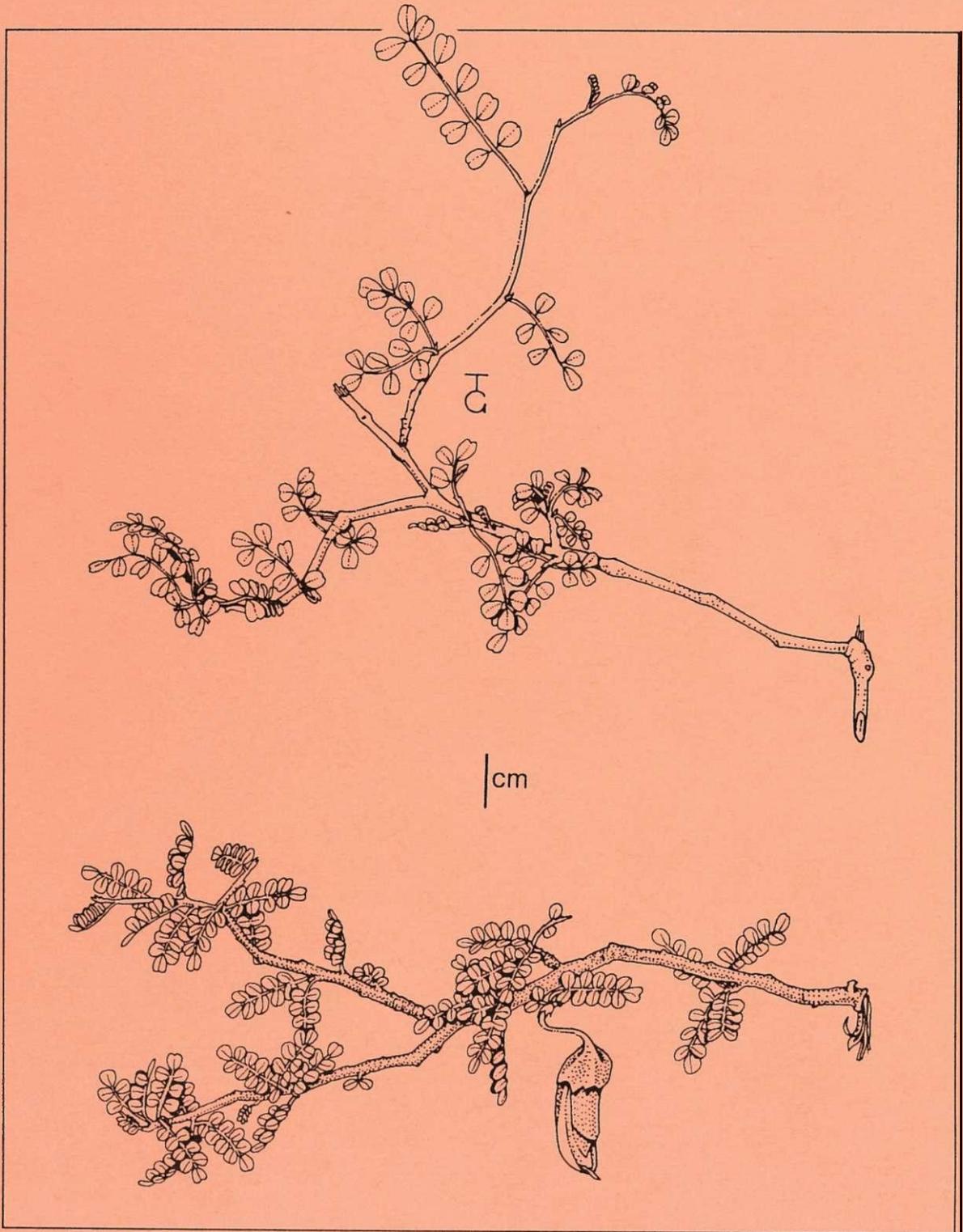


NEW ZEALAND BOTANICAL SOCIETY
NEWSLETTER

NUMBER 35

MARCH 1994



Cover illustration

Juvenile *Sophora microphylla* (top) and *Sophora prostrata* (bottom) from the recently published field guide - Small-leaved shrubs of New Zealand (see review page 10). Drawn by **Tim Galloway**.

NEW ZEALAND BOTANICAL SOCIETY
N E W S L E T T E R
NUMBER 35 MARCH 1994

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New Zealand Botanical Society

President: Dr Eric Godley
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AUCKLAND

Subscriptions

The 1994 ordinary and institutional subs are \$14 (reduced to \$10 if paid by the due date on the subscription invoice). The 1993 student sub, available to full-time students, is \$7 (reduced to \$5 if paid by the due date on the subscription invoice).

Back issues of the *Newsletter* are available at \$2.50 each - from Number 1 (August 1985) to Number 34 (December 1993). 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 June 1994 issue (Number 36) is 31 May 1994.

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

News

New Zealand Botanical Society News

■ Balance sheet for the financial year 01 January - 31 December 1993

INCOME		EXPENDITURE	
B/fwd from 1992	4120.49	Printing Newsletter 31	712.13
1993 Subscriptions	2975.00	Postage Newsletter 31	194.40
1993 Student Subscriptions	36.00	Printing Newsletter 32	1085.63
Donations	237.00	Postage Newsletter 32	178.40
Back Issue sales	44.50	Printing Newsletter 33	811.13
1994 Subs in advance	114.00	Postage Newsletter 33	185.60
Advertising	100.00	ECO Subscription	65.00
Interest chq a/c	.30		<u>\$3232.29</u>
Interest investment a/c	<u>160.62</u>		
	<u>\$7787.91</u>		

Excess income over expenditure of \$4555.62 (represented by chq a/c balance of \$13.55 and investment a/c balance of \$4542.07) carried forward to 1994. However, please note that invoices for printing and postage of Newsletter No. 34 amounting to \$1292.45 relate to the 1993 year although they were not paid until January 1994.

Anthony Wright, Treasurer, New Zealand Botanical Society

2 March 1994

Regional Botanical Society News

■ Auckland Botanical Society

Programme

The programme of evening meetings and field trips for the coming year (April 1994 to March 1995) will not be drawn up until the new committee meets following the Society's AGM in March.

Field trip - Saturday 19 March 1994 to Woodhill Forest and the Thomas Grace Reserve

We will begin at the Thomas Grace Reserve, a 6 acre area managed by Rodney Council. The bush is dominated by pole kahikatea, amazing kohekohe; *Melicytus micranthus* is frequent. After visiting this area we will proceed into Woodhill Forest close by to look at one or two forest remnants on sand dunes.

Leader: Ewen Cameron

Auckland Botanical Society Journal Vol. 49 (1), February 1994

List of contents:

Honorary Life Membership for Jack Mackinder - Secretary

Mackinder presentation - R O Gardner

Marine invaders of New Zealand Coasts (The Lucy Cranwell lecture) - Wendy Nelson

Vascular flora of Graham Island, Waikato River - P J de Lange & P D Champion

New Zealand Herbarium Resources - Anthony Wright

Vascular flora, vegetation and conservation issues of Lake Kereta and adjacent bush, South Kaipara - Ewen Cameron

Field trip to Putataka near Port Waikato to view Jurassic plant fossils - Anne Fraser

Loog-ye in Sandringham - R O Gardner

Field trip - Odins Timber Track / Cowan Stream - Maureen Young

Uncommon plants in the Waitakere Ranges - Sandra Jones

Environmental vascular plant weeds and new records for Motutapu, Waitemata Harbour - E K Cameron

Wahlenbergia gracilentia - R O Gardner

Trip to Pukekaroro Scenic Reserve - Alistair MacArthur

Pukekaroro Scenic Reserve species list - Sandra Jones

Cyathea cooperi naturalised in Auckland - R O Gardner
Special General Meeting - Secretary

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

■ Nelson Botanical Society

Canterbury Botanical Society Camp: Matakītaki Lodge - 3-5 December

On Saturday the group split into two parties - one covering the lower flats of Mole Stream and the other visiting the high altitude Tutaki Forest tarns. The climb to the tarns passed through mainly red beech forest on a gradually ascending ridge, finally reaching the edge of the bogs on a small plateau containing the tarns and mountain beech and cedar forest. The tarns were surrounded by bog pine (*Halocarpus bidwillii*) and much *Empodisma minus*, *Centrolepis ciliata* and *Carex gaudichaudiana*. The area appeared quite species-poor, but perhaps that was because it was early in the season. The find of the day was *Ourisia modesta* on the flats near the road.

On Sunday we first traversed a wide array of divaricating shrubs under beech forest near the lodge. The second stop investigated the bog pine shrubland near the Lodge. The highlights here were the curious, leafless *Melicytus "flexuose"*, *Olearia virgata* var. *laxiflora* and *Pittosporum anomalum* with its fragrant yellow flowers. At the last brief stop we discovered a new record for the recently described bidibid, *Acaena juvenca*.

December Field Trip Report

On Saturday driving rain kept the party near the bushline on Billies Knob. The find of the day was *Pterostylis "aff cycnocephala"* amongst dense *Ophioglossum coriaceum*.

On Sunday the party explored Blue Creek, a place very rich in ferns. The most significant find was of *Hymenophyllum pulcherrimum* although in all six species of *Hymenophyllum* were recorded.

New Year Field Trip - Arapawa Island

A party of 8 explored the northern parts of the island from a base at Otanatea, in East Bay. Much of the forest close at hand was heavily damaged by pigs, goats and wild sheep but fenced areas on the opposite side of the island were beginning to show recovery. Lower forest was dominated by kohekohe (*Dysoxylum spectabile*), a plant rarely seen in Nelson, and the upper forest by tawa (*Beilschmiedia tawa*). Beech forest was a rarity, with red beech (*Nothofagus fusca*) occurring as a small stand only at the highest point and black beech (*N. solandri*) occurring on dry ridges. Miro and matai were uncommon and only a few trees of rimu were found.

The highest points had a great diversity and abundance of ferns, especially filmy ferns such as kidney fern (*Trichomanes reniforme*) and *Hymenophyllum demissum* and the exposed ridges had a rich shrubland including *Hebe "arborea"* and the local variety of *Hoheria populnea* var. *lanceolata*. At lower levels tauhinu (*Cassinia leptophylla*) and *Olearia solandri* dominated a highly modified shrubland, and forest ridges were covered by dense swards of kiekie (*Freycinetia baueriana* subsp. *banksii*). On the eastern side the forest descended much closer to the coast, but even here the lowermost slopes and cliffs were covered in grassland or tauhinu.

Within the forest huge raukawa (*Pseudopanax edgerleyi*), some 13 m tall, were common here although rare on the mainland but, mistletoes, common on similarly possum free D'Urville Island, were rare. Other unusually large plants were five finger (*Pseudopanax arboreus*) up to 1 m diameter and broadleaf (*Griselinia littoralis*) over 1.5 m in diameter and 20 m tall. Some species had unusually large leaves, notably *Pseudopanax anomalus* and *Blechnum fluviatile*.

Special finds included *Trichomanes endlicherianum*, only one seedling of *Streblus banksii* and on the lower Cook Strait cliffs the uncommon *Pseudopanax ferox*, *Senecio sterquilinus* and *Kirkianella novae-zelandiae*.

January Field Trip Report

It seems Mt Arthur has beaten us again; the weather led us to choose the route to Growler for the day. One highlight of this area was to see the fascinating local plant *Olearia capillaris* and a typical hybrid swarm of it with *Olearia lacunosa*. At journey's end there was the huge pile of rocks which constitutes the Growler Rock shelter, with its attendant flora of shade and limestone plants, including *Asplenium lyallii*.

Anniversary Weekend Camp: Murchison

A group of 28 stayed in quite salubrious surroundings at the school. The first day we headed for Lake Matiri, an easy walk up an old road to the lake. Along the lower river flats the track kept close to the river fringed with black beech (*Nothofagus solandri*), red beech (*N. fusca*), kowhai (*Sophora microphylla*) and many shrubby species, the most prominent of which was *Hoheria populnea*, an uncommon plant elsewhere in Nelson. Other plants of interest were *Brachyglottis hectori*, the needle-leaved totara (*Podocarpus acutifolius*) and hybrids of it with Halls totara (*Podocarpus hallii*). Towards the lake three uncommon ferns were found: *Hymenophyllum rufescens*, *H. ferrugineum*, and under a rock overhang, *Trichomanes colensoi*. The outwash fans at the head of the lake had abundant *Equisetum arvense*, a serious pest. Other plants of interest were the two ribbonwoods (*Hoheria populnea* and *Plagianthus regius*) which dominated the scattered vegetation. On the return journey a side trip to the lake mouth yielded another uncommon fern, *Grammitis pseudociliata*.

On Sunday we set off for Mt Mantel. The rocky granite landscape has quite a unique flora. On the higher craggs *Raoulia grandiflora*, *R. bryoides*, *Aciphylla monroi*, *Kelleria dieffenbachii* and many other small herbs fought amongst themselves or with carpet grass (*Chionochloa australis*) for space. In the wetter clefts the huge leaved *Ourisia macrophylla* was common. At lower levels carpet grass was common with a profusion of gentians coming into flower (three species) and vast patches of *Dracophyllum uniflorum*. *Celmisia semicordata* was particularly lush and abundant as was one unusual plant, the soft, sword-leaved *Celmisia petriei*. A few of us ventured into the perched frost basin of East Branch Stream. In contrast to the dry upper slopes the wet gullies yielded a profusion of alpines and lush patches of *Dolichoglottis lyallii*. On the valley floor there were extensive wetlands bordered by *Brachyglottis cassinioides* and further back by silver beech forest with patches of mountain ribbonwood (*Hoheria lyallii* var. *glabrata*). And in the wettest, coldest places red tussock (*Chionochloa rubra*) over sphagnum bog.

On Monday we toured Sphinx Scenic Reserve, a pile of limestone bluffs at the junction of the Maruia and Buller Rivers. A tortuous climb to the bluff tops led through highly modified red beech forest with occasional *Brachyglottis hectorii* to the foot of the cliffs then through mainly *Olearia avicenniifolia* shrubland to the cliff top. The cliffs sheltered a few palatable plants, but most were out of reach. Laurie Metcalf spotted *Brachyglottis greyi* var. *laxiflorus* along the bluffs, several in flower. We descended via Campbell Stream through a contrasting rich, largely unmodified red beech forest with *Brachyglottis hectori* strangely abundant in the subcanopy. The forest was much wetter than that we ascended through and ferns such as *Leptopteris superba* and *Hymenophyllum rufescens* were common.

Coming Field Trips

February 20 - Gordon's Knob/Ben Nevis

March 20 - Mt Campbell

Easter - Karamea

April 17 - Croisilles

May 15 - Hackett

Graeme Jane, 136 Cleveland Terrace, Nelson

■ Rotorua Botanical Society

February Field Trip: Waikato River, Rawhiti and Hardcastle Lagoons

Approximately 10 botanists took the opportunity to botanize these lagoons alongside the Waikato River in the Broadlands - Reporoa Basin. An assortment of canoes and one rubber dinghy put in immediately upstream of the Ohaaki Power Station Bridge and the group paddled 200 metres further up-stream to Rawhiti Lagoon. Extensive clumps of *Schoenoplectus validus* were emergent from the water along with *Juncus prismatocarpus*. Tall stems of sea aster (*Aster subulatus*) were prominent in one part of the lagoon. The bankside vegetation was dominated by crack willow (*Salix fragilis*) and weeping willow (*Salix babylonica*). The differences between *Gratiola sexdentata* and *Elatine gratioloides* tested some of us. Exotic weeds in abundance included *Myriophyllum aquaticum* and *Ceratophyllum demersum*. One grass of particular interest and unknown to many was cut-grass (*Leersia oryoides*), a grass to look at rather than walk through.

Leaving the Rawhiti Lagoon we paddled downstream - a task harder than first thought due to a strong wind blowing upstream. On the true left bank (around the margins of Ohaaki Power Stations West Steamfield) the tree canopy was dominated by willows with a few scattered manuka (*Leptospermum scoparium*) approximately 5 m tall being the only noticeable native trees. In the shaded areas of bank close to the waterline swards of *Hydrocotyle pterocarpa* were found along with *Ranunculus amphitrichus*

and *R. macropus*. Near Ohaaki Marae an immense grape (*Vitis vinifera*) scrambled across a 50m length of river bank (sadly, without fruit).

Within the backwaters alongside the river huge mats of waternet (*Hydrodictyon reticulatum*) covered both the water surface and the shoreline and presumably must have obliterated older established plant communities in the last few years.

Hardcastle Lagoon is larger than Rawhiti lagoon and approximately 5 km further downstream. *Isolepis prolifer* was common on mud/silt banks within the lagoon. Several patches of waterlily, both white flowered, (*Nymphaea alba*) and yellow flowered, (possibly *Nymphaea mexicana*) were floating within the lagoon. Mats of duckweed (*Lemna minor*) mixed with azolla were very common. Two of the 'professionals' in the group engaged in a lively debate as to whether the azolla was the native *A. filiculoides* or the *A. pinnata* (with densely hairy roots).

Sandy banks downstream of the lagoon were checked for submerged *Pilularia* but without success. The boats were taken out at Mihi Bridge Rest Area, approximately 10 km downstream from the Ohaaki Bridge.

Special thanks are due to Chris Richmond and Vicky Froude for organising the trip and providing the boats which made this novel way of botanizing possible

Rotorua Botanical Society Newsletter No. 29, March 1994

List of contents:

Editorial - R. Crabtree

Presidents Report - B. Spring-Rice

Easter trip 1993, Gisborne District - D. King

Mt Tauhara Field Trip - J. Nicholls

Hapuakohe Field Trip - J. Nicholls

Vegetation of Volkner Rocks (Te Paepae Aotea) and Club Rock - W.B. Shaw

Drymoanthus "Spotted Leaf" - C. Ecroyd

Programme

Sunday 15 May - Otupaka Ecological Area; either Taahau frost flat or Whaeo river side. Leader John Nicholls (ph. 07 349 1748).

Saturday 18 June - AGM at Wohlman House; talk on medicinal plants.

Grant Milligan, 3 Munro Place, Ngongotaha, Rotorua

■ **Waikato Botanical Society**

Trip Reports

Early February saw a successful start to activities for 1994, with a trip southwards to regions of the Volcanic Plateau. Our first stop was Opepe Scenic & Historic Reserve -an impressive remnant of native forest with some very old and enormous rimu trees. From there the group had a look at some beech forest in the Kaimanawa Forest Park, and headed home quite satisfied with the day spent in an area quite different to the Waikato.

Later in the month, a trip through some of Hamilton's gullies was held in conjunction with the Maruia Society as part of the "Tui 2000" project. It was a great turnout despite the threatening weather.

Programme

April 17 - Lake Rotokawau (Black Lake) at Ohinewai - small peat lake surrounded by bog vegetation and semi-mineralised wetland.

May 10 - Society AGM and potluck dinner. Guest speaker for the evening will be Peter de Lange.

May 22 - Taupiri Scientific Reserve: an area of lowland podocarp/hardwood forest near Ngaruawahia.

June 19 - Pukemokemoke Bush Reserve - showing a more unusual aspect of Waikato forest with kauri, beech and kawaka.

Anyone wanting further details of these trips, or information about the Waikato Botanical Society, should contact:

Catherine Beard, University of Waikato, Department of Biological Sciences, Private Bag 3105, Hamilton

■ Wakatipu Botanical Group

This group has 35 enthusiastic members who meet once a month (second Wednesday) followed by a day or weekend field trip.

Programme

Wed April 13th - Plant propagation with Jo Boyd.

Sat April 16th - Garden visits. Boyds gardens & nursery and others

Lyn Clendon, Secretary, P O Box 478, Queenstown

■ Wanganui Museum Botanical Group

Trip Report September 1993

Corballis's Bush was revisited. More *Doodia media* was found in the stream valley and *Blechnum procerum* was found on the steep valley sides. The fenced area, first seen 3 years ago was carpeted with native tree seedlings and patches of *Mazus pumilio* were found again. *Hoheria angustifolia* was here as well as numerous plants of *Drymoanthus adversus* growing on tawa.

Trip Report October 1993

A fenced-off patch of bush at Maungaraupi country estate was visited on 2nd October. *Corybas trilobus* was well represented in damp areas and *Urtica ferox* was almost everywhere. *Clematis paniculata* was still in flower and *Earina mucronata* was well in bud. In all, some 30 species of trees, 30 ferns and 10 herbs were listed.

Programme

March 27 - a visit to Lake Marahau, west of Maxwell.

May 1 - Carver's No 3 bush, north of Kai Iwi.

April 5 - Talk by Vonnie Cave on her overseas trip

May 3 - Talk by Pat Robinson on her experiences with studying extra-murally.

Secretary: Robyn Ogle, 4 Brassey Road, Wanganui

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

Notes and Reports

Plant record

■ A new *Equisetum* in New Zealand

A planted clump of an *Equisetum* in the Herb Garden, Christchurch Botanic Gardens, was brought to my notice by Mr D.N. Whitford, Leeston, who questioned the label identification as *Equisetum arvense* L.

The plant was one of the entities within *Equisetum hyemale* L. (Dutch rush: scouring rush), a variable species of horsetail native in Western Asia, North America and Europe. Despite the common name this is not a true rush, and not a member of the flowering plant family Juncaceae.

E. hyemale belongs to the subgenus Hippochaete, with winter-hardy stems, and spore-bearing cones solitary at the tip of the stems. The earlier recorded (Atkinson 1922) *E. arvense* belongs to the subgenus *Equisetum*, with sterile stems dying down in winter, and spore-bearing cones carried on short-lived fertile stems.

It has circular stems to 3m tall, hollow except at the nodes, cylindrical, ridges 35-40, with circular, distinctively coloured toothed sheaths (1.0-1.25 cm long) at each node. In the Botanic Gardens, the plant has proved vigorous and invasive; in 2.5 years, it has developed over 70 old stems and 60 new stems from an extensive rhizome system which has spread over 3 metres from the original planting. Single new stems or groups of 2-5 new stems initially resembling young asparagus spears arise at each rhizome node.

In December 1993 Mr J.W. Thacker, Noxious Plant Officer, Canterbury Regional Council, found *E. hymale** thoroughly established in a neglected domestic section, Linwood, Christchurch. The plant was growing in lawns, flower garden beds, under fruit trees, and under large trees of pine and matsudana willow. The rhizomes had spread more than 3 metres under a shingle access roadway into the base of a privet hedge in a neighbouring property.

The origin of the planting at Linwood is proving difficult to determine - was it deliberately planted or an accidental introduction in horticultural material from local or overseas sources, or is there some connection with the Botanic Garden occurrence?

There is no doubt that *E. hyemale* is vigorous, invasive and troublesome, and will prove difficult to control, let alone to eradicate from domestic sections and cultivated land generally should it spread from the known occurrences. The significance of spread by spores has yet to be determined.

* (Linwood, Christchurch: A.J. Healy 93/49a-f, 13 December 1993: CHR 402611)

Reference

Atkinson, E.H. 1922: *New Zealand Journal of Agriculture* 25: 290 Wanganui.

A.J. Healy, 98 Rattray Street, Riccarton, Christchurch 4

Field report

■ Botanical notes on a trip to White Island (Whakaari), 27 November 1993

On the 27th November 1993, I was fortunate to accompany a joint Department of Conservation / New Zealand Army trip to White Island (Whakaari). While on the Island, I took notes on the flora present and its condition, particularly seeking comparisons with previous botanical observations. Derek Gosling (DoC, Whakatane) ably contributed to this task. The last survey in 1990 recorded a total of 7 vascular plant species on the Island (Clarkson & Clarkson in press); we found only 4. Also, although we searched for them, we found no bryophytes, lichens or terrestrial algae. Cassie & Cooper (1989) list *Cyanidium caldarium* and several diatoms from a hot water sample collected near the crater. On this trip we landed at three separate locations on the Island: Crater Bay (Te Awapuia), near the old camp site and gannetry at Ohauora, and on North Bench. Several locations where previous botanical records have been made were not visited, making this only a partial survey. However, several interesting observations were made.

No vascular or non-vascular plants were found at Crater Bay. In 1990, the adventive herb *Paronychia brasiliensis* was found here, thought to have arrived as a stowaway with tourist visits to the Island (Clarkson & Clarkson in press). Its absence on our visit suggests it is now extinct on the Island.

Clarkson and Clarkson (in press) visited the *Metrosideros excelsa* forest at Ohauora in 1986 and 1990. In 1986, following a series of complex eruptions between 1979 and 1981, only about 5% of the forest still survived, having resprouted from epicormic shoots after stand destruction. However, they report that by 1990, after more eruptive events, nearly all these resprouts had died. On this trip, I noted that about 5-10% of the *M. excelsa* trees were alive in this same area growing again from reprints. This suggests that the forest in this area has generally regained the condition observed in 1986. As with trees in 1986, in 1993 many individuals were carrying full seed capsules, presumably formed during the previous summer's growing season. Also, many branches had unopened floral buds ready for the current season's display. However, no seedlings or saplings were seen throughout this area. Slow spread of *M. excelsa* does appear to be occurring by vegetative layering of resprouted branches on the ground surface and vegetative spread of *M. excelsa* on the Island may be an important component of forest regeneration. Many epicormic shoots had dead terminal apices with new terminal shoots developing on old wood beneath them. This almost continuous process of shoot death and renewal has led to extreme bushiness of the extant trees.

In 1986, Clarkson and Clarkson (in press) found *Histiopteris incisa* in a petrel burrow at Ohauora and in forest at North Bench but did not record *H. incisa* on the Island in 1990. On this trip, Paul Jansen (DoC, Rotorua) rediscovered *H. incisa* at Ohauora in the same habitat recorded in 1986. Around the gannetries at Ohauora we also found flowering mats of *Disphyma australe*; the only plant found there in 1990. On the trip between Ohauora and North Bench by sea we observed clumps of *Phormium tenax* in steep gullies

and cliffs around Te Matawiwi amongst dead and resprouting *M. excelsa* forest. This species was also recorded from this locality in 1990 (Clarkson and Clarkson in press).

We traversed the intact *M. excelsa* forest found on North Bench and explored along several of the deeply incised gullies that dissect the Bench. However, again as in 1990, no other vascular or non-vascular species were found. On the flat part of the bench, no seedlings or saplings of *M. excelsa* were observed, however, a few seedlings did exist on the steep gully walls. In this forest there again was much resprouting of epicormic shoots as a response to death of terminal buds above, and trees were generally bushy. At the west end of the Bench, a debris flow has been slowly burying a number of *M. excelsa*. However, this situation also promotes layering and interesting examples of this survival strategy can be found here.

Four species found in 1990, were not located during this trip. *Paronychia brasiliiana* has been mentioned previously. *Einadia trigonos* was previously found at the Te Matawiwi and Otaketake gannetries; *Poa anceps* at the Te Matawiwi gannetry and a clump on slopes of a valley to the east of Te Hokowhitu; and *Asplenium northlandicum* on seacliffs at Troup Head. None of these localities was visited so the continued presence of these species on the island was not confirmed.

Overall, it was a fascinating experience to reach such a hostile environment with such a depauperate flora. Interestingly, it is a small group of vascular species, and not non-vascular species, that have managed to survive on White Island; contrary to some early theories of primary successional sequences. My thanks again to the Department of Conservation for the opportunity to visit the Island.

References

- Cassie, V.; Cooper, R.C. 1989: Algae of New Zealand thermal areas. *Bibliotheca Phycologica Band 78*: 1-159.
- Clarkson, B.D.; Clarkson, B.R. in press. Vegetation decline following recent eruptions on White Island (Whakaari), Bay of Plenty, New Zealand. *New Zealand journal of botany* 31(4).

Bruce Burns, Manaaki Whenua - Landcare Research, Private Bag 3127, Hamilton

Biography/Bibliography

■ Biographical Notes (13): Walter Henry Pearson (1832-1911)

Walter Pearson was born at Mangapory, India, the grandson of the Advocate-General of the Supreme Court of Judicature in Bengal. He was educated in England, returned to India in 1849, and emigrated to Australia in his twentieth year. In 1855 he sailed for New Zealand, arriving at Port Chalmers on 30 March in the little schooner, *Caledonia*. Envisaging a pastoral life he explored the Maniototo Plain with friends, and then became part-owner of the Waipori Station. But in May, 1857, he took up more congenial work in the Land Office, Dunedin. The settlers in South Otago were complaining of neglect by the Otago Government and in October Pearson was sent to Invercargill to open a branch office. His mission from the Otago Waste Lands Board was "to encourage and assist the settlement of the waste lands and to remove some of the grievances of the settlers"; and he worked from "a wattle and daub hut with a thatched roof in Tay Street". In February, 1858, he was appointed a Justice of the Peace (1).

On 1 April, 1861, South Otago became independent, and on 6 June Pearson was appointed a Commissioner of Crown Lands as well as Chief Commissioner of the Waste Land Board of Southland; and on 5 September he was elected to the Southland Provincial Council, representing the District of Waihopai (2). Thus, by the age of 30, Pearson had become a power in the south, and he continued to be so after Otago and Southland were reunited on 1 October 1870. His very readable reports, often over-optimistic, stood out among the drier official documents of the day. He wrote on the state of the oyster beds in Foveaux Strait, and on the suitability of Stewart Island for immigrants from the Orkney, Shetland, and Western Islands. In the latter he predicted that "to the fishermen the Government proposes to bring out, or Nova Scotians, Stewart's Island will prove a very paradise". And "Pearson's Paradise" the island became, when the Government scheme predictably foundered (3).

In January of 1882 and 1884 Thomas Kirk visited Stewart Island and wrote: "Mr W. Pearson, Commissioner of Crown Lands, has laid me under obligations for numerous dried plants collected in out-of-the-way places during several visits to the island" (4); and when describing *Dracophyllum pearsonii* in the same paper he wrote: "I am indebted to Mr Pearson for a much-branched specimen of a *Dracophyllum*, collected either

on Codfish Island or in Chew-Tobacco Bay. The habit differs so widely from that of any other species known to me, that I venture to describe it provisionally in the absence of flowers, and have great pleasure in attaching the name of its discoverer, to whom I am greatly indebted for numerous specimens of Stewart Island plants”.

In 1884 Pearson retired from the Invercargill Land Office and settled in Dunedin; and from 1880 to 1888 he was one of the School Commissioners of Otago. His last few years were spent at Napier, where he died on 1 September, 1911, aged 79. He was twice married but had no family, and was described as “a man of wide interests and knowledge” and “of most punctilious thoroughness” (1,3).

(1) Anon. Makers of Otago, 39, Walter Henry Pearson, 1832-1911 *Otago Witness* 7 October, 1930, with portrait; (2) N.Z. Gazette, 1861; (3) Basil Howard *Rakiura, A history of Stewart Island, New Zealand* 1940; (4) T. Kirk *TNZI* 17, 1885.

E.J. Godley, Research Associate, Manaaki Whenua - Landcare Research, P O Box 69, Lincoln.

Book Review

■ Small-leaved shrubs of New Zealand

By Hugh Wilson & Tim Galloway. Manuka Press, Christchurch. ISBN 0-473-01851-9. Casebound/laminated, 307 pages, 8 colour plates, and including 69 pages of black and white line drawings. \$35/copy incl. GST and P & P.

Hugh Wilson's name has become synonymous with user-friendly botanical field guides so we awaited the arrival of *Small-Leaved Shrubs of New Zealand* with great interest. Unlike his other works, he has shared this production, writing the text himself while Tim Galloway contributed the line drawings.

A brief preface dedicates the book to the late Norman Sutherland of the Canterbury Botanical Society whose endowment was the catalyst for the book. It also explains how a local project expanded to give national coverage.

The introduction (pages 9-13) concisely explains what is so special about New Zealand's small-leaved shrubs, what is meant by the term divaricating, and compares and contrasts the two main hypotheses advanced to explain the evolution of the growth form (climatic/stress versus moa browsing). There is a trade-off between offering a concise introduction and providing too much detail, however, it is unfortunate that the opportunity to outline Godley's novel hypothesis that the divaricating juvenile form may result from hybrids of divaricating shrubs and non-divaricating trees has not been taken up.

A key is provided next (pages 16-57) and the plain language couplets are easy to follow. This leads into the main part of the book (pages 59-290) which is taken up with the descriptions and accompanying illustrations for 180 different small-leaved shrubs. Some 50 additional species are described but not illustrated. They are arranged by family (an introductory comment explaining the arrangement would have been useful) except for some adventive shrubs which follow directly on from the family Solanaceae for no apparent reason. The paragraph introducing each family is especially good at outlining relationships with overseas genera, using examples of mainly cultivated or economic plants which readers will be familiar with. For each plant there is an ample plain language description including flowering and fruiting times and a valuable paragraph summarising features distinguishing it from similar species. The distributional data is up to date but in some cases a little too overgeneralised. For example, *Pittosporum anomalum*, which is known only from the central volcanoes and the Kaimanawa mountains in the North Island but is more widespread in the South Island, is given as North and South Islands. Tim Galloway's illustrations superbly complement the text. His general habit line drawings and excellent details of *Coprosma* stipules and the like will make final identification comparatively easy. A selection of 28 colour photographs on 8 plates is also provided and highlights the exquisite fruit colours found on otherwise drab stems and foliage.

A glossary, reference list, index of common and scientific names, and notes about the authors conclude the book.

Small-leaved shrubs of New Zealand continues a tradition of excellence first established with the publication of the Mount Cook field guide. This outstanding book is very reasonably priced and is sure to improve the general standard of knowledge and appreciation of small-leaved shrubs in the botanical

community. It will also be an invaluable reference book for all public and other libraries. Hopefully, Hugh Wilson and Tim Galloway will now turn their attention to further theme-based or regional field guides to fill some the remaining gaps in the New Zealand botanical literature, e.g., a field guide to the grasses and sedges of New Zealand.

Bruce Clarkson, Manaaki Whenua - Landcare Research, Private Bag 3127, Hamilton

Research

■ Biodiversity in semi-arid Central Otago

A thorough survey of plants and insects of a 14 hectare block I own has yielded surprising results. The land is located on Conroys Road midway between Butchers and Conroys Dam on the north side of the road, near Alexandra at 300 m altitude (NZMS 260, G42, G.R. 225415), Central Otago. This is the driest part of New Zealand with a long-term annual rainfall of just 350 mm.

Some 261 vascular plants of which 147 (56%) are native have been recorded (Table 1). Admittedly many of the natives are rare or local in occurrence (as are some of the exotics), probably in response to 140 years of extensive sheep grazing and early fires. The landscape is rolling with numerous large schist tors, extensive cushionfield, degraded grassland, saltpan sequences and substantial wetlands. Remnant shrubland of briar or a briar/*Olearia odorata*/*Coprosma propinqua*/*Aristotelia fruticosa* mix are found around some tor areas while shrubs of *Pimelea aridula* are scattered over the hillsides. The land has never been ploughed or irrigated. This has allowed the native communities to survive away from the tors and dominate large areas, eg, species such as *Rytidosperma maculatum* and *Raoulia australis*. Fluctuating rabbit numbers are probably having some impact on the plant communities, but appear to be much less a threat to the conservation and scientific values of the area that stock (sheep), judging by the presence and good health of a substantial roadside short tussock grassland that is not available to sheep, but is home to rabbits.

Some of the dominant genera are:

<i>Juncus</i>	ten species (five native)
<i>Epilobium</i>	nine species (eight native)
<i>Carex</i>	eight species (five native)
<i>Poa</i>	eight species (five native)
<i>Acaena</i>	six species (five native)
<i>Raoulia</i>	five species (five native)

Among the species, several stand out:

- Uncinia elegans* is common in dry caves
- Triglochin striata* is locally common in a saltpan and wetland
- Juncus gerardii* is locally common on a saltpan
- Ceratocephalus pungens* is locally common from late July-September
- Myosurus minimus* subsp. *novae-zelandiae* is locally common early in the spring
- Crassula tetramera* is common in bare areas early in the spring
- Myosotis* n. sp. "minutiflora" is locally common early in the spring
- Puccinellia* n. sp. - locally common on margin of bare saltpans. A dense short turf that only flowers sporadically.

	Total	Exotic	Native
Ferns and allies	11	0	11
Conifers	1	1	0
Monocotyledons	90	36	54
Dicotyledons	159	77	82
Totals	261	114	147

The early flowering spring annuals dominate quite large areas, but disappear rapidly in October giving way to exotic species including thistles. This alternating of plant communities on the same piece of soil is one reason the high diversity of species can exist in such a small area. Another feature is the zonation of salt-grasses and other grasses around bare salt pans. Usually *Atriplex buchananii* is found on the saltiest sites surrounded by the various *Puccinellia* species.

Native insects are a significant component of all these communities also, with 220 species of moth recorded to date, some of which are considered nationally rare or local.

The problem weeds such as gorse, broom, *Hieracium pilosella* and *H. lepidulum* are not common, perhaps due to the low rainfall, but thyme is present, although not dominant like it is on the nearby Flat Top Hill or Chapman Road areas.

Semi-natural grassland/herbfield areas such as this one at Conroys Road are becoming increasingly scarce in Central Otago, giving way to irrigation, deer farming, housing, grapes or becoming ploughed land. Only the rock face lower plant flora survives these land management and gross landscape changes to any great extent.

Sheep grazing is being phased out on the Conroys Road site while revegetation possibilities are researched. Already some plantings of *Cassinia fulvida*, *Lepidium kirkii* and *Hebe "rupestris"* have met with success, but in the medium term I envisage a more extensive short tussockland and expanded native shrubland, while continuing to nurture the many other communities.

Acknowledgements

I thank the many botanists who have accompanied me in the field and helped me with collection and identifications, principally Peter Johnson, Elizabeth Edgar, Pat Enright, Tony Druce, Neill Simpson, Kath Dickinson, Brian Rance, Geoff Rogers, Rory Logan, Alan Mark, Marta Treskanova, and the visiting Wellington Botanical Society.

Brian Patrick, Department of Conservation, P O Box 5244, Dunedin

Desiderata

■ Taro records moved

The site records and correspondence on taro (*Calocasia exculenta*) by Peter Matthews for an MSc Thesis at the University of Auckland (1984) have been donated by the School of Biological Sciences, Auckland University, to the Auckland Museum.

The material is now in six folders in the Manuscript Collection (93/132), in the Auckland Museum Library.

- Folder 1: notes and correspondence
2: transcriptions from field notes
3: 2 x field note books
4: site records index
5: site records vol. 1
6: site records vol. 2.

Ewen Cameron, Auckland Institute and Museum, Private Bag 92018, Auckland

Forthcoming Meetings/Conferences

■ Eighth New Zealand Fungal Foray - Monday 16 May to Friday 20 May 1994 - Rotoiti Lodge

The fungal foray organisers booked accommodation at the Lodge for four nights, i.e. participants to arrive on the Monday and depart on the Friday.

Rotoiti Lodge is an outdoor education centre. It is fully equipped with laundry, cooking facilities and 79 bunks. Beech forest, mixed native conifer-broadleaf bush is not far away, and then further afield is the Golden Downs plantings of pine and other introduced conifers.

The charges are \$12.00 per person per night for the centrally heated lodges. There will be additional charges for food.

The Lodge can be approached from SH 6 turning off at the Kawatiri Junction, or you can drive up the Wairau Valley from Picton/Blenheim on SH 63. All participants must bring their own sleeping bags, or linen and blankets, and a pillow slip. The bunks have foam rubber mattresses and pillows. Slippers are essential as shoes are not permitted indoors.

For further information or to register for the Foray, please get in touch with:

Phillipa Horn (Email Horn@Lincoln.AC.NZ) or **Ron Close** (Email Close@Lincoln.AC.NZ), Joint Organisers, Plant Science Department, P O Box 84, Lincoln University, Canterbury, phone: (03) 325 2811, fax: (03) 325 3843

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Pollen Grains of New Zealand Dicotyledonous Plants



by N T Moar

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This long-awaited Atlas brings together for the first time descriptions and illustrations for the most important and numerous group of New Zealand's indigenous flowering plants — the Dicotyledons.

It is an invaluable reference for all those involved and interested in pollen analysis. The book is structured to aid the identification process. Taxonomic keys to different pollen types quickly narrow down the range of possible options to genus level. The detailed species descriptions and notes then enable more precise identification.

71 full-page plates, each with around 15 light microscope or scanning electron microscope photographs, show particularly important features of the pollen grains. Some plates include views of grains from different angles to help identify individual species.

Author of the book, Dr Neville Moar, is New Zealand's foremost expert on the identification of native pollen grains. He was raised in the Manawatu and in 1947 joined Botany Division, DSIR. Quaternary botany was his major interest and a major contribution was to describe the basic patterns of vegetation during the last 120,000 years in Canterbury and Westland. This involved him in significant collaborative research which furthered understanding of late Quaternary events in Westland. His reputation as a skilled palynologist meant he was regularly asked to identify pollen, especially by the honey industry. Since retiring in 1987, he has maintained an interest in palynology as a Research Associate of Manaaki Whenua - Landcare Research, a New Zealand Crown Research Institute, based in Lincoln.

Book specifications: 180x247mm, 200 pages, 71 photographic plates, glossary of terms, index with family names and synonyms included, case-bound. ISBN 0-478-04500-X



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