakawa shrubs. This time, after a further 3 years or so, the bush was almost impenetrable. It will be interesting to revisit the area after a further 3 years. One addition to the plant list was *Leptolepia novae-zelandiae* which is uncommon in our area.

Future activities
3 September - outing to the Himatangi Scientific Reserve and Round Bush
2 October - to Tunnel Hill, Turakina: a wetland area
29 October - to Gray's Bush in the Longacre Valley
13 November - a half day outing to Lismore exotic forest on an orchid foray
10 December - to Lake Waiau, Moumahaki: a dune lake on a DoC reserve
Sun 8 January 1995 - to Turoa, Mt Ruapehu.

Evening meetings
6 September - Dr Jill Rapson on her botanical trips to Tasmania
4 October - Barry Vincent, noxious plants officer, on noxious plants
2 November - Kathy Foster on her research into heather in the Togariro National Park
6 December - Our Xmas Social evening.

Secretary: Robyn Ogle, 4 Brassey Road, Wanganui (ph: 06-345 8593)

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

Notes and Reports

Plant Records

■ More about *Equisetum* in New Zealand

Mr A.J. Healy (1994) records the occurrence of *Equisetum hyemale* L. in the Christchurch Botanic Gardens and notes the species as established wild in a neglected garden in Linwood, Christchurch. Dr Ella O. Campbell (1994) also notes the occurrence of *Equisetum* in captivity at Massey University and Otago University, and the occurrence of *E. fluviatile* in New Zealand was recently recorded by Mr P.J. de Lange (1989).

Leonard Cockayne made one of the earliest reported introductions of *Equisetum* when he received in 1900 plants of four species [identity presently unknown] from Professor Karl von Goebel (1855-1932) of the University of Munich. They were planted in Cockayne's Tarata Experimental Garden at New Brighton near Christchurch. Goebel visited New Zealand in November and December 1898 and a close rapport developed between the two botanists. This is reflected in their correspondence between 1892 and 1931 (Thomson 1979). Five letters between 1900 and 1901 from Cockayne to Goebel refer to his experience with the imported *Equisetum* plants.

In his letter of 12 April 1900 Cockayne expressed his pleasure at the success of the method Goebel used to ship living plants to Cockayne, "With a very few exceptions, all were alive, and in the most excellent condition. Just think, I have now growing well in my garden the following which I had never thought to see alive in New Zealand: *Equisetum* four species, *Eriphorum* two species, *Primula viscosa* and *Gentiana lutea*! Some of the plants died after their arrival. They looked altogether too healthy and so I did not take care enough, and pot them, but instead I planted them out on a new piece of rock-work and a series of hot N.W. winds proved too much for them...At any rate the success of this shipment has shown us that alpine plants packed in moist moss will travel quite well through the tropics".

By 8 June 1900 Cockayne could report to Goebel, "The Horsetails are growing splendidly and so indeed are most of the plants". Cockayne reciprocated by sending a box of rhizomes of *Ranunculus lyallii* to Goebel, "I labelled the box 'Museum Specimens' since Germany does not allow living plants with roots to be sent, so I trust they may not be confiscated".

By 31 August 1900 he reported to Goebel, "*Equisetum* is growing splendidly, Alfred [Leonard's son A.H. Cockayne, 1880-1966] was able to cut a transverse section of it the other day...". Alfred was at the time a student at Canterbury College and though he passed the first section of a B.Sc. he did not complete a degree.

However, by 8 January 1901 Cockayne writes, "The horsetails have given me some trouble, but I think that they are now nearly beaten. As for whether the ground was wet or dry, they cared not; and at one time, it looked as if I should have to abandon Botany for ever and spend the rest of my life in a struggle with these diabolical plants. One piece dived under a brick wall and then commenced to ascend a sand dune. Part of my alpine garden now looks as if it had been invaded by an army of starving pigs".

Finally, by 16 October 1901 Cockayne declares, "I am reluctantly compelled to destroy the lot...they would become a nuisance in my lifetime and I should be hanged, while a N.Z. contingent would proceed to München to arrest you - and Munich beer would certainly not be a strong enough tipple to overcome an army recruited from Lake Brunner etc".

Cockayne in these letters gives a somewhat light-hearted account of *Equisetum* in the field in Christchurch but he clearly indicates the plant's vigour. I know of no reports of *Equisetum* in the area that could have descended from Cockayne's plants. He moved from Tarata in 1903 and the area where his garden was located is now covered with houses, though the old Cockayne homestead was extant in 1963 when the house and site of Tarata were photographed by Dr E.J. Godley and Mr C.J. Miles (Godley 1967, Fig.2). It seems unlikely that the *E. hyemale* recorded in Linwood by Mr Healy originated from plants grown by Cockayne, though he did live in the Linwood area from 1905-1914 (Thomson 1983, p.41).

Acknowledgement
I thank Mr A.J. Healy for his comments on this note.

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A.D. Thomson, Centre for Studies on New Zealand Science History, 5 Karitane Drive, Christchurch 2

■ Hosts of New Zealand Loranthaceae mistletoes

Introduction

As part of our current research on the biology, ecology and conservation of New Zealand Loranthaceae mistletoes we have compiled a list of all known hosts for each species based on herbarium vouchers, published literature and unpublished records. Unless otherwise stated the host records below are based on herbarium vouchers (details held by the senior author). Host nomenclature follows the recommendations of Druce (1992) for native species and Webb et al. (1988) for exotic species. In some cases it has been difficult to assess specifically which host taxa has been referred to; in these situations we have listed the host at genus level only.

Our taxonomic treatment of the New Zealand mistletoes differs from that in Allan (1961), largely following Barlow (1964, 1966). Barlow (1964) reviewed the classification of the Loranthaceae *sensu lato*, accepting the Viscaceae as a distinct family represented in New Zealand by three species of *Korthalsella* (which are not discussed further here). Barlow (1966) in revising the New Zealand Loranthaceae *sensu stricto*, reinstated the generic names erected by Van Tieghem in 1894 recognising six species (names used by Allan, 1961, in brackets); *Tupeia antarctica* (name unchanged), *Ileostylus micranthus* (*Loranthus micranthus*), *Alepis flavida* (*Elytranthe flavida*), *Trilepidea adamsii* (*Elytranthe adamsii*), *Peraxilla colensoi* (*Elytranthe colensoi*) and *Peraxilla tetrapetala* (*Elytranthe tetrapetala*). Although Barlow (1966) regarded the presence of *Muellerina celastroides* (*Phrygilanthus raoulii* and *Phrygilanthus tenuiflorus*) as doubtful in New Zealand (it also occurs in eastern Australia), we have included it here as we have not seen any evidence to suggest that it didnt occur in New Zealand. Both *Trilepidea adamsii* (Norton 1991) and *Muellerina celastroides* (B.P.J. Molloy pers. comm., 1994) are considered extinct in New Zealand.

We are publishing this list as a basis for developing a better understanding of the hosts of these mistletoes and would appreciate receiving any comments (especially additions) to the list. If you are intending to collect mistletoe specimens for herbaria, we would very strongly urge you to also collect a specimen of the host species. In a survey of all New Zealand mistletoe herbarium records, we found that only 16 % of herbarium sheets included material from the host species.

Hosts of *Alepis flavida*

Native host species:

Archeria traversii
Aristotelia fruticosa
Coprosma propinqua (C.C. Ogle pers. comm.)
Coprosma pseudocuneata
Nothofagus fusca
Nothofagus menziesii
Nothofagus solandri
Nothofagus truncata
Pseudopanax colensoi

Number of host species: 9 native
0 exotic
9 total

Hosts of *Ileostylus micranthus*

Native host species:

Aristotelia serrata
Beilschmiedia tawa
Carmichaelia cunninghamii var. "lagelliformis"
Carmichaelia cunninghamii var. "robusta" (H.D. Wilson pers. comm.)
Carpodetus serratus (C.C. Ogle pers. comm.)
Cassinia leptophylla
Coprosma crassifolia
Coprosma linariifolia
Coprosma lucida
Coprosma macrocarpa
Coprosma parviflora
Coprosma propinqua
Coprosma rhamnoides
Coprosma rigida
Coprosma robusta
Coprosma rotundifolia
Coprosma rubra
Coprosma tenuicaulis
Coprosma "tayloriae" (Malcolm 1993)
Corokia cotoneaster
Cyathodes juniperina
Dacrycarpus dacrydioides
Dacrydium cupressinum
Discaria toumatou
Dodonaea viscosa
Elaeocarpus dentatus
Elaeocarpus hookerianus
Fuchsia excorticata
Griselinia littoralis
Halocarpus biformis
Helichrysum aggregatum
Hoheria angustifolia
Hoheria populnea var. lanceolata
Kunzea ericoides
Leptospermum scoparium
Leucopogon sp. (Allan 1961)

Lophomyrtus bullata (P.J. de Lange pers. obs.)
Lophomyrtus obcordata
Melicope simplex
Melicytus alpinus
Melicytus lanceolatus
Melicytus micranthus (S. Courtney pers. comm)
Melicytus obovatus (S. Courtney pers. comm.)
Melicytus ramiflorus
Metrosideros umbellata (C.C. Ogle pers. comm.)
Muehlenbeckia australis
Muehlenbeckia complexa
Myoporum laetum
Myrsine australis
Myrsine divaricata (C.C. Ogle pers. comm.)
Neomyrtus pedunculata (C.C. Ogle pers. comm.)
Olearia ilicifolia (Bannister 1989)
Olearia paniculata
Olearia solandri
Pennantia corymbosa
Pittosporum crassifolium (Ogle & Wilson 1985)
Pittosporum ellipticum (G. Platt pers. comm.)
Pittosporum eugenioides
Pittosporum tenuifolium
Plagianthus divaricatus
Plagianthus regius
Podocarpus hallii
Podocarpus totara
Pseudopanax arboreus
Pseudopanax crassifolius (Duguid 1967)
Pseudopanax simplex (Wilson 1987)
Pseudowintera colorata
Rubus australis
Rubus cissoides (Bannister 1989)
Rubus schmidelioides (Bannister 1989)
Rubus squarrosus (P.J. de Lange pers. obs.)
Schefflera digitata (Menzies 1954, Bannister 1989)
Sophora microphylla
Sophora prostrata
Toronia toru
Tupeia antarctica

Exotic host species:
Acer negundo
Acer sp. (maple; P.J. de Lange pers. obs.)
Betula pendula
Chamaecytisus palmensis
Citrus limonum
Corylus avellana
Cotoneaster simonsii (Bannister 1989)
Crataegus monogyna
Cupressus macrocarpa
Cytisus scoparius (Eagle 1975)
Elaeagnus X *reflexa*
Embothrium coccineum (P.J. de Lange pers. obs.)
Erica lusitanica (Bannister 1989)
Forsythia X *intermedia*
Fraxinus excelsior (P.J. de Lange pers. obs.)
Hedera helix (P.J. de Lange pres. obs.)
Liquidamber styraciflua (J.J. Ladley pers. obs.)
Liriodendron tulipifera
Lupinus arboreus
Malus X *domestica*

Osmanthus heterophyllus
Pinus muricata
Pinus radiata (P.J. de Lange pers. obs.)
Platanus sp.
Populus sp. (Allan 1961)
Prunus cerasifera
Prunus laurocerasus (Bannister 1989)
Prunus persica (P.J. de Lange pers. obs.)
Prunus X *domestica*
Pyrus communis
Quercus ilex (J.J. Ladley pers. obs.)
Quercus robur (P.J. de Lange pers. obs.)
Racosperma baileyanum (Duguid 1967)
Racosperma dealbatum
Rhododendron sp.
Ribes sanguineum (Bannister 1989)
Robinia pseudacacia (D.A. Norton pers. obs., PJ de Lange pers. obs.)
Rosa rubiginosa
Salix alba
Salix X *reichardtii* (Duguid 1967)
Salix cinerea
Salix fragilis (Wilcox 1984)
Sorbus aucuparia
Teline monspessulana (Bannister 1989)
Ulex europaeus

Number of host species: 74 native
44 exotic
118 total

Norfolk Island hosts of *Ileostylus micranthus*:
Coprosma pilosa
Melicytus ramiflorus
Pittosporum bracteolatum

Host of *Ileostylus micranthus* X *Tupeia antarctica*:
Coprosma chathamica (Thomson 1949)

We have been unable to locate a voucher for this supposed hybrid, or for those discussed by Smart (1952), and we are unaware of any research that provides more conclusive evidence that hybridisation occurs between these two genera. In the case of the plant discussed and illustrated by Thomson (1949), we suggest that it could also either be a case of double parasitism (*Tupeia* on *Ileostylus*) or of variability within *Ileostylus*.

Hosts of *Muellerina celastroides*

Native host species:
Metrosideros sp. (Cheeseman 1925)
Vitex lucens (Cheeseman 1925)

Number of host species: 2 native
0 exotic
2 total

Hosts of *Peraxilla colensoi*

Native host species:
Metrosideros excelsa (Cheeseman 1925)
Metrosideros sp.
Nothofagus fusca
Nothofagus menziesii
Nothofagus solandri

Pittosporum sp. (Allan 1961)
Podocarpus totara

Exotic host species:
Alnus glutinosa (Allan 1943)
Crataegus monogyna
Prunus X *domestica* (Cheeseman 1925)
Pyrus communis (Cheeseman 1925)
Quercus robur (Allan 1943, N. Baigent pers. com.)
Quercus sp.
Robinia pseudacacia (Cheeseman 1925)
Rosa sp. (Allan 1961)

Number of host species: 7 native
8 exotic
15 total

Hosts of *Peraxilla tetrapetala*

Native host species:
Aristotelia fruticosa
Coprosma propinqua
Coprosma rugosa
Discaria toumatou
Dracophyllum acerosum
Dracophyllum longifolium
Metrosideros excelsa
Nothofagus fusca
Nothofagus menziesii
Nothofagus solandri
Nothofagus truncata
Quintinia serrata (including *Q. elliptica*)
Weinmannia racemosa var. "silvicola"

Exotic host species:
Betula pendula
Fraxinus excelsior (N. Baigent pers. com.)

Number of host species: 13 native
2 exotic
15 total

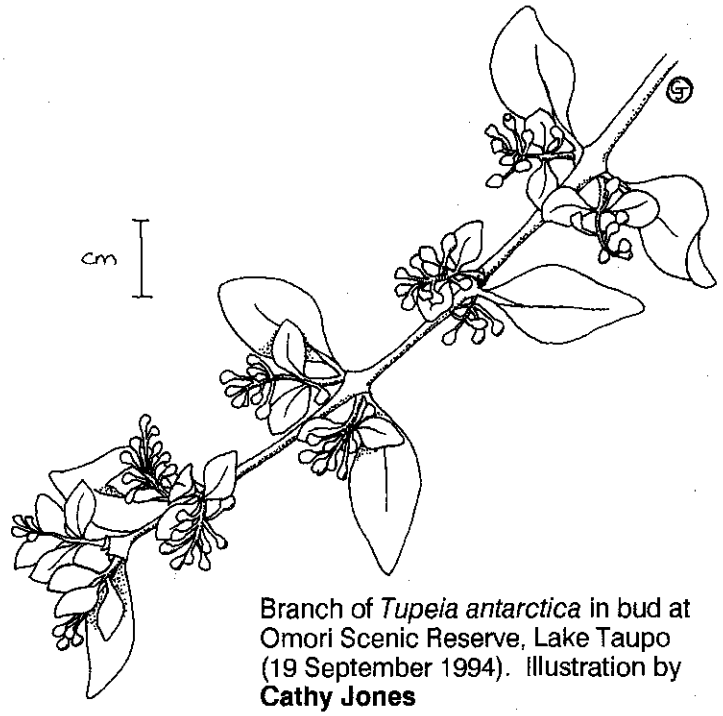
Hosts of *Trilepidea adamsii*

Native host species:
Coprosma arborea (Norton 1991)
Melicope ternata (Norton 1991)
Myrsine australis (Norton 1991)

Number of host species: 3 native
0 exotic
3 total

Hosts of *Tupeia antarctica*

Native host species:
Carmichaelia petriei
Carpodetus serratus
Chordospartium stevensonii
Coprosma crassifolia
Coprosma linariifolia
Coprosma propinqua



Branch of *Tupeia antarctica* in bud at Omori Scenic Reserve, Lake Taupo (19 September 1994). Illustration by **Cathy Jones**

Coprosma pseudocuneata
Coprosma sp. aff. *parviflora* (uncertain which one, collected Awatere Valley)
Dysoxylum spectabile
Hoheria angustifolia
Hoheria lyallii
Ileostylus micranthus
Myrsine australis
Myrsine divaricata
Nestegis apetala
Nestegis cunninghamii
Nothofagus sp.
Olearia paniculata
Olearia traversii
Pennantia corymbosa
Peraxilla tetrapetala
Pittosporum eugenioides
Pittosporum tenuifolium
Plagianthus regius
Pseudopanax arboreus
Pseudopanax edgerleyi (Smart 1952)
Ripogonum scandens (Smart 1952)

Exotix host species:
Chamaecytisus palmensis
Crataegus monogyna
Cytisus multiflorus
Embothrium coccineum (P.J. de Lange pers. obs.)
Hedera helix
Racosperma sp.

Number of host species: 27 native
6 exotic
33 total

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Biography/Bibliography

■ Biographical Notes (15): Charles Edward Christensen (1876-1938)

Thomson (1) has already written about Christensen with particular emphasis on his relation to Cockayne. The present note adds further information, particularly about Christensen's earlier years, and gives dates for various important events in his life.

Charles Christensen was born in Christchurch on 31 March, 1876. His parents, John Peter and Anne, lived in Riccarton, and his father was a blacksmith (2,3). In the electoral rolls for 1902 and 1905 he is listed as a labourer with the same address as his parents, Peerswick, Upper Riccarton. In 1908 he first appears in Wise's Post Office Directory. The entry is "Christensen Chas. E. Masseur, Harper St., Riccarton Upper, Christchurch", and this continues until 1913 with the addition of the street number 15, which was also his parents' address. However in 1912 and 1913 there is an additional address, "Government Masseur, Hanmer", and this stands alone in 1914. At age 37 (in either 1913 or 1914) Christensen was married at Hanmer to Jessie Isobel Stewart (3) and on 1 October, 1914, he was appointed to the temporary staff of the Tourist & Health Resorts Department as masseur. This appointment became permanent on 1 April, 1915 (4). His services were largely used for soldier patients at the Queen Mary Hospital for nervous disorders (18), and his qualification was "not less than 3 years active practice" (5).

We do not know when Christensen became interested in plants. He is first mentioned in the Transactions, as far as I can see, in a paper read before the Philosophical Institute of Canterbury on 4 December, 1912 by Cockayne who wrote: "The plants from Mount Oxford, never before enumerated, are being collected with great assiduity by the Rev. J. E. Holloway M. Sc.; and those of Hanmer by Mr C. Christensen, who is examining the plant-life of that district in a most thorough manner, and has already made discoveries, both floristic and ecological, of considerable importance" (6). By October 1913 Christensen was writing a weekly letter to Cockayne (1) and next year Cockayne wrote: "Mr C.E. Christensen, in company with Mr W.G. Morrison, of the State Nursery, is continuing his valuable detailed examination of the Hanmer District - " (7). Both gentlemen were commemorated by Cockayne in 1915 in the wild hybrids X *Celmisia christensenii* and X *Celmisia morrisonii* (8); and in the same volume Petrie described *Abrotanella christensenii* and wrote: "I have great pleasure in dedicating this curious species to its discover, Mr C. Christensen, who is doing valuable work in botanical research in the Amuri district". In 1917 Cockayne described *Senecio christensenii* from material sent by Christensen from the Leslie Hills (9); and in 1923, Cockayne (10) referred to Christensen's "notable discovery a few years ago" that *Helichrysum purdiei* was probably a wild hybrid, *H. bellidioides* X *H. glomeratum*.

Thomson (1) notes that "manuscript material in the National Museum records that Cockayne and Christensen had intended publishing about the flora and vegetation of Hanmer in 1915 and perhaps on other topics. In addition a 6-page manuscript in the Auckland Institute and Museum Library, 'Notes as Guide for Plant-ecological Investigations' was apparently prepared by Cockayne to assist Christensen and illustrates the direct assistance Cockayne provided for his 'disciples'". However, Christensen's field work was not accomplished easily. Cockayne told Sir George Fenwick of Dunedin that Christensen "was handicapped by the fact that the knee-joint of one of his legs had been excised. Notwithstanding this he rode a bicycle, using only the sound leg! He ascended again and again to 4,000 ft and upwards, reaching

the summits of the highest peaks" (11); and Speight wrote to Cockayne in March, 1916, that Christensen "did not climb any peaks with me but all the same I was astonished at his pluck, and he should do you the greatest credit as a disciple" (1).

Cockayne left Christchurch in April, 1914 to live in Wellington (12), but was back at Hanmer in mid-July, 1918, as part of his economic investigation of the montane tussock grassland. He wrote to the soldier-botanist, Foweraker, that the snow was 4 ft 3 inches deep, but that the "Mitigating circumstances that made Hanmer tolerable was the presence of Christensen and the hot bath (price 9d each). He is now in sole charge of the springs - " (13). Christensen rounded off his botanical work at Hanmer with the publication of a paper "On the behaviour of certain New Zealand Arboreal plants when gradually buried by River-shingle", (14). He describes the production of adventitious roots in 5 native species in the upper portion of the Perceval river bed, Hanmer; and he adds observations in plants buried by sand at the mouth of the Waimakariri River, and of plants growing in sphagnum-moss at the top of Jack's Pass.

In 1920 Christensen was promoted from Masseur, Hanmer, to Head Masseur, Rotorua, effective from 20 March (15); and in 1923 he was promoted to Tourist Agent and Masseur at Te Aroha, effective from 12 March (16). But he still kept in close touch with Cockayne, sending annotated material of *Hebe pubescens* from Mercury Bay, as mentioned in Cockayne & Allan's study of *Hebe* (17). It was also stated that he became "very familiar with the peculiar hybrid and sub-alpine growth in the upper reaches of rivers in the Coromandel Ranges" (18). In September 1929, two younger disciples of Cockayne, Lucy Cranwell and Lucy Moore, went to Te Aroha for the weekend where Christensen saw them well started up the mountain track (19).Two years before he died Christensen was compelled to cease work for a considerable time by failing health and in October 1937, he entered the Rotorua Sanatorium (18). He died on 9 March, 1938, and was buried at Te Aroha next day, survived by his widow and 2 daughters. (3). It is remembered that he had "a remarkable proficiency as a player of various band instruments, but he chiefly exercised his musical talents as a violinist" (18). There are Christensen specimens at the National Museum (WELT) derived from the herbaria of Cockayne and Petrie (1).

Acknowledgement
I am very grateful to Andy Thomson (Christchurch) and Murray Frost (Hamilton) for help with this note.

References
(1) *Botany Divison Newsletter* No. 116, 1987; (2) Church Register, Canterbury Public Library; (3) Death Certificate; (4) List of persons employed in the Public Service, 31 March, 1919, *suppl. NZ Gazette* 3 July, 1919; (5) List of masseurs registered under the Masseurs Registration Act, 1920, *NZ Gazette* 5 May 1927; (6) *TNZI* 45, 1913; (7) *TNZI* 46, 1914; (8) *TNZI* 47, 1915; (9) *TNZI* 49, 1917; (10) *New Phytologist* 22, 1923; (11) Fenwick *Celmisias*, Dunedin, 1923; (12) Anon *NZJST* 2, 1919; (13) Thomson *NZJB* 17, 1979; (14) *TNZI* 54, 1923; (15) *NZ Gazette* 16 December, 1920; (16) *NZ Gazette* 14 June 1923; (17) *TNZI* 57, 1926; (18) *NZ Herald* 14 March, 1938. (19) Moore *Auckland Botanical Society Newsletter* 1987;

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Publications

■ Journals recieved

New Zealand Native Orchid Group Journal 51
(September 1994; ISSN 1170-4543). Edited by Ian St George. 28 pp.

Contents include editorial on *Calochilus robertsonii* pollination, close relations - *Gastrodia orobanchioides* and *Spiranthes sinensis* from Pakistan, notes (18) on a wide variety of topics ranging from orchid photography to new distributional records, original papers on *Corybas orbiculatus* and *Pterostylis tasmanica* by Brian Molloy, orchid artists - Claire Scott and Lydia Blumhardt, Australian notes, and an historical reprint - Swartz's orchid classification of 1800.

Editors

■ New names or combinations from the journals (2)

Mazus pumilio has been redefined as endemic to S.E. Australia by W.R. Barker, In: Banks, M.R., Smith, S.J., Orchard, A.E., Kantvilas, G. (Eds). *Aspects of Tasmanian Botany - a tribute to Winifred Curtis. Royal Society of Tasmania, Hobart*: 85-94 (1991). Barker also described a new species, *M. novaezeelandiae* W.R. Baker, as endemic to the North and South Islands of New Zealand (previously included within *M. pumilio*). In his paper, Barker defends his spelling of the specific epithet "novaezeelandiae" stating "Stearn (1966) gives the form "novae-zelandiae" for "all of New Zealand", he gives "Zeelandia" as the appropriate latinisation of Zeeland (the Netherlands) from which New Zealand derives."

Glossostigma cleistanthum W.R. Barker, a new species described as native to central and south-eastern mainland Australia and New Zealand by W.R. Barker: *J. Adelaide Bot. Gard. (15)1*: 71-74 (1992). The sessile or subsessile flowers never open which distinguishes it from its closest ally, *C. diandrum*.

Two new combinations in *Hebe* by P.J. Garnock-Jones: *Aust. Syst. Bot. 6*: 457-479 (1993). *H. masoniae* (L.B. Moore) Garn.-Jones (syn. *H. pauciramosa* var. *masoniae* and *Leonohebe masoniae*) and *H. mooreae* (Heads) Garn.-Jones (syn. *Leonohebe mooreae*). The paper is a cladistic analysis of the phylogeny of the *Hebe* complex and recognises 6 genera in the complex, but does not accept *Leonohebe*.

Hebe murrellii, as well as *H. adamsii*, was reinstated by P.J. Garnock-Jones and B.D. Clarkson, *NZ J. Bot. 32*: 11-16 (1994). This southern South Island taxon was treated by L. Moore as a variety of *H. petriei* and as a variety of *Leonohebe petriei* by M. Heads.

Melicytus flexuosus Molloy et A.P. Druce is described as a new endemic New Zealand species by B.P.J. Molloy and A.P. Druce: *NZ J. Bot. 32*: 113-118 (1994). It used to be treated under *M. angustifolius*, an Australian taxon which is distinct from *M. flexuosus* and is not present in New Zealand.

In a revision of the New Zealand grass tribe Triticeae H.E. Connor, *NZ J. Bot. 32*: 125-154 (1994), describes three new species: *Elymus falcis*, *E. sacandros* and *Stenostachys deceptorix*, and makes three new combinations: *E. solandri* (syn. *Triticum solandri*), *S. gracilis* (syn. *Elymus gracilis*) and *S. laevis* (syn. *Elymus laevis*). The native *Elymus solandri* is segregated from *E. rectisetus* which is now considered a naturalised species in New Zealand.

Eight new combinations for New Zealand *Parahebe*, most segregated from *Hebe*, by M. Heads: *Bot. Jl of Linn. Soc. 115*: 65-89 (1994). This review includes *Parahebe* of Australia and New Guinea. Five of the eight New Zealand taxa are the same ones that P.J. Garnock-Jones recently segregated from *Hebe* into his new genus *Heliohebe* (*NZ J. Bot. 31*: 323-339 (1993)). The question of which to follow partly depends on whether you believe the taxa best fit a broader definition of *Parahebe* with a Gondwanan origin (Heads) or whether the five taxa are distinct enough to warrant their own genus of a more recent origin (Garnock-Jones). "For the *Hebe* complex to have evolved before the Cretaceous requires either the direction of plant evolution to be the reverse of what is normally understood, or for nearly all of the angiosperm evolution to have occurred in or before the Jurassic" (Garnock-Jones, *Aust. Syst. Bot. 6*: 457-479 (1993)). The choice of which taxonomy to follow is yours!

Corybas orbiculatus (Colenso) L.B. Moore has been reinstated by B. Molloy, *NZ Native Orchid Group Journal 51*: 12-14 (1994). *C. orbiculatus* was placed in synonymy by Clements & Hatch (*NZ J. Bot. 23*: 491-494 (1985)) when correcting the use of the name *Corybas rivularis*. Molloy states the type of *Corysanthes orbiculata* Colenso, on which the name *Corybas orbiculatus* is based, belongs to a distinct species currently included within *Corybas rivularis*. This taxon has also been referred to as *Corybas* "C" and *Corybas* "short tepals".

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■ New Zealand Journal of Ecology index available

The New Zealand Journal of Ecology Vol. 17 (2), 1993 contained the cumulative index of all issues from 1953 - 1993. Reprints of this index are available at a cost of $5, cheque made payable to the New Zealand Ecological Society, from the editor, Dr Jill Rapson, address as given below.

G.L. Rapson, Department of Ecology, Massey University, Private Bag 11222, Palmerston North

Forthcoming conferences/meetings

■ **The first New Zealand Native Orchid Group Conference 2-4 December 1994**

Programme:

Friday 2 December
Chair: Max Gibbs
8.00pm Opening remarks: Bill Rademaker
8.10 Flora of the Central Volcanic Plateau: Cathy Jones
8.40 *Caleana minor*; will it survive in NZ?: Chris Ecroyd
9.00 Seek and ye shall find: Bruce Irwin
9.30 Threatened orchid species: Peter de Lange

Saturday 3 December:
Chair: Bill Rademaker
9.00am The various contrivances by which New Zealand orchids are fertilised by themselves: Ian St George
9.30 Hybrids using *Drymoanthus adversus*: Malcolm Campbell
9.45 Preliminary hybrids involving *Thelymitra longifolia*, *T. pulchella*, and *Calochilus paludosus*: Doug McCrae and Brian Molloy
10.15 Whangarei orchids: Noleen Clements
10.45 Tea & Displays
Chair: Doreen Abraham
11.15 The ecology of *Corybas carsei* in restiad bogs: Bruce Clarkson, Peter de Lange & Bev Clarkson
11.45 Observations on the pollination of *Corybas* "A": George Fuller
12.15 Lunch & Displays
Afternoon in the Reserve
5.00pm Opening of the Iwitahi Reserve
Chair: Bill Rademaker
Tangata whenua
Tom Rogers, General Manager Forests, Forestry Corporation of New Zealand
Max Gibbs, Taupo Orchid Society Inc.
Offical Opening: Hon Simon Upton Minister of the Environment
Drinks & Dinner
After Dinner: Our alpine orchids: Brian Molloy
Short Presentations

Sunday 4 December
9.00am Field Day

Trevor Nicholls, 33 Hinekura Ave, Taupo (ph: 07-378 4813)

Acknowledgements: Thanks to Antoinette Nielsen and Ewen Cameron who produced camera-ready copy for the printer.

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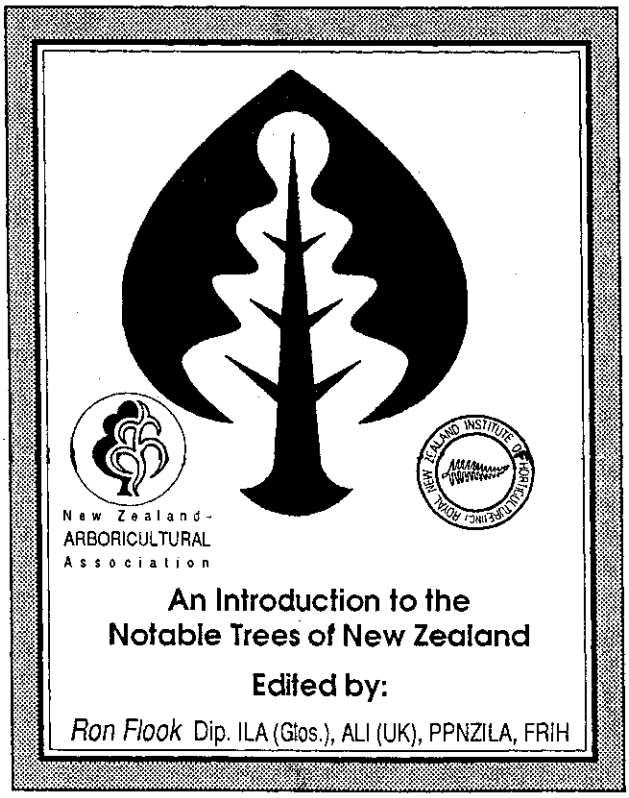

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