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Elizabeth Anne Brown 1956–2013



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## From the editor

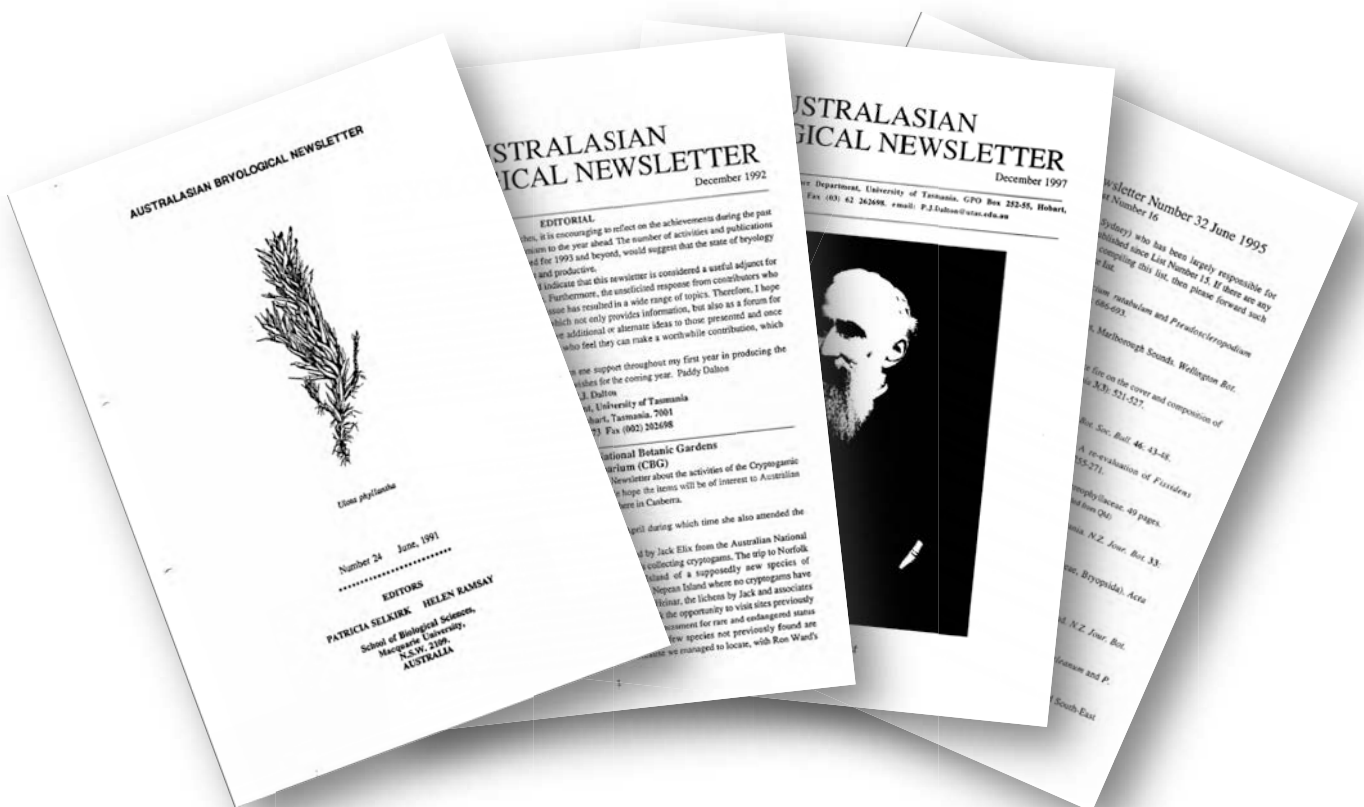
### About this edition

This special edition in memory of Dr Elizabeth Brown, who sadly passed away late in 2013, was made possible by the contributions of those who have provided their thoughts and memories of Elizabeth in the tributes and photographs published here. Many thanks to you all for sharing them with the rest of her friends and colleagues.

A special thank you also to Alison Downing, who coordinated the tributes, and John Braggins, who provided the memorable photos of Elizabeth on pages 1, 10 and 11, except the bottom left on page 11 which came from Allan Fife. I have not put captions to the photos; they speak for themselves.

### Back issues of the Newsletter

Additional back issues of the *Newsletter*, now going back no. 24, as well as the annual reference lists back to no. 12 (in *Newsletter* no. 24), will be posted soon on the UTAS website (see the back page for details). Many thanks to Chris Cargill and Paddy Dalton for making these available to everyone.



### Articles held over to issue 65

Because this is a special edition, several larger items that were intended to be published are being held over to the December issue. Many thanks to Scott Zona for his excellent article on selecting a hand lens.

— David Meagher

## Tributes to Dr Elizabeth Brown

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Matt Renner

Elizabeth was first among a family of systematists to learn their trade under the stewardship of Dr John Braggins, at the University of Auckland. Elizabeth completed a Masters degree, including a thesis on complex thalloids. She then went on to become John Braggins' first Doctoral student. Ever having the eye for a challenge, John initially persuaded Elizabeth to pursue a revision of New Zealand *Lejeunea*. I must ask him how he managed this. Unfortunately, Prof. Rudi Schuster, on hearing of this intent disclosed having a manuscript on the Lejeuneaceae ready for publication, which he threatened to submit under the project. In hindsight Rudi's threat seems to have been all unfortunate rhetoric. No revision of New Zealand Lejeuneaceae, let alone *Lejeunea* was ever forthcoming from him, and it remains to be seen how close his manuscript was to actual completion and submission. Sometimes perhaps, bluffs ought be called. This seems to have been a lesson Elizabeth took to later life.

So John, with ever an eye for a challenge, posited the genus *Riccardia* in New Zealand as suitable for a doctoral dissertation. Inevitably, this involved some spectacular fieldwork, including Mt Arthur in NW Nelson. Elizabeth collected a range of bryophytes, including *Radula*. I remember looking at her collections as part of my Masters. In completing this thesis in 1988, Elizabeth once told me that she was able to eat only reconstituted powdered potato, and nothing else. She hasn't been able to eat reconstituted potato since. I got the impression it was traumatic.

But so was published Brown & Braggins (1989) and a revision of the Aneuraceae in New Zealand, which remains current today.

On the strength of her thesis, her passion for bryophytes, and ability to work independently, Elizabeth won a Botanic Gardens and Domain Trust Post-doctoral Fellowship at the Royal Botanic Gardens, Sydney to work on *Acromastigum* and improve NSW bryophyte holdings. The fellowship commenced in March 1989. Elizabeth was then serially appointed to several short-term, part-time positions within the gardens. In 1994 Elizabeth was appointed to a permanent full time position. Elizabeth's work ethic was such that Darryn Crayn once said to me he'd never seen anyone work harder in the gardens. Elizabeth was involved in writing flora treatments for various genera in the Asteraceae and the then Epacridaceae. In 2000 Elizabeth was appointed to a newly created Systematic Bryologists position within the National Herbarium of New South Wales.

Elizabeth was a great cook at home. At work her cakes for various morning teas were renowned.

Though exceptionally quiet, Elizabeth was always approachable (except perhaps if you were from I.T.) and at workshops in Australia and New Zealand over the years she had opportunity to share her enthusiasm for liverworts with many other younger and older participants.

Elizabeth took opportunities to accompany a number of visiting bryologists on visits to Australia, including Tamás Pócs in 2001. She also participated in fieldwork on Fiji organised by Matt von Konrat in 2008 and 2011. Elizabeth was a quiet but effective member of field teams. She would just potter away with her plants, quietly collecting many and varied species, Aneuraceae and Lepidoziaceae in particular. On Viti Levu Elizabeth obtained *Drucella*, a new generic record for Fiji. She spotted it growing on the opposite bank of a stream, and convinced Leon Perrie I think it was to cross the stream and collect it for her, as Leon's boots were already full of water.

Since July 2004 Elizabeth has been both my supervisor and collaborator at the Royal Botanic Gardens. This relationship has been based on mutual enjoyment of our respective study organisms and a healthy measure of disagreement.

This relationship has involved Fieldwork in some pretty spectacular parts of Australia, initially the Wet Tropics of Queensland in June–July 2005, which was my first real introduction to tropical rainforests. Highlights of that particular trip include camping on Bartle Frere, collecting in the

vicinity of Mt Lewis, camping at Thornton Beach, and collecting up the Babinda Stream. Elizabeth's legs were obviously a lot shorter than my own, and I would habitually forget this. My bounding along the granite bedrock to cross and recross Babinda Stream on our way back down it was not something Elizabeth could always keep pace with, and at one point at the top of a long, narrow, smooth rock slide within which the stream had etched a narrow, but deep channel, Elizabeth more or less refused to follow me across. By bounding backward and forward across the stream in front of her, complete with hand-waving and assurances that I'd catch her on the other side, Elizabeth was eventually persuaded to follow. And I did catch her. But it was not enough. I'm still not sure how, but I ended up on my back, in the stream, with water up to about the corners of my mouth. With Elizabeth on top of me. And with Elizabeth's boot pinning my right foot to the streambed. So I couldn't move, and Elizabeth pretty much refused to move either. I think at this point Elizabeth asked what she should do next, in the considered, almost contemplative, manner of which only she is truly Master. Me (in the abstruse manner of which I am Master): 'Get off me!' Elizabeth: 'How?' Me: (internal voice) 'Great, Elizabeth is stalling for time and I'm going to drown' (External, abstruse voice): 'Just climb up me, like I'm a log!'. Fair enough then, Elizabeth did, obtained the bank and so successfully crossed the stream. At this point I became positively buoyant, and shot off down the stream mid-current, at a rate of about 10-12 knots. I wish I had been able to turn to look at Elizabeth's face but I was too busy getting my feet ahead, my knees up, and looking for obstacles. Anyway, I was only carried about 50 meters in the current before being able to recover myself from the water.

There were other times, however, when fieldwork was not quite so fun. Elizabeth's tolerance of silence was often challenging. Attempts to initiate conversations would often be met with one-line statement replies that invited no further dialogue. She sometimes appeared disinterested as a result of her lack of small-talk. Some of her students might have gleaned the wrong impression of her opinion of them through this inadvertently aloof, stern-bordering-on-disapproving, demeanor. It certainly frustrated the hell out of me, to the point that it detracted from my enjoyment of some fieldtrips with her. To entertain myself, and as a kind of masochistic test (I guess) some days I would mimic her approach as a sort of mirrored social strategy experiment, sorry, trial. To the point that entire days would pass without conversation. I never figured out why this was, but contented company for its own sake was apparently enough to satisfy Elizabeth's enjoyment.

Mind you, Elizabeth would sometimes come out with some pearls. On sitting down to eat dinner one evening in Tasmania, Elizabeth decided to strike up a conversation with the opener 'I forgot to cut my toe-nails before coming on this field-trip'. I almost choked. Thankfully that saved me from having to come up with a reply.

Elizabeth was prepared to go out of her way for her students. A long way out of her way, actually. And I will be forever thankful and appreciative of the efforts she put in on my behalf. On the night I finished my doctoral thesis final drafts and corrections were fired back and forward across the Tasman between Rotorua and Sydney, where Elizabeth sat up at her computer till 0400 hours ironing my prose into some semblance of conformity. She then printed and had soft bound the requisite copies of the thesis for delivery to the Uni on my behalf. That was quite an extraordinary effort.

As a supervisor providing feedback Elizabeth was usually pretty straight up and down, to the point of bluntness. She once described some of my writing as 'disgustingly vernacular and uninformative', a description I'm sure many will agree with.

Over the years she became more and more fearless in her feedback, and we had disagreements on some points. One particular disagreement was the recognition of a segregate from within *R. strangulata*. Elizabeth was characteristically strident in her views:

'With the molecular data you have presented I do not think describing a new species is an appropriate solution. A morphological subspecies perhaps; without nuclear information to present the chloroplast data and then pick out individuals here and there makes a mockery of your results –

why bother presenting this data if this is how you are going to abuse it. You can suggest the *strangulata* group requires further investigation, that is may contain a number of morphological entities that with further analysis are supported by more informative molecular data etc. but to pick out one specimen.’

and later in the draft:

‘again, in the context of this paper I think it is crazy and molecularly inconsistent to pull this entity out as a separate species with the information available.’

and still later in the draft (it must have really irritated her):

‘I think you need to be really careful about this approach, it smacks of convenience and a very plastic approach to the interpretation of data. Cherry picking, some call it! Or lazy – this is where other approaches such as nuclear regions, AFLPs etc. should be employed to check one’s interpretation and provide support for it. If this is not within the scope of the current project/time frame then a more conservative approach is probably appropriate – subspecific status (particularly where there are no names already available) or simply calling attention to the variants and saying more work is required to determine status. Not every i has to be dotted and ...’

That sort of demand for justification from a supervisor is great. I wish I’d had more of it, more often.

A fear of failure ‘lives in us all’ Elizabeth once said to me during a discussion on how daunting manuscript and grant submission seemed, at one time. Prof. Rick Shine once said to a group of post-grad students (of which I was a member) that ‘you just have to accept that everything you ever publish will eventually be proven wrong’. To which I would now append ‘even those publications where you correct yourself’.

I don't know why Elizabeth never finished *Acromastigum*. This year I was going to start giving her heaps about it, on the strength of a confidential source which I was to use to significant advantage. To be honest I like to think that Elizabeth enjoyed this goading, as it was usually a conversation starter. Unfortunately I cannot do this. I had tried to kind of goad Elizabeth into action on *Acromastigum* when I began the *Radula* post-doc back in July 2010. We would have a bi-weekly meeting where I would seek guidance, and inform Elizabeth about what I’d been up to. Just to keep things interesting I’d ask ‘How’s *Acromastigum* going?’ at the end. And ‘So what do you need to do next?’ These questions precipitated my experiencing an instance of what I’ll call ‘wriggling’. I’d been prodding and probing, and asking questions about *Acromastigum anisostomum*, as Elizabeth had alluded to the fact that she thought there might be two things under this name in Tasmania, but wasn’t sure. We discussed characters, looked at illustrations, looked at some specimens, and both came to the conclusion that the case seemed fairly clear-cut. I suggested that seeing more specimens would present an opportunity to test the consistency of the apparent differences, at which point Elizabeth decided that I should collect more material for her on my next trip to Tasmania to facilitate this. This, it seemed to me, made any further progress on clearing this stoppage in *Acromastigum* progress my responsibility. I was heartily amused. However, Elizabeth herself was on that next trip to Tassie, where it became abundantly clear that there are indeed two things in *A. anisostomum*. I rejoiced in continually pointing out ‘how different’ the two were in the field on every encounter with either. Even Elizabeth appreciated that, this side of the Tasman, ribbing is a synonym of affection [though she would insist on the ablative — ribbing is a synonym *with* affection]. I was also somewhat amused by the contrast between Elizabeth’s apparent hesitancy in her own work and her strident views on other peoples work (see her comments above).

A fear of being judged by one’s peers is consistent with Elizabeth’s apparent introversion. As is her obvious (and not so obvious) enjoyment of those by whom she knows she is accepted and respected.

Elizabeth was always a battler, with a strong sense of purpose. She would soldier on regardless, and did with her cancer too, it seems. In hindsight it is clear that on the last trip to Queensland in June–July 2012 Elizabeth was already not well. She was slow, tired readily, was fatigued, had a

couple of short fevers, complained of migraines and back-pain which she attributed to her rib, and suffered nausea one morning on the trip home. I once caught her napping (literally) in the midday sun on a streambank. All of these things I reconciled in different ways, as I guess Elizabeth did. Anything I couldn't reconcile I just figured was the result of my stressing Elizabeth out. However, despite all of this, we did make it up to just above the coral patch on the Devils Thumb track, where Elizabeth collected a new *Acromastigum* for Australia (*A. tenax*, with a New Caledonian type). Elizabeth was quietly chuffed.

Even further back, after the Tasmanian fieldtrip in February 2012 people were telling me that they thought I'd almost killed Elizabeth, for how much weight she'd lost on the trip, and how poorly she looked at the end of it. If only, ay.

On receiving her diagnosis and prognosis, Elizabeth relayed that it was about time she started doing things at work that she wanted to do, rather than putting everyone else first. This included finishing *Acromastigum*. Unfortunately this window of determination was all too brief. Chemo started soon after, and together with a rapid decline in physical condition, denied her this. She talked about resting up and getting her strength back, but the battle between her body and cancer simply swelled the life out of her. The last time I saw her she said 'Oh well, this is what happens when you ignore what's hurting'. There's a lesson in that for all of us.

We all must seek a truce with death, but I can't imagine what it must be like saying Good-Bye to people knowing that will be the last time you'll see them, and knowing that you're going to die within weeks, and not being strong enough to hardly get out of bed for the remainder. I guess all you can hope for is acceptance of that fact, the promise of good memories retained, and thanks for times shared and I hope I gave her all three. But I think there is too much carrying on like nothing is happening in our culture. We don't deal well with grief as a society. Or personally, and I'm still in denial about her death. I keep writing about Elizabeth in the present tense. I have decided not to correct that because the language speaks as to where I am in grief. Not far and moving slowly. There will be no more walks to her office to share something in literature that most recently aggrieves me. There will be no more new (or at least apparently new) species that are 'like nothing I've ever seen before' to share. There will be no more lunches at the Art Gallery. No more collecting liverworts and hornworts in under-collected localities up and down the east coast. No more high amperage feedback on manuscripts. No more frustrating the bejeezus out of me in the field. That's it. The end. And clearing that blockage in *Acromastigum* is still my responsibility. There's probably a lesson in that for all of us as well.

And I'll finish with what I wrote on Bryonet. Elizabeth's quiet determination, insight, and sometimes rebellious insubordination will be missed by all here at the Royal Botanic Gardens, Sydney.

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## Helen Ramsay

Some time in the 1990s I was approached to recommend a botanist with a bryological background who might be interested in applying for a Research Grant to work at the National Herbarium of New South Wales (NSW). It so happened that I had been talking to Dr Helen Hewson who told me of a New Zealander, Elizabeth Brown who was finishing her PhD at Auckland University specialising in liverworts. There was no bryologist on staff at NSW at that time particularly none with knowledge of liverworts. While on staff at the University of New South Wales with a research interest in mosses, I had been helping as an advisor on the repackaging and sorting of the moss collections in an honorary capacity. I jumped at the opportunity to have a bryologist based at the Herbarium and after the usual round of interviews Elizabeth was granted the research position.

As history shows she was encouraged to stay on at the Herbarium and obtained a position as Botanist, later Research Botanist with responsibilities for both vascular plants and bryophytes. She



brought with her an approach to taxonomy enhanced by her knowledge of the New Zealand Flora. All her collections from New Caledonia, Fiji and Australia, have added much new material to the Herbarium including new records and new species. Her studies and contributions have been outlined in detail by others. Her particular interest in leafy liverworts led her to take on a number of important PhD students as detailed elsewhere. Their work together with hers has been of great value and advanced our knowledge of Australian liverworts. This will continue into the future as her legacy. She remained on staff at NSW until her final illness robbed us of her talents.

I want to pay tribute to Elizabeth's help over many years. She was my contact at the Herbarium as an Honorary Research Associate. On the days when I came in she helped to organise accommodation, parking and library acquisitions for me. As editor of the Journal *Telopea* over a number of years she was instrumental in encouraging work on bryophytes to be included for publication in it. Indeed, one edition in 2011 was a report on bryological studies in the Pacific, particularly Fiji. Elizabeth showed interest in both my cytological and taxonomic projects, offering advice and arranging loans. She also encouraged overseas bryologists including Prof. Dale Vitt, Prof. Wilf Schofield, Dr John Spence and Dr Benito Tan to visit at different times, organising facilities at NSW to enable them to work with me for weeks or months on collections at NSW. This help enabled revisions for the Flora of Australia, volume 51 Mosses 1 to be completed and published in 2006 and since then additional projects for Mosses Online to be prepared (2011–2013).

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### Carol West

Elizabeth was born on 15 November 1956, a month earlier than her due date, as her parents had just been told that her older brother had leukaemia. He died when he was three years old. Elizabeth did get another brother though: David, who was born a couple of years after her. She grew up in the family home in Laurie Avenue, Parnell, attending the local primary school and then Epsom Girls' Grammar. In 1975, she went to Auckland University to do a BSc in Botany, which is when I first met her.

My friendship with Elizabeth probably began in 1976 when we did the same three Stage 2 botany courses that had quite small class sizes. We were fortunate to be taught Metaphyte Morphology by Dr Patrick Brownsey, and that may be when Elizabeth was first introduced to the alternation of generations so characteristic of bryophytes. Although she was naturally drawn to botany, Elizabeth was not keen on progressing in plant physiology, taught by her father – Professor John Brown – opting instead for plant systematics.

When Elizabeth and I went on to do our MSc Botany degrees at Auckland, me in ecology and Elizabeth doing some systematic study of Marchantiaceae, I was enlisted to collect for her wherever I went. After a bit of training I no longer provided a bountiful supply of *Lunularia* (lunate gemmae cups!) and became more consistently adept at *Marchantia* diversity. There were just three of us who did the Plant Systematics MSc paper, taught by Dr John Braggins and Prof. Jack Rattenbury: Elizabeth, me and Peter Buchanan, so we were all on the same page systematically.

It was from this time onwards that I became more aware of and familiar with Elizabeth's foibles, or 'ways of working'. If she was of a mind not to, she would not be 'rushed'. The University was tightening up on timeframes for completing degrees and we were under pressure to complete MSc courses within two years. The rules seemed to change after we enrolled so Elizabeth determined she would take three years, and blow the rule-makers. I recall trying to persuade her to go a bit faster but got nowhere. Elizabeth also had a relationship with computers that was different to the rest of us. Whenever something went wrong, Elizabeth was adamant that the computer was at fault. This view persisted right through her PhD and it was only recently that I saw her admit that operator error was a distinct possibility!

Not many people do all their degrees at the same University, but Elizabeth and I did, and in 1981 we both began PhD degrees: Elizabeth continuing to do bryophyte systematics with Dr John Braggins again, this time on a different group of thallose liverworts with smaller, narrower lobes, mainly *Riccia* and *Riccardia*. I was again enlisted to collect wherever I went and had to undergo some training to be able to spot these new beasts.

My PhD fieldwork was done in Pureora Forest, on the Volcanic Plateau west of Lake Taupo. Elizabeth accompanied me on several occasions, acting as my field assistant while collecting liverworts for her own thesis. Elizabeth was intrepid and steadfast, up for any challenge. My first field vehicle was a Honda CT90 that was not designed for a pillion passenger but because there were stubs for foot pegs I installed some and Elizabeth was quite happy to ride pillion sitting on a cushion held on to the carrier tray with bungee cords. We undertook the fairly lengthy trips on gravelled roads many times with the occasional minor mishap: back-end skidding out etc. However, one day in 1981 when we were heading in to my plots after the Forest Service had graded the roads yet again, the back-end slid out in a major way and we both bit the dust. Elizabeth landed on top of me and the bike landed on both of us. All the weight of everything seemed to rest on my left knee. As Elizabeth fell she put her teeth through her top lip so there was blood everywhere. Once we had disentangled ourselves, I petulantly exclaimed 'Right, we're taking this #\$^&%#@ bike back to the village and I'm never riding it again!!!' We got back on and gingerly rode back to Pureora Forest village, field work undone. By the time we got indoors my left knee was swelling up and Elizabeth spent the afternoon applying freezing cold poultices to my knee as I sat with my leg raised up on a chair. She seemed unperturbed by her own injury, brushing it off – 'It's nothing', she said.

In January 1983, Elizabeth and I, with another PhD student – Marion Steel, attended the Wellington Botanical Society summer trip to East Cape and Mt Hikurangi. This gave Elizabeth the opportunity to collect liverworts in some hard-to-access country and to meet the legendary A.P. (Tony) Druce and see him in action. Without Elizabeth's encouragement I would not have joined this august Society, whose members I have learned so much from, and with which I have an ongoing association today.

Over the years, Elizabeth and I maintained our friendship. She was a hopeless correspondent: if an email got answered it was a very rare event! I visited her if I was in Sydney at the same time as her, and stayed with her occasionally. For some unfathomable reason, when I stayed with her in her first house in Erskineville I gave her a hammer as a present. After I left, Elizabeth put the hammer to good use and discovered that termites had just begun to invade in a corner of one room. She reported that without the hammer she might not have known until the termites were really obvious (house falling down!) and her remediation bill would have been significantly larger. She was a friend of my family and visited us when she was in Auckland, usually at Christmas time. I was immensely grateful that my mother, who died in May 2013, never knew Elizabeth had liver cancer (she was diagnosed in July 2013), as she would have been devastated by the news.

I was fortunate to have a serendipitous meeting with Elizabeth on Lord Howe Island in 2009. I went there with some NZ friends to participate in one of the LHI Trust weeding weeks and while there discovered that Elizabeth had led quite a few of these weeks over the years (I knew she'd been there collecting liverworts, including on the plateau of Mt Gower). Not only that but she was leading the trip immediately after ours. I realised she would be arriving on the plane we would be departing on so I stationed myself prominently by the gate. Elizabeth was one of the first people off the plane and spotted me straight away. Cool as a cucumber, as if my being there was not unexpected, she said 'What are you doing here?' I told her I was leaving. So we quickly caught up on any news that we had for each other and had our photos taken with the mountains in the background as evidence before I boarded the plane. Elizabeth had a strong desire to 'give something back', and the time she contributed to this worthwhile activity was just one of the ways she expressed that.



Elizabeth was a plant lover and collector and she sometimes accompanied my mother and me on excursions to gardens or plant collectors in the Auckland region during our University days. I was fortunate to be able to accompany her on her last ever excursion, down to Bywong, north of Canberra, to visit Ben Wallace and his wife Xiaomei. We pushed Elizabeth round the garden in a wheelchair but while our backs were turned after lunch she made a sprint, unaided, for the glasshouses up some stone flags. This was her strong independent spirit to the fore again. Of course she came away from that trip not only happy with seeing such a great variety of plants and some good friends but also with an iris that she had long coveted. That was on 27 October 2013.

The next day, outside her apartment in Alexandria, while waiting for Louisa Murray to pick us up to go to RBG (Elizabeth insisted we be out on the footpath so as not to hold Louisa up), Elizabeth, while hanging on to a street sign, so she could be more comfortable while waiting, glanced down at a crack in the pavement and said 'That was me'. I followed her gaze and said 'Ah, *Lapeirousia rosea* – it is a bit weedy – I saw it in the lawn at Tahmoor' to which she replied 'I think it's in *Gladiolus* now'. My response, ecologist that I am, was 'Hmm, I think I'll stick with *Lapeirousia*'. These are the conversations that botanical friends can have.

On the day that Elizabeth died, I finally planted the *Lapeirousia rosea* bulbs that my mother gave me several years before. Though shrivelled they still looked viable.

In Aotearoa/New Zealand, we have a saying: Kua hinga te totara i te wao nui a Tane – the totara has fallen in the forest of Tane. This proverb is said when someone of importance passes away. Elizabeth was someone important.

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### John Braggins

Elizabeth, she was always Elizabeth, none of the shortened versions we were quickly informed would suit. Always quiet efficient but working to her own pace. A steely resolve hidden by a quiet voice and manner.

I soon learned that while I could ask about thesis progress and offer help or ideas I could not push. She had stood up to her father for all her life and we were insignificant by comparison.

Her work was meticulous and I remember her pleasure over the comments of one of her PhD examiners who, when praising the quality of her work, indicated that it could be sent for publication as it was, with no further adjustments necessary.

She survived several changes of accommodation, and floods when nesting pigeons blocked the roof drain. And the inevitable frustrations of growing plants for study.

She had a delightful dry sense of humour and a keen appreciation of the absurd. A wide interest in plants and gardening with continued efforts to retain some semblance of order in the garden at Ayr St.

Though vegetarian she was happy to put up with my more omnivore tendencies on the extensive field trips to look for Lepidoziaceae in both the North and South Islands in 2008: collecting trips that were more successful than we had ever expected.

She was an excellent field botanist with wide experience and a good eye for specimens in the field. She always stepped up to help complete tasks such as editing.

She was an excellent cook and we often shared a meal when she was back to visit around Christmas.











## Alison and Kevin Downing

Bryologists usually work in relative isolation, so New Zealand's annual John Child Bryophyte Workshops provide wonderful opportunities not only to collect and learn about bryophytes but also to meet others with similar interests or should we say 'passions'? Thus we first met Elizabeth Brown at the John Child Bryophyte Workshop held in November 1987 in Nelson Lakes National Park in the north of the South Island of New Zealand but at the time had no idea that in the future she would play an important role in Australian bryology and also that she would become a much loved and cherished companion. In later years we would often laugh about that first meeting where we stayed at a deer hunting lodge on the shores of Lake Rotoiti, where disrespectful botanists irreverently hung their wet towels on antlers of trophy animals adorning the lodge walls.

Soon after meeting Elizabeth in New Zealand, Barbara Briggs, Senior Assistant Director (Scientific) of the National Herbarium of New South Wales (NSW), discussed with Helen Ramsay the possibility of finding a botanist to take on bryological responsibilities at NSW; the rest is history. Elizabeth was at first appointed on short term contracts but finally, much to our delight, was appointed to a permanent position as Systematic Bryologist. This gave her much more freedom and flexibility to pursue her specific interests in the systematics of Australian hepatics and also Styphelioideae.

Elizabeth soon became the focal point for bryology in New South Wales but also took a leading role in Australian bryology. In 1994, she organised the Australasian bryophyte workshop held at Kuranda, just west of Cairns, in tropical north Queensland. This was very sensibly arranged to follow the Australian Systematic Botany Society meeting at the same location. This meeting, too, has been a cause for much laughter over the years. Once the ASBS meeting concluded, hotel staff obviously considered bryologists poor relations and we were treated accordingly. The food was so appalling and there was very little of it and to make matters worse, the weather was awful, cold and wet. However, often disastrous occasions such as this are fondly remembered with great hilarity; those that run smoothly are soon forgotten.

In 2001, together with Elizabeth, Robert Coveny and Ron Oldfield, we were involved in the organisation of the Blue Mountains bryophyte workshop. In the couple of weeks beforehand, we were beset with disasters, including the collapse Ansett Airlines, collapse of insurance giant HIH and the September New York bombings. However, Elizabeth was able to enlist the support of Tim Entwisle and Barry Conn from NSW, and with their help, the workshop was able to proceed and was particularly successful. We were later able to publish *Bryophytes and their distribution in the Blue Mountains Region of New South Wales* in *Cunninghamia* incorporating data from collections made during the workshop.

I was fortunate to have the opportunity to travel to Kuala Lumpur with Elizabeth for the 2007 IAB meeting. This was an important meeting for both of us, but I have to admit, the defining moment for both Elizabeth and me was when Niels Klazenga stowed durians under a hedge in the hotel garden rather than risk being expelled for having the stinky fruits in his hotel room! After the meeting, Elizabeth headed to Borneo where she climbed Mount Kinabalu; I headed for Java, to explore volcanoes and botanic gardens.

In September last year, with Elizabeth, I was able to attend the ASBS meeting held at the University of Western Australia and at the Western Australian Herbarium. In our spare time we enjoyed walking in Kings Park and discovering Perth city and Fremantle. This was where I discovered Elizabeth's secret addiction – chocolate, particularly really good quality, dark chocolate. In the week of the conference, we must have visited EVERY chocolatier in Perth and Fremantle.

However, it was Elizabeth's presence at NSW that has been of greatest importance to us. She has been the focal point for bryology in NSW; she facilitated our use of the herbarium; she kept us in

contact with visiting bryologists; she advised us of relevant publications and upcoming meetings; she encouraged everyone to pursue interests in bryophytes and lichens; she could always find a way round problems and end of year bryological celebrations became legendary. It was always such a pleasure to be warmly welcomed to her office. We will miss Elizabeth very, very much.

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### Peter de Lange

Between 1987 and 1989, I was student curator of the University of Waikato Herbarium (WAIK), Hamilton, North Island, New Zealand. A fun time as I was actually doing my M.Sc. in the Earth Sciences Department but had managed to wheedle some space in the Biological Sciences Herbarium. So it was that during the summer of 1987 I was introduced to Elizabeth Brown, who had (I recollect—details are sketchy) just finished her PhD and was now working for Anthony Wright, then Curator of the Auckland Museum Herbarium (AK). Elizabeth was tasked with recording the pteridophyte and lycophyte holdings at WIAK for a fern atlas. The task, dreamed up by Anthony Wright and funded by the New Zealand Lottery Board was a worthy cause but alas it was never completed.

Elizabeth was awfully polite but very, very, very quiet and for an extrovert like me I found this really unnerving. So she sat and worked methodically through the collections, periodically annotating sheets but otherwise so quiet you would not have known she was there. Eventually after some three days, she started to talk, a little at first and then very happily on various subjects. I soon realised that such words as *shy*, *introvert* and *profoundly intelligent* summed Elizabeth up nicely. She knew her stuff alright but wasn't interested in showing it. We got on fine.

In 1999 we met again at the New South Wales herbarium. Elizabeth hadn't changed much, though she painstakingly took it on herself to take me around the building and ensured I was introduced to everyone from the cleaner to the Herbarium Head. Having done this she left me to it, beyond ensuring I was in attendance for morning and afternoon tea, and that I had eaten my lunch. This was very kind of her, of course, but it still gave me little to go on. Then, finally, in 2003 at a conference in Melbourne, Elizabeth shyly shuffled up to me during a break and asked if I might be so kind as to collect a range of New Zealand taxa in what was still being called the Epacridaceae. It transpired that she, Chris Quinn and Darren Crayn were doing something on the Australasian taxa and they wanted a good New Zealand representation of anything in the Epacridaceae except *Dracophyllum* and *Gaultheria*. Back in New Zealand, I was rather lucky in this and was soon able to send Elizabeth pretty much all of the key genera and species they wanted (*Androstoma*, *Leucopogon*, *Leptecophylla*, *Pentachondra*, and what was—at least in New Zealand—still being called *Cyathodes*). Elizabeth was very pleased, she wrote me many emails and I started to see a very funny, mischievous side to her. For example, enraged at the security rules over emails at the New South Wales herbarium she refused to comply and so lost her personal email but then cheerfully explained that if I used the *Telopea* account that would work as she was editor and they couldn't cut that off.

During this time Elizabeth finally shifted to her true love—liverworts, and at least from my perspective she began to really shine in her work. In her new role I continued to collect a range of taxa for her, including *Riccardia* (her PhD subject) which I rather suspect Elizabeth had come to hate with a passion. Specimens I had collected were usually greeted with 'This is something for a rainy day', 'Have you got more?' (When she had received about a barrow load already), 'One day I will look at this carefully I am sure', 'Why not ask John Braggins' (to which John Braggins usually had already said 'Why not send it to Elizabeth'). I did however get more interest when she asked me in 2007 to collect *Telaranea* for her then PhD student Endymion Cooper. The fact that I had collected everything but this genus was greeted with much hilarity. *Acromastigum* was another source of fun. Having collected a weird liverwort closely resembling rusted chicken mesh from a

shaded, coastal rhyolite cliff near Tairua, Coromandel Peninsula, New Zealand, I was amused by cryptic emails about this collection, so cryptic I often had to email several times to understand what I was being asked or told. Imagine if you will such emails as one simply stating ‘de Lange 8907’ — meaning what? Meaning she was telling me she had got it from AK. Another titled ‘It’s interesting’ — what is? — ‘Oh de Lange 8907’. The best was an emailed titled ‘*Acromastigum divaricatum*’ again with nothing more, but which after many emails I came to understand was her first determination of de Lange 8907...

As for *Riccardia* — Elizabeth deftly put me onto Dr Catherine Reeb (Paris Museum). Her *modus operandi* for any tricky genus needing revision or further work was to suggest ‘you should do that’—so distancing herself from the problem. Dr Reeb therefore has inherited Elizabeth’s *Riccardia* problems, and being well equipped with DNA toys, is doing very well I might add. Elizabeth was pleased with this—it made her life easier she said.

Earlier this year I received my final set of liverwort emails from Elizabeth in where she started by asking ‘Can you get more now please?’ To which—inevitably—I had to ask ‘More of what?’, a comment that was answered with ‘it’s not *Acromastigum divaricatum* it’s something else’. As I was then in Sardegna, I was not able to take this any further and now, sadly I can’t even if I wanted to. In July Elizabeth emailed me—in a block emailing to simply tell us all she had cancer and was unlikely to survive till the end of the year. It was very matter of fact. I got this whilst visiting the Salvador Dali Museum—I guess had Elizabeth known her message was received there she would have laughed. It seemed so surreal and so appropriate.

Elizabeth was a no nonsense person. She had dim views of people who pronounced names on taxa in the field without recourse to a microscope and careful study. She did not supervise students, she mentored them. She did not like being side stepped and often complained to me of pushy, aggressive male (and female) students, who she felt had no respect for her because she was (her own words), ‘small, and a woman’. She had a deep loathing of what she called (her own words) ‘alpha males pissing on lamp posts’. Those who fitted these criteria she avidly avoided. She liked her horse riding, her peace and her plants. She was not that fussed about publishing but she cared deeply for her students—least ways those that gave her respect.

I will always appreciate the way Elizabeth made me feel so welcome. At the 2011 Melbourne Botanical Congress, she insisted on sharing her lunch with me—would not hear of me buying her one. We spent a lovely time talking about horse riding (not my passion) and rubber rings—as she was then perched on one (‘at least I can see over the table’ she said) having fallen off a horse and so badly bruising her behind a week or so before. I last saw Elizabeth in December 2011 at —so fittingly—AK. We spent a lovely hour of character assassination, while she played disinterestedly with my latest *Riccardia* specimens, and I pretended to write a paper. When our time was up I was truly surprised. Elizabeth, ever the shy introvert stood up and gave me a big hug and kiss and said, ‘Peter I hope we will always be friends’.

Yes Elizabeth we were and we are. I will miss you dearly.

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## Andi Cairns

A request for pictures of Elizabeth for a special edition of this Newsletter prompted me to delve into my photo archives. Looking through the many images has brought back lovely memories...

In June 2001, Elizabeth, Chris Cargill and I accompanied Professor Tamás Pócs and his wife Saci on a field trip around the Australian Wet Tropics. Tamás had been commissioned by the Australian Biological Resources Study (ABRS) to collect specimens of *Frullania* and other bryophytes for taxonomic studies within the Flora of Australia project.



What an adventure we had! We visited and collected in national parks from Bellenden Ker (Wooroonooran N.P.), inland to Atherton Tableland, and south to the Paluma Range. Caravan parks, petrol stations and roadside banks along the way often offered rich pickings. We explored many tropical rainforests, enjoyed bryological conversations, and discovered numerous bryological treasures. Evenings were spent peering down microscopes, identifying specimens. Elizabeth generously shared her bryological knowledge with me, then a relative novice.

Mt Bellenden Ker was particularly memorable: the rickety cable car to the summit, torrential rain (BK annual rainfall average is over 8000 mm), gnarly old *Leptospermum wooroonooran* trees, *Dracophyllum sayeri* (family Ericaceae, formerly Epacridaceae, and one of Elizabeth's many research interests), and spectacular bryophytes!

Among the many exciting finds, Tamás collected *Nowellia curvifolia* Dicks. Mitt. at the summit of Bellenden Ker. Elizabeth cleverly spotted yet another species, *Nowellia langii* Pears. at Curran Creek in the Kirrama State Forest. Neither species were previously known from Australia. Our Wet Tropics expedition was commemorated by shared authorship on the publication describing these new Australian records (Pócs et al. 2012).

And it wasn't all bryological! I'd forgotten that we picked mandarins from a roadside tree laden with fruit on the Atherton Tableland (hmm...we didn't really think it belonged to anyone...!). Delicious!

Vale Elizabeth. Thank you for your good company and field expertise. You'll not be forgotten.

#### Reference

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*Dracophyllum sayeri* (Ericaceae) at Mt Bellenden Ker Centre Peak.





Chris, Tamás and Elizabeth picking mandarins at an undisclosed location!



Elizabeth and Tamás photograph a population of *Dawsonia polytrichoides*, growing in a tree stump near Mt Zero, west of Paluma.



## Towards a Red List of bryophytes for Australia

David Meagher

*IUCN / SSC Bryophyte Specialist Group*

As of 1 January 2014, no Australian bryophytes was listed as globally threatened, only one (*Pseudocephalozia paludicola*) was listed as nationally threatened, and just 17 were listed as threatened in individual states or territories (Victoria 15, Tasmania 1, New South Wales 1).

These statistics might seem to paint a rosy picture of bryophyte conservation in Australia: only 17 species are at risk out of a continent-wide flora. But unfortunately the figures merely reflect the number of bryophyte taxa that have been *nominated* for listing. How many others deserving of listing is, at present, unknown.

Of our states and territories, only Victoria has a complete list of threatened bryophytes (DSE 2005). Although this list has no formal legal status, it must be taken into account under the state's Native Vegetation Management Framework. A preliminary assessment for Tasmania was produced in 1996 (Moscal et al. 1997) but never formalised.

The purpose of this article is to kick-start progress towards a formal list of threatened bryophytes in Australia. The primary purpose of such a list is to catalogue and highlight bryophytes that face a higher risk of extinction. In terms of practical use, the list would enable conservation aims and priorities to be set for threatened taxa, including the potential establishment of populations in cultivation or the preservation of material suitable for propagation in the future. Endemic species that are categorised as threatened or extinct would be automatically eligible to be recommended for listing on the global Red List (IUCN 2013).

Regional evaluations are often based on criteria developed specifically for that region, e.g. DSE (2005) for Victoria and Townsend et al. (2008) for New Zealand. However, because Australia is a very large land mass, the criteria set out by the IUCN for regional evaluation of threatened species (IUCN 2003) are entirely appropriate. The IUCN categorisation system is accepted throughout the world and has been subject to considerable review and revision since the first version was published in 1991. The following is a summary of the categories that may be applied to taxa.

Extinct (EX) — No reason to doubt that the last individual has died. Exhaustive surveys in known and/or expected habitat, at appropriate times, throughout its historic range have failed to record an individual.

Extinct in the Wild (EW) — As for EX, but surviving in cultivation.

Regionally Extinct (RE) — As for EX but surviving outside the region.

Critically Endangered (CE) — Facing an extremely high risk of extinction in the wild when assessed against the appropriate criteria.

Endangered (EN) — Facing a very high risk of extinction in the wild when assessed against the appropriate criteria.

Vulnerable (VU) — Facing a high risk of extinction in the wild when assessed against the appropriate criteria.

Near Threatened (NT) — Not CE, EN or VU, but close to being classified in one of these categories in the near future.

Least Concerned (LC) — Does not qualify for any of the above categories. Includes taxa that are widespread and abundant.



Data Deficient (DD) — Inadequate information to assess the risk of extinction based on its distribution or population status. This is not a threat category, but acknowledges the possibility that further research might result in the taxon being categorised as threatened.

Not Applicable (NA) — Ineligible for assessment because the population is not wild or not within its natural range in the region (e.g. introduced species), or the taxon is not at an appropriate taxonomic level (e.g. not yet identified to species level, or considered to be a form only).

Not Evaluated (NE) — Not yet evaluated against the criteria.

In order to arrive at an authoritative Red List for Australia, each taxon must be evaluated against the IUCN Red List criteria (IUCN 2001). Taxa may be assessed in five ways, as follows:

- A Observed, estimated, inferred or suspected reduction in population size over 10 years or three generations.
- B Geographic range (fragmentation, area of occupancy, number of populations or mature individuals).
- C Small population and a continuing decline.
- D Very small population.
- E Probability of extinction through quantitative analysis.

In practice only B and D are likely to be useful for assessing most bryophytes; very few taxa have been studied well enough to assess declines in population sizes or numbers, or the probability of extinction.

At the moment I am preparing a list of taxa to be assessed, including only taxa that are not clearly introduced and not widespread and abundant. It is based on the last online version of the Catalogue (McCarthy 2006) but includes taxa added to the Australian flora in publications since 2006. Taxa from Australia's external territories will be included. Proposals to add or subtract species should be directed to myself at the email address given on the last page of the newsletter. I expect to publish a draft list in the next (December) issue of the *Newsletter*.

During the next few months I also hope to organise a panel to begin assessing the taxa. Anyone based in Australia who is interested in participating (whether as a panel member or otherwise) is invited to contact me by email.

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## Bryogear: Selecting the perfect hand lens

Scott Zona

A bryologist is never without a hand lens. Whether dangling from a lanyard or tucked away in a pocket, a hand lens is always at the ready and is perhaps the single most important piece of kit that we can carry. There are a variety of lenses available, with those at 10 $\times$ , 15 $\times$  or 20 $\times$  power being suitable for bryology. A 5 $\times$  hand lens is probably not strong enough to be useful, while 30 $\times$  (or greater, in the case of those worthless ‘pocket microscopes’) may be difficult to use in the field, offering too small a view and too shallow a depth of field. There are a few technical details to consider when selecting a hand lens. Magnification and lens diameter are important, as is the housing construction. For those models with stacked lenses (‘triplets’), the housing should be sealed to prevent moisture from getting between the lenses. Durability, size, weight and price also figure into the selection equation.

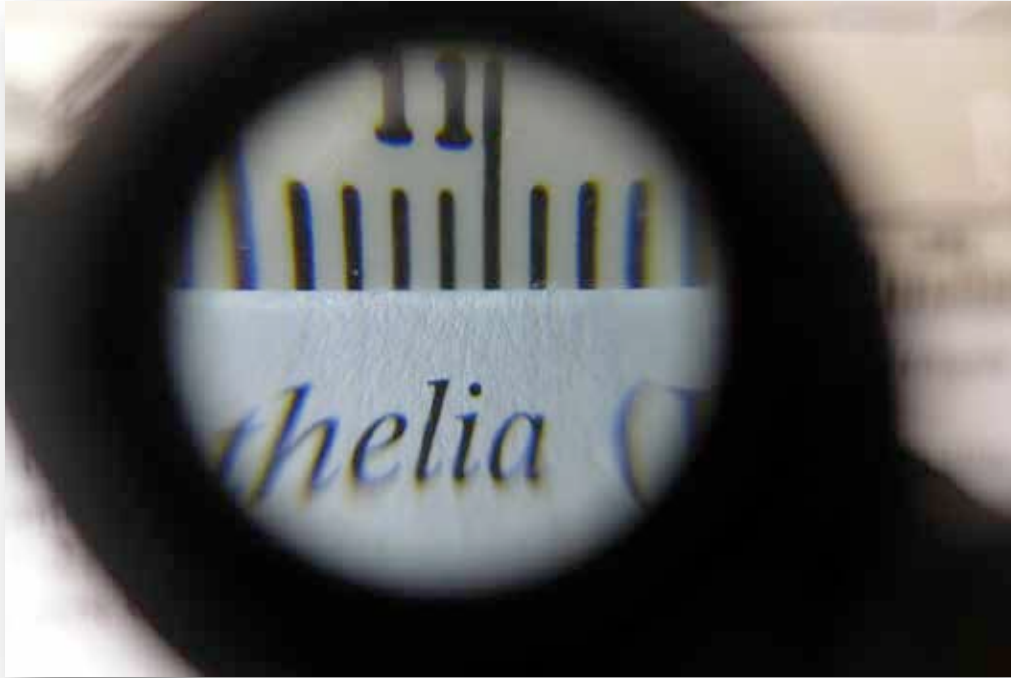
Two common styles of hand lenses are the Coddington and the Hastings Triplet; both have been used by bryologists for over a century. The Hastings Triplet uses three lenses with different refractive indices or radii of curvature to correct for optical aberrations. The Coddington uses a single, thick lens modified (by means of an equatorial groove) to limit spherical aberrations. Its field of view is only about 60% of the lens diameter because of the black coating on the equatorial groove. In other words, a Coddington with a 12.5 mm lens and a Hastings Triplet with an 8.3 mm lens both have about the same field of view.

Since my days as a student, I have carried a light weight (16 g), 3-piece ‘folding pocket magnifier’ manufactured by Bausch & Lomb. The housing is black plastic, and the three lenses (5 $\times$ , 7 $\times$ , and 9 $\times$ ) can be used singly at their stated power or in combination to give circa 15 $\times$  or 20 $\times$ . The 5 $\times$  and 7 $\times$  lenses are 20.3 mm in diameter, and the 9 $\times$  is 15.2 mm. The cost of this hand lens is a student-friendly US\$27 (c. AU\$30). I appreciate the flexibility of this model, allowing me to change magnification without having to carry different hand lenses. The down side of this lens is the plastic housing, which has cracked and broken on one of mine. Also, black is an unfortunate colour choice: if dropped or set down on the forest floor, the hand lens disappears. (Note to self: dab some bright orange paint on the housing.) This model has no loop for attaching it to a lanyard. The optical quality, I have come to learn, is less than ideal. Because the three lenses are not corrected, as they are in a Hastings Triplet, there is considerable optical aberrations in the field of view (Figure 1), including colour ‘ghosting’ and distortion.

Discussion on Bryonet led me to purchase what is regarded, at least by some bryologists, as the Cadillac of hand lenses, the Iwamoto 20 $\times$  achromatic. ‘Achromatic’ means that all the wavelengths of the visible spectrum are refracted to the same focal point, thereby avoiding colour ‘ghosting’ at the edges of the lens. The Iwamoto is a joy to use. The lens diameter is 14.6 mm, and the field is bright and crisp. The hand lens has no loop for attaching to a lanyard, but it comes with a small leather case. At 42.6 grams, this metal hand lens is heavier but surely more durable than my old B&L, and the optical quality is noticeably superior (Figure 2). I winced at the price (US\$100, AU\$112), but so far, I have no buyer’s remorse.

Recently, I acquired a hand lens with a built-in LED light source (Figure 3). This has been a godsend in dark forest understories, and the price, a mere US\$5.50 (AU\$6.16) on Amazon.com, was unbeatable. The two white LEDs are excellent and controlled by a small switch. It is powered by three, coin-size batteries. The model I purchased is made in China and bears no manufacturer’s name. The size (45  $\times$  25  $\times$  25 mm; 17.8 mm lens diam.) is larger and, at 66.8 g, significantly heavier than most hand lenses; there is a loop for lanyard attachment. While marked as a 20 $\times$  lens, it is certainly not that. It is, at best, 10 $\times$ , but it is a 10 $\times$  with bright illumination and a wide field of view. I see that other models marked ‘25 $\times$ ’ and ‘30 $\times$ ’ are also available.

Ultimately, the choice of hand lens is personal. You'll want to select one that is comfortable to use and gives adequate magnification. There are so many styles and sizes available; how to find the best one for you? The next time you are in a group of bryologists, ask to see their hand lenses. Everyone will have at least one. Try out the different hand lenses that your colleagues use, and find the best fit for you.



**Figure 1** The view through the Bausch & Lomb pocket magnifier at 20x shows considerable optical aberrations, including the color 'ghosting' around the black lines and type.



**Figure 2** The view through the Iwamoto Achromatic 20x hand lens show remarkably little optical aberrations. The view is crisp and clear.





Figure 3 Despite its size, this hand lens with built-in LED lamp is very useful in dark forests. The lens quality is mediocre.

## Blast from the past

From the *Cairns Post*, Friday, 29 November 1940, page 9 (Source: National Library of Australia)

**CURRENT NATURE  
TOPICS.**

(CCLXXIX.)

BY N.Q. NATURALISTS' CLUB.

**MORE NEW MOSSES.**

As the result of a collection made in the Mount Spec area by Miss E. Henry, of Lower Tully, a new moss has been discovered. It was found at Hidden Valley (an appropriate name to find a new plant in) and is to be called *Tayloria Henryae* in honour of the discoverer. Miss Henry also found *Dicranoloma serratum* and *Leucobryum candidum*, two mosses which have not previously been recorded from North Queensland. That even in such a densely populated State as Victoria, which abounds in ardent naturalists, a new moss should be found in the Dandenong Ranges within 30 miles of Melbourne, in the midst of a season of severe drought is shown by the discovery of *Campylopus Fleckeri* at Wantirna.

Elizabeth Henry (a member of the NQNC) collected many moss specimens in tropical Queensland. *Tayloria henryae* was described by Hugh Dixon in the following year. Unfortunately it turned out to be *Funaria hygrometrica*!

*Leucobryum candidum* was collected by her on Hinchinbrook Island and identified by Dixon (Henry 28B, CANB-360828: AVH record).

The *Dicranoloma serratum* collection mentioned was probably one she made in January 1940 (CANB-362258: AVH record), which was determined by Niels Klazenga as *Dicranoloma leichhardtii*.

'*Campylopus fleckeri*' was never formally published. The collection referred to was made by Hugo Flecker (also a member of the NQNC) in March 1940 (CANB-362245: AVH record). It was determined in 1951 by T. Clifford to be *Campylopus clavatus*.

These specimens were no doubt lodged in the former North Queensland Herbarium and thus made their way to CANB.

— David Meagher

## What's that green stuff?



This moss of Australia and New Zealand ranges from the very far south to the tropical north. It usually has a very different appearance to this variety, which occurs on rotting logs and tree trunks in very wet and usually shady habitats in New Zealand (including the Kermadecs), Tasmania, Victoria and New South Wales.

Its distinctly red stems, lack of a costa and inflated alar cells indicate that it belongs in the Sematophyllaceae, a difficult group of plants especially in tropical areas, where often one species looks much like another.

Although it has been widely recognised for many years, the form pictured here was formally described as a variety only in 2013 (see reference below). It is named for the appearance of the tail-like flagelliferous branches that characterise it. *Answer at bottom of page.*

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Editor: David Meagher (dameag+unimelb.edu.au) (replace + with @ to email)  
Articles relating to bryology in Australasia are welcome.  
The deadline for Issue 65 is 31 November 2014.

### Cover photo

Elizabeth Brown with a pile of liverworts in Fiji, September 2011. (John Braggins)

### What's that green stuff?

*Wijkia extenuata* H.A.Crum var. *caudata* Fife. Wet sclerophyll forest in the Victorian Central Highlands, near Marysville. (DAM)

Fife AJ 2013. New taxa of *Sematophyllum* and *Wijkia* (Musci: Sematophyllaceae), with a key to New Zealand Sematophyllaceae. *New Zealand Journal of Botany* 40: 435–447.