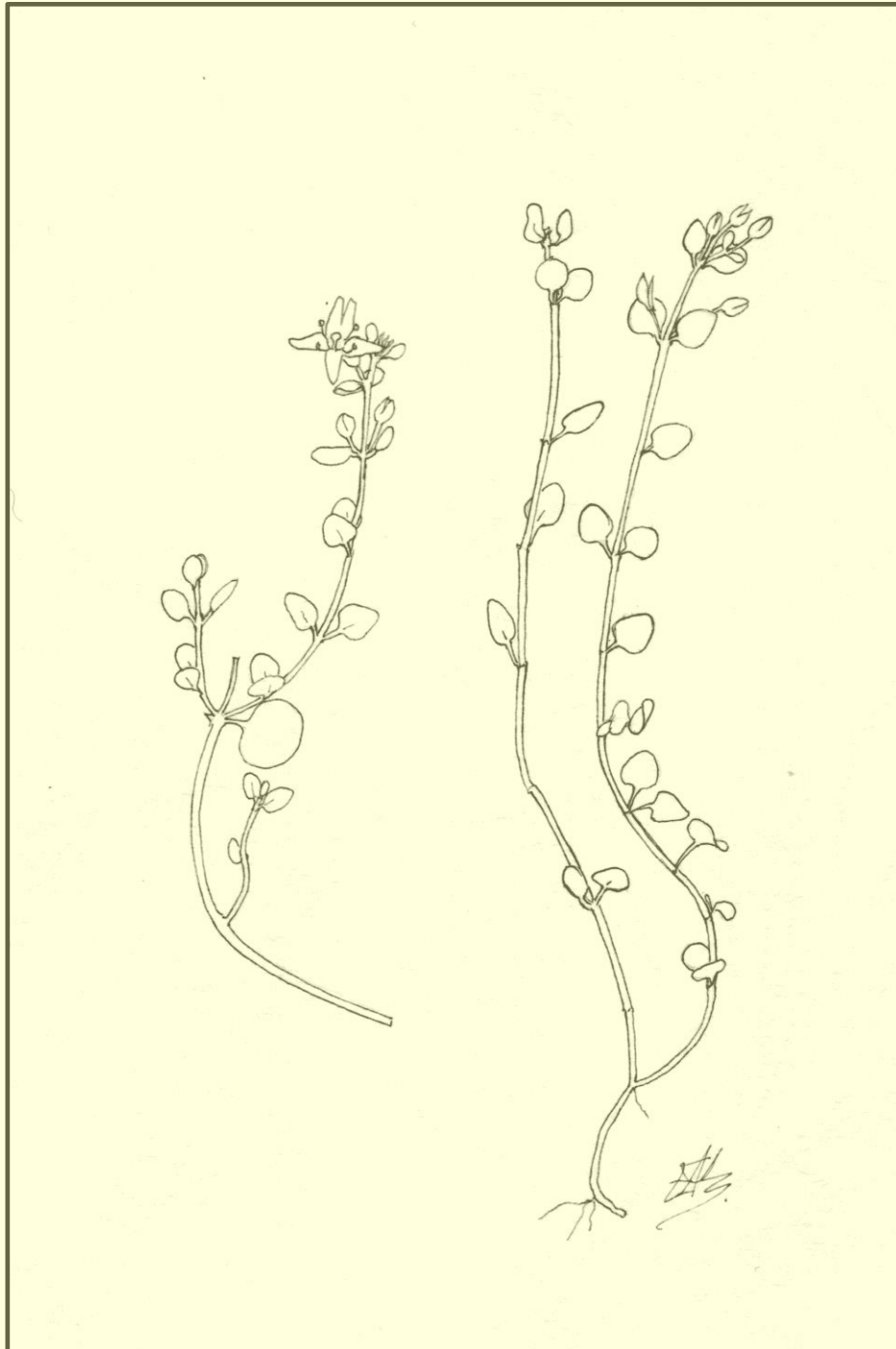


NEW ZEALAND BOTANICAL SOCIETY

NEWSLETTER

NUMBER 157

September 2024



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Subscriptions

The 2024 ordinary and institutional subscriptions are \$28 (reduced to \$25 if paid by the due date on the subscription invoice). The 2024 student subscription, available to full-time students, is \$15 (reduced to \$10 if paid by the due date on the subscription invoice).

Back issues of the *Newsletter* are available at \$7.00 each. 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 30 April each year for that calendar year. Existing subscribers are sent an invoice with the March *Newsletter* for the next year's subscription which offers a reduction if this is paid by the due date. If you are in arrears with your subscription a reminder notice comes attached to each issue of the *Newsletter*.

Deadline for next issue

The deadline for the December 2024 issue is 25 November 2024.

Please post contributions to:
Lara Shepherd
Museum of New Zealand Te Papa Tongarewa
169 Tory St Wellington 6021

Send email contributions to lara.shepherd@tepapa.govt.nz. Files are preferably in MS Word, as a Microsoft Word document. Graphics can be sent as TIF, JPG, or BMP files; please do not embed images into documents. Alternatively, photos or line drawings can be posted and will be returned if required. Drawings and photos make an article more readable so please include them if possible.

Cover Illustration

Mentha cunninghamii by Eleanor Burton.

NEW ZEALAND BOTANICAL SOCIETY
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NEWS

New Zealand Botanical Society News

▪ Call for New Zealand Botanical Society Nominations

Nominations are called for the following positions of Officers and Committee of the New Zealand Botanical Society for 2024:

- President
- Secretary/Treasurer
- 3 Committee Members
- Editor.

Nominations for all positions open on 1 September 2024 and close on 20 November 2024.

Nominations shall be made in writing to the Secretary, c/o Canterbury Museum, Rolleston Avenue, Christchurch 8013, and shall be signed by the Proposer, the Seconder, and by the Nominee to indicate their acceptance of nomination. If necessary, ballot papers for a postal election will be circulated with your December *Newsletter*.

▪ Announcement of Allan Mere Award for 2024

The New Zealand Botanical Society Committee is delighted to announce the award of the Allan Mere for 2024 to Dr Jessica Beever. The award is made annually to a person or persons who have made outstanding contributions to botany in New Zealand, either in a professional or amateur capacity.

The following is the summary paragraph from her nomination by the Auckland and Wellington Botanical Societies:

“For over four decades Jessica has been involved in collecting, researching and publishing on New Zealand mosses. She is one of very few bryologists in New Zealand and one of only two involved in writing the new Moss eFlora. She is highly respected and liked throughout New Zealand and because of her knowledge and pleasant nature she is an asset on any scientific field trip. We feel that Jessica over this long-time span has made an outstanding contribution to the knowledge of New Zealand mosses and highly deserves to be awarded the Allan Mere. It is time Jessica was nominated for the award to sit alongside her late husband Ross as a recipient. The joint ABS and WBS nomination of Jessica for the Allan Mere Award 2024 is to recognise her very considerable contribution to the botanical understanding of New Zealand mosses.

The nomination was supported by the Botanical Society of Otago, the Taranaki and Waikato Botanical Societies, John and Thelma Braggins, Peter de Lange, Barbara Parris and Wendy Nelson.

Following the presentation of the award at a forthcoming Auckland Botanical Society meeting a more fulsome record of Jessica's achievements will be recorded in this Newsletter.

Anthony Wright, President, New Zealand Botanical Society

Regional Botanical Society News

■ Rotorua Botanical Society

June Field Trip - Otamarakau Dunes

This was an attempt to finish off a survey of 17 km of reserve between the railway line and the shore from Matata to Otamarakau. Previous trips had covered from the Tarawera River mouth to Pikowai Camp. This last section turned out to be 8 km.

For much of the distance a wetland ranging from 10–20 m wide paralleled the railway. This was punctuated by three streams. From Pikowai camp to the Pikowai stream, a mere 200 m, we sampled most of the wetland habitats seen. They were dominated *Bolboschoenus medianus* with patches of *Carex geminata* on the margins and raupō in deeper water. A highlight was *Alternanthera nahui* in a dried-out area. Along the stream *Isolepis prolifera* was prominent. Kikuyu, as elsewhere, made progress difficult between the wetlands and the *Muehlenbeckia complexa* and spinifex on the foredune. Marram was present but was not common. Until Hauone Rd patches of *Eucalyptus botryoides* forest were present. In one patch *Syzygium smithii* and a guava kept Paul and Kerry busy for a spell.

Dunes in the last 200 m to the Hauone Stream appeared to be little modified with areas of *Zoysia planifolia* in the dune slack and much less kikuyu. Time ran out there and the last 3 km was rapidly traversed to get to the return vehicles. This part was well worked by 4WD bike tracks and contained little new.

July Field Trip - Burt Farm Mimiha Rd

The Burt farm is up one of those slots in the cliffs as you zoom along the Matata stretch. The large, sheep/beef/forestry farm is behind on a plateau at about 200 m with two steep-cliffed gullies dissecting it. These contain coastal pōhutukawa and regenerating tawa-podocarp forest which we viewed from the heads as we drove to our first stop. Here a terrace showed remnants of former Māori gardens. Above the terrace, 100 m up a steep grassy slope in a low, pōhutukawa clad cliff, were a series of manmade caves said to be for kumara storage. But with a spring 50 m directly around the slope and two caves linked at slightly different level they could have been for living. The cliff face was partly covered in *Metrosideros perforata*, maiden hair fern and other herbs, while the wetland was dominated by *Machaerina sinclairii* at the top then *Carex geminata*, *C. lessonii* and *C. virgata* before descending into wet pasture. These provided a reward for the climb.

After lunch we descended a grassy ridge along a rewarewa-dominated forest edge, accompanied by up to 20 fantails. A scramble into the stream allowed short forays up two side creeks, but progress was blocked by a 20m waterfall shortly downstream. Highlights here under pōhutukawa were a taste of the coastal forest - pūriri, kohekohe, tītoki, nīkau and karaka, with the odd tawa, rimu, miro or tōtara sapling and a sample of supplejack. Notably *Deparia petersenii* and *Diplazium australe* were along the stream but otherwise few ferns were seen. Orchids included *Bulbophyllum pygmaeum* on a rewarewa.

On our return there was a brief stop to see a large pūriri. At the house the final challenge was an extensive arboretum of diverse native trees and shrubs that spread down the adjacent gully. A highlight was tawāpou which could be present deep in the protected areas on the property. The trip ended with the perennial debate on distinguishing red and hard beech.

August Field Trip - Waitekohekohe Reserve

On much of the Waitekohekohe reserve a crop of radiata pine was felled 5-10 years ago and a second crop is developing. It has been, and continues to be, intensively developed in separate areas for mountain bikes and horses. Along the stream is a narrow band of coastal forest some very natural, some logged. On the northwestern side of the stream a series of walking track sections is being developed along with a network of trap lines.

At first we headed down the road through naturally regenerating pine plantation with a rich substory of native species such as māhoe, kāmahī and hangehange, and ginger. The locally common *Erica caffra* was abundant and in full flower on the roadside along with garden discards illegally dumped during

logging. Near the foot of the hill, native forest contained tall tawa, kāmahi, emergent pukatea, rimu and kahikatea and swamp maire appeared towards the stream. *Metrosideros fulgens* and *Rubus cissoides* were prominent climbers and supplejack restricted access. At the stream six horses and riders were making the crossing. At this point a track led into dense pūriri, kohekohe and tawa forest with māmāngi, kawakawa, toropapa, nīkau and supplejack prominent in the understorey. Orchids included *Drymoanthus adversus*, *Acianthus sinclairii* and *Corybas vitreus* in full flower. Emergent roots in a wet area signalled two large swamp maire and a small stand. Their canopy showed clear signs dieback from myrtle rust.

Back on the road the next track section was in more open tawa and pūriri forest with many ferns, especially tree ferns. On the rocky stream banks *Anaphalioides trinervis* and *Machaerina sinclairii* were common along with *Epilobium nerteroides*. A longer road walk allowed an overview of the streamside forest and led to a section of typical young regeneration of kāmahi and tanekaha with dense *Lycopodium deuterodensum*. Along the river, the odd pūriri or tawa dominated over māhoe and tree ferns. Here we spotted our first *Peperomia tetraphylla* on a high māhoe branch, then nearly a dozen on a branch overhanging the river and finally two patches at eye level on a fallen tawa.

On a road again, at a cliff face, *Gahnia setifolia* and *Schoenus tendo* were particularly common. In the pines black passionfruit was particularly common, as well as banana passionfruit, Japanese honeysuckle, kiwifruit too and Chinese privet - signs we were closer to habitation. In the last section of young native forest mataī saplings and several common ferns including *Hymenophyllum rarum* and *Adiantum cunninghamii* were first noted.

On the return along the road (and earlier) we tested out a new app to identify plants from a photo, with mixed success. *Coprosma lucida* could be identified from a leaf whereas *Hydrocotyle microphylla* was *H. tripartita* or *H. heteromeria* (90%) in a massed patch but in a more open patch, correct. *Erica caffra* didn't even register in the possibilities. Perhaps there are too few records in its database for some species.

FUTURE EVENTS

September 1 Lake Rotoma Scenic Reserve, Whangaroa Inlet
October 8 Nukuhou North (inland of Ohope)
November 2-3 Motu River revisited – Pukemauri
November 30 - Pohokura, Napier-Taupo highway

President: Sarah Beadel 021 924476; Sarah.Beadel@wildlands.co.nz

Secretary: Elizabeth Miller (07) 343 5613 rotorua-botanical-society@gmail.com

Web Page: <https://www.wildlands.co.nz/company/rotorua-botanical-society/>

■ **Waikato Botanical Society**

FUTURE EVENTS

21st September - Golden Cross - a visit to a private property with QEII covenants

We have permission from the current owners, CCS-Disability Action, to visit a property in the Waitekauri Valley. The property was bequeathed to CCS-Disability Action and already has 5 areas protected with QEII covenants. CCS-DA are working with Native Forest Restoration Trust with the longer-term wish to sell the property to NFRT.

Date : Saturday 21st September

Leaders : Kerry Jones and Dell Hood

Kerry : km8j1s@gmail.com / 027 747 0733

Dell : hinau@outlook.co.nz / 027 521 9260

Grade: Easy / Medium

Meet : 8:30 : Carpooling from Hillary Park, Chedworth Ave, Hamilton

9:30 : Waikino Victoria Hall at the corner of SH2 and Old Waitekauri Road at Waikino

5th October - Waitomo Stubbs Farm - a visit to Stubbs Farm Waitomo – large QE II block. Focus on Orchids.

Date : Saturday 5th October
Leader : Kerry Jones : 027 747 0733 / km8j1s@gmail.com
Host : Biddy Stubbs

Grade Medium
Meet 08:00 at Te Wananga o Aotearoa carpark Resthill Crescent, Glenview.
09:00 at Waitomo Caves information centre.

If you wish to stay on the on farm on Saturday night at Stubbs Rock Retreat. Sleeps 4 and is \$250
<https://www.facebook.com/rockretreat/>

19th October - *Pomaderris hamiltonii* site in Huntly.

Date : Saturday. 19th October
Leader : Kerry Jones : 027 747 0733 / km8j1s@gmail.com
Grade: Easy - Medium
Meet: Z Service Station, Huntly at 10:00.

We will go and have a look at *Pomaderris hamiltonii* (hopefully flowering) at a site near Huntly. We'll also go and have a look at Rotowaro Wildlife Management Reserve.

President: Kerry Jones
Secretary: Wyne Johns

General contact: secretary@waikatobotsoc.org.nz
Website: <http://waikatobotsoc.org.nz>

■ **Canterbury Botanical Society**

May Field trip report: - Tūpari reserve, Kaituna Valley, Banks Peninsula.

Tūpari is a newly formed 410 ha private reserve in the Kaituna Valley, Banks Peninsula/Te Pātaka-a-Rākahautū, owned and managed by the Mikimiki Conservation Trust. Tūpari means cliff or precipice, and the reserve is indeed very steep – it rises from 60 metres above sea level on the Kaituna valley floor to 818 metres at the highest point. This steepness means, that over a relatively small distance it's home to a diverse range of ecological habitats, from ancient mixed podocarp forests to subalpine rocky outcrops. We were grateful for trustees Mark and Megan showing us around. An interesting hebe, potentially *Hebe odora* × *Hebe strictissima* was a highlight, as were the large podocarps, a hidden waterfall and white mistletoe (*Tupeia antarctica*). The At Risk-Declining *Hebe lavaudiana* and *Teucrium parvifolium* were also present.

July speaker: Dr John Leathwick (retired scientist from Manaaki Whenua/Landcare Research). In two recent papers, John worked with co-authors to raise fundamental questions about how best to achieve New Zealand's biodiversity goals. In their first paper they explored the current emphasis on eradicating just four introduced predators, highlighting both the considerable technical challenges this poses, and the need to also consider the impacts of other major biodiversity pressures including browsers and weeds. In the second paper they demonstrate how a systematic ecosystem-focused approach to biodiversity management, first proposed back in 1980, could be efficiently implemented using contemporary spatial tools. They argue that such an approach would be much more likely to achieve New Zealand's biodiversity goals than current predator-focused management.

First, he went through a short history of conservation management and ecological science that led us to "goodbye Freddie". John has a great perspective as he has worked for the NZ Forest Service, DOC, Manaaki Whenua, NIWA, and on contract to Regional Councils. Then he showed us a worked example of the conservation prioritisation mapping system he has completed for all Councils (except Canterbury, Westland and Gisborne) with collaborators Nick Singers and Amy Whitehead.

They map the original pre-European types of vegetation cover/climate/landforms/LENZ, the existing vegetation cover (and whether primary or secondary), the protected areas, and then work out the minimum areas needed to represent as much of the pre-European diversity as possible. In Hamilton this process gave high priority to a small, lonely stand of kahikatea on the outskirts of Hamilton, the last of the great kahikatea forest of the Hauraki Plains. It had been overlooked by DOC managers in favour

of more pristine, extensive upland forest. In the final part of the talk he addressed the perennial question about where to put the limited conservation effort using a scientific process.

July field trip report: Botanical Gardens visit.

Saturday the 6th July was fine and sunny. 12 well wrapped up BotSocers and a member of the friends of the Botanic Gardens met at the Kiosk in slowly warming temperatures. We soon found out our outer layers could be discarded when Sue Molloy, long-term Christchurch Botanic Gardens Resources co-ordinator lead us into the warm Library. Greeting us by the door were two large portraits one of J.F. Armstrong and beside it a portrait of Leonard Cockayne. Sue gave a lively illustrated story of the first curators of the gardens, who were appointed in 1869.

John Armstrong and his son Joseph designed the layout, labelled the extensive plant collections, propagated plants, and collected and established collections of indigenous Canterbury plants. They were rewarded with too much work and a population who much preferred bedding displays. They not only tended the gardens but travelled into the hills to collect plant specimens to send through to professional botanists in New Zealand and overseas. They researched and correctly labelled the specimens they found and wrote papers for the Transactions of the New Zealand Institute. Joseph as a 14 year old wrote a species list of the indigenous plants found in Hagley Park which is now an important historical archive.

Sue had sorted out a selection of early botanical and horticultural books owned by J.F. Armstrong, one now 300 years old.

The Armstrongs' planted a native section in the Botanic Gardens to show the people of Christchurch the botany of the inland hills and mountains, which many residents would never have seen otherwise – the foothills being a 2-day trip by horse away. Later the native section was moved from what is now the machinery park at the back of the Ilex Café building to its current location.

Armstrong was criticised, by those who held the Victorian belief that plants should be showy pretty things and couldn't see the point on labelling and conserving native flora. Some of his contemporaries felt they needed to put his work down as he was self- educated rather than a university scholar and he was not credited with the important work he and his son achieved. His field work and research was done mainly in his spare time in weekends and late at night. The criticism of his work eventually wore the Armstrongs down and they both resigned in 1888 and sailed back to England.

Sue had some interesting letters and notes corroborating this history plus some of Armstrongs' reference books published between 1840 and 1880. Most were illustrated with water colours of plant specimens. She also had on display Lucy Moore's well-worn uncomfortable looking backpack in which specimens, clothing and camping gear, along with heavy plant presses, were packed for multi day collection expeditions. Her companion Lucy Cranwell commented that should one of them fall the other had to help her to her feet as the pack was so heavy.

Gardener Breanna Hill showed the group the potting-up glasshouses, starting with the glasshouse bordering the café full of lush looking exotic ferns and tropical plants kept in a moist warm environment.

When we moved onto the native potting up area the number and volume of murmurings from our group increased as unusual or rare seedlings were identified.

We then moved off to the soon to be closed and renovated Cunningham hot house. Breanna is in charge of the logistic of clearing the many potted plants out of the glasshouse and putting them into storage. Rooted trees, like the century-old dwarf date palm and puka (*Meryta sinclairii*) will just have to weather the renovations in situ. A few plants on display that are well-known weeds will hopefully not return to the refurbished glasshouse. The hot houses next door had large collections of cacti and in another more humid room a collection of pitcher plants and orchids which will be unaffected by the renovations.

We appreciated the time Sue and Breanna took out of their weekend to host us and we look forward to a walking lecture in summer with Luke Bird.

References:

- Molloy, Sue and John Clemens. 2021. On the Armstrong family and herbarium. Part II. The Armstrongs at work. *Canterbury Botanical Journal*; 52: 73-81.
- Armstrong J. F. 1869. On the vegetation of the neighbourhood of Christchurch, including Riccarton, Dry Bush, etc. . . . *Transactions of the New Zealand Institute* 2: 118-128.

FUTURE EVENTS

- 2 September: Canterbury Botanical Society Student Grant recipient - Julia Palmer (Masters Student, University of Canterbury). Ground-dwelling arthropod movement and predation pressure across habitat boundaries along a climate gradient.
- 7 September: Tours of members gardens with interesting indigenous plantings (or weeds).
- 7 October: Kānuka trials II: Bex Barrett, Greg Stanley, Miles Giller.
- 12 October: Harris Reserve (dryland kānuka) and Wakanui Beach in the Ashburton District.
- 4 November: Dr Subhani Ranasinghe - Conservation genetics of *Syzygium* and *Diospyros* in Sri Lanka.

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■ Botanical Society of Otago

11th September, 6:00pm: From Geoff Baylis to the Power of lichens. Speaker: Allison Knight. Location: Archway lecture theatre, University of Otago. Drinks and nibbles starting from 5:15 in the Botany tearoom.

Geoff Baylis was an eminent botanist who led and nurtured the Department of Botany for 33 years. He drew attention to several critically endangered plants on Manawatāwhi / Three Kings Islands, including the last surviving kaikōmako manawatāwhi / *Pennantia baylisiana* in the wild, brought back from the brink of extinction. In 2002 the Botanical Society of Otago held the first annual Geoff Baylis Lecture. Geoff described his pioneering advances on the function of arbuscular mycorrhizas, a symbiosis between a plant root and a soil fungus. Around this period Allison was spending time with leading field botanist Tony Druce, botanical artist Audrey Eagle and innovative micro-photographers Bill and Nancy Malcolm. She collected lichens for David Galloway's *Flora of New Zealand Lichens* and *Ramalina* for Jennifer Bannister's meticulous studies. Inspired by these notable botanists Allison set out to make knowledge of New Zealand's exceptional lichen diversity more accessible to a general public and produced an illustrated introductory guide. Lichens, like mycorrhizas, are a mutually beneficial symbiosis between a fungus and a photosynthesizing organism. We now know that the lichen symbiosis is a powerful ecosystem in miniature, made up of organisms from many different kingdoms. Over millennia lichens created soil from bare rocks and became widespread pioneers of life on land. Most are long-lived and all sequester carbon. Lichens are so resilient they can survive temperature extremes, nuclear blasts and outer space. Some make antibiotics with great potential. Many are sensitive indicators of pollution, and some respond rapidly to climate change.

This lecture will highlight the significant contribution that Geoff Baylis made to botany. Allison will discuss lichen evolution, structure, identification and function and integrate current knowledge of the lichen ecosystem into understanding the critical role that lichens play in keeping the earth resilient.

About the speaker: Allison Knight is a lichenologist and Research Associate in the Department of Botany, University of Otago. Publications include *Lichens of New Zealand: An Introductory Illustrated Guide*, the lichen section in Alan Mark's *Above the Treeline* and collaborations with local and international experts, including her discoveries of 10 new species of lichen.

14th September, 9:00am: Field trip to Okia Reserve, Otago Peninsula. Okia Reserve is a large coastal reserve on the Otago Peninsula that is jointly owned by the DCC and Yellow-eyed Penguin Trust. It comprises an old dune system that is rapidly changing from its dominant bracken cover to woody coastal species. The hollows between the dunes hold a variety of wetlands that include turf,

bogs and ponds. The Otago Regional Council regard the dune hollow vegetation to be the best example in the Otago Coast Ecological Region. Along with the Pyramids - a significant geological feature, and Victory Beach - the longest beach on the Peninsula, there's plenty to keep us occupied. We'll do a walk that encompasses all these features and have lunch along the way. Meet at Botany Department carpark at 9am or the Okia Reserve carpark at the end of Dick Road at 9.45 am. Leader to be confirmed; check the website for details.

5th October, 8:00am: Field trip to Mahaka Katia Scientific Reserve (Pisa Flats). Mahaka Katia Scientific Reserve (Pisa Flats) is situated on an elevated terrace above Lake Dunstan just north of Cromwell. It is a unique example of Central Otago dryland habitat that has mostly been lost to agricultural development and residential subdivision. Pisa Flats is one of the few remaining places where populations of a number of rare, native, dryland endemic species can still be found. These include *Raoulia monroi*, *Lepidium solandri*, *Convolvulus verecundus*, *Myosotis uniflora* and *Craspedia argentea*. *Myosotis uniflora* is classified as At Risk – Naturally Uncommon and the yellow-flowered form is more or less confined to the Pisa Flats. We are timing our visit to hopefully coincide with its spring flowering. *Craspedia argentea* is known only from this location and is considered Threatened – Nationally Critical. If we have time, we will possibly visit the saline sites at Springvale Scientific Reserve or the Chapman Road Reserve both near Alexandra to look at Central Otago spring annuals, a suite of dryland species that includes *Myosotis brevis*, and the tiny buttercup relatives, *Ceratocephala pungens* and *Myosurus minimus*.

We will meet at the Botany Department carpark at 8.00 am and travel to Cromwell and then on to the Reserve. Bring lunch, warm clothing, rain gear and suitable footwear. Travel time from Dunedin to Cromwell is approximately 3 hrs. Contact David Lyttle | djl1yttle@gmail.com | 027 654 5470

9th October, 5:20pm: An Exploration of the Flora of Western Australia. The flora of Western Australia (WA) contains over 10,000 species of vascular plants and that, together with the huge area that the State encompasses, means that the visitor will only experience a tiny fraction of the floristic diversity that WA has to offer. In late August 2023 David Lyttle, together with his wife Belinda, embarked on a two-week camper van trip round the State. After collecting the camper van in Perth they drove north to Kalbarri National Park and then South to the Stirling Range stopping at various points on the way before returning to Perth. Although the spectacular great swathes of wildflowers for which WA is known were not in evidence due to an unfavourable season, they found plenty of botanical interest including a wealth of Banksias, Grevilleas, orchids and sundews. The talk will provide an introduction to the flora of WA as well as covering the journey, the landscapes, aspects of the photography and will be illustrated with a collection of wildflower images taken during the trip.

Artwork from the Botanical Art competition will be displayed at this meeting, and prizes awarded. There may also be an art auction, depending on interest.

13th November, 5:20pm: The Sequoioideae: What can extant lineages tell us about evolution? Speaker: Jess Paull. In ages bygone, gymnosperms were at the height of their diversity. In the modern age, many face extinction due to the looming threat of climate change. What can this group (and others) tell us about our past and our future?

23rd November, 9:00am-3:30pm: Quarantine Island exploration and picnic lunch. Join us for a day exploring Quarantine Island Kamau Taurua, a public Recreation Reserve and an Historic Area in Otago Harbour. Wander the trails to check out the regenerating forest and the interesting human history. Bring a pair of work gloves if you feel like doing some volunteer weeding. Tools are provided. To book a place contact Gretchen by Wednesday 20th Nov. as we need to book the boat in advance (boat cost will be covered by the BSO). Bring appropriate clothing, water and lunch.

6th-8th December: Catlins Weekend. This is an adventurous weekend trip up the Tautuku River in the Catlins. We will follow local experts along trapline routes through mixed old growth and regenerating podocarp forest to investigate some interesting nooks. There is potential for exciting plant sightings. This trip requires a high level of fitness; we will be covering up to 10km of very rough routes through dense forest. Bring tramping boots, wet weather gear, food, water, and first aid kit.

Contact Gretchen Brownstein (brownsteing@landcareresearch.co.nz) to book a spot (drive time: 2hrs one way, ~300kms return trip). Leaving Friday evening, returning Sunday.

Chair: Gretchen Brownstein, brownsteing@landcareresearch.co.nz www.bso.org.nz

Secretary: Angela Brandt, c/- Department of Botany, University of Otago, PO Box 56, Dunedin.
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■ Other Botanical Society Contacts

Auckland Botanical Society

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Taranaki Botanical Society

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Janica Amooore 06 7520830. Email: waiongona@clear.co.nz

Hawke's Bay Botanical Group

<https://www.facebook.com/Hawkes-Bay-Botanical-Group-590670161140095/>

Manawatu Botanical Society

Jill Rapson: Massey University. Ph (06) 350 5799 Ext 7963; G.Rapson@massey.ac.nz

Whanganui Museum Botanical Group

Our meetings are held every two months on the second Tuesday, alternating with 'Nature Talks' (where the Whanganui Botanical Group has merged with Birding Whanganui and the Whanganui branch of Forest and Bird), which are held on the third Tuesday in even-numbered months. It is intended to continue with monthly botanical field trips to which members of the other two groups are invited.

President: Clive Higgie (06) 342 7857 clive.nicki@xtra.co.nz

Secretary: Margi Keys 0274 481 581 wbotgp@gmail.com

Wellington Botanical Society

President: Frances Forsyth

Secretary: Laura West wellingtonbotsocsecretary@gmail.com www.wellingtonbotsoc.org.nz/

Wakatipu Botanical Group

Chair: Neill Simpson (03) 442 2035

Secretary: Rebecca Teele 027 314 2610 wakatipubotanicalgroup@gmail.com

NOTES AND REPORTS

■ The common ice cream bean in New Zealand – *Inga feuillei* DC., Fabaceae.

Marley Ford (mfecobotany@gmail.com)

The species of inga or ice cream bean in New Zealand has been misapplied. Previously the common inga bean in cultivation has been called *Inga edulis* Mart. The taxonomy of this genus has long been confused but the New Zealand entity is best placed under the name *Inga feuillei* DC. and this article discusses the reasons why.

Inga Mill. is a genus of tropical, tough-leaved, nitrogen-fixing trees and shrubs in the subfamily Caesalpinioideae DC. It is a neotropical genus, most species are native to the Amazon region, but some species are found north to Mexico, Greater and Lesser Antilles and other countries in South America

(Pennington,1997). Currently around 300 species are recognised (Pennington, 1997). Species of inga bean often have edible pulp (Fig. 1). The most well-known of the species is *Inga edulis* Mart. The species epithet emphasizes the edibility. The fleshy pulp of the pods has a vanilla ice cream like flavour, because of this they are commonly called “ice-cream beans”. The toxins in the seeds are removed once cooked (Pennington, 1997). In South America the trees are found in a wide range of habitats, from sea level up to 3 000 m, in rainforest on areas that are periodically or permanently flooded, as well as those that are not, disturbed land, and are often closely associated with rivers (Pennington, 1997). Their seeds are dispersed by floods as well as by small primates (Heymann et al., 2019). This genus has a symbiosis with ants, which get nectar from extrafloral nectary (Fig. 2), in exchange the ants will patrol over the inga plant, protecting it against invertebrate herbivores (Koptur, 1984). This relationship has not been observed in New Zealand.



Figure 1. Inga beans (*Inga* sp.) for sale with bananas (*Musa* sp.) and limes (*Citrus hystrix* × *C. medica*) in eastern Costa Rica on Caribbean coast. Ewen Cameron. 17 May 2017.



Figure 2. The stalked nectaries of *Inga feuillei* on a specimen tree in Whangārei, Northland. 16 July 2024.

In northern New Zealand inga bean is commonly sold in the horticultural trade. These plants are labelled as *Inga edulis*, one of the most widely cultivated species in the tropics. Naturally it is found from Central to South America (Pennington, 1997). Within New Zealand this is the only species of *Inga* noted (Schönberger et al.,

2016) and there are several records of this entity naturalising from gravity or human dispersal (Ogle, 2021). Here evidence is given that this entity is better placed under the species concept of *Inga feuillei* (Fig. 3). Commonly called pacay, this species is named after French botanist Louis Feuillée (1660-1732) and is native to Andean valleys of northwestern South America (Pennington,1997).



Figure 3. Flowers of *Inga feuillei*. Mt Eden, Auckland. 25 December 2022.



Figure 4. Tree of *Inga feuillei*. Mt Eden, Auckland. 20 May 2023.

Inga taxonomy is tricky with many species morphologically similar and the genus is thought to have diversified relatively recently in evolutionary history (Richardson, 2001). The previously recognised *Inga edulis* is placed in the section. *Edulis*. New Zealand material is easily separated from this section by the stalked foliar nectaries (Fig. 2) and the quadrangular legume with prominently raised or winged margins (Pennington, 1997). Further, *I. edulis* is known to have long cylindric pods and buttress roots, not seen in New Zealand plants. New Zealand plants are best placed in section *Tetragonae*. Within the section *Tetragonae* New Zealand plants fit the species concept of *Inga feuillei*. The short corollas (2 cm), dense calyx tomentose and the raised margins of the legume support this (Fig. 3), rather than the prominent wings on the legume of the similar species *Inga striata* Benth. (Fig. 4 & 5). It is thought that *I. feuillei* is a cultivated form of *I. striata* and it not known with certainty in the wild (Pennington, 1997). In New Zealand the fruits appear markedly shorter in length than typical *I. feuillei*, legumes were measured from 22 – 24.5 cm long and 3.5 – 3.9 cm wide (some shorter), the length closer to *I. striata* (7-26 × 1-2.2 cm vs 25-40 × 5-6 cm), while all other characters are consistent with *I. feuillei*. This highlights the differences between the two entities is not always clear but could also be a reflection of the temperate rather the tropical growing conditions of New Zealand.

All New Zealand specimens examined match the species *I. feuillei* (AK257763, AK297295, AK361607). This species has been recorded naturalising in northern New Zealand a number of times, found in Kerikeri (AK327563), Whangārei (AK368411, MF2764 <https://inaturalist.nz/observations/228915429>) and Auckland City (seedlings AK 299453, parent tree AK299451; AK374697). Most seedlings were recorded underneath or close to parent trees, some seedlings have been observed further from parent plants have most likely spread by people or maybe birds. There is potential for this species to become weedy if planted near waterways where the seed can easily be transported.



Figure 5. Fruit of *Inga feuillei*, 24 cm long × 3.5 cm wide. Mt Eden, Auckland. 20 May 2023.

Inga feuillei and other ice cream beans are known for their rapid growth, reaching up to 20m. They are short lived, living to around 20 years and provide food, shade, living fences, erosion control and wood products (Pennington, 1997). Plants fitting *I. edulis* have not been seen in New Zealand. Some growers maintain it is present, but no material has been produced to confirm this. *Inga feuillei* is the widespread species in cultivation in New Zealand.

Acknowledgements

I would like to thank Ewen Cameron for located the reference Pennington (1997) and reviewing the draft article, and the Auckland Museum for letting me examine their collections.

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BIOGRAPHY / BIBLIOGRAPHY

The following article first appeared in *The New Zealand Stamp Collector (The Journal of the Royal Philatelic Society of New Zealand)* vol. 4 no. 2: 61-69 (June 2024). It is reprinted by kind permission of the editor and author.

- **Patrick John (Pat) Brownsey, FRPSNZ: consummate philatelist; botanist and amateur historian to boot.**

An illustrated tribute, by **Geoff Rickards**

When Council of the *Royal Philatelic Society of New Zealand* (RPSNZ) asked if I would write a memorial piece in honour of Pat Brownsey for the *New Zealand Stamp Collector* (NZSC) I responded with much enthusiasm, even though, as it turned out, I was at the time not fully aware of the magnitude of the task ahead of me. Pat was indeed a consummate philatelist. Many, however, even those close to him, did not fully realize the extent to which he was involved in collecting, exhibiting, organizing, researching and writing on philatelic matters. He was, as I have said to a few, a doer not so much a talker. His contribution to the endeavour - be it as a hobby or as a more serious pursuit - was both wide and deep, as I attempt to show below. Particularly in recent years he had become a sort of philatelic brother to me, as I suspect he had become to others as well. That sentiment manifest itself particularly during the many times we would get together in the philatelic collection store at Te Papa, or at home, or at philatelic meetings or exhibitions. There we would soon be talking over philatelic items in either our respective collections, in New Zealand Post archives at Te Papa, material submitted for assessment to the RPSNZ Expert Committee, or items in past or present stamp catalogues or of on-line auctions, often ogling over quality material 'out there' (Fig. 1). Our talk sessions even overflowed sometimes to our frequent Wednesday visits to Karori's Pickle Jar - much to the amusement and sometime raised eyebrows of our colleagues there, where sometimes we would feign exchanging philatelic 'loot' under the table with furtive glances to ensure we were not being 'spied' upon. Your presence there is well missed, Pat!

In the following, Pat's overall contribution to philately is divided into (i) his *collecting* interests, (ii) his *Te Papa relations* and *research*, (iii) the *philatelic societies he contributed to* and (iv) his *presentation and exhibiting prowess*. Some emphasis is put on his RPSNZ and Te Papa connections, since it is mostly through those channels that I came to know him as a colleague and friend.



Figure 1. Pat's Ascension Island 1935 KGVI Silver Jubilee stamps (left); and GB 1939 £1 Seahorses (image courtesy Chris Burt, Mowbray Collectables).

1. Collecting interests

Pat's philatelic collecting interests were broad, many-countried, all-but exclusively British Commonwealth, rather than strongly specialised. Notable throughout was an emphasis on the classical

engraved pictorial stamps of the EVII, GV, GVI and early QEII periods. He seems to have resisted that compelling many of us felt during our younger days to 'specialise' to the country of our birth or adoption, and then eventually to one or other of their special issues.

Pat's collecting 'bible' was the Stanley Gibbons Postage Stamp Catalogue Part One British Commonwealth 1966 (still an excellent volume to have handy), updated when necessary, by reference to its recent editions. He developed very worthy collections of approximately 30 British Commonwealth countries, from Ascension Island (but not Aden) through Hong Kong, India and Malaya and their respective states (but not Grenada, Jamaica or Kenya), Mauritius (no SG1 !) and Morocco Agencies in Gibraltar during British, Spanish and French currency periods (but not Monserrat or Natal), Sarawak and Seychelles (but neither Sierra Leone nor Somaliland) and Zanzibar (but not Zululand). Just what drove each of these 'specialities', which in most cases spanned from the early classics to about the mid-1970s, I know not - except, that is, for a few. His country of birth (England) then his adopted New Zealand were, not surprisingly, strongly collected (Fig. 2 and Figs. 6, 7). He had, as he showed and talked to us about, a rather special collection of Sarawak stamps, which he was particularly proud of (Fig. 3). His reasonings for these were both personal - in that he schooled in England with one of the Brooke family (i.e. the white Rajas of Sarawak) - and historical - in that that country had (it strictly no longer exists) a very precisely dated beginning and end, both tightly reflected in its stamps.

2. Te Papa and research

Not long after his 1973 arrival in New Zealand from England, Pat joined in 1977 the National Museum of New Zealand (predecessor of *The Museum of New Zealand Te Papa Tongarewa*, Te Papa) as a Curator of Botany. In this capacity he also advised on most philatelic matters at the museum (work previously done by bird - and birds on stamps - specialist F-C. Kinsky prior to his retirement). Pat highlighted the philatelic material held in the National Museum in a very readable article in NZSC Volume 62 (3) September 1982, pp. 84-87, where he recorded the main items held and, in his typical style, an account of the history of the collections. He became an exemplary custodian of the nation's stamps and postal memorabilia after their updating and transfer to Te Papa in 1992, becoming involved



Figure 2. Pat's collection of GB 1864-79 1d. red corner letter stamps, all 151 plate numbers thereof (but no plate 77!). The collection was described in Mowbray's Public Stamp Auction No. 44 catalogue as being of 'well above average' condition. Enlarged insets by the author.

in a great many of the museum's philatelic accessions, right to their actual purchase stage. With the assistance of Te Papa collection staff, this included, most importantly, encouraging and facilitating access to the material present. This he did 'informally' to begin with, alongside his curatorship of botany; then, after his formal retirement in 2021, under contract with the Te Papa history team. He often had cause to note to visitors an issue worthy of attention and research on many a page of the large albums on which the stamps are now contained at Te Papa. He took an interest in what was being studied by others, and willingly assisted, critiqued and put polish to the writing up of their research for publication. Thus, it was that Te Papa stamp archives played a very major role in Derek Diamond's book on *The 1898 Pictorial Issue of New Zealand* (New Zealand Society of Great Britain Special Publication No. 7, 2014) where Pat is cited no fewer than 23 times. I thoroughly recommend readings of the details of the re-drawn plates of 1900 published in NZSC 92(3) Sept. 2012, pp. 70-79. Most recently Pat combined with Andrew McNiven (researcher at New Zealand Post) in highlighting RPSNZ archive material (held at the Alexander Turnbull Library) on the New Zealand 1935 Pictorial stamp design competition; see NZSC 103 (4) Dec. 2023 pp. 119-124; and he was a crucial co-author of *A New Zealand Chalon Enigma* in NZSC 103 (3) Sept. 2023, pp. 82-91.



Figure 3. Pat's collection of Sarawak stamps, 1869 - 1886. Sarawak became part of 'Malaysia' in 1963, though stamps printed with 'Sarawak' on them (along with 'Malaysia') continued until 1986, as reflected in Pat's collection. Enlarged insets by the author.

3. Societies

Pat became a member of the RPSNZ in 1991. He served as a member of their Council, then, in 1996, took on the role of *Recorder* of the Society's Expert Committee (EC), holding that position until he passed away. During that time he updated the Certificate the EC issues, and built up an electronic system of handling submitted material. His modus operandi for each item submitted was as follows:

- (i) Record receipt thereof; photograph/scan; assign EC number.
- (ii) Assess submitter's requirement(s), the item's general area of philately and thus the committee member best able to do initial expertising. Deliver/post item to the assigned member and record.
- (iii) Record return of item and receipt of assessor's report. Decide second (minimum) etc. assessor. Receive second etc. report(s). Decide if further assessment necessary.
- (iv) Collate reports and send all to committee Convenor (Chair).
- (v) Decide wording of Certificate. Write certificate, sign and apply seal. Duplicate and file.
- (vi) Return item and certificate to submitter. Record and file information.
- (vii) Provide the EC and RPSNZ Council a summary of the year's activities with any concerns, recommendations etc.

Much of that now tried and true system was established by Pat himself over his years as Recorder, as a model system for ensuring high security and impeccable record keeping for upwards of the sometimes

200 or more items the EC handles during a year. Moreover, his Recorder years ran parallel with the EC decision-making process being firmly *evidence* (rather than solely opinion) based, as championed by Robin Gwynn and Alan Craig and which Pat, scientist at heart as he was, very much encouraged and applauded.

Based on his experience, he assisted and gave solo presentations to society and exhibition meetings (Royalpex 2017, e.g.) and published on the workings of the EC; see e.g. *Certifying New Zealand provisional imperforate Chalons* in NZSC 103(2) June 2023, pp. 64-67. This has been a huge achievement for which the RPSNZ will always be especially thankful. For his services, Pat was awarded the RPSNZ President's Medal in 2004, and made a Fellow of the Society in 2006.

Pat was also a long standing and key member of the *Wellington Philatelic Society* (WPS), joining in August 1994, taking on the role of its Circuit Manager from 2000-2004 and again 2013-2023, and their Presidency from 2005 to 2023 (surely a quite extraordinary achievement!). In 2019 he was made a life member of the WPS for his long standing and vital services.

It was during the period of his WPS Presidency that Pat initiated the annual joint (with the Royal and Hutt Valley societies) philatelic meetings at Te Papa. These hugely popular meetings became a highlight of many a philatelic calendar. The last of them, on August 28, 2023 on New Zealand Chalons, with invited contributors and attendees from many parts of New Zealand, was the most well attended and well applauded event of them all. Their success over the years was a credit to Pat's foresight and managerial skills.

In similar vein, Pat was Chairman of the organising committee of the WPS100 National Stamp Exhibition held in Porirua in 2022. It is known that he took on this role with a degree of concern, even trepidation, since it involved a great deal more than what he had done previously for an exhibition. But in typical style, once committed he threw himself totally into the task with aplomb and conviction, emerging, as one committee member has commented, as probably one of the most effective Chairman of a New Zealand philatelic exhibition ever. Pat was also a member of *Hutt Valley Philatelic Society* (HVPS), and both WPS and HVPS have run memorial items for him in their society newsletters. Pat's multiple contributions to philately over multiple years were acknowledged in 2023 by the New Zealand Philatelic Federation granting him their highest award, the New Zealand Medal of Philatelic Excellence.

4. Presentations and exhibits

Pat's interest in ferns and history inspired and informed his philately; and his presenting and exhibiting prowess became legendary. To that end he informed us on:

- European Exploration of Australia and the Pacific (16 page exhibit);
- European Discovery of Australia (8);
- Postage stamps of Sarawak (8, Fig. 3 here);
- How it (philately) all began (4);
- Ghosts of Botanists Past [*Solander, Colenso, Hector, von Mueller, Hamilton, Yaldwyn*] (8);

... and a wide variety of other subjects including on Malay States, Maltese Crosses, Newspaper stamps, Numbers of Philately, Official stamps, Postal Strike (*in Britain*), Pteridophytes (*ferns and their allies*), Queens but not Monarchs, RIP All Blacks, Technical Terms in Philately, Te Papa Archives and the Universal Postal Union (UPU). Refer to Fig. 4 for a typical example of Pat's prowess in this respect.

Pat's philatelic knowledge and managerial skills came particularly to the fore when he was asked to be lead curator for the STAMPED! *Celebrating New Zealand's postal history* exhibition, Te Papa, July 16, 2005 - Jan. 15, 2006. This involved working much behind the scenes with Te Papa colleagues and in partnership with Robin Gwynn, developing themes and selecting items (~ 700 !) built round celebrating the sesquicentenary of the issuing of stamps in New Zealand in 1855. Yes indeed, the exhibition ran for not but a few days or so, as philatelists are well used to, but for a whole six months, and in virtually all respects was like no other before it, and no other since. It show-cased very important items of New Zealand philately, combined, to boot, with material from the Queen's Royal Philatelic Collection. Pat's role in coordinating the involvement and interests of all the participating bodies - Te Papa,



Figure 4. Pat's prowess in combining philately and history. 'Zero' highlight by the author.

New Zealand Post, the New Zealand Philatelic Federation, the Royal Philatelic Collection - was huge and exemplary. Items in the exhibit (Fig. 5 for an example) told the often-complex story of how New Zealanders communicated with the rest of the world during the first 150-year history of their postal service, from its British colonial days to the high-tech service it has become. This was a lengthy but thoroughly satisfying task for Pat as the team delved deeply into Te Papa's archives. A particular theme developed was on *stamp design*, expressing as it often does New Zealand's national identity, with artwork featuring the country's landscapes, culture and iconic people and events. Official research on the exhibition reported an attendance figure of 34% of adults visiting the museum as a whole (well above its target figure of 14%) with an ultimate satisfaction rating at 85% (information courtesy Te Papa). Figures of that sort imply probably the largest and most impactful philatelic exhibition ever held in New Zealand. It is easy to understand Pat's willingness to become as involved in such an exhibition, given his passion for both history and philately. As one well positioned to judge commented: "STAMPED! would have been impossible without Pat. He alone had the connections, reputation and enthusiasm both within Te Papa and in the wider world to draw it all together".

Another of Pat's accolades came in 2017 when he was invited to give the John Smaillie Tennant lecture at the University of Otago. His chosen topic was, not surprisingly, the role of the Fern in the Social History of New Zealand, including the main reasons why the fern has achieved the iconic status it has in this country. Also not surprisingly, and significant here, is that his presentation included philatelic aspects of the fern, with many images of New Zealand stamps being shown (Fig. 6 for examples).

See <https://www.youtube.com/watch?v=fqo8xvcyR1o> for further information and for an on-line presentation of the lecture.

Perhaps the most deserving of philatelic accolades for Pat came via his exhibit presented at the FIAP **NZ2023 International Philatelic Exhibition**, at Auckland (May 4-7, 2023, deferred from 2020 due to Covid restrictions then in place).



Figure 5. STAMPED! exhibition montage. All images ex Te Papa items. Bottom left cover: Maketu, 23 November 1864 by Major Joshua Kirby; 2001 Te Papa purchase, acquisition PH000884.



Figure 6. Montage of selected images from Pat's Tennant lecture.

As evident from the above, ferns were a central part of Pat's life, his labours, his loves. His fern exhibit was developed over some years, from a single pager all the way to a full-blown 5 frame (80 page) presentation. As such it was first displayed at the Armistice Stamp Show 2018 (Nov. 9-11 at Dunedin) under the title 'The Fern in Local Culture'. It was then honed further, culminating in its presentation at the Auckland exhibition (Fig. 7). There, his first submission at an international exhibition, it received 91 points, a **Gold Medal** and a **Special Prize** for the best exhibit of a local presenter. That was an outstanding achievement, indeed; and those who knew the effort put into producing the exhibit were not at all surprised with the accolades it received.

True to form, Pat was still working to improve the exhibit right to the end. His own mock-up of what he already had in train is shown at bottom right of Fig. 7, where specialist items of rarity and significance to New Zealand philatelic history, and destined to be exhibited, are shown. The entire exhibit, including items comprising its mock-up page, may be gifted intact to Te Papa stamp archives for posterity. Its *value to the nation* lies not only in its philatelic content, but also in respect of this country's social history, for its information on fern biology, as a high-class exhibit worthy of being displayed for public pleasure, interest and education, and for its 'Pat Brownsey' component.

For an on-line MS PowerPoint presentation of the exhibit, see <https://rpsnz.org.nz/page.php?pid=6> *Kua hinga te Rapa Punga*. The Giant Punga has fallen. (Quote courtesy Lindsay Chitty).

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Figure 7. Montage of selected pages from The Fern From Cosmopolitan Plant to New Zealand Icon. The 2-stamp inset at bottom left (by this author from images taken from two exhibit pages) draws attention to Pat's input to the design of the New Zealand 2013 Fern stamps.

Acknowledgements

Many people have assisted the preparation of this tribute, offering information, guidance and polishing, without which I simply could not have done anything even approaching a satisfactory job. To all of you I express my sincere gratitude, most especially to Wendy Brownsey, to Bob Gibson and Leigh Gravestock (WPS), to Lindsay Chitty, Robin Gwynn and Brian Vincent (all RPSNZ), and to Stephanie Gibson (Curator NZ Histories & Cultures, Te Papa) and Alan Hollows (Technical Design and Product Supply Manager, New Zealand Post). Thank you.

PUBLICATIONS

■ Publications Received

Auckland Botanical Society Newssheet July 2024 Upcoming talks and trip, trip report for Smith's Bush and Akoranga Reserve, books for sale.

Canterbury Botanical Society Newsletter June 2024 Upcoming talks, trip report for Tūpari Reserve.

Waikato Botanical Society Newsletter No. 54 President's report, trip report and species list for Rangitoto Station, talk report for 'Nature in the city', trips to and species list for Taupiri Scientific Reserve, article on New Zealand native orchids, talk report on wildflowers of Western Australia, report on Tuatapere Scenic Reserve and Kepler Track wetland, endangered plant garden report.

Botanical Society of Otago Newsletter 102 Upcoming trips and talks, notes from the committee, BSO Audrey Eagle Botanical Drawing Competition, indigenous vascular plants of Otago, trip reports for Swampy Summit, Hikaroroa, Manuka Gorge and Slope Point, talk reports on Western Australian wildflowers and natural history of the Chatham Islands.

New Zealand Native Orchid Journal Articles on alpine and subantarctic *Corybas*, *Acianthus sinclairii*, *Prasophyllum* Nova species, *Pterostylis cernua*, *Thelymitra cyanea* colour variation, Allan Herbarium trip, type locality for *Pterostylis oliveri*.

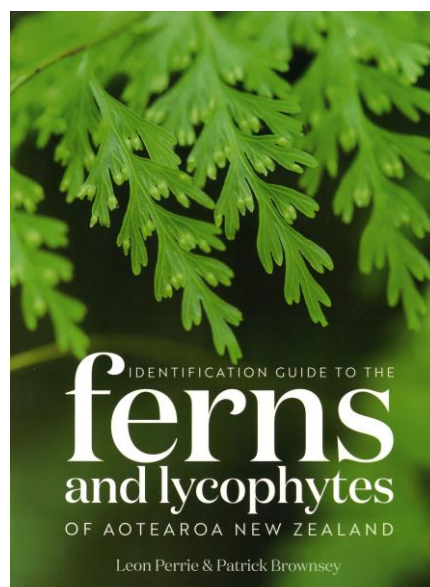
■ Book review – Identification guide to the ferns and lycophytes of Aotearoa New Zealand

By Drs Leon Perrie and Patrick Brownsey
Published by Te Papa Press, Wellington, August 2024
Paperback, full colour, 280 pages, 230 × 170 mm
ISBN: 978-1-99-116555-8
\$NZ50.00

Reviewed by Murray Dawson

This offering from Te Papa Press is one of their best botanical productions in recent years.

The subject matter is aptly summarised on the back cover of this new guidebook: "Aotearoa New Zealand is home to over 200 native species of ferns and lycophytes. They are among the most distinctive inhabitants of our forests and are also found in urban, coastal and alpine environments. From tiny filmy ferns to the tallest tree ferns, this book is the definitive visual guide to identifying and understanding these iconic plants of Aotearoa."



Authors Leon Perrie (Fig. 1) and the late Patrick ('Pat') Brownsey (Fig. 2) are (and were respectively) leading researchers in ferns, and well-known to the botanical community, in Aotearoa New Zealand and worldwide. Both are, and have been, curators of botany at the Museum of New Zealand Te Papa Tongarewa. Most appropriately, this guidebook is dedicated to the memory of Pat Brownsey, who sadly passed away late last year, on the 3rd of November 2023¹.



Figure 1. Coauthor Dr Leon Perrie signing his book *Identification guide to the ferns and lycophytes of Aotearoa New Zealand* during the book launch at Te Papa, Wellington. Photo: Alan Jolliffe.

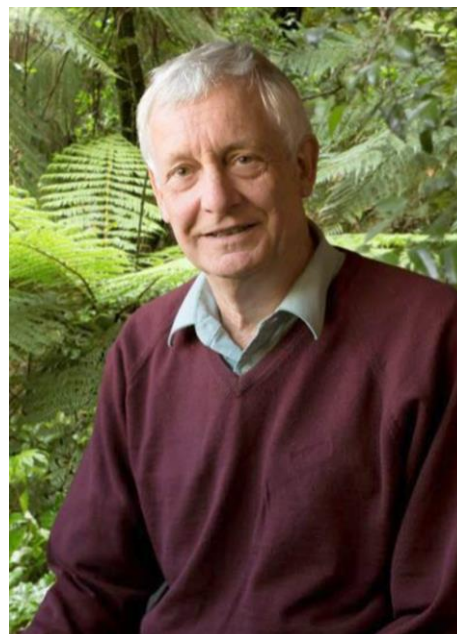


Figure 2. Coauthor the late Dr Patrick Brownsey (1948–2023). Photo: courtesy the Museum of New Zealand Te Papa Tongarewa.

The expertise of the authors is beyond reproach and the contents of their guidebook (e.g., accepted botanical names, distribution maps) are fully up to date. This is thanks to the underpinning Ferns and Lycophytes series of taxonomic treatments prepared for the online flora of New Zealand (eFloraNZ, freely available at www.nzflora.info/publications.html#ferns-lycophytes). This series, produced from 2014 to 2022, represents many years of research by the authors and provides the most recent taxonomic and phylogenetic (evolutionary) treatments, often based on molecular analyses. It's a neat idea to produce a printed guidebook in plain language aimed at a broader audience, complementing full and formal taxonomic treatments published as online PDFs.

The 'Introduction' (pp. 9–16) ably sets the scene, with self-explanatory subheadings: 'Ferns and lycophytes in Aotearoa New Zealand' provides an overview and 'What are ferns and lycophytes?' succinctly explains that ferns and lycophytes together with seed plants are vascular plants, as opposed to the ancestral bryophytes (comprising liverworts, hornworts and mosses). 'About this guide' provides a clear introduction to navigating the guidebook. Here we learn that nearly all of New Zealand's fern and lycophyte species (belonging to 64 genera and 24 families) are profiled in the guidebook, including 22 naturalised exotic species. Those that are excluded have restricted distributions (e.g., found only on offshore islands), so are uncommonly encountered – for completeness, these exclusions are listed in Appendix 2 (24 indigenous species and two subspecies) and Appendix 3 (six naturalised species and one hybrid). Understandably, out of scope are exotic fern species that are in cultivation only and have not naturalised.

¹ Remembrances of this beloved 'English gentleman' scientist are found in a Te Papa blog at <https://blog.tepapa.govt.nz/2023/11/23/patrick-brownsey-1948-2023/>.

The 'Illustrated glossary' (pp. 19–29) is placed after the introduction, rather than the traditional placement of a glossary at the end of a book. This is a good decision because it teaches the reader terms used for the structures and characters associated with ferns and lycophytes before encountering their profiles. This glossary focuses on fewer but essential terms with more illustrations than typical text heavy glossaries containing numerous terms.

The 'Guide to genera' (pp. 31–41) is also picture based and provides a guide to identification at the genus level. This chapter starts by providing seven circular pictographs (icons), each representing a group sharing features such as the shape and position of sori and sporangia (spore-producing structures). Each group is illustrated and explained in the following pages of this chapter, saving repetition in the main species profiles which instead use these pictographs.

Moving from the genus to species level, the 'Species scan' (pp. 43–61) provides a single representative image of each species arranged in plates for rapid comparison and identification. These plates follow evolutionary relationships, beginning with the lycophytes. These 18 pages could save the identifier having to thumb through a couple of hundred individual species profiles. It may have been helpful to add a profile page number after each species name captioned in the scan, but this is not a necessity.

Naturally enough, the 'Species profiles' (pp. 63–267) occupy the majority of the book. Each species profiled is ordered alphabetically (from *Adiantum aethiopicum* to *Trichomanes venosum*), with one page dedicated to each. In keeping with the book being a visual guide, there is generous room allowed at the top of each page for 1–6 captioned colour images. All photos used for the profiles were taken by Leon Perrie, and they are excellent. Below each photographic plate are headings covering the scientific (binomial) name (with naturalised species suffixed with a '+' symbol), botanical synonyms, te reo Māori and English name(s), and the family to which each species belongs. Rather than succumbing to the temptation of lengthy botanical descriptions (like many other guidebooks), the authors instead wisely opted for short notes on key distinguishing characteristics, growth habit, and frond length, confirming the adage that a picture really does equal a thousand words (and, as explained above, full botanical descriptions are available online through the eFloraNZ link). To the right of the text on each page is a distribution map, with a caption denoting endemic, indigenous and naturalised status of the species in question. This layout is well-explained in the 'Introduction' (and depicted on p. 13; Fig. 3).

Concluding this book are the usual elements. There are four appendices ('Appendix 1: The genera within each family'; 'Appendix 2: Species indigenous to Aotearoa New Zealand not included in this guide'; 'Appendix 3: Exotic species with 'naturalised' status in Aotearoa New Zealand not included in this guide'; 'Appendix 4: Collective names for genera and families, te reo Māori and English'), as well as 'Acknowledgements' (p. 274), 'About the authors' (p. 275) with a brief biography of Leon Perrie and Patrick Brownsey (but no photographs of them), and an index (pp. 276–278).

In summary, this is a beautifully presented book, well written and explained, and full of lovely images and clever design. There are even two built-in bookmarks (each with a different colour), and rulers printed on the inside covers – such useful touches!

As Leon Perrie states in the publicity material: "For those wanting to learn how to recognise our ferns, the *Identification Guide* is intended as the next best thing to having an expert alongside you."

The retail price is reasonable, and I have no hesitation in recommending this contemporary identification guide.

The *Identification guide to the ferns and lycophytes of Aotearoa New Zealand* was officially launched at Te Papa Tongarewa, on the 7th of August 2024. This book was produced with the generous assistance of the Deane Endowment Trust.

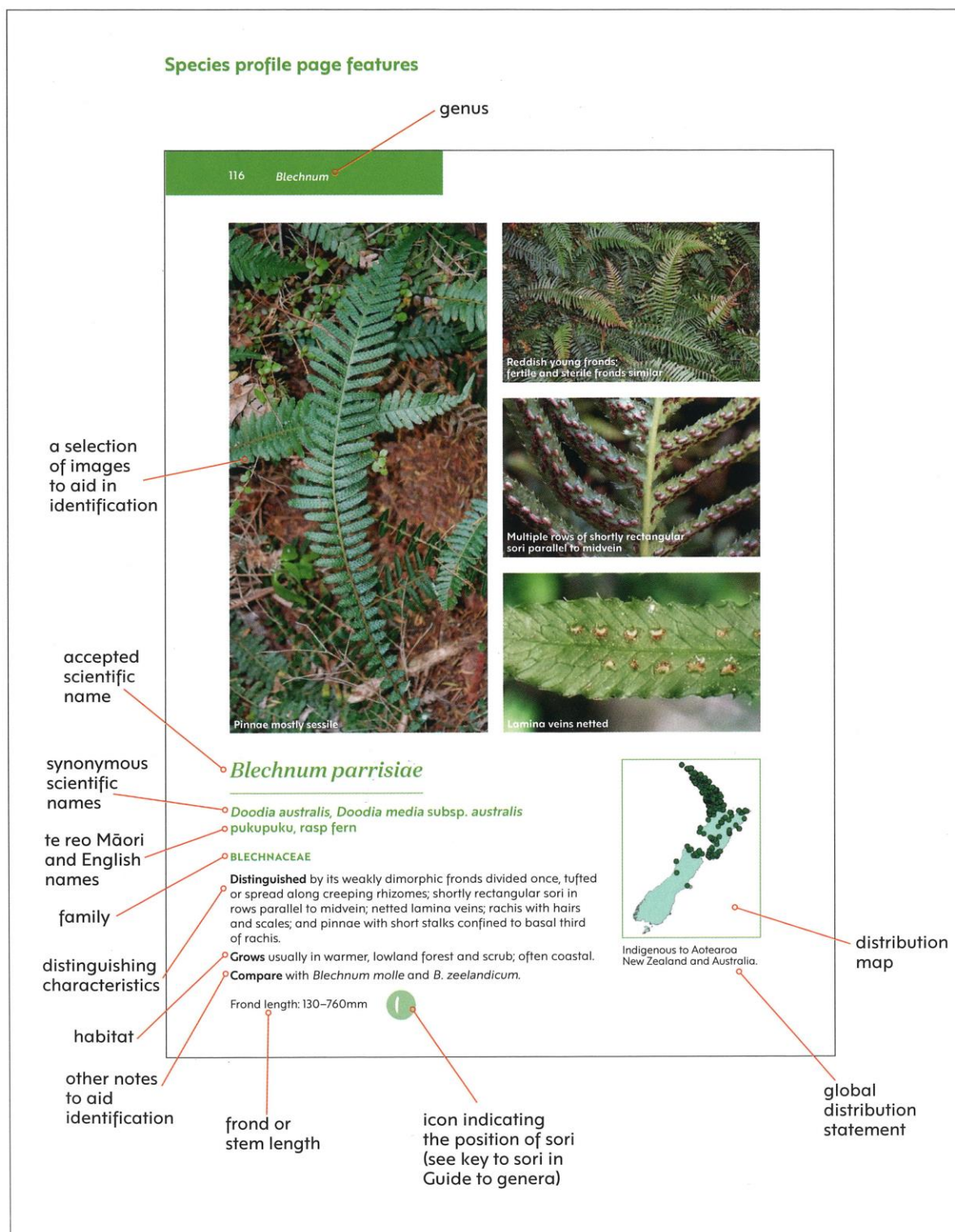


Figure 3. Explanation of species profile pages. From p. 13 of the *Identification guide to the ferns and lycophytes of Aotearoa New Zealand*. Photo: courtesy Te Papa Press.