TRILEPIDEA

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Deadline for next issue:
Friday 14 March 2014

SUBMIT AN ARTICLE TO THE NEWSLETTER

Contributions are welcome to the newsletter at any time. The closing date for articles for each issue is approximately the 15th of each month.

Articles may be edited and used in the newsletter and/or on the website news page.

The Network will publish almost any article about plants and plant conservation with a particular focus on the plant life of New Zealand and Oceania.

Please send news items or event information to events@nzpcn.org.nz

Postal address:
P.O. Box 16102,
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NEW ZEALAND

PLANT OF THE MONTH

Syzygium maire fruit. Photo: Ian Bell.

President's message

Hi, everyone.

Enjoy this month's newsletter; there are some fascinating articles in it. The third seed collector training course for the New Zealand Indigenous Flora Seed Bank (NZIFSB) starts on Monday 17 March (more details on where, how to enrol, location and timing are provided below). It is great to see the seed bank initiative flourishing. There is also information on events and field trips throughout the country, and invitations to help with two very interesting ecological restoration projects.

Have a good month; please continue to send in news of your observations and logging your phenology records.

Happy botanising,

Sarah Beadel
President

PLANT OF THE MONTH – *SYZYGIUM MAIRE*

Syzygium maire. Photo: Colin Ogle.

Plant of the month for February is *Syzygium maire* (swamp maire, maire tawake, or waiwaka). Swamp maire is a tree growing to around 16 m tall with pale bark that flakes off in soft or brittle, irregular shards. Its oval leaves are a glossy yellow-green to green and often have small galls and leaf blisters present. Flowers with numerous white stamens appear in summer through autumn followed by a red blunt-tipped fruit.

A New Zealand endemic, swamp maire is found in both North and South Islands from Te Paki south to Rarangi (near Blenheim). It mostly grows in coastal and lowland riparian forest in waterlogged ground, on the margins of swamps, and stream sides. Swamp maire is now often scarce or absent over large parts of its former range due to the clearance of swamp forest.

The Network fact sheet for swamp maire may be found at: www.nzpcn.org.nz/flora_details.aspx?ID=1313

The hunt for *Ramalodium dumosum* (Pannariaceae, lichenised ascomycetes)—an enigmatic lichen endemic to the southern Waitakere Ranges

P.J. de Lange, Department of Conservation, (pdelange@doc.govt.nz) and D.J. Blanchon, UNITEC, (dblanchon@unitec.ac.nz)

John Bartlett (1945–1986) was without any stretch of the imagination a botanical iconoclast. Over a period of 10 or so years, he collected a vast number and range of vascular plants, liverworts, lichens and mosses (Galloway 1987). Prompted by the pursuit of anything new, he rapidly made many fascinating discoveries including an impressive tally of new genera and species, several of which were named for him. Many people will be familiar with at least one of these, Bartlett's rata (*Metrosideros bartlettii*) arguably one of our most threatened species, all the more remarkable for the fact it was first discovered in 1975, and is a forest tree reaching heights of nearly 20 m.

One of John's speciality groups was lichens, which, once he was inducted into their wonders (Galloway 1987), became a key passion. John loved to find new things and, at the time when he was collecting (mid 1970s to mid 1980s) the lichens of New Zealand were still poorly investigated, so he collected them avidly, though always with a keen, discerning eye, targeting especially those genera and families which were still very little studied and/or sparingly collected. Such was his breadth of collection and habit of acquiring good specimens (often—it is to be wondered—in large quantities) showing the range of variation that even today one can still hear a visiting lichenologist poring over John's lichen specimens in the Auckland Museum Herbarium (AK) exclaiming out loud "Wonderful! Simply wonderful", or, grabbing you by the arm and dragging you to their work station with an excited "Will you come look at this!" Nothing seemed to escape John's eye. So it was that, amongst his many discoveries, he added a lichen genus *Ramalodium* that was new to the New Zealand mycobiota; within it he also discovered two new endemic species. One of these a small blackish blue-green, cushion-forming (pulvinate) lichen reaching five millimetres high and twice as wide was described by Henssen (1999) as *Ramalodium dumosum*. John was said to have found this species growing through the moss *Zygodon intermedius* on porous scoria rock in association with another moss *Racomitrium crispulum* on a 30 m high south facing coastal cliff subjected to salt spray, near the small coastal village of Huia, Manukau Harbour.

Although undeniably a skilled collector, one irritating feature of John Bartlett's collecting habits was the scant attention he usually paid to providing the all too necessary collection details. Possibly this was because he collected *en masse*, so enthusiastically, and rapidly (thus earning him the nick name of 'Hurricane Bartlett' (Galloway 1987)) that note-taking in the field was always done at a minimum and the subsequent task of labelling was usually undertaken when he had returned home, and sometimes even then many months after the initial collections were made (Galloway 1987; R. O. Gardner and M. Smits, *pers. comm.*). Whatever, the reasons, it's a fact that many Bartlett herbarium specimens contain a minimum of, and, often then, usually vague collection details (e.g., 'Coromandel'), and sadly a large number lack any data at all thus rendering them all but useless. Possibly too, because of the 'lag time' between collecting and final specimen preparation, we have found that details on some Bartlett collections are suspect; sometimes the habitat notes just don't match with what one can find in the field, or in the actual specimen packets, and at other times one of us (PdL) has found that the map coordinates given plot in the sea, or in completely different locations (sometimes island or, worse, continent) to that stated on the specimen labels.

These problems seem to be the case with *Ramalodium dumosum* where the geological and site details given by Bartlett to Henssen do not match anything we can find in the field at Huia. Obviously, this makes finding it a problem, especially when you are tasked with determining its exact conservation status. Currently, *Ramalodium dumosum* is listed as 'Data Deficient' (de Lange et al., 2012), though when we assessed it as such we had no idea that our assessment would be virtually on all levels—for this species, all we have is a few pages describing the species (Henssen 1999), a holotype that is held in a private collection now locked away in a warehouse in Helsinki (P.M. Jorgensen pers. comm.)

meaning that we can't even access it to study it, and then there are the vague collection and habitat details previously noted. To make matters worse, the isotype of *Ramalodium dumosum* held at AK (AK 327883!), proved on careful examination to comprise two clods of soil sporting the moss *Zygodon intermedius* through which another moss, *Fissidens leptocladus*, is threaded, and there is also a minute, loose fragment of some greyish-white, foliose Parmeliaceous lichen. Associated with this is some black dust, which may just possibly have once been *Ramalodium dumosum*—whatever it is or was—there is now nothing useful left in that collection of the actual species. Still, we had to start our search somewhere, and common sense says that if the paper naming the species said it came from 'Huia' then it was as a good place as any to start our search.

Therefore, using Huia as our survey starting point we focussed our attention on the geological information Bartlett had provided to Henssen—this, if you recollect, stated that the lichen grew on a coastal cliff of porous scoria, 30 m high, said to be of 'recent volcanic origin' (Henssen 1999; p. 124), and subjected to salt spray. Geologically, no such scoria cliffs exist at Huia, or even nearby, but assuming that Bartlett's 'scoria' was his interpretation of what is actually Miocene aged andesitic breccia, then the massive coastal cliffs forming the Omanawanui Ridge that runs west from Jackie's Hill, Little Huia to Whatipu seemed a good place to start searching. The only problem is that without a boat these cliffs are scarcely accessible, mostly they plummet straight into the sea, a turbulent water that drains right out across the notorious Manukau Bar—and if that weren't enough to put you off, Department of Conservation shark scientist, Clinton Duffy, had cheerfully told us about all the "really, really, big, white sharks (*Carcharodon carcharias*) that frequent that water, so you don't wanna fall in!"

However, in a few places one can get down to the sea, and so, in January 2013, we searched those areas, cheerfully finding and collecting "*Ramalodium dumosum*" specimens, all of which turned out to be a pulvinate form of the cyanobacteria *Nostoc*. While this is the photobiont that forms the 'plant' component of *Ramalodium*, and the race of it that we found, at least in the field, looked like our target lichen, careful dissections in the lab confirmed our failure. So, despite the fact that we did manage to discover a new species of liverwort (a segregate of the *Frullania rostrata* agg.), this could not hide the sinking feeling that finding *Ramalodium dumosum* was going to be much harder than we ever would have thought. Clearly, we had to have another try.

So, in November 2013, we thought we'd try looking east of Huia. Depending on the tides, we intended walking the coastline from Puponga back to Huia. While volcanic rocks are sparse here, one of the beds within the sedimentary Waitemata Formation (a complex turbidite series of Miocene aged sedimentary rocks) contains numerous andesitic angular clasts and gritty volcanogenic material derived from the similarly aged, and now long since eroded away Waitakere Volcano, also, near Huia itself, is a

Figure 1. The main population of *Ramalodium* sp. nov., (here indicated by the senior author's 11 year old son, Theo), occurs at 1.4 m a.s.l. on a bed of andesitic-breccia within the Miocene-aged Waitemata Group Formation rocks that form the cliffs in this part of the Manukau Harbour. This population is extremely vulnerable because of its location on the cliff faces abutting a popular Auckland beach frequented by numerous bathers, recreational fisherman, and beach goers, many of whom frequently climb the cliff faces, in the process dislodging soil and plants. Photo: P.J. de Lange.

small andesitic dyke. So, geologically speaking, these strata seemed most likely to have fitted, albeit loosely, within what Bartlett may have considered to be 'scoria'. On our first stop for the day, we wandered down a small beach, where we were drawn to a prominent bed of the andesite-containing turbidite sequence described above (Fig. 1). On this rock face, we noted under a clump of *Astelia banksii*, at c. 1.4 m above sea level (Fig. 2), some loose clods of earth where, scattered amongst tufts of the moss ?*Trichostomum sciophilum*, we found little black, gelatinous cushions that we initially thought were yet more *Nostoc* (Fig. 3). However, on closer inspection, we noted these cushions sported apothecia (Fig. 4). Was this then *Ramalodium dumosum*? In the field, we could not say much beyond that, at least on macro-details, we seemed to have finally found the species. To confirm our find we had to check the microscopic details back in the laboratory so, for now, we decided our time would be best spent continuing our survey. We covered plenty of ground that day, including the hitherto unanticipated issue of trying to effectively survey the cliff faces of one of Auckland's little known gay male nudist beaches (Orpheus Bay) without startlingly the beach users too much! At the end of the day, our survey had found only two more patches of the suspected *Ramalodium* (both about the size of a 20 cent piece), such that our tally for the mysterious lichen totalled a little less than c. 10 cm^2 of thallus-occupied habitat—so clearly whatever we had found it wasn't that common.

Figure 2. Close up of the main site where the new *Ramalodium* has been found showing the associated macro-vegetation which includes *Astelia banksii*, *Arthropodium cirratum*, *Olearia furfuracea*, *Hebe stricta* var. *stricta*, *Phormium cookianum* subsp. *hookeri*, *Poa anceps*, *Trisetum arduanum* and *Lachnagrostis littoralis* subsp. *littoralis*. Photo: P.J. de Lange.

Figure 3. The micro-habitat of *Ramalodium* sp. nov. Note the small black protuberances intermingled with loose clods of earth, the moss ?*Trichostomum sciophilum* and sparse threads of the liverwort *Chiloscyphus novae-zeelandiae* var. *meridionalis*. Knife blade 60 mm long. Photo: P.J. de Lange,

Back in the lab, we subjected our find to critical study, including making thin sections of the apothecia to examine the spore morphology and size, and to consider other internal details of the thallus. Frustratingly, while the external and internal thallus and apothecia morphology matched *Ramalodium dumosum* pretty well, the spores were too large and also septate. So had we found *Ramalodium dumosum*, a new species of *Ramalodium* or perhaps something else, say a species of *Collema* or *Leptogium*? Lacking confirmed *Ramalodium dumosum* to check our find against, we then turned to New Zealand lichen expert, Dr David Galloway, for help. On seeing images of the lichen, David (*pers. comm.*) agreed that we seemed to have a *Ramalodium* but that, as Aino Henssen had now died, he advised it would be wise to pass our material on to the world expert on the Pannariaceae, Professor Per Magnus Jørgensen, who resides in Bergen, Norway. This, David noted (*pers. comm.*), was all the more pertinent now that DNA data has shown that *Ramalodium* is not in the Collemataceae after all but rather belongs within the Pannariaceae. Whilst we prepared a subsample of the lichen for posting to Norway, we also extracted DNA

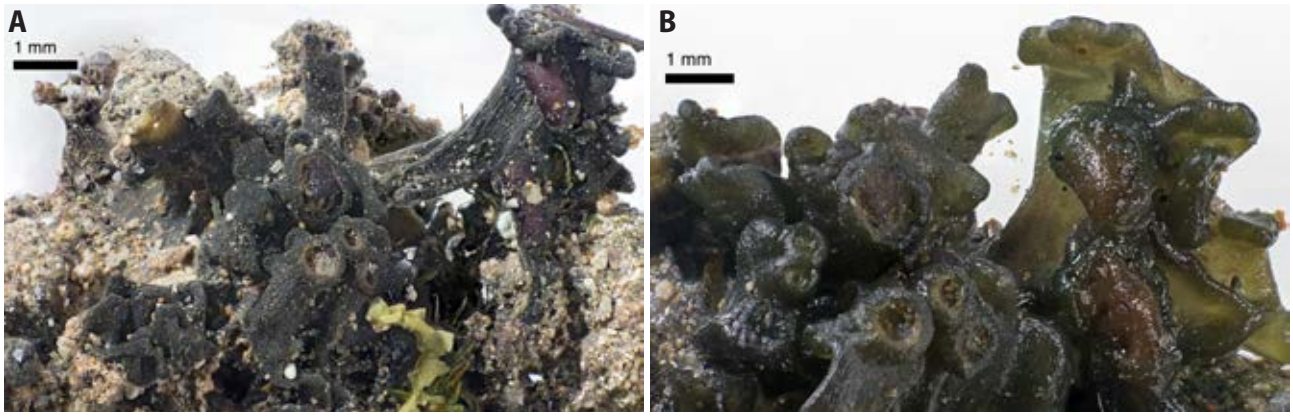

Figure 4. *Ramalodium* sp. nov., photographed in the dry (**A**) and wet (**B**) states, showing thallus and apothecia. Photos: Jeremy Rolfe.

from some material in the hope that this might also confirm the genus. Alas, as is all too often the case with extracting DNA from lichens, our initial sequences failed. However, the sample sent to Norway was more conclusive, with Per Magnus emailing back excitedly to tell us in mid-December 2013 that, while we had not found *Ramalodium dumosum*, we had, in fact, found another, new, apparently endemic species of *Ramalodium*. Amongst a raft of micro-characters our new species is most easily distinguished from all other known *Ramalodium* by the septate spores, otherwise, overall, it seems morphologically most closely allied to the South American *R. austroamericanum* (P. Jørgensen, *pers. comm*.).

Since the last survey, we have yet to have another crack at the singularly elusive *Ramalodium dumosum*. We still remain none-the-wiser as to whether Bartlett really got it at Huia; all we can do is keep on looking. The key thing is that we know we are looking in the right places, and that, remarkably, there are seemingly two species of maritime *Ramalodium* growing on the northern shore of the Manukau Harbour. *Ad hoc* surveys during January 2014 have so far located only one other small colony of the new *Ramalodium* in the same general area as the initial finds. Though we would not be so incautious as to say the new *Ramalodium* is endemic to the small bay where we found it, it is interesting that in the same general area we also seem to have an as yet undescribed orchid (a species of *Corybas* (*Nematoceras*)), and that this part of the Manukau is also one of only three known locations for an undescribed species of moss (a species of *Didymodon* (Pottiaceae) known by the tag name "Ihu Pot" (J.E. Beever, *pers. comm*.). If the *Ramalodium* is truly endemic, then the discovery also builds on the number of Waitakere endemic plants and mycobiota, the list of which currently includes the flowering plants *Hebe bishopiana*, *Myosotis pansa* subsp. *pansa*, the moss *Lindbergia maritima* (itself known from only the one site and extremely scarce even there), an undescribed liverwort (*Frullania* aff. *rostrata*), and, aside from our new *Ramalodium*, the lichens *Buellia cranwelleae*[1], *Caloplaca allanii* and, of course, enigmatic *Ramalodium dumosum*.

Also, it goes without saying that the new *Ramalodium* is extremely threatened. During a visit to the main location for the species in late January 2014, the extreme vulnerability of the largest population (Fig. 2) there to stochastic events became evident when some children in the same general area took to throwing rocks into the cliff face we were surveying. The exploding rock fragments were not only worrying to us but the reverberations they were causing resulted in portions of the cliff face collapsing. The children, when confronted, seemed utterly mystified too when the potential

1 Galloway (2007) records this species from a Banks Peninsula specimen lodged in the Allan Herbarium (CHR) but we have so far we been unable to examine that specimen. We do note, however, that there are morphologically similar *Buellia* found on coastal rocks in the Bay of Islands, and also in the Kermadecs on the Meyer Islands, which we had referred to *B. cranwelliae* and which certainly resemble that species, but using DNA sequence data we have since shown to be another, possibly as yet, undescribed species (D.J. Blanchon & P.J. de Lange, unpubl. data). Therefore, for now at least, as the only *bona fide B. cranwelliae* that we have seen comes only from the Waitakere Ranges coastline (from where it was first described) we prefer to regard this species as endemic to that area.

consequences of their actions on our indigenous biodiversity (let alone the surveyors) were explained. To be honest you couldn't blame them either. We guess if you had told us a few years ago that the minute bits of blackened, snot-like protuberances covering a few centimetres of loose soil (Fig. 3) on a popular beach cliff face were, in fact, a completely new endemic lichen we may not have appreciated it either. It's true what they say 'beauty is in the eye of the beholder'. Heaven help us trying to convince people that this little lichen (Fig. 4) is indeed worth protecting.

Acknowledgements

We thank the Department of Conservation Data Deficient and Conservation Management Units fund for supporting our surveys for 'Data Deficient' lichens in North Auckland. We thank also David Galloway for his interest in our work and helpful suggestions, and Per Magnus Jørgensen for confirming our discovery as *Ramalodium*, and for his subsequent interest in the species which we are now all jointly describing. Thanks also to Marcel Smits and Rhys Gardner for comments about the collecting habits of the John K. Bartlett, and to Clinton Duffy for convincing us not to consider swimming along portions of the Manukau Heads coastline! Jessica Beever kindly identified the mosses growing in association with the Ramalodium, and commented on the status of the unnamed *Didymodon* "Ihu Pot" and John Engel (Field Museum, Chicago) the *Chiloscyphus*. We thank Ewen Cameron, Curator of Botany, Auckland Museum for access to the collections under his care.

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Lake Runanga restoration

Bernie Gunn (berniegunn86@gmail.com)

Lake Runanga in Hawke's Bay is like many New Zealand wetlands and lowland lakes and has suffered a lot from intensification of the use of surrounding land, deforestation and the introduction of pest plants and animals. But, in the last 15 years, there has seen a slow but steady turning of the tide.

Brief History

Around 40 years ago, the swamp adjoining the lake was drained and cleared significantly, which, in turn, saw the outlet height of the lake lowered by around a third of a metre. To make matters worse, a large 20 litre/sec spring was diverted at the same time that, as you can imagine, had very detrimental effects on the lake's overall health.

Around 3 years ago with a strong landowner push, a 600 m long wall with a concrete weir was installed at the outlet end of the lake. This has restored the level to around its original height and, in the last 12 months, the large spring has also been reinstated, which has given great heart to local iwi, hapu and other landowners.

The long-term vision for the project is to restore the lake back to its former health and to reintroduce locally extinct plants, birds, lizards and invertebrates. The next phase of the restoration is the control of willows around the lake (taking place over one fifth of the lake this summer) and the re-establishment of native forest within the wetland system and on adjoining hillsides.

Invitation

I would like to extend an invitation to everybody, to be a part of the start of the restoration of Hawke's Bay's lowland lakes. We are holding a community planting day on 31 May. It is to be held at Alan Gunn's property 1.5km up Ohiti Road, the first road on the left off the Taihape Road driving from Omahu (tt will be signposted from Ohiti Road). We will be meeting at 8.30 am to start planting

by 9.00. Lunch is BYO with speakers sharing the local Maori history, the regional significance of the habitat and the long term visions of the project. The planting will finish around 3:30 pm at which point everybody is invited to the Gunn family home to enjoy a thank you BBQ and live music from 4.00 pm. The BBQ can be attended without planting for a $20 donation. Come plant a few of the 20,000 plants we are planting this winter.

To register your interest and for more information, please feel free to contact me, Bernie Gunn, ph: 06 8743837 or 021 808896, email: berniegunn86@gmail.com. Also check our "Lake Runanga" Facebook page for photos and updates on the lake.

Aro Valley restoration project

Denis Asher (denis.asher3@yahoo.co.nz)

The Aro Valley is one of Wellington's older residential areas. Gardened by Maori in pre-European time, it quickly became a source of fire-wood and public grazing for early Pakeha colonists. Drawings, diary accounts and early photographs make clear how its original pukatea (*Laurelia novae-zelandiae*) and kahikatea (*Dacrycarpus dacrydioides*), etc., forests were quickly removed. Its likely original composition can be glimpsed in Wellington's tiny surviving pockets of original forest cover, such as Otari-Wilton Bush and the start of the walk in Khandallah Park to the summit of Mt Kaukau. Today's valley is, amongst other things, an adjunct to significant conservation zones including the Karori Sanctuary and Otari-Wilton Bush. It's also the scene of one of Wellington's earliest conservation initiatives, the Waimapihi Reserve (established by the Waimapihi Trust over 30 years ago and responsible for protecting and enhancing a substantial area of regrowth) at the end of Holloway Road. Judicious use of 1080 and traps by Wellington Regional and City Councils in the past 20 + years has resulted in exponential increases in tui, kereru and other native species' numbers and the localised disappearance of possum. Kereru and tui are now 'daily birds', birds that are seen throughout the valley most days of the year. Another daily bird is the kaka—it has erupted out of the Karori Sanctuary in the past 10 years—tieke, korimako, hihi and whitehead are doing the same but, sadly, not as flamboyantly nor as successfully as kaka; they continue to be taken too easily by Wellington's suite of familiar predators—rats, cats and mustelids.

Since before 2007, a group of valley residents, with an early appreciation of the benefits of halos, have been seeking to bring the wild back to our part of Wellington. It's a modest effort, held back by the usual restraints of limited resources and some locals' preferences for ivy, agapanthus, buddleia, etc. But, with at least 500 locally-sourced plants each year coming from Wellington City Council's excellent Berhampore Nursery, plus our own propagation efforts, we've started pepper-potting some of the valley's typically steeply inclined reaches, removing a punishing number of unwanted plants, e.g., honeysuckle, old man's beard, sycamore, wild cherry, buddleia, wattle, blackberry. We're also removing 100 years of rubbish, from milk churns to endless numbers of plastic supermarket shopping bags. Wasted by blind clearance, reduced to a scruffy pasture before (in the easier angled locations) being 'developed' into sections and homes, much of the area has now acquired an 80-odd year old scrub cover. Earlier areas reverted quickly to mahoe, mamaku, etc., areas more recently cleared again have higher densities of buddleia, etc.

What can we achieve? The aesthetic benefits are already apparent—local plants grow well everywhere, including Wellington. We now have two-metre plus stands of dense, weed-resistant local plant growth; tawa I planted nearly 30 years ago are pleasingly over twice my height. Kawakawa fruit are feeding kereru and tui; grey warblers are constant canopy visitors. A first last year was a shining cuckoo chick, outside our kitchen window, engaging in its own form of 'elder abuse'. Can the valley be as it was in pre-European times? No. Some species are gone forever; some new species are seemingly here forever. But it can be more like it was and that has to be a better 'wild' in which to live.

Want to pitch in? This year, we have 1000 plants on order. Contact convener Denis Asher, ph: 022-353-6078, email: denis.asher3@yahoo.co.nz, if you would like to help.

Mistletoe species work in the Wairarapa and a case of double parasitism

Trevor Thompson , QE2 representative for Wairarapa and Wellington regions (tthompson@openspace.org.nz)

I am a self-taught mistletoe grower and keen to see the various mistletoe species re-established back into natural areas. This is a brief report on the establishment of a viable seed source of the various species at the author's property at Mount Bruce. Some good progress has been made on the various mistletoe species being grown to establish secure populations of mistletoe species to facilitate reintroductions to the wild.

For the first time *Peraxilla tetrapetula* grown on red beech has flowered, this population is the only known one outside the Tararua Forest Park, Wairarapa. Cross pollination was carried out using pollen from Tararua plants within the Project Kaka area; these were caged plants, uncaged plants were, in most cases, too heavily possum browsed to flower. This flowering plant is of a good size and was planted in 1998. *Peraxilla tetrapetala* is the hardest mistletoe to establish.

A bumper fruiting year looks certain by the amount of juvenile fruit on *Tupeia antarctica*, there are 23 *Tupeia* specimens now established here with at least nine female plants; approximately four plants are still too immature to show their sex but my feeling is that the sex ratio is roughly even. These plants are in their fourth year since being planted. They have grown very quickly since becoming established, faster than the other species grown. It is likely that this year's plantings will see the author's property become the site of the most *Tupeia* in one area in the lower North Island; presently it is in second place after Ngahape with 36 specimens. Lucerne and *Pittosporum eugenioides* are the easiest hosts on which to establish *Tupiea*.

Alepis flavida sourced from the only site known in the lower North Island has one plant this year with abundant juvenile flower buds. This is the largest plant; it was planted on the trunk of black beech as opposed to branches as all other eight cases. These plants were planted on black beech in 2009. *Alepis* has also been successfully introduced into the Forest and Bird Fensham Reserve; this area has good quality pest control in place. Three plants are established there, a further seven are established at the original site, all on black beech. There has been vigorous germination with a good success rate

Juvenile *Alepis flavida* fruit (left) and *Peraxilla tetrapetala* flowering (right) this summer.

Ileostylus micranthus is another with a good fruiting year ahead; a hedge of *Coprosma rigida* and *C. propinqua* was planted two years ago as easily accessible host plants to increase the seed source available. This has worked to the point where the hosts, being small at the time of planting, are now of a better size and better able to support larger *Ileostylus*. Approximately eight new plants are on the hedge to supplement the other plantings of approximately 20 *Ileostylus*. Two plants, at least, sourced from these have established naturally, one on tree lucerne and one on *Coprosma rhamnoides*. It is easy to establish this mistletoe on *C. rigida* and *C. propinqua*; tōtara is the most common host in the wild but it is much more difficult to establish mistletoe on it. Fruiting occurs at four to five years

Double parasitism experiment

I have read of a case of double parasitism involving *Ileostylus* parasitized by *Tupeia* reported in the 1800s. I have a big healthy *Ileostylus* growing on tree lucerne and successfully established *Tupeia* to see if it would parasitize the *Ileostylus*. Over time, the Tupeia specimen has grown to the point where it is the majority of the two plants' combined foliage and *Ileostylus* is the minor party. This was not at all difficult to achieve.

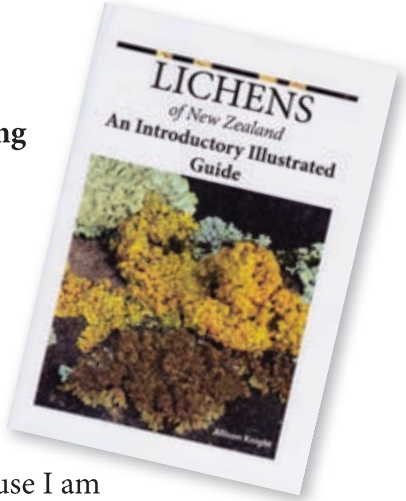
Mistletoe workshop

Last year, I ran informal mistletoe workshops for selected QE2 covenant owners focussing on *Ileostylus*. The results saw *Ileostylus* planted successfully in a number of legally protected areas.

With *Tupeia* producing abundant fruit for the first time this year, we will see both *Ileostylus* and *Tupeia* as the focus for a formal workshop open to the public on establishing these species back in likely former sites. There is great interest in mistletoes in the community and they are a great advocacy tool to help engage the public in repairing and enhancing ecosystems as a whole.

The workshop will involve learning about the different hosts needed for different mistletoe species, planting techniques unique to each species developed over the last 24 years or so, light requirements, dispelling some myths about how to plant mistletoes, managing insect pests, and manipulating conditions to favour quick growth and earlier fruit production.

Book Review: *Lichens of New Zealand – An introductory illustrated guide by Allison Knight.*



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Peter J. de Lange, Principal Science Advisor, Science and Capability Group, Department of Conservation (pdelange@doc.govt.nz)

It's a little known fact that, in 1988, I was awarded a PhD scholarship to study the large lichen genus *Pseudocyphellaria* (Lobariaceae) under Dr David Galloway at the Natural History Museum, London (BM). I would have done it, if not for the fact that the United Kingdom was still a little irked with New Zealand's then stance on nuclear weapons, and so refused me entrance to their country. Never mind. I say it here if only because I am a closet lichenophile. I have always been fascinated by lichens, and as a boy was perplexed that virtually nobody in the Hamilton Junior Naturalist Club (of which I was a member) had an interest in them or could teach me about them. All we had to hand then was Martin & Child (1972), a lovely little book, crammed with lots of useful information and some nice pictures to be sure, but sadly rather limited in its scope. My lichen induction therefore had to wait until 1985 when as a second year B.Sc. student. I was collecting for the Waikato University Herbarium (WAIK) and one of my lab tutors (Frieda Henschens) was doing a M.Sc. on lichens under Dr Allan Green. Frieda noted my interest in lichens, encouraged this and, furthermore, pointed me in the direction of the university bookshop with instructions to purchase a copy of the *New Zealand Lichen 'Flora'*[1] (Galloway 1985), which had then just come out. This was a good purchase, though the only blight on my lichen landscape was that I had to learn a whole new set of terminology to work the keys. Still, I had able assistance in the form of Frieda and Allan, both of whom helped explain the lichen 'Flora' in such a way that it avoided my leaving it on a shelf to accumulate dust. In this regard, I realise I was lucky—most people don't have expert lichen knowledge on tap.

Then, 22 years later, in 2007, David Galloway produced his second edition of the lichen 'Flora', a rather hefty two-volume tome, offering readers further insights into the huge increase in our collective knowledge of the New Zealand lichen mycobiota and, with that, of course, there came a correspondingly greater set of terminology to learn. That you need to come to grips with lichen terminology to understand the diversity here is of course blindingly obvious. Whilst the two lichen 'Flora' treatments provide a remarkable resource for the lichenologist, it's also true that, for many of us out there with a developing interest in lichens, those books are perhaps a little too technical to inspire and nurture a fledgling interest.

1 Lichens are lichenised fungi and not plants, so strictly speaking they are part of our indigenous mycobiota and not our flora. However, the convention of the *New Zealand Flora* series has been to include lichens within it, hence my usage of 'Flora'.

Recently, Dr Allison Knight has taken on the challenge of demystifying our lichens. A keen lichenologist, Allison has long seen a need to illustrate and explain in 'simple terms' (her words to me in 2013) the diversity and morphology of our lichens. Her small book, the aptly titled 'Lichens of New Zealand—an introductory illustrated guide' serves that purpose admirably. The format is A5 and, at 55 laminated pages, nicely weather-proofed and certainly not a dead weight for any budding lichenologist doing a day walk or even a more serious long-distance tramp. The text is certainly non-threatening to the 'non-specialist'—which was one of Allison's goals. There are 423 colour images depicting key lichen habitats, the lichens occurring within those habitats, examples of the three main lichen growth habits (foliose, fruiticose and crustose), and illustrating key lichen characters such as cyphellae, soredia or maculae. Short sections explain with a minimum of 'technobabble' what a lichen is, their growth forms and habits, and their nomenclature, before discussing their occurrences within four carefully colour-coded 'ecosystem' chapters ('Urban and Pastoral', 'Coastal and Freshwater', 'Forest and Shrubland', 'Alpine and Subalpine'). It is within each of these four 'ecosystem' chapters that the bulk of lichen illustrations reside, in glossy plates of eight lichens per A5 page. Their colour is superb, each image taken when the lichen was in a fresh (i.e. 'moist') state. That these images are helpful cannot be doubted; during some recent field work on Mt Ruapehu in November 2013, a draft of Allison's book enabled me to quickly identify—in the field no less—*Arthrorhaphis alpina*, *Topeliopsis decorticans* and *Pseudephebe pubescens*—identifications that I could later confirm at my leisure using the New Zealand lichen 'Flora' series.

Obviously, though, no guide is ever perfect and there is always room for improvement. Although this guide serves its intended purpose admirably, as one of New Zealand's estimated 8–10% with colour vision impairment, I would have preferred to see colour codings used that enable the majority of those afflicted with this genetic disorder to be able to easily use the book—either that, or consider the use of a secondary hatching or patterning within each colour code. The latter, it has been shown, will enable even the worst colour-vision-afflicted to 'see' what can be seen by those with so-called 'perfect' colour vision. Scale bars are also missing. In any guide, especially one so well illustrated, it's disappointing not to see any units of measurement and, at the very least, I do believe it is well worth placing a ruler on the rear cover of such books (see for example Rolfe & de Lange 2010), to aid one in the field. A scale bar would not only greatly assist field identification but perhaps also avoid unnecessary collection of specimens (something the author quite rightly cautions against (Knight 2014; p. 5)). In this way, notes can then be taken directly of the sizes of the various parts of the lichen in the field. Earlier, I noted that the images are of lichens taken when the taxa were fresh (i.e. 'moist'). This is understandable, and I appreciate the need for brevity, but many lichens completely change their colour and form when dry. Some thought into how to depict this would be useful for future editions. As a biosystematist, I also understand the frustration many people feel with name changes and, for lichens, these changes are perhaps more frequent than for vascular plants. The '*Introductory illustrated guide*' addresses these changes by retaining the names used in the lichen 'Flora' series, and indicating those names that have changed in the following manner: *Melanelia glabratuloides**. I don't like this for a number of reasons but mostly because '*' is often used in New Zealand to indicate a naturalised plant and in the system set by the New Zealand lichen 'Flora' series it is also used to indicate a lichenicolous genus (though to be fair the '*' is then used in this way **Plectocarpon*). Overall though, I find this coding system distracting and a little annoying because I then want to know what the change to that name is. To help you, the guide suggests you consult the New Zealand Plants Database (http://nzflora.landcareresearch.co.nz), which would be a good idea except that even there the names are not necessarily up to date. It would have been far better to have provided the name as currently used in modern literature and a table cross-referencing the name changes to the New Zealand lichen 'Flora' series at the back of the guide. This is less messy and more user-friendly, even if, inevitably, the names will probably change again, and it adds an extra page to the book. Finally, in a book of this nature, where content is intentionally rationed, I understand the need to cut down on references. However, the author has made a good selection (though some of

the suggested texts are now out of print) but I question the relevancy of the final statement (Knight 2014, p. 54): '**HANDS-ON** The annual **John Child Bryophyte and Lichen Workshop**—welcomes everyone from beginner to expert'. It would be more appropriate perhaps if there were a contact address, webpage, email or phone number for said event. Though I may know what this event is, a school child interested in lichens in Omamari may not. Also, societies change and fail; for the long-term usefulness of this book would this space have been better served with another key reference?

Still these are really minor distractions. The key question is whether I would recommend that people purchase the book. To that I would say a resounding "Y**es**!" At $20.00—with a 10% discount if you are a member of any New Zealand botanical society, or 25% if you are buying 10 copies or more—the book won't burn holes in your wallet. As a guide, it is certainly more portable than the very useful, but much larger and also now out of print, *New Zealand lichen checklist, key and glossary* by Malcolm & Galloway (1997). Allison Knight has certainly done well to bring the world of New Zealand lichens into your back pack and at much less expense than the average Kiwi spends on their weekly Lotto tickets! For the beginner lichenologist—who is otherwise faced with working out lichens by first purchasing a microscope, then using chemicals, before being faced with DNA extractions and reading sequence data, and then finally exercising considerable patience, as inevitably the specimens need to be sent elsewhere around the world for expert attention—Allison's helpful tips, enthusiasm for the subject and exquisite images provide some welcome relief.

References

Galloway, D.J. 1985. *Flora of New Zealand – Lichens*. Wellington, Government Printer.

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Malcolm, W.M., Galloway, D.J. 1997, *New Zealand Lichens, Checklist, Key and Glossary*. Te Papa Press, Museum of New Zealand, Wellington.

Martin, W., Child, J. 1972. *New Zealand lichens*, Wellington, AH & AW Reed Ltd.

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Editor's note: For anyone wanting to buy a copy of this new book, the ordering details are attached to the end of the newsletter.

NZIFSB Auckland seed collector training

On Thursday 27 February, Jessica Schnell and 10 people from the Auckland area undertook a seed collecting expedition to the Hunua Falls Park. They were instructed by Jessica and Jason Halford (from the Seeds for Life project in Queensland), having done the seed collector training the day before at the Botanic Gardens. They were able to make collections of five species from the local forest which relates to target four of the seed bank collecting programme. For those who are interested the next training expedition, which will be held in Palmerston North, please see the information below:

- **Monday 17 March (9.00 a.m. – 4.00 p.m.) – Tuesday 18 March (9.00 a.m. – 4.00 p.m.)**
- **Place: AgHort Building, Riddet Road, Massey University, Palmerston North.**
- **Please bring your lunch, or food can be purchased on campus at Massey** (on the Monday).
- **No charge** but a koha or donation towards costs welcome.

Please register your interest early to avoid disappointment! To register or for further information, please contact the Seed Bank Coordinator, Mrs Jessica Schnell at ph: 06 356 9099 ext 83236 or email: J.L.Schnell@massey.ac.nz **by Friday 14 March 2014**

UPCOMING EVENTS

If you have important events or news that you would like publicised via this newsletter please email the Network (events@nzpcn.org.nz):

Auckland Botanical Society

Meeting: Wednesday 5 March at **7.30 p.m for the AGM** followed by a talk titled '*Utricularia*' by Corin Gardner, the Lucy Cranwell Award recipient. **Venue:** Unitec School of Health Sciences, Gate 4, Building 115, Room 2005.	**Contact:** Maureen Young (youngmaureen@xtra.co.nz) .
Field trip: Saturday 15 March to Kaukapakapa Scientific Reserve.	**Leader/Contact:** Dave Wilson.

Waikato Botanical Society

Field trip: Saturday 8 March to Rotopiko (Serpentine Lakes), Ohaupo. **Meet:** 9.00 a.m. at the Glenview New World car park, cnr Ohaupo Rd and Lambert Crescent, Hamilton, or meet us at the Lake Serpentine Reserve at 9.30 a.m. **Grade:** easy–medium. **Bring:** good footwear that you don't mind getting wet, lunch, paper bags to collect seeds.	**Contact:** Paula Reeves email: pnreeves42@gmail.com ph: 07 8547259 or 021 267 5802.

Rotorua Botanical Society

Field trip: Saturday 8 March to Mt Tarawera (combined with Rotorua Forest and Bird) (Reserve day: Sunday 9 March). **Meet:** the car park, Rotorua, 8.00 a.m. or DOC Ashpit Road campground, Lake Rerewhakaaitu, at 8.45 a.m. **Grade:** medium-hard, particularly confidence walking on steep mobile scoria slopes and along high and sharp ridges. **Registration:** minimum age 14 years old; maximum 30 participants on a first come basis but must register first with trip leader by Monday 3 March at the latest. Please notify trip leader if you have a 4WD available for trip carpooling. **Cost:** free. **Bring:** Minimum 2 litres water, lunch, and snacks, wet weather and warm gear, sun hats, sunblock, boots or sturdy shoes, gaiters and/or leggings an advantage for loose scoria.	**Leader:** Paul Cashmore ph: 07 348 4421 (hm), 07 349 7432 (wk), 027 6507 264 (cell); email: pcashmore@doc.govt.nz

Wellington Botanical Society

Field trip: Saturday 1 March to Fitzroy Bay and Baring Head. **Meet:** 9.30 a.m. at the park's Wainuiomata River bridge, c. 25 minutes drive down Coast Road from Wainuiomata.	**Leaders:** Chris Hopkins, ph: 04 564 3980 and Mick Parsons, ph: 04 972 1148.
Meeting: Monday 17 March at 7.30 p.m. for a talk by Jon Sullivan, Lincoln University, titled 'Nature Watch NZ'.	**Venue:** VUW Lecture Theatre M101, Murphy Building ground floor, west side of Kelburn Parade.

Aro Valley restoration project

Meeting: 4 March at 7.30 p.m. for a talk by Jean-Claude Stahl, Te Papa titled 'Pre-European vegetation in the Aro Valley: What did it look like and what can we realistically restore?'	**Venue:** Aro Valley Community Hall.

Nelson Botanical Society

Field trip: Sunday 16 March to Otuwhero wetland. **Meet:** Church steps at 8.00 a.m.	**Leader:** Helen Lindsay, ph: 03 528 4020.

Canterbury Botanical Society

Meeting: Monday 3 March at 7.30 p.m. for a talk by Paul Maurice titled 'Spring flowers in Ontario and British Columbia'. **Venue:** Room P7, High School Block, Dovedale Campus (College of Education) *(Note change of day and new venue.)*	**Contact:** Gillian Giller, ph: 03 313 5315, email: ggillerma1@actrix.gen.nz.
Field trip: Saturday 15 March to Rockwood and Silverton (to be confirmed).	**Contact:** Gillian Giller, ph: 03 313 5315, email: ggillerma1@actrix.gen.nz.

Botanical Society of Otago

Meeting: Wednesday 19 March at 5.20 p.m. for a talk by Jennifer Bannister, Department of Botany, titled 'Botanising in the Miocene'. **Venue:** Zoology Benham Building, 346 Great King Street, behind the Zoology car park by the Captain Cook Hotel. Use the main entrance of the Benham Building to get in and go to the Benham Seminar Room, Rm. 215, 2nd floor. Please be prompt as we have to hold the door open.	**Contact:** David Lyttle, ph: 03 454 5470.
Field Trip: Saturday 22 March for Hands-on Botanising in the Miocene! **Meet**: 9.00 a.m. at the Botany Department car park, 464 Great King St. to car pool. Bring hand lens, a pocket knife, chisel or rock hammer, protection from the sun, lunch and plenty to drink. (Rain date Sunday 23 March.)	**Contact:** Allison Knight, **ph:** 03 487 8265.

Lichens *of New Zealand*:
An Introductory Illustrated Guide *Allison Knight*

A5, 56 pp, full colour, laminated cover.
Published by the Botanical Society of Otago, using the Audrey Eagle Botanical Publishing Fund.

This introductory guide celebrates the extraordinary diversity of New Zealand lichens with full colour images of over 250 common lichen species, plus a glossary illustrating over 60 useful identifying features. Species are divided into 4 colour-coded ecosystems and displayed in order of the three main growth forms.
New Zealand is exceptionally rich in lichens and harbours around 10% of the world's lichen species. They are an important, yet often overlooked, component of every ecosystem from the seashore to the mountaintops and contribute over 1800 taxa to New Zealand's biodiversity —nearly as many species as seed plants.

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All proceeds will go to the Botanical Society of Otago to replenish the Audrey Eagle Botanical Publishing Fund.