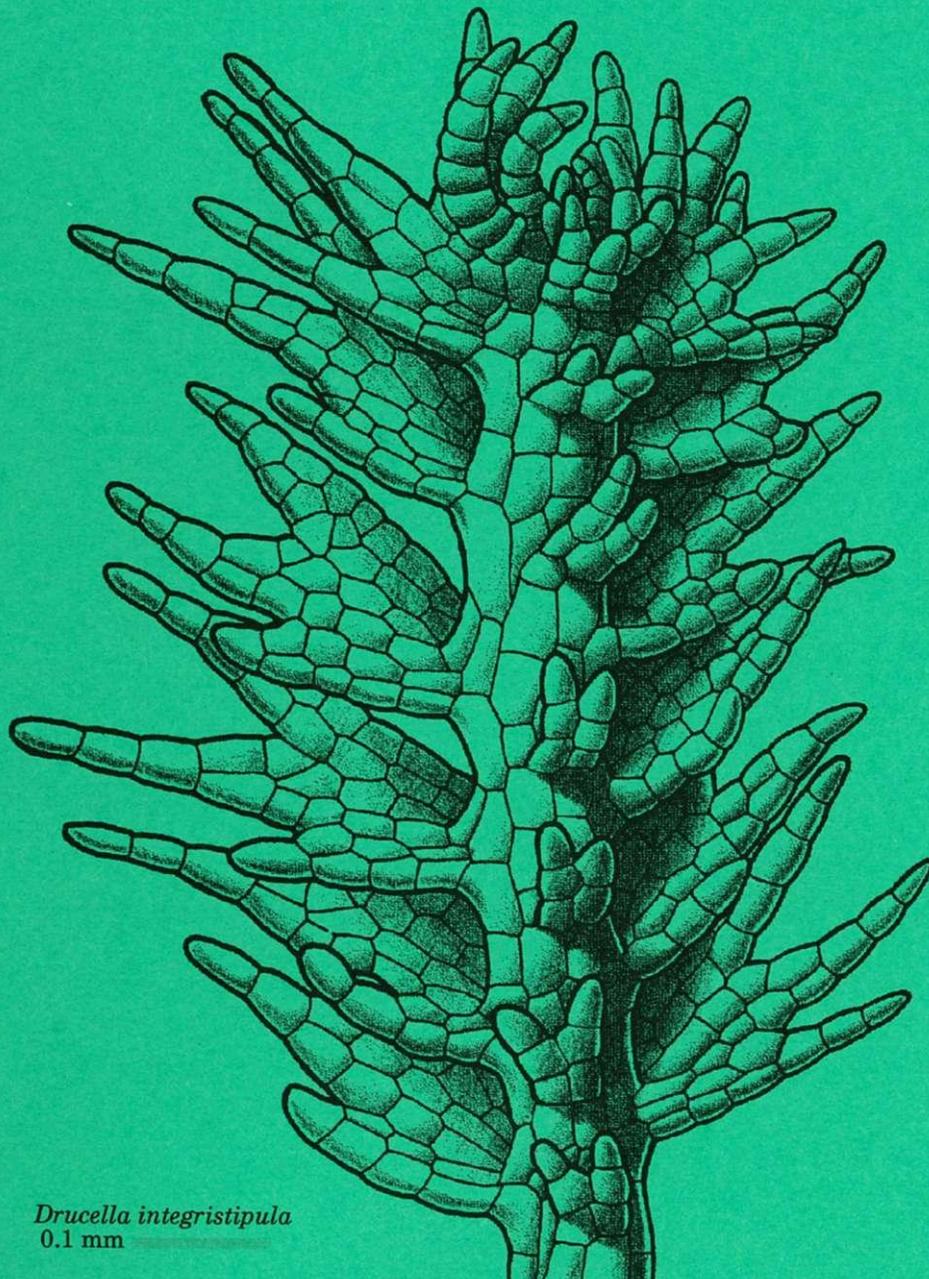


NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 60

JUNE 2000



Drucella integrispula
0.1 mm

New Zealand Botanical Society

President: Jessica Beever
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Subscriptions

The 2000 ordinary and institutional subs are \$18 (reduced to \$15 if paid by the due date on the subscription invoice). The 2000 student sub, available to full-time students, is \$0 (reduced to \$7 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 46 (December 1996), \$3.00 each from Number 47 (March 1997) to Number 50 (December 1997), and \$3.75 each from Number 51 (March 1998) onwards. 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 28th February 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 September 2000 issue (Number 61) is 25 August 2000.

Please forward contributions to: Joy Talbot
23 Salmond Street
Christchurch 8002

Contributions should be sent by e-mail to m.king@irl.cri.nz. Files can be in WordPerfect (version 7 or earlier), MS Word (version 6 or earlier) or saved as RTF or ASCII. Graphics can be sent as Corel 5, TIF or BMP files. Alternatively photos or line drawings can be posted. Macintosh files cannot be accepted so text should simply be embedded in the email message. Please give a contact name and address with the text, especially Regional Botanical Societies.

Cover Illustration

Drucella integristipula The liverwort genus *Drucella* was named for the late Tony Druce by Amy Hodgson, Tony's mother-in-law and one of New Zealand's pioneer bryologists. Although renowned for his intimate field knowledge of our flowering plants, Tony in fact collected a wide range of plants during his career, among them many liverworts for Amy. A small and creeping mat-forming species, *Drucella integristipula*'s underleaves are reduced to only a few cells. It is rare in New Zealand, where it is mostly restricted to the North Island, but it occurs in Australia as well. Drawn by **Bill Malcolm**, Box 320, Nelson.

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NEWS

New Zealand Botanical Society News

■ From the Editor

Chris Ecroyd has very nicely pointed out that I made three mistakes in his book review in Newsletter 59 (pp. 24-27). The first two mistakes are minor with no blame attached so I leave them up to readers to find. The other mistake has slightly more serious implications. This was a word which I changed in his emailed text because I could not find it in any of my reference books or the dictionary and so thought it was a spelling mistake (see Corrigendum for Newsletter 59, p *). The corrigendum is more than an apology from me; Chris has also supplied an explanation for members. That such a confusion occurred at all, however, highlights the growing separation of those accessing the net compared with those who only have (or prefer) books to rely on. Please, if you access the net for terms and can't remember if you have seen them in a book, or know they are new, please give an explanation (and reference if appropriate) for net-illiterate members (including the Editor!).

Joy Talbot

Regional Botanical Society News

■ Auckland Botanical Society

March Meeting and AGM

After the AGM Ewen Cameron and Peter de Lange gave one of their meticulously presented talks on the northern islands. This time it was the turn of the Poor Knights, and included geology and zoology as well as botany. The problems of illegal landings and weed invasion were highlighted. The conundrum of large-leaved off-shore plants continues to tax the taxonomists minds. Fresh and herbarium specimens were displayed to illustrate various points.

March Field Trip

This fine summer's day was spent on the black ironsands of Karioitahi Beach, north of the Waikato Heads. South of the surf life saving club are cliffs of consolidated sand and pumice, clad in wind-shorn vegetation. The treasures of the day were mostly tiny. A magnifying glass was needed to ascertain that *Leptinella dispersa* subsp. *rupestris* was indeed a vascular plant, and only a step or two up the size scale was the grass *Zoysia minima*. Orange fruit was present on *Gunnera dentata*. The commonest fern was *Blechnum triangularifolium*, and a surprising find at the base of the cliffs was the Asian holly fern, *Cyrtomium falcatum*.

April Meeting

Rhys Gardner spoke on various morphological features, including axillary hairs and the way young leaves are folded on new shoots, which have engaged his interest over the years. Slides, including some taken during his travels to Papua New Guinea, were used to entertain and enlighten.

April Field Trip

At the Karangahake Gorge, situated between Paeroa and Waihi, the remnants of an old gold mining site provided a background of industrial archaeology to the day's botanising. A feature of the area is the weed invasions on a grand scale, and some inappropriate native plantings. But nevertheless, some interesting plants were there for those who searched, mainly up the rocky gorges of the side creeks. *Olearia cheesemanii* was not flowering, but was distinctive enough to excite comment, as did *Hymenophyllum cupressiforme* and *Sticherus flabellatus*. A walk through a disused rail tunnel completed the outing.

Easter Camp

The hut at Puketi Forest was the base for this, unfortunately, very wet Easter weekend. Despite the rain a couple of days of good tramping were undertaken. A 4x4 vehicle got everyone to the beginning of the Onekura Track, which must rate as one of the finest areas of kauri forest in the north. As well as a host of giant kauri trees, the following notable plants were seen - *Pittosporum virgatum*, *Leionema* (= *Phebalium*)

nudum, *Halocarpus kirkii*, *Alseuomia banksii*, *Phyllocladus toatoa*, *Brachyglottis myrianthus*, *Sticherus flabellatus*, *Schizaea dichotoma* and *Dicksonia lanata*. Despite two of the party having seen *Davallia* "puketi" in the past, none could be found on the Onekura Bluff on this day. The find of the day was a single sapling of *Pseudopanax gilliesii*.

May Meeting

Shane Wright outlined studies that have been done on *Metrosideros* subg. *Metrosideros* with c. 26 species distributed widely across the Pacific basin. Phylogenetic analysis based on nrDNA spacer sequences showed that *M. umbellata* is basal in the subgenus. A relatively recent dispersal to remote Polynesia is surprising, but has been attributed to changes in wind flow patterns during world-wide glaciation.

May Field Trip

Examining two small reserves at Brick Bay, near Warkworth, filled in a fine autumn day very nicely. Both reserves include streams running down gullies and some kauri ridges. The cobra-hooded *Pterostylis brumalis* was at the peak of flowering, and magnificent specimens of *grammitis rawlingsii* and *Schizaea dichotoma* were seen. Two forms of the fern that is named *Asplenium gracillimum* were growing in close proximity and were easy to compare. It was known that three trees of hard beech were growing in the first reserve, but the surprise find of a single beech leaf in the second reserve led to the discovery of two more trees. Lunchtime was spent on the foreshore of Brick Bay, with panoramic views over Kawau Bay.

Forthcoming Activities: Evening Meetings

7 June	Maori resource management, Michele Mills
5 July	Sand dune ecology, Eamonn Ganley
2 August	Biological control of weeds, Jane Frohlich

Field Trips

17 June	Lake Pokorua at Awhitu, Shona Myers
15 July	Sand dunes at Port Waikato, Eamonn Ganley
19 August	Moire Park, Massey, Anne Grace

Maureen Young, 36 Alnwick Street, Warkworth

■ **Waikato Botanical Society**

The Waikato Botanical Society is well and truly revived. Alternating monthly talks/field trips are offered; recently these have included trips to the Northern Kaimais and Opuatia wetland, and talks on ethnobotany and the Antarctic flora and fauna. A full calendar of society events has been planned for 2000 (see below).

A major project of the Waikato Botanical Society is underway, in the realisation of a publication on the botany of the Waikato. This will take the form of a book, with each chapter covering a different aspect, eg lowland forests, bogs and swamps, etc, contributed by an author with expertise in that field. The book will however be written in a popular style, and lavishly illustrated in full colour. At this stage, nearly all of the draft chapters have been submitted to the committee for review. Watch this space for further updates.

In keeping with the information technology age, society members are now able to receive their newsletters by e-mail. Additionally, reminders of upcoming trips and events are emailed to those 'on-line'. This has saved time, paper and postage, though paper versions of the newsletters are by no means obsolete.

Upcoming Activities:

All evening talks are held at 7:30pm at the Landcare Research Seminar Room, Waikato University Campus, Gate 10 off Silverdale Road, Hamilton.

10 June Herbarium Day

This will involve checking herbarium records for the species lists within the 'Botany of the Waikato' book. Waikato University Herbarium, 10am. Contact Marilyn Merrett ph (07) 855 0732 a/hrs.

10 July Slugs, snails and biodiversity tales (talk)

Gary Barker will speak on the character of the New Zealand land snail fauna, its biogeography, and association with vegetation. Against this background he will then examine ecosystems/plant communities in different parts of the world from a malacological perspective. Contact Marilyn Merrett ph (07) 855 0732 a/hrs.

13 August Mary Skinner's Bush, Waingaro (field trip)

Mary and Ralph Skinner have an impressive patch of native forest which they have been protecting and restoring for the last twenty years. Meet 9am at the Landcare Research carpark. Contact the Skinner's on (07) 839 1351.

11 September Flora of Queensland and Norfolk Island (talk)

Bruce Clarkson will speak on the vegetation and flora of parts of Queensland and Norfolk Island. He will illustrate vegetation ranging from wetlands and coastal cliff vegetation to beech (*Nothofagus*) and Norfolk pine forests, and some of the species found therein. Links and relationships with the New Zealand flora will be emphasised. Contact Bruce Clarkson (07) 838 4237 (day).

14-15 October Pureora Threatened Plants (field trip)

Join us in the search for two threatened plant species – *Pittosporum turneri* and *Meliccytus flexuosus*. The Department of Conservation will provide free cabin accommodation as the work is of benefit to them. Contact Lisette Collins (07) 855 7157 a/hrs

13 November Coastal Plants (talk)

Marilyn Merrett will take us on a pictorial tour of some of the coastal plants of New Zealand. Contact Marilyn Merrett ph (07) 855 0732 a/hrs.

Theresa Downs, 32 Peachgrove Road, Hamilton email: t.downs.@waikato.ac.nz

■ Wanganui Museum Botanical Group

Field Trip to Westmere Lake, 5 March 2000.

Fifteen plus made the short trip to this reserve on the edge of the city. The lake itself is far less infested with exotic weeds than many of the others in our district due to the lack of access for boats and consequently the lower number of introductions. *Potamogeton ochreatus* (blunt pondweed) and *Myriophyllum triphyllum* (a milfoil) were observed in the shallows. On the semi-aquatic turfs we saw *Pratia perpusilla* in flower. In the drier areas the dominant trees are still exotics such as *Eucalyptus ovata* (the swamp gum), *Pinus radiata*, and *Chamacyparis lawsoniana* but there is evidence of the years of planting efforts by Forest & Birders and the local school. Some of their totara, kauri and, rimu were well underway and there was an area of supplejack (*Ripogonum scandens*) but it took some of us a while to recognise tawapou (*Planchonella novo-zelandica*). There is further scope for the replanting of this reserve, but there are many weeds that will need to be dealt to including *Tradescantia*, *Nephrolepis cordifolia* and *Lonicera japonica*. K B

Field Trip to Moeawatea Gate (Ahoroa Scenic Reserve), 30 April 2000

A group of 17 travelled inland approx 30km from Waverley to the edge of this Reserve, which is virtually contiguous with the huge Matemateaonga area. Large works on the back country road alerted us to the sad reality that privately owned land in this area is being heavily plundered for native timber and sure enough we saw many rimu logs stacked beside the Moeawatea Road.

On a brighter note we were greeted by masses of heavy flowering *Euphrasia cuneate*. The resulting increased interest rate at the banks revealed *Gaultheria antipoda* and *Nertera depressa* in fruit, flowers and fruit of *Pratia angulata* and distinctive *Ourisia* and *Elatostema* foliage. Fallen trees created an orchid moment or two with *Drymoanthus adversus* and *Earina mucronata* noted and *Earina autumnalis* seen in flower. Closer looks into the bush revealed *Rhabdothamnus solandri* and several *Metrosideros* species but attempts to get far under the canopy met strong resistance from supplejack (*Ripogonum scandens*) and revealed little other undergrowth.

The larger trees present included a strong emergence of rewarewa. Many of the podocarps were horizontal but there were some young Hall's totara and miro. Further down the track we saw a vista framed by black

beechnut, a very fine leaved kowhai and a large *Carmichaelia*. Fern-lovers were rewarded with patches of kidney fern (*Trichomanes reniforme*), some very large-leaved *Hymenophyllum*'s and *Leptopteris hymenophylloides*. Others of us tried to improve our skills in distinguishing *Freycentia*, *Collospermum*'s, *Astelias* and *Machaerina*. K B

Paengaroa Mainland Island Visit, 2 April 2000

Five of us fitted in one car for the one and a half hour trip to Mataroa. The weather treated us well, with the rain starting at the end of our visit. Most of us didn't have too much experience with divaricating shrubs, so we only progressed a few hundred metres in the first four hours, stopping and checking numerous shrubs on the way. Although we didn't find everything that we had hoped to see, we were generally satisfied with getting acquainted with shrubs as *Pittosporum obcordatum*, *Olearia gardneri*, *Melicytus flexuosus* and *Coprosma wallii*. Other highlights were the dwarf mistletoe *Korthalsella clavata* at one of the few known North Island sites, and *Brachyflottis sciadophila*. Paengaroa is the only known NI site of this daisy vine. Luckily there's a lot of information on the area, so we had some background material and history on treatment, plantings etc. The identification guide to these small-leaved shrubs was also essential, in Colin Ogle's absence.

To cap off a good day we saw a North Island robin or two on a rather belated and hurried ramble up the hill. Robins were re-introduced to the reserve last year. G L

Ian Bell, email: ibell@cavbrem.co.nz

■ Wellington Botanical Society

RECENT ACTIVITIES

15 November 1999 - Meeting - Botanical Illustration

Cathy Jones, Technical Support Officer (South Marlborough Threatened Plants) Nelson/Marlborough Conservancy, Department of Conservation. Cathy explained her approach to botanical illustration, described her methods, and showed many examples of her work.

4 - 5 December 1999 - Field Trip - Palliser Bay

Fourteen of us stayed at the cottage at the DOC Ranger Station, Te Kopi.

The first site was beyond Ngawi, a steep coastal slope, with *Muehlenbeckia astonii*, a semi-prostrate *Sophora microphylla*, *Brachyglottis greyi* and *Clematis afoliata* in seed. We then crossed the road to the coastal flats, where we all prostrated ourselves for a close examination of *Muehlenbeckia ephedroides*. In the afternoon we visited the Putangirua Pinnacles Scenic Reserve, a well-documented area.

The next day we ascended to the lighthouse, and examined the plants in the area, before walking up the Mangatoetoe valley. We did not locate the *Coprosma virescens*, but we did find several plants of *Anogramma leptophylla*.

27 December 1999 to 6 January 2000 - Field Trip - Kaikoura - North Canterbury

Thirty-four members, friends and guests stayed ten days in a two-storey log chalet at the Mount Lyford Skifield Resort, on the Inland Kaikoura Road.

Day 1 - Mount Terako

We drove up the skifield road, and climbed Mt Terako (1,700m). For some it was an introduction to scree and alpine plants, for others it was a meeting of old friends: *Melicytus* "Kaikoura", *Stellaria roughii*, *Epilobium roughii*, *Lignocarpus carnosula*.

Day 2 - Lottery Bush

We enjoyed fine weather for this lowland beech/podocarp forest, which has been fenced for more than 10 years. We found *Korthalsella lindsayi* on *Lophomyrtus obcordata*; dense regeneration throughout; a surprising number of ferns and herbs; and several species of orchids.

Day 3 - Mount Isobel and Dog Stream Waterfall Track

28 climbed from Jack's Pass (869m) via Jollies Pass Scenic Reserve to Mt. Isobel (1319m), then down to the road end below Dog Stream Waterfall. The full day walk showed us a range of vegetation: alpine

scrub, alpine scree, and mountain beech. Nine ambled more leisurely up the track to Dog Stream Waterfall. We saw eight species of orchid. An interesting plant group on a small rocky bluff included *Exocarpus bidwillii*, *Hebe venustula*, and *Heliohebe hulkeana*. We all regrouped for hot pools and/or coffee in Hanmer Springs.

Day 4 - Mount Lyford

We drove up the steep skifield road to Lake Stella, and spent the morning botanising the subalpine vegetation in a tributary of Lottery River. *Myosotis australis* (yellow-flowered form) was seen on the carpark! In the afternoon, on the ascent of Mt Lyford, we saw *Hebe pinguiifolia* in full bloom, more alpine scree plants, and dozens of vegetable sheep, *Haastia pulvinaris*, in flower.

Day 5 - Oaro Coast South

This trip appealed to botanists, geologists, zoologists, and railway buffs alike! Marlborough rock daisy, *Pachystegia insignis*, and *Heliohebe hulkeana* were spotted as we walked along the railway service road. At Haumuri Tunnel we descended to the shore, and admired the fossil belemnites (Cretaceous squid), spherical rocks up to 3m diameter, and basking seals.

Day 6 - Blue Duck Reserve and Kaikoura Peninsula

This reserve is the largest remaining area of accessible, lowland, podocarp/broadleaf forest on the East Coast between the Catlins and the Marlborough Sounds. It includes the southernmost known grove of tawa, and an impressive diversity of very large, and old, trees. Others explored Kaikoura's limestone/mudstone peninsula from the shoreline walk and the clifftop, checking out seaweeds, coastal plant communities, and birds.

Day 7 - Roadsides of Kaikoura Inland Road

A heavy downpour sluiced all but the hardiest tenters into the livingroom after midnight, and while the rain continued, a 'rest morning' was declared. As the rain eased, several people drove north on SH70, botanising the roadsides.

Day 8 - Lake Tennyson

A drizzly day with low cloud did not deter us from botanising the fan just above and east of the lake outlet. We only found two penwiper plants, *Notothlaspi rosulatum* here; also *Helichrysum depressum*, *Epilobium melanocaulon*, and various bidibid hybrids (*Acaena* spp.) in flower. After lunch we explored the bank, tarns, and cushion bog just below the outlet, finding *Utricularia dichotoma* in flower. Hanmer's hot pools were enjoyed again.

Day 9 - Kaikoura area reserves

We spent time in three local reserves:

Fyffe Palmer Scenic Reserve. Low regenerating forest cover changes dramatically to a magnificent stand of podocarp forest. We found *Botrychium biforme*, an annual fern, and the mistletoe *Tupeia antarctica* with berries.

Puhipuhi Reserve. An attractive remnant of native forest around Puhu Puhu Stream picnic area, with lookout points giving views of the folded and tilted limestone of the Hope-Kekerengu fault.

Cemetery Bush. Next to a Maori cemetery is an outstanding remnant of coastal forest, with a tight and wind-swept canopy.

Day 10 - Departure

After packing and cleaning we headed off, some to make an assault on Mt Tapuaeouenuku. But that's another story...

22 – 24 January 2000 - Field Trip - Northern Tararua and Mount Bruce Scenic Reserve

16 members hired the Putara School as our base.

Day 1 - Mount Bruce Scenic Reserve

The track through Mt Bruce forest passes through rewarewa dominant stands, then podocarp/kamahi forest, red beech, and near the top, an area of almost true Tararua "Goblin forest".

Day 2 - Kaipororo

We botanised in the shrubland near the bush edge and the Tararua Forest Park boundary, a good place to study several species of small-leaved divaricating shrubs.

Day 3 - Covenants, Wairere Farms Ltd, Alfredton

We visited the beautiful podocarp remnant of Cemetery Bush Covenant; and Gibson Covenant.

5 February 2000 - Field Trip - Warrens' Bush

This South Makara 15ha remnant is one of the few patches of original podocarp/broadleaf forest in Wellington's

southwest. We saw 2 of the 5 old rimu, a giant pukatea, and a pole rimu, and enjoyed the view over the valley from the top of the spur.

21 February 2000 - Meeting - Introduction to New Zealand's own orchids, in 3D

Eric Scanlen issued us with 3D viewing spectacles and when the first slide shone out of the screen, there was an audible intake of breath! This orchid just about reached out of the screen and touched us! We were given a fascinating and visually exciting introduction to New Zealand's orchids.

4 March 2000 - Field Trip - Porirua Scenic Reserve

We botanised the northern end of this 290ha reserve, ascending to the main ridge via a small stream and a well-formed track. We explored the upper reaches of the Takapuwahia Stream, and then spread out on both sides of the ridge track, searching unsuccessfully for *Mida salicifolia* which was once reported here, but has not been seen recently.

20 March 2000 - Meeting - The First Tony Druce Memorial Lecture - 'A Magnificent Legacy'

Tony Silbery gave a warm, interesting and inspired talk about the personality and knowledge of the man known in botanical circles as 'The Master'. Tony Silbery talked about Tony Druce as field botanist, geologist, mountain lover, teacher, trip leader, humorist, gardener and photographer. It was his breadth of knowledge and enthusiasm which ensure that Tony's influence lives on: A Magnificent Legacy.

1 April 2000 - Field Trip - High Ridge Covenant

We visited this 6.7ha covenant on Paekakariki Hill Road, which has been fenced since 1997. We listed about 108 vascular species, and we saw seedlings of kohekohe and titoki, a good sign that pest control is starting to take effect.

FORTHCOMING EVENTS

- 3 – 4 June: Queen's Birthday Weekend Field Trip - Pot Pourri - Te Marua / Dannevirke / Woodville Domain
19 June: Meeting - Restoration of Karori Sanctuary - Jim Lynch
1 July: Field Trip - Collyns Covenant, Paekakariki Hill Road
17 July: Meeting - The search for threatened plants in Otago and Southland... some surprises - Neill Simpson
5 August: Field Trip - Whitireia Park
21 August: Meeting - Pot Luck Dinner / AGM / New Zealand's Pteridophyte Flora – Plants of ancient lineage but recent arrival? - Dr Patrick Brownsey
2 September: Field Trip - Makara River, Eastern Wairarapa
18 September: Meeting - Shannel Courteney (to be confirmed)
7 October: Field Trip - Queen Elizabeth Park, Paekakariki

■ **Nelson Botanical Society**

N.B. Please note new contacts

April Field Trip Report: Rainey River

A great day meandering along a forested terrace of the river. After a scramble through blackberry-lined tracks and two creek crossings we arrived at the upper terrace of the area and its eastern boundary. Here the steep bank offered opportunities to see some of the more palatable species. These included five finger, *Blechnum vulcanicum*, *Coprosma propinqua* and a variety of herbs including *Lagenifera strangulata*, and the very hairy *L. pinnatifida*, *Caladenia chlorostyla* and *Acaena juvenca*. The beech forest also had a variety of dryland species such as *Leucopogon fasciculatus*, *Cyathodes juniperina* and mountain beech. After a walk along the terrace we re-entered the forest, here dominated by red and silver beech. It was quite open as a result of grazing, and surviving shrubs included *Raukaua anomalus*, *Myrsine divaricata* and *Neomyrtus pedunculata*. As we headed for the foot slope we had to cross a small wetland dominated by kahikatea with matai on the higher (drier) areas. Here the day's interest in *Carex* began with raised tussocks of *C. secta* and clumps of the very similar *C. virgata*. The seed heads readily distinguished them with *C. secta* having pendant spikelets and *C. virgata* having sessile or (naturally) tight spikelets. Another common sedge here was *C. lambertiana* with a cluster of 3-4 spikelets at the culm tip. Then at the edge of the swamp *C.*

solandri with its small almost black ovoid spikelets appeared. After a lunch break we pushed along the foot of the slope through groups of large matai and small interesting wetlands, here free from cattle impact. Plants seen included the brown leaved *Myosotis forsteri*, *Hydrocotyle dissecta* and the leathery *Blechnum colensoi*.

A meander across the terrace brought us back to the river bank at a cliff top. Here mingimingi, *Helichrysum lanceolatum*, *Olearia avicenniifolia*, tree tutu and snowberry were abundant. After a steep descent at a deeply incised stream mouth we explored the ferns on the "canyon". Of particular note here were *Asplenium bulbiferum* and *Leptopteris hymenophylloides*. Along the steep terrace bank we found a few new plants including *Hebe "squalida"* and some huge yellow-wood (*Coprosma linariifolia*). From there we found a dry crossing of the river to get us back to the vehicles.

Easter Weekend Camp Report: Waihopai

Thursday evening brought drizzle and rain which continued on into the morning and hung around on Friday. About 10 am we ventured out from the Avonlea woolshed and headed for Fuchsia gully. After a few gates and slithers we arrived at Angies Rock garden to see one of the last *Carmichaelia stevensonii* in the area. Further fossicking around this small fenced rock outcrop brought discussions on a rather densely divaricating *Coprosma crassifolia* and mistletoes (after seeing *Ileostylus micranthus* on the usual *C. propinqua*). Next stop was at the fuchsia stand where red beech, totara and matai had been planted on the fringes. We plunged over the fence into the wet stand and soon found a good range of ferns and herbs and sedges. *Asplenium flabellifolium* and *Hydrocotyle elongata* were particularly dense here.

Next we botanised up the valley amongst tall fuchsia, marbleleaf and broadleaf. The most conspicuous ground cover was the nettle relative *Parietaria debilis* on the bouldery slopes. As the fuchsia began to give way to akeraho (*Olearia paniculata*) and grassland we decided to head for some rock outcrops where *Pachystegia insignis* was conspicuous. On arrival a range of other plants was evident on the shaded faces including *Celmisia insignis* and *Pellaea calidirupium*. After the descent there was a brief stop on the way home along the deeply incised river to examine the riparian vegetation. The chief feature of interest here was the highly variable kowhai with obvious hybrids between *Sophora microphylla* and *S. prostrata*, and some very fine leaved trees.

Saturday dawned fine so we headed for Lake Alexander. At first the track went through red beech with a good range of ferns and divaricating shrubs. Across the first creek a halt was declared near the hut as we were greeted by Dr Peter Wardle, Margaret, their daughter and an entourage of grandchildren. Underway again the track traversed tall kanuka with patches of interest at the many creek crossings, rocky bluffs and small wetlands. A variety of carexes provided opportunity to revise on species seen recently and added *C. cockayneana* to the repertoire. Special plants found included *Heliohebe hulkeana*, *Celmisia insignis* and a large area of dead sticks (*Helichrysum depressum*). At one point in the gorge a small stand of large matai briefly broke the monotonous vegetation. As the track left the creek the forest changed to red and mountain beech. After lunch on the lake shore the head of the lake beckoned. En route a small patch of *Gentiana spenceri* attracted interest. At the lake head the outwash provided a variety of habitats and a rich area for searching for species. *Hebe decumbens* was quite common here and treasures included *Ranunculus gracilipes*, *R. multiscapus*, several raoulias and many grasses.

Sunday began drizzly so we headed out but heavier rain interceded. After a brief wait we returned to camp via some *Tupeia antarctica* and spent the day sorting out plants from the previous days.

Monday proved fine and we went to search for pink broom. The long slog uphill through kanuka and pasture had few points of interest. The main diversion was *Ileostylus micranthus* on prostrate kowhai and *Coprosma propinqua*. Finally, our climb brought us to the top of a set of bluffs. Here we first spotted a huge *Carmichaelia carmichaeliae* and soon several more, perched on the bluffs and far below on the valley floor. The largest had stems 15-20 cm thick. There was much evidence of the recent good flowering but no fertile seed was seen and almost no pods. Other plants in the area included kanuka, *Coprosma propinqua*, *C. crassifolia* and, on the cliffs, *Pachystegia insignis*, *Pseudopanax arboreus* and *Celmisia insignis*.

From there we continued on to the main ridge looking down into a steep gully of bluffs and kanuka forest. In spite of careful searching no-one spotted any further brooms. Instead the sparse, nearer vegetation included *Helichrysum parvifolium* (in flower), *Olearia paniculata*, *O. cymbifolia*, *Hebe venustula*, *Celmisia spectabilis*, *Lycopodium fastigiatum* and *Huperzia australe*. A strange mix of species. At the lunch spot we looked out to the beech forest toward Lake Alexander and Black Birch. Below us *Pittosporum eugenioides* and the odd mountain beech or broadleaf broke the continuous canopy of kanuka. Further along *Pellaea calidrupium* on the sunny sites appeared with *Colobanthus acicularis*, *C. strictus*, *Myosotis australis* "yellow flower" and *Heliohebe hulkeana*. After the descent and a brief inspection of McNaught's hut, (cob hut, recently renovated) we hastened for the vehicles as rain appeared in the distance. Near the vehicles a brief stop was made to see *Fuchsia perscandens*. Final pack up occurred in the rain as we headed for home. (This final marathon writeup from Graeme – thankyou).

FORTHCOMING FIELD TRIPS

June 18: Peppin Island – Julie McLintock
July 16: Moutere remnants – John Richards
August 20: Mt Duppa – Lisa Seckler
September 17: Delaware Bay, north along the coast – Cathy Jones
October 15: Whakamarina – Jocelyn Lewis
Labour Weekend Camp – Marlborough Sounds

EVENING TALKS 2000

June 19: Melanie Newfield – weeds
July 17: Fanie Venter – dracophyllums
August 21: Shannel Courtney – threatened plants of N/W Nelson, Nelson and the Sounds
September 18: Andrea Brandon – Native forget-me-nots

Change of President

The recent AGM unfortunately saw Graeme's resignation as President of the society because he is moving away. He has done a great job of looking after and educating the group and will be missed very much. Huge thanks, Graeme, for all you have done. Cathy Jones is the new President.

CONTACTS.

President: Cathy Jones, Flat 2, 5 North Road, NELSON. Ph 03 546 9499; Email: cjones@doc.govt.nz
Secretary-treasurer: Jocelyn Lewis, 22 Coster St, NELSON. Ph 03 547 2812; Email: tjlewis@xtra.co.nz

■ **Canterbury Botanical Society**

April Field Trip Report: Whakaraupo Reserve

The eight stalwarts who met at the top of Whakaraupo Reserve (between Lyttelton and the Summit Rd, west of the Bridle Path) began in sunny conditions to botanise slowly along the top track. Eventually our party grew to 11. The Reserve is fairly new and no floristic list is available, so that was part of our goal. Many small indigenous plants were seen on the rocks and in the grass: *Crassula sieberiana*, *Epilobium nummularifolium*, *Euchiton* sp., *Hydrocotyle moschata*, *Oxalis rubens*, *Luzula banksiana*, *Ranunculus* cf. *foliosus*, *Wahlenbergia "gracilenta"* (flower shades from white to bright blue) and ferns *Asplenium flabellifolium*, *A. terrestre* and *Polystichum richardii*.

In the flax-filled upper part of the deep gully in the middle of the Reserve we saw: *Calystegia turguriorum*, *Coprosma crassifolia*, *Coriaria arborea*, *Einadia allanii*, *Fuchsia perscandens*, *Hebe laudiana*, *H. strictissima*, *Hymenanchera alpina*, *Linum monogynum*, *Olearia paniculata*, *Senecio (lautus complex)*, *S. saxifragoides*, *Liberia ixioides*, *Urtica ferox*, and ferns *Ctenopteris heterophylla*, *Grammitis* sp. and *Pyrrosia eleagnifolius*. One sour note here was a mob of about 20 sheep on the wrong side of the fence.

Continuing on we passed a small patch of bush on a big rock fall, with *Melicytus ramiflorus* and a few *Myrsine australis* and *Cordyline australis* trees, badly affected by browsing by possums, goats and sheep. We had

lunch on the prominent ridge on the west side of the Reserve, a marvellous viewpoint for the harbour and Peninsula. The ridge and cliff below had some interesting species on them; one of the features of this Reserve is the very local occurrence of many of the native plants: *Sophora prostrata* with the grass *Microlaena stipoides*; and on the sheer cliffs, the grasses *Dichelachne crinata*, *Elymus* sp., *Festuca actae*, *Lachnagrostis* sp. cf. *pilosa*, *Poa colensoi*, *Rytidosperma corinum*, *R.* sp. cf. *clavatum*.

We then sidled down the hill eastwards to the central gully. A spectacular overhanging rock, precariously perched, had some ferns, sedges and dicot herbs at its base: *Blechnum fluviatile*, *B. novae-zelandiae*, *Carex virgata*, *C.* sp. cf. *flagelliformis*, *Hydrocotyle heteromeria*, *Haloragis erecta*. On the rock itself were *Cyathodes juniperina* and a lovely small patch of *Earina autumnalis* in full bloom. On the middle ridge were *Celmisia longifolia*, *Senecio minimus*, *S. conglomeratus* and *Leucopogon fraseri*. A patch of *Kunzea ericoides* and a *Sophora microphylla* tree grow on the slopes below.

Across to the east and below us was the large Port Hills 2000 planting (more than 10,000 native trees) in the valley with the oil pipeline. We had insufficient time to visit these, but climbed up the middle ridge, reaching the car park at 3.30 pm. Fine weather, grand views good company and interesting botany made this a very pleasant day. An interim floristic list will be included in Journal 2000 under the name of the trip participants.

Colin Burrows

May Meeting Report

Claire Newell of Landcare Research described the Southern Appalachians, where she carried out field work for her PhD. Through excellent slides, she showed the general topography, and the low-, mid- and high-altitude zones that contained her study sites. Then she showed us the vegetation types, mainly consisting of evergreen conifer and deciduous hardwood forests, interspersing this with pictures of the beautiful plants, many of them Southern Appalachian endemics, that grow in the area. Pictures of long-dead American chestnut trees killed by an imported blight conveyed a message relevant to biosecurity. Finally, Claire discussed differences in biodiversity among the communities.

Peter Wardle

May Field Trip Report

About 20 members visited the protected stand of black beech at Manor Park, Coopers Creek. This a remnant of the once extensive Oxford Forest and while there are many fine beeches and broadleaves it has suffered the invasion of numerous naturalised species, in particular sycamore and viburnum (*V. tinus*) which are abundant. The task of controlling the woody weeds is undertaken by the owner Alan Barley, and by David Rossiter. We recorded about 70 native vascular species within the fenced area.

FORTHCOMING EVENTS

Saturday 17 June (**note change of date**) AGM and social gathering, 11.00 am to 2.00 pm - contact Margaret Wardle (03) 348 9724 if coming as this is a pot-luck lunch.

July Field Trip - trip to Central Christchurch - is there plant life here? Date yet to be decided.

Secretary: Roger Keey, PO Box 8212, Riccarton, Christchurch. Ph 03 364 2409;
Email: wtrc@cape.canterbury.ac.nz

■ Wakatipu Botanical Group

Trip Report

The last three months trips have been most interesting and all with reasonable weather. In February we drove up to the Pisa Range and were shown around the new complex at the Waiorau Snow farm by owner Mary Lee before driving on up to Bob Lee hut for lunch. Stops were made to inspect the slim-leaved snow tussock grassland and endemic Pisa *Pimelea*, a hairy wee shrub. The walk up the valley took us past lovely wetlands and cushionfields and onto the stony snowbanks with *Myosotis pulvinaris* and four *Chionohebes* - *C. densifolia*, *C. glabra*, *C. thomsonii* and the locally endemic *C. myosotoides*, the later being initially confused with *Myosotis cheesemanni* which we were looking for as it had been recorded from this area by Tony Druce. However, no plants of *M. cheesemanni* were found with further searching. Emerging from the valley we were

blasted by a very strong, cold wind and made a quick trip back to the hut for afternoon tea then headed home.

In March we visited the Dean Burn near Clifden where we were joined by four of our country members. We were looking at some of the newly discovered (in this area) threatened plants - *Coprosma pedicelata*, *C. obconica*, *C. wallii* - amongst the other 10 *Coprosma* species in and around the edge of the mixed beech (mainly silver) podocarp forest with its exterior and interior wetlands. New discoveries of threatened plants were made including the sedge *Carex tenuicaulis*, *Ranunculus ternatifolius*, tall native grass *Deschampsia caespitosa*, the mistletoes *Tupeia antarctica*, *Peraxilla colensoi* and *Ileostylis micrantha*. A further exciting discovery was the presence of *Pittosporum obcordatum*, only the fourth site for this in the South Island, the third site being found by Brian Rance and Geoff Walls the week before in the Otapiri district. Altogether 13 plants on the Threatened and uncommon plants list are found in this patch of bush.

In April we were to join with a group from the Botanical Society of Otago on the Old Man Range but somehow we got the dates mixed and our group went on the usual Saturday while Otago went next day. Ours was a fine mild day but a little windy up top. Several stops were made on the way up to look at the different plant communities with lunch in a sheltered gully beside a tinkling stream. From the top good views were had across the Fraser basin to the Garvie and Hector mountains. We wandered across the patterned cushionfields for a time before descending to Mitchell's cottage for a late cup of tea and then home.

COMING UP

Saturday 10th June: Work party along the Kelvin Peninsula walkway, 10 am to 3 pm followed by a mid winter social evening at the Simpsons.

Saturday 15th July: Another work party along the walkway, 10 am to 3 pm.

Tuesday 8th August: Club night, 8 pm, Presbyterian Church Hall, Frankton.

Chairman: Neill Simpson, Ph 03 442 2035; Secretary: Lyn Clendon, Ph 03 442 3153

■ Botanical Society of Otago

February Meeting Report - Peter Johnson "Nothing Monotonous about monocots"

Dr Peter Johnson, from landcare Research, shewed two carousels of slides up to his usual standard of botanical precision and visual delight. One slide contained seven monocot families, which he invited the audience to find. He illustrated the variation within the large grass, sedge and rush families, but especially emphasised New Zealand's large monocots in Liliaceae, or Asphodelaceae or Agavaceae (depending on which taxonomist you ask): cabbage trees and flaxes. He contrasted these with the monocot flora of New South Wales, where he seemed to have had a recent botanist's holiday. As well as the beauty of nature, some of Peter's slides were works of art: collages of monocots. Bastow Wilson

Barbara Anderson, PO Box 56, Dunedin. Email: barbjade@es.co.nz
<http://www.botany.otago.ac.nz/bsa>

NOTES AND REPORTS

Comment

■ Error in book review by Chris Ecroyd of John Salmon's "The Trees in New Zealand: Exotic Trees - The Broadleaves"

I wish to point out an error by Chris Ecroyd in his list of corrections. The subject being on page 95, Figure 50, *Quercus acutifolia*. Chris Ecroyd states incorrectly that this photo is of *Quercus acutissima*. Given the similarity of name and leaf form this mistake is understandable. However, the photo is definitely *Q. acutifolia*, one of several different oak species with a similar leaf type in Central America. These differ in the main from *Q. acutissima* in having acorn cups lacking the projected and curved scales of that species. Bark characters also differ as well as the leaves if studied closely.

Having pointed this out I would like to make some corrections of my own in the same publication. On page 94, Figures 46 and 47, both incorrectly captioned *Quercus canucans*, should read *Quercus candicans*. Also *Quercus macranthera* on page 69, Figure 47 is *Q. canariensis*.

Bob Berry, Hackfalls Arboretum, PO Box 3, Tiniroto, Gisborne.

■ Reply to Bob Berry

Chris Ecroyd, Herbarium Curator, Forest Research, Private Bag 3020, Rotorua

I have carefully rechecked the identification of Figure 50 on page 95 and for the following reasons I still consider this photo to be *Quercus acutissima*. The number of secondary veins can be clearly seen and counted on some of the leaves in this figure and are in the range of 12-18. The number of secondary leaf veins is 12-18 for *Q. acutissima* and c. 9-11 for *Q. acutifolia*. The specimen John Salmon collected from Bob Berry's property and labelled *Q. acutifolia* is identical to one he labelled *Q. acutissima* suggesting that he confused the two species at the time the photographs were taken. Ewen Cameron, curator of the Auckland Museum Herbarium has kindly checked the specimens and the photo. Using the fresh specimen of *Q. acutifolia* Bob provided and the description of this species in Trelease (1969) he has agreed with my conclusions.

I thank Bob for sending fresh specimens of *Q. acutifolia* and *Q. acutissima* from his incredible collection of oak trees.

REFERENCE

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Plant Records

■ Bangalow palm (*Archontophoenix cunninghamiana*) begins to naturalise

E.K. Cameron, Auckland Museum, Private Bag 92018, Auckland

The palm genus *Archontophoenix* contains six species, all endemic to eastern Australia (Jones 1996) and belongs to the same subtribe (Archontophoenicinae) as the only New Zealand native palm genus, *Rhopalostylis* (Dransfield & Uhl 1986), which we share with Norfolk Island. The natural distribution of bangalow or piccabeen palm (*Archontophoenix cunninghamiana*) is from Eungella, west of Mackay, Queensland, to Durras Mountains in south-eastern NSW (Jones 1996). The southern geographical limit is at about the same latitude as Whangarei in New Zealand. Its Australian altitudinal range is from the lowlands up to c.1000 m asl (Jones 1995). It is a rainforest species of gullies and stream banks and swampy areas of open forest, usually occurring in colonies (Jones 1996).

The name *Archontophoenix cunninghamiana* comes from the Greek *archi*, chief, first and *phoenix*, a palm; and Alan Cunningham an early botanist (Jones 1995: 126). The common name 'bangalow' is the Banjalong Aboriginal name for the palm (from the Internet), it is also a town in northern NSW.

In New Zealand the bangalow palm has been imported from at least as early as 1898 (as *Seaforthia elegans*) when it sold in Auckland for 2/- shillings to 3/6 pence (McDonald 1898). Today this graceful palm is commonly cultivated in gardens around Auckland and Northland and has become popular as a pot or tub plant over the last two decades. I'm not sure how far south it is grown, but in Wanganui there are a few in private gardens and a couple in city parks (Colin Ogle pers. comm.)¹, including a single bangalow at Virginia Lake which in the past has had seedlings underneath it (Clive Higgle to Colin Ogle pers. comm.). It is one of the fastest growing palms in New Zealand but becomes tatty if exposed to the wind.

¹ Note all personal communications and palm measurements mentioned in this article were carried out in May 2000.

Beginning to naturalise

Max Goodey (1973) recorded bangalow palms around Auckland being a splendid sight with long strings of scarlet waxy seeds surrounded by elegant offspring of varying ages. There is a herbarium collection of seedlings from under an isolated cultivated specimen in Remuera, Auckland, April 2000 (*J.E. Braggins*, AK 247284).

Wild sites

- Based on specimens in AK and AKU herbaria, the first wild collection, away from a cultivated adult, was in **Whangarei City**, Western Hills bush edge in June 1992 (*M.L. Fromont*, AK 206890). There were nine seedlings present in native, mixed broadleaf-conifer forest, 2-300 m away from the nearest adult.
- Auckland City, Meadowbank in a predominantly native bush gully (running south to north) below **St John's** Theological College. For an account of the St John's bush see Cameron (*in press*). In the upper part of this gully were ten adult bangalow palms in the bush (tallest ones almost certainly planted), 100s of seedlings under adult palms and over a 100 wild specimens away from any adults (up to 100 m away). The wild specimens were in all size classes, including a few fruiting specimens. Most of the wild specimens were near the stream, and in one place mixed with nikau. In another place the bangalow palms were quite dense, 1-2 m tall and forming a thicket. There are also several planted lawn specimens just above the bush with trunks up to 3 m tall, except for one with an 8 m trunk. Early plantings at St John's date back to 1840s, but I would guess from others around Auckland of a known age that the earliest bangalow palms (trunks up to 12 m tall) were planted here in the early 19th century. Specimens: May & July 1997, May 2000 (*Cameron 8794, 8828, 10195*, AK 233881, 233108-09, 247310-11).
- Auckland, Birkenhead, Little Shoal Bay, **Awanui Street**, north side, coastal slope. Around 1910 Clement Wragge established Waiata Garden at bottom of the Awanui Street. Many of his palms still survive which are now on private property (Peter Money pers. comm.). Wragge had connections with Brisbane and bangalow palms are among the several magnificent palm species planted there. The tallest has a trunk c.14 m tall, with a diameter of 23.5 cm. This is the tallest specimen that I have seen in New Zealand. The next tallest were two palms c.11 m tall, with diameters of 19.9 and 20.9 cm. In places in the old Garden, the adjacent coastal bank and adjacent properties there are so many seeds (like ball-bearings) that it is dangerous to walk (in May), a "lawn" of seedlings, many saplings, and more than 30 fruiting adult bangalow palms. In the more open areas the seedlings tended to develop past the seedling stage. Peter Money moved to 6 Awanui Street in 1965 and most of the many bangalow palms now on his property established there by themselves since his wife commenced cultivation there. Previously it was all lawn with a few deciduous trees and presumably mowing took care of any seedlings. He has bangalows of a known age from seedlings: 4 m tall trunk = c.15 yrs; 5 m trunk = 20 & 25 yrs. Near the end of May all the red fruit (except for some on the most shaded specimen) had been stripped from the palms by blackbirds and NZ pigeons. Specimen: May 2000 (*Cameron 10196*, AK 247312). Auckland, Parnell, **Alberon Reserve**. The first plantings were in c.1920 and mainly in a damp depression. This is similar to the Awanui site, where a variety of different palms have been planted early last century, including nikau, and many have naturalised. Generally the area is more shaded than Awanui (this slows the growth rate) but locally there are small carpets of bangalow seedlings and a thicket of mainly bangalow. The tallest ones have trunks c.8 m high, 19.0-21.2 cm diameter. There are groups of bangalows with stems of vastly different diameters, varying from 7.4 to 21.2 cm. I suspect the skinny-trunked specimens have established more recently and have been starved of resources, mainly light, assuming that once fully formed bangalow palm trunks do not increase in diameter. But I note that in some species they can increase in diameter (Uhl & Dransford 1987: 34). By the end of May a few were in flower and none had fruit remaining. Specimen: May 2000 (*Cameron 10198*, AK 247313).
- Auckland, Mt Albert, 7 Stilwell Road, Alan **Esler's** property. Two cultivated specimens, seed germinated c.1971, planted out in 1975, now both with 7 m tall trunks (Alan Esler pers. comm.). Seedlings now appear throughout his large city section, especially under shrubs where the blackbirds roost.

- Auckland, Mt Albert, 15 **Mt Albert Road**. From the group of bangalow palms shown in Fig. 1, there were numerous seedlings in adjacent gardens and under hedges in 1991.

Description (based on Auckland specimens, measured in May 2000)

Bangalow palm is rather similar to our native nikau (*Rhopalostylis sapida*), but immediately looks different because of the long, straight crownshaft and hanging inflorescence (spadix) (see Fig. 1). The undivided trunk of bangalow palm, circled by annular rings (leaf attachment scars), is up to 14 m tall [25 m in Australia (Harden 1993: 658)], (7.4)- 19.0-27.5 cm diameter, swollen at the base and terminated by a leafy crown. Adult leaves are unarmed, deciduous, pinnately divided to 593 cm long, with up to 77 pairs of leaflets, including a petiole up to 66 cm and a crownshaft (sheathing leaf base) to 118 cm long. The sapling leaves are in quite different proportions with the petioles slightly longer than the leaf blade (e.g. petiole = 79 cm, leaf blade = 74 cm). At least the first 5-6 seedling leaves are just partially split in two (Fig. 2), after that the leaves are more divided. After emerging vertically, the inflorescence hangs down 1-1.3 m from the base of the crownshaft, and is divided into numerous pendant spikes; spathe is 2-valved and generally cream. Flowers most of the year; male flowers (from the ground) purplish 9-10 mm across, sepals 3 (1-1.2

mm long) triangular and over-lapping, petals 3 (c.4 mm long) free, stamens 15, weak styles 3; female flowers not seen (out of reach). From seed the first flowering occurs at c.7-10 years, when the stem is some 3-4 m tall (Peter Money pers. comm.). Fruit are globose, scarlet, May-July (but may all be stripped by birds in May), 12-14 mm diameter, containing a single seed 10-12 mm diameter. Peter Money (pers. comm.) has noted quite a range of genetic variation in the bangalows at Aranui, including spathe size, spathe colour (cream to tinged with the flower colour) and flower colour (usual heliotrope to dark purple).

Dispersal

Peter Money (pers. comm.) has closely observed NZ pigeons and blackbirds swallowing the ripe fruit whole from the infructescences on his bangalows at Awanui Street. At his shallow birdbath Peter has observed that the blackbirds while washing, may gargle up the bangalow seeds, a maximum of six at one time (a lot of work for little return!). Alan Esler (pers. comm.) has also observed blackbirds swallowing the bangalow fruit at his place where there is much commotion when they remove the fruit, while trying to stay in the air (no level landing pad for them). Blackbirds are common in the St John's bush and the occasional NZ pigeon has also been seen there. Therefore there are at least two bird species capable of dispersing the bangalow seed in New Zealand. At St Johns where the adult palms are near the head of the small valley, water and gravity would assist in dispersal down the valley (though they sink in water). If the seed ends up in a damp

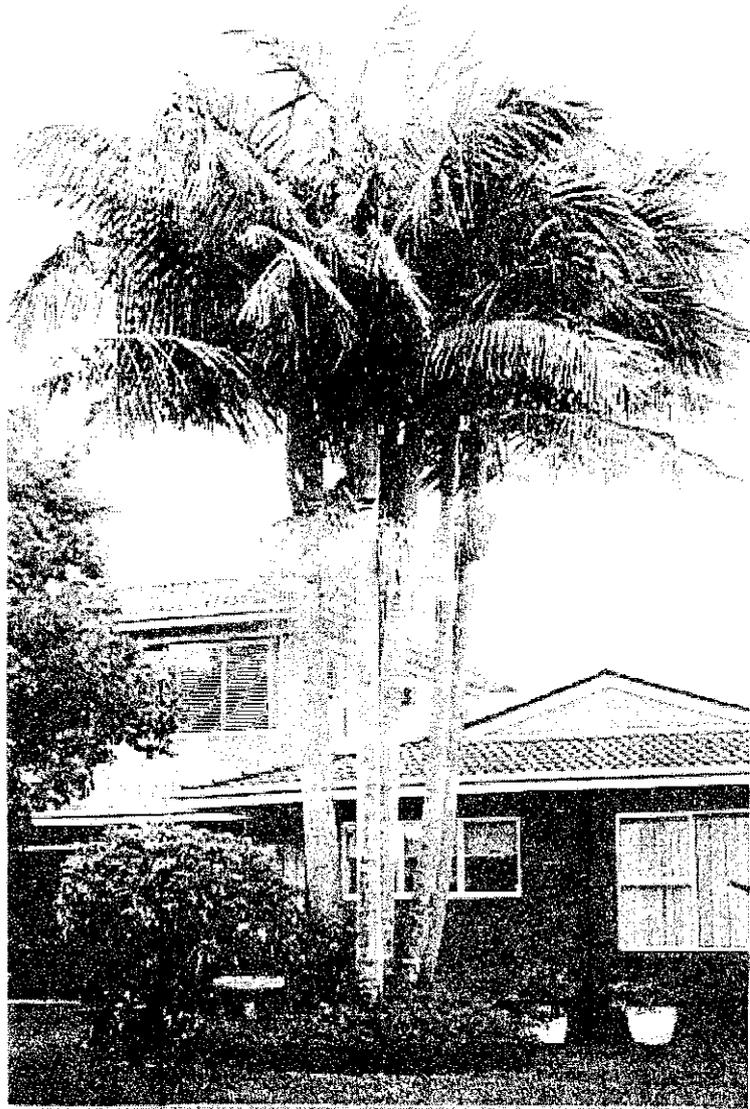


Fig. 1. A group of planted bangalow palms at Mt Albert Road, Auckland, probably around 15 years old. Photo: March 1991.

spot that isn't too shaded they'll grow well. In heavily shaded sites, like parts of St John's bush, they can still establish but the growth rate is apparently diminished and they may just "sit" as seedlings. Peter Money pointed out to me at the Aranui Street site, that the thickest-stemmed and fastest growing specimens were in sites with no water shortage and plenty of light.

Weed threat

Bangalow palm has many attributes that potentially make it a high weed threat to New Zealand forests (open and shaded areas). These include: monoecious and self fertile; long lived (> 100 yrs); sets copious seed; seed readily germinates in 1-3 months (Jones 1996); shade tolerant (but grows faster with more light); fast growing; may grow in stands so dense that all other plants are excluded (Jones 1996); has a method of dispersal (birds, including a widespread common species); commonly cultivated in northern New Zealand; and in the bush it doesn't immediately stand out as different from nikau which grows in similar sites. The longevity of the seed is unknown to me but the seedlings can persist for years, forming a "seedling bank" in the forest, waiting for the right conditions before taking off. This example of bangalow palm first naturalising in a city supports the argument of Lee et al. (*in press*) of suburban areas playing an important role in early detection of new weed threats. In the bangalow palm's favour is that it is a very attractive palm, takes some 7-10 years before flowering, is spineless, cannot spread by rhizomes, stolons or vegetatively and is relatively easy to remove or kill.

The Future

Bangalow palm is now exhibiting all the hallmarks of a potentially aggressive weed and should be considered for banning from sale throughout New Zealand. The Flora of New Zealand (Healey & Edgar 1980) records three species of naturalised palms: *Livistonia australis*, *Phoenix canariensis* and *Trachycarpus fortunei*, which, as with bangalow palm, all have small fleshy fruit which is dispersed by birds. Small, fleshy-fruited palms naturalising is of concern because palms are currently very fashionable garden plants in northern New Zealand and many different species are now widely available, including other species of *Archontophoenix*. As prominent conservationist Stephen King once said to me "where is the legislation prohibiting the importation of palms with small, fleshy fruit into New Zealand?" Perhaps we could allow the dioecious species to be imported and sold (males only), but ban all the others with fleshy fruit smaller than the gape of the NZ pigeon? However, like members of other plant families there are species that tend to naturalise and others that don't. Most of us would love to see the end of the weedy and spiny *Phoenix canariensis* (being dioecious, naturalisation could be halted by removing the females and only planting males). On the other hand a number of other small, fleshy-fruited palm species have been around for many decades and haven't taken off. But as seen from the bangalow example above, the lag phase can be over 90 years. It comes back to that

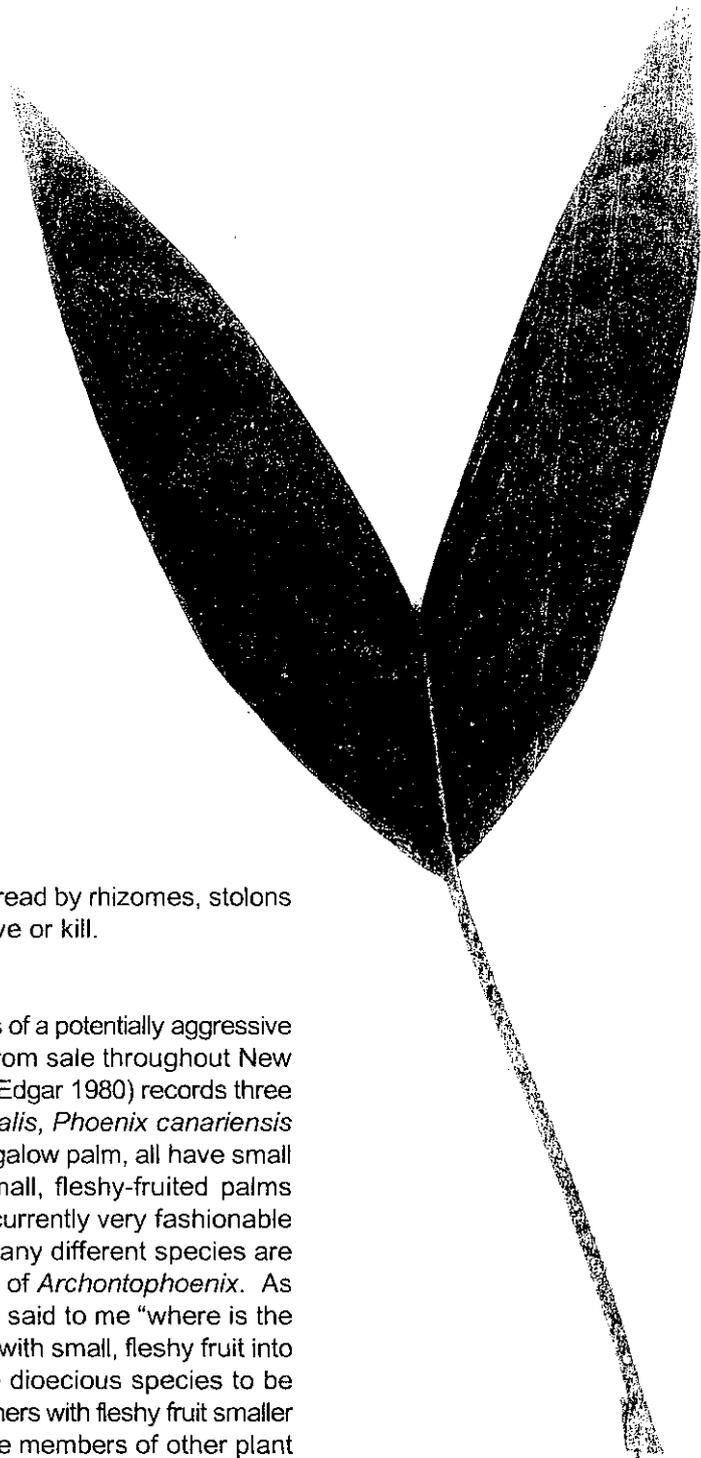


Fig. 2. Typical bifid seedling leaf of a bangalow palm (5th leaf = 39 cm long) (AK 247311).

difficult question, how do we know before we import it?

ACKNOWLEDGEMENTS

Alan Esler, Max Goodey and Peter Money for their observations and comments about Auckland bangalow palms; Colin Ogle and Clive Higgie for informing me of the status of bangalow palms at Wanganui; and Peter Money, Doug Rogan and Cheryl Taylor for comments on a draft of this article.

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■ Adventive species new for New Zealand

Two plants gathered in Canterbury are here reported as new to the adventive flora of New Zealand.

- *Juncus platyphyllus* (Wieg.) Fern. (Juncaceae)

A North American rush related to, but differing from the previously recorded *J. tenuis* in the partition extending halfway to the axis of the capsule (*cf.* less than halfway to the axis), and from *J. dichotomus* in the auricles of uninjured leaf sheaths prolonged or tongue-like (*cf.* gradually rounded). Collected from dry stony waste land, abandoned site of old NZ Railway Workshops, Addington, Christchurch, (AJH 94/68, 17 March 1994, CHR 488989).

- *Montia sibirica* (Linn.) Howell. (Portulacaceae)

A North American species, almost certainly a garden escape, collected from cracks in asphalt footpath, Fendalton, Christchurch (AJH 99/31, 26 January 1999, specimen deposited in CHR). Differs from the already established North American *M. perfoliata* in the two stem leaves sessile but not connate, and the petals pink or white and bifid, not entire or slightly notched.

A. J. Healy, 98 Rattray St., Riccarton, Christchurch 8004

■ History and Location of Puka, *Meryta sinclairii* Seemann (Araliaceae)

M.B. Kirkham¹, F.M. Kelliher², and J.E. Hunt², ¹ Department of Agronomy, Kansas State University, Manhattan, Kansas, 66506-5501, USA; ² Landcare Research, P.O. Box 69, Lincoln.

The first European to collect puka was the pioneer botanist Rev. William Colenso (Beever, 1984), who found the rare plant at the head of Whangaruru [spelled Whangururu by Kirk, 1870] (c. 35 °S; 174.5 °W; eastern coast of North Island, north of Auckland). He sent specimens of the foliage to Kew in England (Kirk, 1870). A Dr. Sinclair also forwarded specimens to Kew. It was originally classified as *Botryodendrum Sinclairii* in the "Flora Novæ Zelandiæ" (Kirk, 1870). The natives (the Maori) called it "puka" (Kirk, 1889). Only one tree was found by these two men, and a tapu was placed on it by local Maori, who were astonished at Mr. Colenso's frequent visits to the locality during several years in the vain hope of getting flowers and fruit, probably for classification and propagation. According to local Maori, the tree had been brought from the

Poor Knights' Islands (c. 35 °S; 175 °W). Later, Mr. William Mair found the same tree and after several visits succeeded in getting leaves and fruit, which he gave to Dr. Sinclair, who forwarded them to Kew. Seemann transferred puka to the genus *Meryta* (Kirk, 1889). The tree was cut down by the local Maori upon their discovering that Mr. Mair had taken fruits from it (Kirk, 1870; 1889).

In 1869, Kirk (1870) visited the Taranga Islands (c. 36 °S; 175 °W; just south of the Hen and Chicken Islands, off the east coast of New Zealand north of Auckland) to search for puka trees, which Maori said were there. He found and described the plant. He found the margins of puka's leaves are strengthened by a "remarkably stout marginal nerve" (Kirk, 1870), which is a thickened edge on the leaf. Kirk saw puka trees on Taranga Islands growing exposed to the violent south-westerly gales, but, because of the leaf's thickened edge, he found no torn leaves. Kirk (1870; 1889) suggested that the tree might exist on the Three Kings Islands, which are a group of four small islands situated 58 km northwest of Cape Maria van Diemen at the tip of the North Island.

The first European to discover the Three Kings Islands was the Dutch navigator, Abel Janszoon Tasman (1603-1659), who saw them in January, 1643. On January 6, Tasman reported that his men tried unsuccessfully to get water from the largest island, on which they saw "35 persons, who were very tall and had staves or clubs... When they walked they took very large strides" (Judd, 1996). The surf made landing difficult at a sheltered place, so his officers returned to the main ship with no water. Tasman named the islands the Three Kings Islands, because the landing day was Epiphany. The largest one is called Great Island (formerly Great King). The three smaller islands are called North East Island (east of Great Island), South West Island (west of Great Island), and West Island (west of South West Island).

Here follows a description of puka, as observed on each island in the Three Kings Islands, its major, natural habitat. In 1947, Major G.A. Buddle landed on the South West Island with Major Magnus Johnson, navigator, and his two crew members. Buddle (1948) found luxuriant growth of coastal forest trees, including puka. At its summit the largest grove of puka grew and was "several acres in extent" [one acre = 0.4 ha]. This park-like area was essentially entirely puka. The trees were up to 2.5 feet (0.76 m) in diameter and up to 30 feet (9.14 m) in height. The forest floor was carpeted with dead leaves to a depth of 8-12 inches (0.2-0.3 m), and the canopy overhead shut out the sky. No Maori lived on the island and no signs of previous Maori occupation were observed (Buddle, 1948). Judd (1996) landed via helicopter on South West Island and found a grove of enormous puka trees. The trunks were 0.6 m in diameter, and the trees stood 10 metres high. He had "never seen a forest like it."

Buddle (1948) also landed on North East Island on January 4, 1947. He and Major Johnson climbed to the top. The greater part of the top plateau was occupied by "a magnificent grove of puka, 3-4 acres in extent, open and park-like, there being no undergrowth of any description except round the fringes; on the eastern and southern side the puka forest extends to the cliff edge, where vegetation ceases." They found this island was not so dry as South West Island, and the puka seemed to be more luxuriant in growth. They noted puka trees 3 feet (0.9 m) in diameter. Specimens were collected but, unfortunately, lost in embarking. The greater part of the puka grove had been cleared of stones and walled and terraced by Maori. In some cases the walls were still standing, but most stones were in piles, and puka trees up to 3 feet (0.9 m) in diameter and 30 feet (9.14 m) in height were growing through the lines of stones. While not stated by Buddle (1948), the stones could have been an ancient water-harvesting technique. Stone mounds have long been used to capture rainfall on a given area where crops are grown (Unger and Howell, 1999). Or the stones might have been for retaining walls that were used by Maori as temporary camp sites and burial sites (Brook, 1999). Buddle (1948) believed that North East Island was inhabited at least as late as 1793, and perhaps, at least periodically, until the final evacuation of the Great Island, about 1835-1840.

Buddle (1948) and Major Johnson also landed on West Island, and apparently were the first Europeans to land on it. They climbed to the top. The island is for the most part covered with bush, including puka, of similar size and growth to that on South West Island.

Growth of puka on Great Island has been affected by men, goats, and birds. Brook (1999), in his recent, important paper on the landsnail faunas, reviews the human history. Maori occupation of Great Island ended

in about 1835-1840 (Baylis, 1948; Buddle, 1948). Maori kept goats and probably pigs. In 1887, when Cheeseman (1888) took the first botanical collections from Great Island he did not note any puka. Baylis (1948) reported that only one specimen of *Meryta* had ever been found on Great Island. When it was discovered in May, 1946, the tree was little more than a seedling and rooted on a cliff ledge inaccessible to grazing animals. After departure of Maori, occasional visitors burnt patches of the island (Baylis, 1948). But the main factor modifying the vegetation on Great Island has been the goats. In 1889, Great Island was re-stocked with four goats to provide food for castaways. These four goats reproduced with rapidity, and, when the goat population was destroyed on Great Island in 1946 to protect the vegetation, 393 goats (Baylis, 1948) or 398 goats (Oliver, 1948) were killed. When the goats were gone, puka grew fast, and within 18 months, when Baylis made a second visit to Great Island the end of December, 1947, he saw well-grown seedlings of *Meryta sinclairii*. He said, "The fact that *Meryta sinclairii* had established itself in quantity but nineteen months after removal of the goats calls for some comment. Since the species had not previously been recorded on Great Island (apart from the seedling seen in 1946) the seed must have come from adjacent islands." Baylis (1948) hypothesized that puka seeds were probably carried to Great Island by the red-billed gulls feeding on the fruits of the tree on other islands of the Three Kings. He felt that the failure of puka to appear on Great Island between Maori departure (c. 1840) and Cheeseman's visits in 1887 and 1889, was probably due to a few goats left behind by the Maori (Baylis, 1948, appendix). On a later trip, Baylis (1951) found many puka on Great Island.

In December, 1982, Baylis visited Great Island again and noted the continuing dominant growth of puka (Baylis, 1986), which is part of the current second period of forest regeneration, started in 1946, when the goats were destroyed (the first period being between c. 1840 to 1890). Both periods have been free from naturalised mammals. Rats have never been recorded. Baylis (1986) said that the suggestion that red-billed gulls were inter-island vectors of the 0.8 mm long puka seeds has been accepted too readily. The gulls regurgitate many seeds at their feeding sites, and the droppings on Great Island with puka seeds may not have been from gulls. More likely, puka was dispersed by naturalised birds such as blackbirds, thrushes, and starlings, which were not recorded when Cheeseman visited Great Island. Judd (1996) reported that puka trees two or three metres high are common on Great Island, and, in some places, larger trees exist.

Puka also occurs naturally on the Hen and Chickens Islands (c. 36 °S; 175 °W). Atkinson (1955-1956) describes puka in its native habitat on Marotiri Island (Big Chicken Island). The population of puka in the Hen and Chickens Islands was estimated at about 3,000 in 1982, a three-fold increase since 1955 (Beever, 1984).

In sum, puka's native habitats are the Poor Knights Islands (c. 35 °S; 175 °W), the Taranga Islands (c. 36 °S; 175 °W), the Three Kings Islands (c. 34° S; 172° W), and the Hen and Chicken Islands (c. 36° S; 175° W). It is not found in an indigenous state on the Fanal Islands, just east of the Taranga Islands, or on the Kawau Islands (c. 36.5 °S; 175 °W) (northeast of Auckland and north of the Hauraki Gulf) (Kirk, 1870). It is now widely grown as an ornamental tree and is easily cultivated in Auckland, Taranaki, and Hawke's Bay. But is unable to resist the light frosts experienced at Wellington (Kirk, 1889) and further south (Salmon, 1980, p. 247; Webb et al., 1990, p. 24), unless grown in a protected area near a building (M.B. Kirkham and David W. Stephens, 1998, personal observations, Lincoln, New Zealand).

ACKNOWLEDGMENTS

The senior author thanks: David Whitehead and David W. Stephens for discussions; Rau Kirikiri for reviewing the manuscript; Dr. Geoff Baylis for comments; Nola Clothier and Jill and Peter W. Stevens for personal help; and Don Kirkham (father), Curtiss Distinguished Professor of Agriculture, Emeritus, and Professor of Physics, Emeritus, Iowa State University, Ames, Iowa, U.S.A., for supporting the sabbatical leave to Landcare Research, January to April, 1998. The paper is dedicated to Don Kirkham, who died during the research on March 7, 1998.

This is Contribution Number 00-210-T from the Kansas Agricultural Experiment Station, Manhattan, Kansas 66506, U.S.A.

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■ *Chenopodium ambrosioides* - Adventive in the South Island

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Rare south of Hawke's Bay (Webb *et al.* 1988: 525), the most southern gathering from the North Island appears to be from railway yards, Upper Hutt (AJH 46/24, 27 April 1946, CHR 58517).

This species had been found established over abandoned stony commercial railway land, Waltham, Christchurch (AJH 90/24, 10 May 1990, CHR 483978). Plant heights varied from 25 cm to 1.00 m. All plants found originally were eradicated, but unfortunately seed had been produced and further plants appeared in subsequent years. Some hundreds of plants have been removed and destroyed to the present in an effort to prevent spread of this free-seeding weed.

In early 1997 plants of this species, to 1.50 m tall, appeared in parsnip rows in my vegetable garden, Riccarton (AJH 97/27, 6 May 1997, CHR 490009a-c). These plants, I feel sure, arose from seed carried on footwear used when eradicating the weed in the original Waltham site, and were not from impurities in the vegetable seeds.

Frost during the 1997 winter "burned off" the aerial growth but the stout woody roots survived. Multiple healthy green shoots appeared near ground level, at the junction of the "burned off" stems and persistent, viable root crown (AJH 97/34, 30 August 1997, CHR 492232).

This behaviour demonstrates that in this South island habitat and locality, the species can be biennial in duration. This is at variance with the stated duration of the species in New Zealand as an "Annual aromatic herb..." (Webb *et al.* 1988: 524). Overseas literature gives duration as varying from annual to perennial, as exemplified for Central and Northeastern United States and adjacent Canada (Fernald, 1950: 595).

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■ ***Paspalum ergot (Claviceps paspali Steven & Hall)***

In 1994, I collected a specimen of *Paspalum dilatatum* (AJH 94/40, 25 February 1994) with sticky heads from a stand of paspalum in a depression on dry stony land, on the site of the abandoned NZ Railway Workshops, Addington, Christchurch. It reminded me of paspalum ergot I had encountered on field work years earlier in the Auckland district.

This I sent to Dr E.H. McKenzie, Landcare Research, Auckland, who replied, 28 April 1994 - "94/40 *Paspalum dilatatum* - I cannot find any ergot on the sample, although the stickiness would certainly suggest ergot infection. However ergot is difficult to detect in early stages."

A further specimen from the same locality and habitat (AJH 94/110, 20 May 1994) was sent to Dr McKenzie who (2 September) 1994) confirmed my original view that the fungus was *Claviceps paspali*, adding "Previously the most southern record was from Te Puke and Morrinsville."

Examination of the host grass on roadsides near Christchurch has shown no evidence of *Claviceps paspali*, but several more recent collections from the original Addington locality showed the host and fungus still persistent there - AJH 95/70, 8 May 1995 (PDD Herbarium 64930); AJH 97/29, 6 May 1997 (PDD Herb. 68223).

ACKNOWLEDGEMENT

My thanks to Dr E.H. McKenzie, Landcare Research, Auckland, for confirming my original field identification of the fungus, for examining later specimens, for his permission to publish this distribution record, and for sending a list of holdings of the fungus in PDD Herbarium.

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■ **A new northern limit for *Crassula ruamahanga***

P.J. de Lange, Science & Research Unit, Department of Conservation, Private Bag 68908, Newton, Auckland

During April 1987 Paul Champion and I gathered a small bright green, filamentous herb growing in heavily shaded, shallow, leaf-clogged pools of fresh water underneath kahikatea (*Dacrydium dacrydioides*) trees bordering the tidal reaches of the Tawairoa Stream, near the Rakaunui Scenic Reserve, Kawhia Harbour. The specimens being sterile and possessing only scattered small, scale-like leaves lacked anything particularly useful from which to form a good view of the herb's identity. So we tentatively identified these specimens as *Myriophyllum votschii* (P. J. de Lange & P. D. Champion, 5 April 1987, WAIK 9231, Duplicates, AK, NZFRI) and determined to obtain better flowering material, if and when the opportunity presented itself.

That opportunity finally came about during January 2000, by which time I already suspected that the mystery plant was not *Myriophyllum votschii**. Based on subsequent experience with the various aquatic forms of New Zealand *Crassula* and *Myriophyllum*, I felt that the green filamentous herb, with its sparse, paired, scale-like leaves was almost certainly an aquatic light-starved *Crassula ruamahanga*. To prove this I needed to obtain flowers, so as the Tawairoa plants were still sterile, a small portion of the mystery plant was uplifted and cultivated at the University of Auckland.

In April this plant flowered. Although the solitary pale-white to pale-pink flowers, measuring 2.8-3 mm diameter are larger than 1.8-2.5 mm quoted for this species by Sykes (1988), the acute petal tips, and distinctly apiculate leaf tips place the Tawairoa plant with *C. ruamahanga* better than *C. hunua* the only other possible contender. In my experience the flower colour and size of *C. ruamahanga* varies rather more than is suggested by Sykes (1988). For example I have found that *Crassula ruamahanga* invariably has pale pink flowers which

fade to white following anthesis.

Furthermore, flower size is rather variable, ranging from 1.2-3 mm, with the larger extremes usually occurring on cultivated plants, suggesting some nutrient basis may dictate flower size. However, despite these differences I have found that petal shape and the distinctive apiculate leaf apices (see illustration in de Lange et al. 1998) are consistent distinguishing characters throughout the range of the species. This suggests that the ranges quoted in Sykes (1988) probably arose from the then limited herbarium samples available. After all, *C. ruamahanga* is not a common plant (de Lange et al. 1998). It is still rarely collected, and as most pre 1988 herbarium material is either very old, or comes from pretty much the same parts of the country, it is not surprising that better material from a wider range of sites has necessitated some minor adjustments to Sykes' description.

This identification now means that the previous northern limit for *Crassula ruamahanga*, Kaitoke Lake, near Wanganui (39° 57'S) given by de Lange et al. (1998) has been extended a further 210 km north to the Kawhia Harbour (38° 7'S). As the habitat *C. ruamahanga* occupies at Kawhia is not unique, it also suggests that the species will probably be found further afield. Certainly the picture emerging from these recent discoveries suggests that *C. ruamahanga* is best described as an opportunistic, sparsely distributed species, with the potential to occupy a wide range of wetland habitats throughout the country. Herbarium specimens of flowering cultivated material from Tawairoa Stream has been lodged at WAIK (*P. J. de Lange* 4312, WAIK 17162, Duplicate at AK).

*This was also the conclusion reached independently by C. E. Ecroyd whom I recently discovered, had identified the NZFRI duplicate collection as a *Crassula*, possibly *Crassula sinclairii* (see notes on WAIK 9231, NZFRI 17771).

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Speeches & Remembrances

The launch of the last of the tracheophyte Flora series was attended by many members. However, Eric Godley and Ilse Breitwieser suggested that members who were not able to attend would be keen to read for themselves what was said. Phil Garnock-Jones has kindly allowed us to publish his speech and one of the other speakers has also been approached - Ed.

■ Speech for Flora Vol V launch, 10 March 2000

Dr Henry Connor – grass flora author; Dr Andy Pearce — Chief Executive of Manaaki Whenua Landcare Research; Anthony Wright — our host, Director of the Canterbury Museum; Ladies and Gentlemen.

It's a delight to be here, firstly for this wonderful assemblage of old friends and colleagues, but even more so for the special reason why we are here: the publication of *Flora of New Zealand Volume 5 – the Grasses*.

I'm particularly sorry that the senior author, Dr Elizabeth Edgar, couldn't be here tonight. However, I want to welcome an Australian grass expert, Dr Surrey Jacobs from Sydney, who has come to share the celebration.

Each of the last few summers I've had a visit from a very congenial German PhD student who's studying New Zealand sand dune vegetation. Every year, at some point in the conversation, he asks "When is the grass Flora appearing?" — as if I would know! And every year I tell him that good things take time and it'll be worth the wait.

Now the wait is over. For the last few weeks, we've had *Flora of New Zealand Volume 5 – the Grasses*

to read and enjoy.

And also, this is the last volume of the current series, so we've got two things to celebrate. In addition, importantly from my perspective, this is the first volume in the current series to treat a monophyletic group, so I'm delighted to see that.

This Flora series began in 1949 when HH Allan set out to revise Cheeseman's *Manual of the New Zealand Flora* (1906, 1925). Allan's Volume 1, completed after his death by Lucy Moore, appeared in 1961. Volume 2 treated the monocotyledons except the grasses, and I don't know for sure why the grasses were not included in that Flora.

Elizabeth Edgar worked with Lucy Moore on that second volume of the series and has now been an author of three of the 5 volumes. Henry Connor has had key roles in 3 volumes, first as Section Leader for Taxonomy, then as Director of Botany Division DSIR, and now as an author. These two scientists have been mentors to the authors of other Floras, and to a whole generation of New Zealand botanists.

For those in the audience who are not botanists, I want to explain why this achievement is so significant. The whole *Flora of New Zealand* series that has just been completed, describes and classifies New Zealand's vascular plant biodiversity. That's a very important achievement. Over 4000 species are included in the five volumes, with keys for their quick and accurate identification, and descriptions that tell about the plant's form, its distribution, and habitats.

A Flora is a snapshot in time of our best understanding of biodiversity. Volume I is a 1961 snapshot — a black-and-white print compared to a modern Photoshop™ file. We need to plan and start a 21st century Flora series to incorporate new knowledge of many groups.

The grasses are just one of about 400 families of flowering plants. Their flowers are tiny and green and escape our notice, so that many people think they don't flower at all. When most people think of grass, if they don't think of marijuana they think of lawns — picnics, lawnmowers, summer. They don't often think of grasses as giving us bread, corn chips and popcorn, rice, beer, whisky, bamboo, pastures, hay and silage, straw hats, and playdough. Without grasses we wouldn't have civilisation. There are almost 9000 of them world-wide and 460 in New Zealand.

Grasses have negative sides too, in weedy grasses like *Nasella tussock*, couch grass and Chilean needlegrass.

Their insignificant flowers give little indication of their interesting sex lives. While Elizabeth once coyly referred in print to wild oats as "oats growing wild", Henry is best known internationally for his more explicit publications on the sex lives of grasses. Sex in all plants is much more complicated than it is in humans, and grasses do it in many different ways — often to excess. The abundant pollen of cocksfoot, timothy, and fescue is the most important cause of allergic rhinitis (hayfever), even though the drug companies' advertisers always blame far prettier flowers.

Finally, they have great conservation value: some are rare, others important to endangered animals, and most play a role in soil conservation.

But the tragedy of the grasses is that even to many botanists all grasses look, if not the same, at least *very* similar. Drs Edgar and Connor have provided New Zealanders with a tool that we desperately needed. Now we can tell the different kinds of grasses apart and apply the correct names to them. We can organise our knowledge about these economically important plants, and communicate about them.

Elizabeth's and Henry's careers both exemplify the DSIR and CRI tradition of public service science. But even more important, they also exemplify *good* science and scholarship. That combination, of good science in the public service, is a wonderful achievement. And I think it's likely that this volume, which I have the great honour of launching tonight, will be their finest work yet.

So on behalf of the world's botanists and the New Zealand public, I want to thank and warmly congratulate Elizabeth and Henry and celebrate *Flora of New Zealand Volume V – The Grasses*.

Professor Phil Garnock-Jones, School of Biological Sciences, Victoria University of Wellington.

■ **Peg Fleming's plant press**

Many of the older members of the Botanical Society will remember my mother, Peg Fleming, who died on 26 February this year after a very full and happy life. One of the things that I inherited from her was her plant press, used while she was Miss Peggy Chambers, an undergraduate at Auckland University College in the 1930's.

Peg, whose real name was Margaret Alison, wrote her name on her press:

M. A. CHAMBERS

BOTANY 1

When she went on field trips and camps with the University Field Club she asked her friends to sign her press. Many of them later became well-known botanists.

I have deciphered the 64 year old pencilled signatures as best I could, with the help of Iris Coulter, nee Mead, but there may be some errors (see p. 23).

SWANSON, 3.9.36

M.G. Keys
J.StH. Hillary
R.D. Bamford
E.R. Hillary
Margaret A. Chambers

HUIA, MAY 1937

Iris Mead
E.J. Godley
June StH. Hillary
Frank Anthony Rogers
Peggy Chambers
L.H. Milliner
J. Crosher
J. Bell
Joan M. Dingley
R. Mason
J. Waygood
B. Gower Jones
Bill Stride
F. Edward Coulthard

PIHA, JULY 1937

E.J. Godley
Peggy Chambers
L. Milliner
J. Crosher
M. Smeed
J. Bell
R. Mason
S. Waygood
B. Gower Jones
W.H. Stride

SWANSON, SEPT 1937

E.J. Godley
Peggy Chambers
L. Milliner
J. Crosher
J. Bell
Joan M. Dingley
R. Mason
Daintry Walker
Bill Stride

MAYOR ISLAND, DECEMBER 1937

June StH. Hillary
Eric Godley
Brenda V. Gower Jones
Frank Newhook
Frank Rogers
M. Best
Joan Dingley
Dorothy Walker
Lois Stanton
Iris Mead
L. Milliner
J. Crosher
M. Smeed
Maria K. Burns
Joyce Bell
R. Mason
J. Waygood
D.O. Glomton
M.G. Key
W.H. Stride
Edna H. Swa...g
Corinne H.C. Hall

H.I. Prendergast
J.A. Bartrum
Peggy Chambers

HUNUA, 1938
Peggy Chambers
Gabrielle Alchin
June Hillary
F. Edward Coulthard

Frank Newhook
Cohen Ahrands
G.A. Reed
Ralph Jenkins
W.H. Stride
H.V. Mountfort
R. Morrison Cassie
E.R. Collins
Eric Godley

Peggy Chambers first met Charles Fleming on a trip to the Noises Islands early in 1936 and they "went round together" for five years before they were married at Easter 1941. Charles' name does not appear in any of the lists on Peg's plant press, however, because Peg and Charles studied botany in different years.

After Peg's trip to Mayor Island in December 1937 she wrote to Charles, who was in the Chatham Islands on a private trip:

"18 December 1937.

"I feel a sort of mixture between sad & terribly happy because I've just got back from Mayor Id at about 7 pm & got all your gorgeous letters...

Oh darling, Mayor Id was simply marvellous...

I'm as brown as a berry & have had the most gorgeous time possible without you, it was so good I hardly missed you at all...

I found about 14 paper nautili but most are broken a bit & are small, I also found potamogeton at the mineral lake which hadn't been found there before, & Hill [June Hillary] found a couple of other things, & besides these no new things were found...

By the way you're a member of our scientific magazine, Eric [Godley], Hill, the Franks [Newhook & Rogers] & I are having it for the widening & benefiting of our education & we are going to write botanic, zoological, geological etc. articles for it. It ought to be quite enlightening but I don't expect it will ever come off. I said could you be in & they all said 'of course' with great gusto.

On Sunday we all went to the trig... On the way down Prof. Got me apart & told me how to be a perfect wife etc. It was funny but rather embarrassing, he went on & on & said he was serious."

Prof. Bartrum (Auckland University College, Professor of Geology) was absolutely right. Peg did make a perfect wife for Charles Fleming.

W. Mary McEwen, 12 Tisdall Street, Karori, Wellington.

BIOGRAPHY/BIBLIOGRAPHY

■ Biographical Notes (38): Harry Talbot (1898–1982)

E.J. Godley, Research Associate, Landcare Research, PO Box 69, Lincoln

When Harry Talbot died on 5 January 1982, at the age of 83, New Zealand lost another of that distinguished band of amateur botanists to which our science owes so much. In early middle-age his love of the outdoors evolved into an interest in plants, and from then on his special contribution was to explore and collect in the northern half of South Island, particularly in the mountains, and to share generously the knowledge so gained.

I first met this quiet, unassuming school-teacher in the early 1950s soon after arriving in Christchurch from Auckland. I had been taken to his home at Springfield on the pillion of Fulton Fisher's motorbike and from there we went in search of alpine ranunculi in Harry's old V8.

According to his Death Certificate Harry was born on 1 October 1898, at Wigan [Lancashire]; but in an interview

(1) he stated that his birthplace was Ince which is just outside Wigan. Here he began his primary schooling, but when he was about nine the family of 3 boys and the parents emigrated to New Zealand. They arrived in Wellington on the "Langton Grange" and then travelled by the coastal steamer "Mapourika" to Greymouth where for some six months Harry attended school in Standard 2 (1).

The family then moved up the Grey Valley to Paparoa (now Roa) which lies in the south-eastern flanks of the Paparoa Range. Here his father was a coal-mine manager, and Harry went to school in nearby Blackball in Standards 3 and 4. From those times he remembered the rather inedible "wild strawberries" which, many years later, he identified as the fruits of *Rubus parvus*. The next move was to Wallsend, then a busy mining town on the southern bank of the Grey River and only 11 km from Greymouth. School was across the river at Taylorville and was proudly described as "a substantial wooden building capable of accommodating 300 or 400 scholars. The classrooms are lofty and well-ventilated and there is also a large well-fenced playground." Here Harry was in Standards 5 and 6 and gained his Proficiency Certificate (1,2).

Secondary education was at the Greymouth District High School to which he travelled each day by train from Wallsend; but although the syllabus included "Latin, French, Arithmetic, Algebra, Euclid, Physics, English History, Geography, Trigonometry and Mathematics" (2), there is no mention of biology. As a senior pupil he was offered and accepted the position of pupil-teacher, and this was followed by a year at the Dunedin Training College in 1917 (2, 3).

Harry enlisted in 1918 and was in the Army of Occupation in Germany. Odd jobs followed his return to New Zealand, and he received notice to re-enter Training College when cutting cocksfoot on Banks Peninsula. He spent 1920 and 1921 in Dunedin, boarding at Knox College. His first position was in sole charge of the Owens Valley school, north of Murchison, for part of 1922. Then followed two years at the Arapeti School, near the Mangahao Dam site in the hills behind Shannon (Wellington Province) (3).

In mid-1924, probably when the school was winding down with the dam nearly completed, Harry went to Sydney to follow the All Blacks' short tour of New South Wales. This developed into two years carrying his swag around Australia, which took him north to Cairns and west to Perth. He returned from Melbourne via Milford Sound, Bluff, and Dunedin, and was home for Christmas, 1926. Harry always regretted that his interest in plants had not developed before his Australian trip. But he brought back two things with him. As a precaution against bush fires, he would put his cigarette out in a drop of spittle in the palm of his hand; and he attributed his skill with an axe to the many times in Australia when he had received a meal and a bed after cutting and splitting a pile of wood (3, 4).

From 1927 to 1935 Harry taught in Taranaki, coming home in the summer vacation to make long trips with his teacher friend, Jock Fraser. In 1928 they went from Reefton (where Harry's parents now lived) to Tophouse by car, and then tramped south to Hanmer via the Rainbow, Tarndale, and Clarence Stations, which were guest houses in those days. They returned via the Poplars Station and the Lewis Pass to Springs Junction where they met the grocer's van which came up once a week from Reefton. In 1929 they walked from Karamea over the Heaphy Track to Collingwood (3).

In the summer vacation of 1935–36 Harry went up the Hurunui to Lake Taylor with his brother and Jock Fraser. Bored with fishing he began to look around him and realised how little he knew about plants. Then and there he decided to take up botany. This coincided with his appointment to the Springfield school, lying on the inner edge of the Canterbury Plain near the mountains, where he taught from 1936 to 1956 (3).

With no-one to teach him, and isolated at Springfield, Harry began to buy books about plants. Among his first purchases were Amy Johnson's textbook of botany; Hutchinson on the families of flowering plants (dicotyledons); Scott and Brooks on the structural botany of flowering plants; Eames and MacDaniels on plant anatomy; Bower on the origin of a land flora; Tansley on plant ecology; Good on plant geography; Sharp on cytology; and Wodehouse on pollen-grains (3).

Harry also purchased a small binocular microscope and began studying the weeds and cultivated plants at Springfield. At CHR we have 3 Shell Exercise Books (undated) two with detailed sketches and notes of 45 dicotyledonous species (*Vinca major*, *Berberis stenophylla*, etc.) and 1 dealing with a few

monocotyledonous species (*Galtonia candicans*, *Alstroemeria aurantiaca*, etc.). There are no studies of sedges, the group in which Harry later specialised. And this is probably before the time when he would ask the pupils to bring in plants and would pay them 6 pence for any plant he couldn't name (4).

In 1940, after working for some time on his own, Harry went to L.W. McCaskill, lecturer in Nature Study at Christchurch Teachers College and asked whether there was a book containing descriptions of all the native plants (he already had Laing & Blackwell). McCaskill recommended Cheeseman and told Harry to go to the Botanic Garden to meet W.B. Brockie, who was in charge of the native section (3). This was to lead to a most fruitful partnership, although slow to develop because of petrol restrictions during the War. Thus, to reach the Craigieburn area Harry was dependent on lifts in Public Works Department vehicles (1). However, near the end of the War their serious field work began.

1945 In early January Talbot and Wattie Brockie tramped into the Upper Maruia from the Lewis Pass and made a botanical survey. Brockie wrote: "Mr Talbot specialised in collecting Gramineae, Cyperaceae, and Juncaceae" (5).

1946 In January Talbot and Brockie collected "from the mouth of the Doubtful River to its source at Amuri Pass and to the alpine areas at the head of the Doubtless River, its chief tributary" (6, 7).

These two journeys with their inevitable discussions, probably marked the beginning of Talbot's serious interest in sedges. The first published references to his collecting are to specimens gathered in 1945, 1946 (Lake Tekapo), 1946 (Springfield), 1946 (Lake Lyndon) and 1946 (Castle Hill, where he sometimes stayed with his friend Rob Blackley the station manager). I have taken these records from the paper on *Scirpus* and *Carex* by Varner Cook (8) the North Island school teacher.

1947 Cook came down from Ohakune, where he taught at the District High School, and collected with Talbot in Nelson "near Lake Rotoiti", "near St Arnaud Mts" and "swamps at base of St Arnaud Mts." (8) They stayed at the Tophouse Hotel from 11 to 17 January (9). At Castle Hill, Canterbury, Talbot showed him the little *Carex* that he had discovered in 1946. Cook called it the "unexpected" *Carex* (*C. inopinata*) and wrote: "the discovery of this plant is a tribute to Mr H. Talbot's painstaking method of collecting" (8). In June Brockie left Christchurch to become Curator of the Otari Open-Air Native Plant Museum, Wellington (6).

1948 with Brockie at Tophouse 8–9 January (9) and Lake Cobb, Mt Peel, Balloon hut, NW Nelson (6). In November Talbot joined a McCaskill organised working bee at Castle Hill for Lincoln students and others to mark plants of the rare buttercup then called *R. paucifolius*. Here he gained a new companion for his botanical studies. This was Gordon Clark, a friend of Brockie and Lawrie Metcalfe, who had studied under McCaskill in his first year at Teacher's College (1944) and after McCaskill moved to Lincoln College in 1945 caught up with him again in 1946 as a Third Year teacher trainee based mainly at Lincoln and specialising in Agriculture, Horticulture, and Science. In 1947 he continued his B.Sc studies while working part-time in the Christchurch Botanic Garden, and in 1948 he had begun teaching Agriculture and Science at the Timaru Technical College (10). Excursions together soon followed: Mt Terako in December 1948 (11); Lake Heron, Lakes Taylor and Sumner; and when Gordon shifted to Southbridge DHS in 1950 they collected around Lake Ellesmere (10).

1949 With McCaskill, Brockie and son Bob, and Malcolm Calder at Arthurs Pass 18–22 January (12). In February Talbot (persuaded by McCaskill) acted as a guide during the Pacific Science Congress excursion to the Craigieburn Basin and met Carl Skottsberg and Pierre Dansereau (1). Cook joined Talbot again and recorded that *Scirpus proliifer* was "noted or collected by the writer and H. Talbot at various places between Jacksons [Taramakau River] and the Buller Gorge in December 1949" (8).

1950 In January to the head of Lake Ohau and the Temple River with Brockie (6) who wrote to Clark on 25 February: "Talbot and I had a very pleasant trip, touching in at Lakes Pukaki and Tekapo. We camped about two miles up the Temple River near L. Ohau and were able to take the car right in though the road was rather rough. Owing to the injury to his leg Talbot had to confine his interest to the lowlands, but he was well satisfied with his haul of Carices."

1951 In January with Brockie to Castle Hill (Canterbury), L. Brunner, Hohonui Ra., Moana, Dunollie, Mt Davy, Barrytown, Punakaiki, Bullock Ck, Mt Bovis, Fox R., Charleston, Cape Foulwind, Denniston, Mt Rochfort, Buller Gorge (6). In November Talbot sent J.B. Irwin specimens of a many-flowered *Pterostylis* that he had found in dry stony ground near the Kowai River. This proved to be the first New Zealand record of the Australian *P. cycnocephala* (13). From 17 to 24 December with Clark at the Goulard Downs, NW Nelson. They found accommodation with Ian Stewart at Bainham (who, up to his death, was host to many scientific parties) and walked in carrying camping and collecting gear and food. There were no huts then and they camped on the Perry Saddle (10). It was not a good introduction to the Downs. Brockie wrote to Clark (10 January 1952) "I am sorry you struck such rotten weather on your trip. Talbot *would* be disappointed not getting *Carex dallii*. I was sympathising with you both in every weather report at the time."

1952 Talbot apparently remained in the Nelson area after the Goulard Downs trip, staying alone at Tophouse for a week from 8 to 15 January. Colin Clarke, son of the proprietor Ray Clarke, and then 10 years old recalls: "It is from this stay that I have vivid memories of accompanying him in his car and traipsing through bogs from the lower Rainbow River, Redhills and Howard valley. It was the delight of my young life." (9). Of the car Gordon Clark recalls that it was old "with a dicky seat, and some manuka poles strung along the side in case he had to make camp." (4)

From this time Gordon also recalls (4): "In the 1950s Harry was learning all he could. He had a friend in Whitcombe & Tombs as it was then, and he would come in from Springfield on a Friday night and made that his base. He used to be allowed to look at recent books that interested him. If we were to meet, it was usually in Cashel St or Whitcombes and my most vivid memory of him was in Cashel St where he would come along the street, tall with stooped shoulders and very bushy eyebrows under that battered hat with a broad smile and extend an enormous hand on a long arm down to me." My own memories of the early 1950s are of Shield matches when I would meet him at his favourite position on the bank — exactly opposite the halfway line. One always knew that he was there because he stood head and shoulders above everybody else.

1953 In January with Brockie to Castle Hill (Makarora) Mt Brewster and Haast Pass (6).

1954 In January Talbot and Brockie spent 10 days on the Goulard Downs. They used pack horses and a 4-bunk hut was now available. A new species of *Bulbinella* was collected, and an unknown creeping Rubiaceae plant discovered (14, 15). On the way home Talbot stayed at Tophouse from 23 to 25 January (9).

1955 Talbot was at Tophouse from 24 to 27 December before going to the Goulard Downs and Colin Clarke recalls: "It was during this Christmas stay that I accompanied him up the end of the St Arnaud Range, in the region known to early settlers as Mt Morse." (9)

1956 In January Talbot and Brockie went in to the Goulard Downs for a fortnight, again using pack horses (14). Afterwards Talbot stayed at Tophouse from 17 to 18 January (9). In this year he made a plant list for the Mt Torlesse area which Colin Burrows acknowledged in his study of the flora of the Waimakiriri Basin (16). Having now retired Talbot moved with his mother to 6 D'Arcy Street, Richmond, just south of Nelson.

1962 Brockie retired in May and went to live in Richmond near Talbot. In December they returned to the Goulard Downs by helicopter in search of more material of the puzzling little Rubiaceae plant (15).

1963 With Brockie to Haast Pass, Jacksons Bay – Okuru (6).

During the summer of 1967–68 Talbot went to the Chatham Islands with Ron Simpson of Richmond, a lover of alpine plants and also a friend of Brockie (17). Both Brockie and Simpson died in 1972 (6, 17) but Ron's sons Doug, Cam and Philip (later of DOC) kept in touch with Harry.

Harry took his herbarium to Richmond and stored it in his garage. Here it was curated by Lynda Stemmer who catalogued about 3900 specimens. It was then incorporated into the Botany Division Herbarium (CHR)

and described in the 1974–76 Triennial Report as “especially rich in specimens from the Waimakiriri Basin and Nelson.”

In 1979 Harry was awarded the Senior Bledisloe Trophy of the Canterbury Botanical Society for “outstanding work in inspiring and helping people to become botanists.” He was now 81 and Margaret Bulfin reported (18): “Hampered now by poor eyesight Harry is not able to continue his botanical work but his memory for plants once seen is infallible. Not so long ago he gave me, to mention only one instance, precise directions as to the location of the little known *Myosotis goyenii* in Slovens Creek near Broken River.” And only a few weeks before he died he directed Geoff Walls to a patch of *Scutellaria novae-zelandiae* in the Aniseed Valley (19).

On Boxing Day, 1981, I drove up to Springs Junction, to look at plants for a few days and climb Mount Haast. On New Year’s Day I went on to Richmond and in the afternoon visited Harry at the Alexandra Home where he had been living for about 3 months. He was recovering from a “one-day” flu and confined to bed, but talked well and was most interested in the recent discovery of *Pittosporum obcordatum* in Fiordland. He speculated on the causes of such discontinuous distributions. After staying the night at his “local”, the “Star and Garter” I drove home feeling sure that he would soon be up and about; but on 5 January a call from Doug Simpson, told us that Harry had died peacefully in his sleep the night before. His funeral was in Nelson on 7 January and Gordon Clark and I drove up to say farewell to our old friend (20).

EPONYMY

1964 *Bulbinella talbotii* “TYPUS: CHR 78929, Goulard Downs, North-west Nelson, forest edge adjoining red tussock, W.B. Brockie, 23 Jan. 1954. The specific epithet is derived from the name of Mr. H. Talbot who assisted at the discovery of the plant and whose botanical field work in the middle and northern parts of the South Island amply merits recognition.” L.B. Moore, *N.Z. Jl. Bot.* 2: 298.

1974 *Coprosma talbrockiei* “HOLOTYPUS: CHR 233 965A ‘Slate Range, Goulard Downs, stony slope, 2000+ ft, Dec. 1962. W.B. Brockie’ ex Herbarium of H. Talbot.” “The species is named for Harry Talbot and Walter Boa Brockie, the composite epithet being chosen to commemorate the contributions to New Zealand botany made by these two friends during many joint expeditions in the South Island, particularly its central and northern parts from the early 1940s to 1970.” L.B. Moore & R. Mason *N.Z. Jl. Bot.* 12: 137–138.

ACKNOWLEDGEMENTS

Thanks are due to Lynda Stemmer, Margaret Bulfin, and Bryony Macmillan for collecting and curating Talbot material while at Botany Division, DSIR. I am also very grateful to Gordon Clark, lately Senior Lecturer in Biology, Christchurch Teachers’ College, for his recollections of Harry Talbot and for copies of letters from Wattie Brockie. I am also indebted to Colin Clarke (St Arnaud) lately of Forest Research Institute and Landcare Research, for searching his father’s accommodation books for the dates of Harry Talbot’s visits to the Tophouse Hotel. Thanks also to Wendy Weller, for typing this note.

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■ Tribute to Dr Elizabeth Edgar, leading plant taxonomist and flora-writer

A.D.Thomson, Centre for Studies on New Zealand Science History, 5 Karitane Drive, Christchurch 8002.

Dr Elizabeth Edgar (b.1929) has been a leader in taxonomic botany in New Zealand for many years and her greatest contributions have been to the "Flora of New Zealand" series. Elizabeth's ancestors go back to the early days of settlement in New Zealand. In the field of science Elizabeth's aunt Marion Liddell Fyfe (1897-1986) was a pioneer zoologist at the University of Otago.

Elizabeth was born in Christchurch and educated at Rangi Ruru Girls' School and Canterbury University College. Elizabeth's mother encouraged her to study botany at University and then later to apply for work at the former DSIR. She graduated B.A. (1950) in classics, and B.Sc. (1953) and M.Sc. (1957) in botany with a thesis entitled "The special characteristics of some New Zealand cotulas with particular reference to their breeding systems". Part of her thesis was published in 1958 in *Transactions of the Royal Society of N.Z.* (2). This was Elizabeth's first publication. Elizabeth also completed her Ph.D. from the Canterbury University College's Department of Botany (1960) with a thesis entitled "The cytology of the shoot apex in some dicotyledons" which was published as a book, the University of Canterbury Publications No.1 (3).

Elizabeth commenced her career in the former DSIR as a Library Assistant at the Crop Research Division, Lincoln in December 1952 with a B.A. degree in languages. It was in this position at Crop Research Division that Elizabeth had her first contact with her future employer Botany Division when Dr. E.J.Godley (b.1919), then Director of Crop Research Division, arranged for Elizabeth to visit Mr E.H.Leatham (b.1921) the DSIR Chief Librarian in Wellington to learn about librarianship. During this visit she took the opportunity to visit Botany Division, then located on The Terrace, Wellington. There Elizabeth met Dr Lucy Moore who introduced her to the Division. About this time she decided on a career in botany and obtained leave without pay from the DSIR in 1955 and 1957-59 to study for her M.Sc. and then Ph.D. degrees at Canterbury. Elizabeth was appointed scientist in the former DSIR's Botany Division at Lincoln in 1959 and retired in 1988 (15,17).

Soon after joining Botany Division, Elizabeth linked with her mentor Dr Lucy Moore in revising the taxonomy of the native monocotyledons and tackled the large and difficult genera such as *Juncus* and *Carex*. These and related studies were embodied in Volume II of the "Flora of New Zealand" (14) which included all the native monocotyledons except the grasses. Elizabeth then prepared descriptions of all the naturalised plants in these families and with Mr A.J.Healy (b.1917) of Botany Division, in 1980 published Volume III of the "Flora of New Zealand" (11). It was a pioneer volume because it included both native and naturalised species when these occurred in the same genus, e.g. *Carex* and *Juncus*. This was the first step in the development of fully integrated Floras. The grasses then remained the only unrevised family of monocotyledons - they are the largest and the most important economically and ecologically in the New Zealand flora. Elizabeth continued to work on the grass project in retirement as a Research Associate at Landcare Research, Lincoln in collaboration with Dr H.E.Connor (b.1922), formerly of Botany Division who has extensive knowledge of grass ecology, breeding systems, and chemistry. The "Flora of New Zealand Volume V Gramineae" (9) was published in March 2000. Its publication is a notable event in the history of New Zealand biology and is a great achievement for Elizabeth and Dr Connor. The grass project really commenced in the 1930s when Victor Dmitrievich Zotov (1908-1977) commenced his long period of research on the taxonomy of grasses.

Throughout her career as a botanist, Elizabeth has specialised in the compilation of the Flora series, but has also of course published many individual taxonomic papers, including monographic revisions which have made information available to botanists and others before the Flora was published. Elizabeth has indeed been in the forefront of botany because taxonomic botany provides for the more precise identification of plants and thus has application as a cornerstone for all research or practical interest in plants.

In total, Elizabeth has published (sometimes in collaboration with colleagues) 49 research papers, including four books. Except for one or two items, all her work has been published in New Zealand, mostly in the *N.Z. Journal of Botany*. She has also published some more general articles relating to her taxonomic research in the *N.Z. Journal of Agriculture* (12,13), the *Proceedings of the N.Z. Weed and Pest Control Conference* (5), and the *N.Z. Gardener* (6,7,8). As in the case of other notable pioneer women botanists included in

this series, a complete bibliography of Elizabeth's published work is retained at the Centre. As a measure of the age at which a scientist becomes active in research, the publications at the age of 30 are noted. At this age Elizabeth had published one research paper.

Among the projects relating to her taxonomic research, Elizabeth has assembled a record of all publications relating to the taxonomy of New Zealand plants. These compilations were published as the Annals of Taxonomic Research in each of the Flora volumes. The *Nomina Nova* series records all name changes in indigenous plants and was initiated by Elizabeth (4) and then continued in collaboration with her colleague Dr Connor (1). With her academic training in languages in addition to botany, Elizabeth has provided Latin diagnoses for new taxa and has been able to ensure that the names followed grammatical rules correctly. Her expertise in this field was widely sought and freely given to colleagues both within and outside Botany Division. Dr C.J.Webb in an assessment of Elizabeth's research comments (17),

"A thorough knowledge of the rules of nomenclature and of botanical literature is essential in all taxonomic work. Elizabeth's excellence in this area has led to her recognition as New Zealand's foremost authority on naming and describing plants."

As well as her own taxonomic research, Elizabeth co-ordinated and oversaw the production of the "Flora of New Zealand Lichens"(10) by Dr D.J.Galloway (b.1942) who at the time was on the staff of The British Museum in London.

Her honours and awards include the Allan Mere presented to Elizabeth at the time of her retirement in recognition of her contribution to the work of the former Botany Division. She was also a recipient of the New Zealand 1990 Commemoration Medal.

Thomson in 1988, in a tribute to Elizabeth at the time of her retirement, records (16),

"Elizabeth is included in the special group of pioneer women scientists at DSIR, Lincoln. She has carried on the dedicated service to botanical science established by her mentor, friend, and colleague Dr Lucy Moore. Elizabeth's long and distinguished career in DSIR shows some of the special features women can bring to science, or indeed to any endeavour. Entirely reliable and dedicated to her branch of science, the consistency and quality of her work has resulted in a large body of published taxonomic work, especially in the form of two co-authored books, Volumes II and III in the Flora series with the Grass Flora in preparation. These publications help form the foundation for research in plant science in New Zealand and will remain a lasting contribution from Elizabeth. In addition, Elizabeth's contribution to the preparation for publication of David Galloway's "Flora of New Zealand Lichens" was substantial and David acknowledges her contribution made '...in her usual, cheerfully selfless manner - my debt to her is considerable'. In all matters where Elizabeth had knowledge and expertise it was made freely available. Loyalty to colleagues has always been a characteristic of Elizabeth; never one to flaunt her knowledge or contributions or to push her views in any way, Elizabeth has always held a dislike for injustice wherever this is found. An excellent scientist, friend and colleague."

ACKNOWLEDGEMENT

This article and my earlier ones on pioneer New Zealand women botanists are part of a larger account of notable women in all branches of science in New Zealand which has been supported by the Suffrage Centennial Trust.

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PUBLICATIONS

■ Germination of seeds of the NZ forest flora

Colin Burrows has published four more papers on germination of seeds of the New Zealand forest flora:

New Zealand Seed Ecology 1. Germination behaviour of the seeds of five species of *Coprosma* (Rubiaceae). Rebus Publications, Christchurch: 17 pp.

New Zealand Seed Ecology 2. Germination behaviour of the seeds of herbaceous monocotyledon species. *Astelia fragrans*, *Dianella nigra*, *Gahnia rigidia*, *G. setifolia* and *Libertia ixioides*. Rebus Publications, Christchurch: 18 pp.

New Zealand Seed Ecology 3. Germination behaviour of seeds of the tree species *Entelea arborescens*, *Knightia excelsa*, *Laurelia novae-zelandiae*, *Pseudowintera axillaris* and *Syzygium maire*. Rebus Publications, Christchurch: 17 pp.

New Zealand Seed Ecology 4. Germination behaviour of seeds of six species of *Metrosideros* (Myrtaceae). Rebus Publications, Christchurch: 19 pp.

Copies of these are for sale @ \$5.00 each (reduced to \$4.00, including P & P for members of NZ Botanical Society). The mailing address is PO Box 31058, Ilam, Christchurch 4. Cheques should be made to Rebus Publications.

Four further papers in the series (which continues on from twelve earlier papers in the New Zealand Journal of Botany 1995-1999) are in preparation. They cover various vines, shrubs, small trees and larger podocarp species.

CORRIGENDUM

■ Book Review - Salmon, J.T. *The Trees of New Zealand: Exotic Trees - The Broadleaves..*

In the book review by Chris Ecroyd I changed the term "Malesia" to "Melanesia" as I could find Malesia in none of my botanical reference books or in my Concise Oxford dictionary. Chris emailed me to say that "Malesian is a term which is used in plant geography and it refers to "The Malesian, or Indo-Malay, floristic province which is comprised of the Malay peninsula, Borneo, the Philippines, and the archipelago of islands stretching from Sumatra to New Guinea".

I emailed back an apology and my reasons for the change and Chris decided to investigate his much more extensive library. He emailed back:

"In using the term Malesia I just followed a paper on Acacia [see NZ BotSoc Newsletter 59, p. 25]. I had seen the term used in other papers but until now I had not really known exactly what it meant. I must confess that I searched through our library for a definition - without success. I must have looked at 10 or more technical and scientific dictionaries and atlases. I then resorted

to the internet (<http://www.malesiana.tropicals.com.my/tropicals/malesia.htm>) and very quickly found the explanation I gave you. I know other readers of NZ Bot. Soc. Newsletter use the term but there will be many who are uncertain of its precise definition. I suspect it is a relatively recent term."

