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Australasians in Malaysia IAB July 2007



Cover Page

Australasian Bryologists who attended the World Conference of Bryology, Kuala Lumpur, Malaysia, 23rd – 27th July 2007.

Back left to right: Niels Klazenga, Karen Beckmann & Alison Downing; Middle left to right: Matt von Konrat, David Glenney & Paddy Dalton; Front left to right: Elizabeth Brown, Helen Jolley & Jessica Beever. Insert: Matt Renner. *Photo courtesy Ross Beever.*

World Conference of Bryology Petaling Jaya (Kuala Lumpur), Malaysia, 23 – 27 July 2007 An Australasian Perspective

Bryologists from more than 30 countries around the world converged on Kuala Lumpur in July this year, for the World Conference of Bryology. Amongst this international gathering of scientists was a very strong contingent of New Zealanders and Australians. The theme of the conference, “*Bryology in Asia in the New Millennium*”, was well reflected in the very wide range of papers and posters. The conference was hosted by the International Association of Bryologists and the University of Malaya and consisted of a great week of seminars, workshops and discussions. Field trips followed to exciting and challenging and also historical destinations, such as Mount Kinabalu in Sarawak, the Cameron Highlands in Peninsula Malaysia and Cibodas and Bogor in Indonesia.

At the opening ceremony we were welcomed by Professor Haji Mohamed, Chairman of the Organizing Committee, by Professor Amru Nasrulhaq Boyce, Dean of the Faculty of Science at University of Malaya and by IAB President Janice Glime. It was a great pleasure to have present the Honourable Dato’ Seri Azmi Bin Khalid, Minister of Natural Resources and Environment, Malaysia. We were very amused when he told us how he had just learnt that bryophytes were the slippery, green things that grew in his village but added that they were ‘not evil like fungus’. Minister Dato went on to discuss the importance of biological diversity in Malaysia, and of the 1100 species bryophytes that occur in Malaysia, of which 9% are endemic.



Keynote speakers Rob Gradstein (left) and Yoshinori Asakawa

Robbert Gradstein presented the Conference Keynote Speech, ‘*Neotenic Bryophytes*’. Neoteny is the retention of juvenile characters in the adult organism, which allows rapid growth to maturity in unstable habitats, such as ploughed fields, ephemeral watercourses, sand dunes, twigs and leaves. Included in the examples of neotenic bryophytes was *Ephemeropsis tjibodensis*, a tiny epiphyll named for *Tjibodas* (now *Cibodas*) in Java, but also recorded in the *Catalogue of Australian Mosses* as occurring in Queensland. *E. tjibodensis* was used as the iconic motif for this conference.

In the early afternoon, Brent Mishler gave a Special Talk on ‘*The Uses of Phylogenetics in Comparative Genomics, with Special Reference to the Physcomitrella Genome Project*’ and the afternoon concluded with a series of papers on Bryophyte Chemistry, including the Plenary Lecture presented by Professor Yoshinori Asakawa on *Hepaticae, A Good Source of Biologically Active Compounds*.

By the second day, the Australians and New Zealanders had organised themselves beyond the constraints of the conference venue. Much to the amusement of hotel staff, each day at 6.30 am while it was still pitch black outside but pleasantly cool, Paddy and his entourage of ladies, assembled in the hotel lobby before heading out on a pleasant walk through suburban streets and round a local sports field. It was also rumoured that one very tall young man from Melbourne (who shall remain nameless!), purchased two durians and then

hid them in a nearby garden until they were ready to eat. For those who don't know, durians are very large, yellow, spiny fruit which are supposed to "taste like heaven, but smell like hell!" They are banned on public transport in much of south eastern Asia.

The ceremonial consumption of the durian.

This took place away from the conference venue to avoid any embarrassment!! Delegates who participated in this gastronomic event are: Matt Renner, David Glenny (main culprit), Elizabeth Brown, Niels Klazenga, Xiaolan He-Nygrén and Karen Beckmann. All confirmed their delight at the taste but the aroma!!



The second day of the conference included two parallel sessions. The theme for the first session was Molecular Phylogeny and Evolution of Bryophytes, with the Plenary Lecture *Reconstructing Phylogenetic Trees: Models, Algorithms, Problems* presented by Kai Müller. Niels Klazenga presented a paper on *Molecular phylogeny and biogeography of Dicranoloma, (Renauld) Renauld (Bryophyta, Dicranaceae)*, Matt Renner a paper on *The genus Papillolejeunea Pocs* and Hiromi Tsubota (co-author Paddy Dalton) presented a paper on *A preliminary phylogenetic study on bryophytes based on a large-scale dataset of chloroplast rbcL gene sequence*.

The parallel session, Bryophyte Morphology, Ultrastructure and Ontogeny, was introduced by Jeffrey Duckett's presentation, the Plenary Lecture, *Fungal Associations in Bryophytes*. This lecture gave a new insight into bryophyte/fungal associations. Endophytic fungi have apparently never been found in mosses, although saprophytic and parasitic fungi are often present but there is a great diversity of endophytic fungi that have been found associated with both liverwort and hornwort taxa.

In contrast to the many presentations on tropical bryology, Zhang Yuan Ming brought to our attention a different world when he spoke of his work on biological soil crusts in the Gurbantüngüt Desert in far north-western China. Here, rainfall is in the vicinity of 150-200 mm per year and evaporation 3000 mm or more per year. The findings from this isolated region mirror similar work done by David Eldridge in Australia and by other researchers in many arid areas of the world.

Thomas Hallingbäck gave the Plenary Lecture, *Bryophytes and the Global Plant Conservation Strategy*, in the session, Bryophytes: Conservation and Economic Importance. The series of papers that followed on the identification and management of threatened species, included a presentation by Matt von Konrat (co-authored by Matt Renner) *Early land plants today – Global patterns of liverwort diversity, distribution, and floristic knowledge*. Matt von Konrat is now at the Field Museum in Chicago, but we still like to claim him as one of our own!

Knowing that many of us had never previously visited Kuala Lumpur, on Wednesday, our hosts organised a great day of touring. Our first stop was at the Science Department at University of Malaya, then in smaller groups and guided by staff members, we toured the Rimba Ilmu Botanic Garden. The campus of the University of Malaya was originally a rubber plantation, and every now and then, rubber trees have been retained for historical reasons within the garden. I (Alison) had never seen a *Gnetum* tree before, and didn't realise that in the following week would have the opportunity to eat "chips" or "crisps" made from the ground flour of the *Gnetum* fruits. After viewing the rare plant glasshouses and a superb exhibition featuring rainforests of south-east Asia, we enjoyed a delicious and spicy, Malaysian lunch before we were whisked away again to visit Independence Square, the National Mosque and the Petronas Towers. We enjoyed

shopping for Malaysian handcrafts, particularly batik, at the Central Markets. China Town also proved to be a shopper's paradise, although it seemed most of us used this opportunity to buy tropical fruit, particularly longans, lychees and rambutans.

In the evening, we were very honoured to have as guests at the Conference Banquet, Datuk Rafiah Salim, Vice-Chancellor of University of Malaya and Tan Sri Datuk Arshad Ayub, Chairman of the Board of Directors of University of Malaya. As we enjoyed our banquet, we were treated to some wonderful performances of song and dance, presented by talented students from the 9th Residential College of the University of Malaya. For the last performance of the evening, the students invited conference delegates to join them on the stage. Professors Asakawa and Gradstein were, without doubt, the most skilful and artistic dancers. Mind you, Jessica and Ross Beever, and Paddy Dalton, did us southerners proud!

Ben Tan introduced Thursday's session on Taxonomy, Biodiversity and Biogeography of Asian Bryophytes. Presentations dealt with bryophytes from many parts of Asia, from Thailand to Indonesia, from India to Japan and from the Philippines in the Pacific to Siberia and Mongolia.

The parallel session, Bryophyte eco-physiology, was chaired by Janice Glime. We watched entranced as Nils Cronberg presented the video made by Hans Berggren - *Private life of silvermoss*, *Bryum argenteum*, which demonstrated the role of mites and springtails in the fertilization of mosses. Bryophyte Morphology, Ultrastructure and Ontogeny followed, and it was most unfortunate that Karen Renzaglia, was not able to attend the conference. Fortunately, Jeff Duckett, a co-author, presented Karen's paper, *Evolution of the hornwort chloroplast unveiled*.

By this time, the Australian contingent had discovered a local shopping centre, with inexpensive and fast internet cafes, interesting supermarkets and a great computer market. So at the end of each day, it became a race to get down to the shops, email home, buy that extra SD card for the camera or some toys for a special baby girl and get back in time for the evening meal. We just had to make sure that we watched out for two things – the most unbelievably uneven footpaths along store fronts and occasional torrential thunderstorms! On Friday morning, we were treated to more presentations on Asian bryophytes. We had an opportunity to hear the work of intrepid bryologists who venture into spectacular but extraordinarily inaccessible regions of south-western China and Myanmar. These hotspots of bryophyte diversity were well illustrated in talks by David Long and Jim Shevock (Bryological exploration of the Gaoligong Shan) and Masanobu Higuchi (Mosses in the Hengduan Mountains). The challenge to work in these areas was emphasised by Atsushi Tanaka and Hiroyuki Akiyama who needed three years of contact with the Myanmar Government to obtain permission to work in that country.



During the week, posters had gradually been appearing on the boards, but on Friday we finally had an opportunity to view all the posters and to chat with the authors. New Zealanders and Australians again were very well represented: David Glenny (with John Engel), *A Liverwort and Hornwort Flora of New Zealand*; Bill and Nancy Malcolm, *Illustrating Bryophytes*; Helen Jolley (with Pina Milne), *Two Odd Mosses: The Common *Stonea oleaginosa* and the Rare *Phascopsis rubicunda**; Karen Beckmann, *Black, Scaly and Hairy – Nightmare Riccia Complexes*; Jerry Romanski and Paddy Dalton, *Crown to the Ground – Epiphytes in Tasmanian Temperate Rainforest*. And we were delighted to have Jessica appointed as one of three judges of the poster competition.

Judge Beever questions Helen Jolley on details of her poster

Benito Tan chaired the Closing Ceremony of the conference and by special request, Nils Cronberg's exquisite video: *Private Life of Silver Moss, Bryum argenteum*, was screened again. Janice Glime announced the IAB awards, including two Stanley Green awards, one to Juan Bernardo Larrain Benoit for "Bryological exploration in scarcely explored areas in Central and South Chile, the other to Juan Carlos Villarreal for "Cryptic speciation and phylogenetic affinities in the hornwort *Megaceros vincentianus*". The Hattori Award for best paper or book went to Bill and Nancy Malcolm, for their exquisitely illustrated book, "Mosses and other Bryophytes, an Illustrated Glossary (Second Edition)" and the Spruce Award was presented to Jeff Duckett. The Conservation Award was presented to Santiago Yandon for work on the distribution, ecology and conservation of the endangered *Myriocolea irrorata* in Ecuador. We were delighted that Helen Jolley won one of five student travel awards. Janice also announced the establishment of a new award – the Riclef Grolle award for excellence in studies in bryodiversity, particularly in under-explored areas of the world. The appointment of officers to IAB included Masanobu Higuchi as Vice-President, and new councillors, Efrain de Luna and Emma Pharo!

Janice thanked the University of Malaya, in particular Professor Haji Mohamed in his role as Chairman of the Organising Committee. Not only had Haji Mohamed been closely involved with the conference, but was departing on the Sunday following the conference to take up a post in Brunei, to co-ordinate Sabah, Sarawak, Kalimantan and Brunei in the 'The Heart of Borneo' project. Janice also thanked university staff, including Mr Yong Kien Thai, Ms Ng Swee Yee and Mr Patrick Lee. The exquisite satchels made from black cloth with woven green pandan were a delightful memento of the conference. The choice of the Crystal Crown Hotel was excellent. It was comfortable, affordable and close to the university and public transport, giving participants much more time for sociable discussion. Our appetites were well satisfied and we really enjoyed the wide selection of colourful, traditional Malaysian dessert treats, featuring coconut, palm sugar and sticky rice.

In addition to the scientific content, the conference was a great opportunity to catch up with old friends. Special mention to Ben Tan who for a long time has been encouraging his friends and colleagues, world-wide, to come to Kuala Lumpur for this conference and has been working incredibly hard behind the scenes. Ben is to be thanked for keeping us in good humour throughout the conference.

Ben Tan (left) in jovial discussion with Hironori Deguchi



The conference received excellent press coverage in the local English language newspaper, The Star, while the field trip to Cibodas was also reported in the Jakarta Post. During the week of the conference, Paddy Dalton made sure that he promoted bryological activities in Australia, in particular, the 2011 IAB conference, which will be held in Melbourne in conjunction with the International Botanical Congress.

Professor Haji Mohamed summed up the conference very appropriately in his concluding comments when he said that in such uncertain times, if bryophytes can bring people together from around the world, to work together productively and in harmony, then there is hope. The warm welcome extended to us by our Malaysian colleagues was greatly appreciated and one of the most exciting elements of the conference was the very large number of dynamic and capable young bryologists, many from south-east Asian Nations, (and, as Ben Tan regularly and joyfully reminded us, 'below 45 years of age') who contributed papers and posters. More adventures followed, with Elizabeth Brown heading to Mount Kinabalu, Karen Beckmann to Jakarta, while Jessica and Ross Beever, Niels Klazenga and Alison Downing headed to the mountains of Cibodas in Java.

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The Moss Gardens of Cibodas A Field Trip of the World Conference of Bryology July, 2007

The field trips that followed the World Conference of Bryology held in Kuala Lumpur, headed to some exciting, exotic and challenging destinations. But how to choose? Mount Kinabalu in Borneo, Cameron Highlands of Peninsula Malaysia, the Botanical Garden of Singapore or the Moss Gardens of Cibodas in the mountains of Java? Ben Tan simplified the choice for me. "Go to Cibodas. The moss gardens of Cibodas are unique, the volcanos and rainforests of Gede Pangrango National Park are superb and two of my students, Eka Aditya Putri Iskandar and Ho Boon-Chuan will be leading the expedition!!" So, twelve intrepid souls, together with our guides, flew to Jakarta to begin our travels.

Jakarta was hot, dry and dusty. Our guides had drivers and vehicles waiting and we sped along broad motorways towards the mountains. Lunch was my first introduction to Indonesian meals. Our table was piled with a range of dishes, including rice, meat, vegetables, but we only paid for those from which we had taken servings. I enjoyed rice, tofu and chilli wrapped in banana leaf, bitter melon curry and steamed morning glory. From here we began a long, slow, steep climb into the mountains. Almost every inch of road was lined with stalls, most selling bananas and yams, but others with cane bird cages or intricately designed and brightly coloured lamps and ceramics. In contrast, vehicles were modern and occasionally we saw a roof top satellite dish. As we climbed higher, the mountain slopes were covered in bright green, terraced tea plantations. To my surprise, the trees planted at intervals through the tea were Australian silky oaks, *Grevillea robusta*. Finally we reached the top of Puncak Pass, accelerated downhill, then traversed lower slopes to climb up to Cibodas Botanic Garden on the slopes of Mount Gede and Mount Pangrango. We were delighted to find the road leading to the Botanic Garden lined by small plant nurseries, each with a colourful array of potted plants such as *Bougainvillea* and Frangipanni.

In early times, Cibodas was spelt 'Tjibodas' and many bryophyte genera, for example *Ephemeropsis*, *Horikawaea* (*Neckera*), *Plagiochila*, *Megaceros*, *Acrolejeunea*, *Syrrhopodon* and *Frullania*, share the specific epithet 'tjibodensis'. I was astonished at the vast number of organisms, particularly fungi, lichens and insects, which also share this name. Cibodas Botanic Garden ranges from 1300 to 1425 metres above sea level at 6° 44' south of the equator. The Botanic Garden covers more than 125 hectares, ranging from level gardens to steeply sloping hillsides. At this altitude, the temperatures are mild but rainfall an astonishing 3,380 mm per year. From about 1830, Dutch and Indonesian horticulturalists and botanists, many of them from Bogor (known in those times as Buitenzorg) Botanic Garden, were involved in the development of a number of gardens and plantations in the vicinity of Cibodas. In 1852, Teysmann planted quinine, *Cinchona calisaya*, at Cibodas and subsequently planned and built the botanic gardens at the same location. By 1871, more than 1300 species had been established in the gardens. Now, there are more than 6,000.

However, we had come to Cibodas to see the Cibodas Bryophyte Park and it was everything we had been promised. The infrastructure for the 1,500 square metre moss garden was constructed two years ago and opened last year. Our guide, Eka Iskandar has been appointed as botanist at Cibodas to continue bryological research in Indonesia and also to oversee the further development and management of the garden. The moss (bryophyte) garden nestles into a sloping section of the botanic gardens. There is a dark, green barrier of natural rainforest along the ridge top at the rear of the garden and the trees provide both shade and shelter. The garden is enhanced with a small stream and cascades. Cobbled paths, some wide, some very narrow, wind through the garden, allowing gardeners easy access to their miniature landscapes. In places, wide mouthed terracotta pots are sunk into the ground, their protruding rims repel invasive bryophytes (such as *Ectropothecium*, *Marchantia* and *Dumortiera*). A small pavilion is located near the entrance gate, and towards the rear of the garden, many more species are being cultivated in terracotta pots for future planting. There are currently more than 100 species growing in the moss garden and plans are afoot to almost double the area and increase the number of bryophytes in cultivation.

At Cibodas, it was quite an experience to stay at the guest house within the Botanic Gardens. Large, comfortable bedrooms on two levels surrounded a large, open central living area where we assembled for meals. The view out over the gardens and down to the valley below was superb. On arrival, the air was smoky but in the clear light of the early morning, I was astonished to see the distinctive outlines of Mount Gede and Mount Pangrango standing out on the horizon, high above the guest house. The gardens featured many Australasian species, for example a magnificent row of (Australian) bunya bunya pines (*Araucaria bidwillii*), surely some of the largest I had ever seen. I was also surprised to see many, very old, Australian eucalypts, the tree bases covered with rich cushions of bryophytes.

Our day's trek to the Cibeureum Waterfalls in Gede-Pangrango National Park was awesome. The national park borders the botanic garden and we were privileged to have Holif Immamudin, Director of Cibodas Botanic Garden, accompany us early at the start of our walk. We saw Javan Leaf Monkeys partying in the upper branches of tall trees, timid squirrels darting along low horizontal branches and we heard a rich medley of bird calls. Every now and then we passed the massive trunk of a Rasamala, (*Altingia excelsa*), an economically important timber tree. Steep, basalt cobbled paths led us through SubMontane forest of tall emergent trees, palms, vines and ferns – all rich with bryophytes, of course. The park is a very popular tourist destination and we passed a constant stream of (mostly) young people, some out for the day, others climbing to the tops of the mountains to camp in the alpine meadows. I found it uncanny to walk through this legendary forest, knowing that I was walking in the footsteps of so many famous botanists, Teysmann, Treub, Fleischer, Dozy, Molkenboer and Reinwardt. We crossed timber walkways above swamps before we finally reached the waterfalls. They cascaded down vegetation covered cliffs where occasional splashes of bright orange revealed the location of a *Vireya Rhododendron*. We lunched at the foot of a waterfall, the type locality for *Sphagnum gedeanum* which cascaded down the cliffs in large, soft, pinkish cushions. Our descent was much faster than the climb and I really enjoyed my 'kopi susu' (coffee with sweetened condensed milk) at a stall near the entrance to the park. Collecting was permitted within the botanic gardens and *Marchantia* and *Dumortiera* were abundant on exposed soil of roadside and trackside banks. Many of the genera were very familiar to me, *Fissidens* (a giant species, specially for Jessica), *Distichophyllum*, *Leucobryum*, *Lopidium*, *Papillaria*, *Meteorium*, *Aerobryum*, *Hypopterygium*, *Bryum*, *Plagiomnium*, *Syrrophodon*, *Plagiochila*, *Aneura* and *Weissia*, others less so, such as *Cyathodium*, *Leucophanes* and *Pseudosymblepharis*.

We were very reluctant to return to the hot, dusty lowlands. Leaving tea plantations behind, we were once more surrounded by fields of bananas, manioc, pawpaws and sweet corn but our guides had yet more treasures in store for us. The Herbarium Bogoriense is one of the most significant collections in south-east Asia, housing in excess of 2 million collections of plants and fungi. Originally located in the grounds of Bogor (Buitenzorg) Botanic Gardens, the Herbarium Bogoriense was moved in 2007 to a brand new building in the Cibinong Science Centre. It was fascinating to see this ultra-modern facility which housed so many famous, early collections. I finally found my ultimate Javanese bryophyte, *Ephemeropsis tjibodensis*. I particularly wanted to see collections made by Fleischer, a painter and bryologist who was invited by Treub to visit Java and who collected extensively (mosses, orchids, ferns and fungi) in the late 1800s and early 1900s. Amongst many other famous names, there were also many specimens of Willem Meijer who added over 6000 specimens to the collection in the 1950s and 1960s.

From Cibinong we were driven to the guest house in the Bogor Botanic Gardens, where we stayed in the guest house, just along from Treub's Laboratory. It was again difficult not to imagine the presence of famous botanists and explorers, perhaps Raffles, Wallace, van Steenis, in large, white, rambling building, with its high ceilings and large, open living areas. Sir Stamford Raffles was governor of Java from 1811 to 1816 and planned the Palace Grounds as an English landscaped Garden. In 1817, 47 hectares bordering the Palace grounds were set aside and became Bogor (Buitenzorg) Botanic Garden with Reinwardt appointed as the first director. The gardens have some magnificent old trees, many with well-developed buttress roots and stilt roots. There are plantings of palms, cycads, orchids, lotus and waterlilies. Behind a bamboo hedge we found an old cemetery tucked away, with headstones marking the graves of early explorers and plant collectors. Our stay in the relative quiet of the cool, green gardens was in contrast to the bright colours, the chaos and cacophony of street traffic of the local shopping centre.

It was with much reluctance that we packed our bags to return to Jakarta. I would like to thank Director Holif Immamudin for making us so welcome at Cibodas and our guides, Eka Iskandar and Ho Boon-Chuan, for making this trip so enjoyable. I also would like to thank my travelling companions. I doubt that I have ever travelled with such a pleasant and agreeable group of people. Altogether we represented 10 countries: Uthaya Raman from Malaysia, Ho Boon-Chuan from Singapore, Eka Iskander from Indonesia, Alison Downing from Australia, Jessica and Ross Beever from New Zealand, Paolo Camera from Brazil, Noris Salazar Allen from Panama, Brent Mishler and Nancy Slack from the USA, David Rycroft and David Long from Scotland, Brian O'Shea from England and Niels Klazenga from Holland (although Niels really is an Aussie now!). I would particularly like to thank Uthaya Raman for her company, her enthusiasm for each new and exciting discovery, her good humour and sensible, practical advice on food!

I recommend that every bryologist should visit the Cibodas Bryophyte Park. It is a fascinating destination. If you have the opportunity to visit Java then you definitely must go. Eka Iskandar can be contacted at Cibodas Botanic Garden, P.O. Box 19 SDL, Sindanglaya-Cianjur 43253, West Java, Indonesia, or email: iskandareka@yahoo.com.

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Bryologising in the desert!

In 2006 the Australian Geographic Society invited scientists to apply for inclusion in a scientific expedition, from 2-13 July 2007 in the northern Simpson Desert, about 300 kilometres east of Alice Springs. The Society was looking for projects in a wide range of disciplines to conduct some of the first wildlife surveys in this area. Helen Jolley, Karen Beckmann and Pina Milne were invited to participate in the expedition and complete a project to 'Document the biodiversity of cryptogamic soil crusts and vascular flora in the vegetation communities of the northern Simpson Desert'.



Karen Beckmann, Helen Jolley & Pina Milne

A total of 19 scientists from a wide range of disciplines joined the expedition party, together with 15 volunteer assistants who had paid for places on the trip. Our project was one of only two concerned with flora; ten other projects were focused on fauna (bats, camels, marsupial moles, echidnas, dingos, reptiles, arthropods, birds and small mammals). Prior to this expedition there were no vouchered collections of bryophytes and lichens at the National Herbarium of Victoria from this particular area of the Simpson Desert

Therefore, the expedition provided an invaluable opportunity to document the biodiversity of bryophytes, fungi and lichens of the northern Simpson Desert, in particular Atnetye land along the Hay River.

Mosses were not abundant, but occurred in two types of habitats: on rocky outcrops and creek and river banks. The most common species we found were: *Gigaspermum repens* and *Goniomitrium acuminatum* subsp. *enerve* which are typical mosses from arid areas; these occurred on soil between rocks or at the base of trees. On dry river banks we found *Entosthodon subnudus* var. *subnudus*. Other collections of Bryaceae are in the process of being identified.

Liverworts were found to be abundant in areas such as creek and river banks, billabongs and clay pans. At least eight species of liverworts in the family Ricciaceae were found. It was surprising that other liverworts

which are often seen with *Riccia* species were not found. At least five species of liverworts were collected at a billabong. These included ephemeral species of *Ricciella*; *Riccia crystallina*, *R. cavernosa* (Fig. opposite) and two other *Riccia* species. These liverwort species are known to form large mats around shrinking water holes and lakes but the large size of the plants and abundance at this site was remarkable. In drier habitats, *Riccia crinita* was found growing with *R. limbata* and *R. macrospora* in large carpets under mulga. These plants are usually found growing in rosettes a few centimetres in diameter.



Riccia sorocarpa, *R. crinita*, *R. macrospora* and *R. cf. billardierei* were found in abundance along the banks of a dry creek and *R. macrospora* along with two *Ricciella* species on the banks of the Hay River.

Lichens as with the mosses were not abundant, but the species found were typical of those documented in arid and semi-arid environments. Lichens were confined to rocky outcrops, either on soil at the base of shrubs or on rocks. Five species of lichens were collected, *Acarospora* aff. *cintrina*, *Endocarpon* sp., *Peltula* sp., *Placidium* sp. and *Psora decipiens*. The fungi specimens collected consisted predominantly of puffballs including *Calvatia lilacinogilva*, *Discisina* sp., *Pisolithus tinctorius*, *Tulostoma* sp., *Gastrum* sp.; *Podaxis pistillaris* was particularly abundant.



In 1883 Charles Winnecke explored the Simpson Desert (opposite) and from his vascular plant collections, Ferdinand von Mueller prepared a comprehensive list and description of certain taxa which was published in Winnecke's 'Diary of Northern Exploration'. MEL holds 142 specimens collected by Winnecke, including nine type specimens (e.g. *Isotropis winneckeae* F.Muell. and *Triumfetta winneckeana* F.Muell) and *Swainsona laxa* R.Br. which is now listed as rare and threatened for the Northern Territory.

Winnecke's specimens do not have specific locality details; the only information provided is "Northern Exploring Expedition, 1883". During the expedition we were able to collect 103 vascular plant species from a number of localities and compare them with the collections made by Winnecke. There are 22 species which Winnecke collected in 1883 that we have recollected e.g. *Triumfetta winneckeana* and *Drosera indica* which Winnecke described in his diary. Although Winnecke described the country as a perfect desert which was of no value to squatters, for us the Simpson Desert was 'the perfect desert'. The opportunity to impart our knowledge and passion for cryptogams to volunteers on the expedition was invaluable. The expedition was an extraordinary experience for us and all our collections will make a valuable addition to the holdings at the National Herbarium of Victoria.

Pina Milne, Karen Beckmann and Helen Jolley, National Herbarium of Victoria, Royal Botanic Gardens Melbourne, Victoria.

Bryological miscellanies from MELU

New to Australia

Bazzania parisii (Steph.) N.Kitagawa

QLD: (1) Mt Tyson Track, west of Tully, 480 m asl; in lowland rainforest beside deep rocky creek on way to Scouts Rock, on rocks in creek; coll. J.A. Curnow 1990 (no. 3658); HO 318787 ex CBG. (2) Track to Mount Spec, c. 1 km east of Paluma Dam, on rocks in creek, coll. June 2007; MELU.

Note: In volume 52 of the *Newsletter* I reported this as *Bazzania morokensis* (Steph.) Grolle. A study of material from New Guinea and New Caledonia and the new collection from Mount Spec cited above has shown that Australian material is actually the similar *B. parisii*, distinguished by its shorter leaves, larger underleaves that are \pm cucullate, thick-walled cells and smooth leaf and underleaf surfaces. This species was previously thought to be endemic to New Caledonia. Duplicates will be lodged in BRI, CANB and F.

Cephaloziella kiaeri (Austin) Douin

QLD: Summit of Mt Tyson, west of Tully; on soil in rock overhang; coll. June 2007; MELU.

Note: This minute liverwort has a wide range from Africa to mainland Asia, South East Asia, Melanesia and Oceania, so it is not surprising that it has turned up in Queensland. It is illustrated in Arnell (1963), Kitigawa (1969) as *C. willisana*, and Vana & Piippo (1989). Branching is wholly ventral-intercalary and is very common. The tiny bifid leaves (becoming smaller towards the shoot tips) are papillose. Some shoots have vestigial underleaves ranging from one or two cells to many-celled and distinctly bifid. Duplicates will be lodged in BRI and CANB.

Plagiochila monospiris Inoue & Grolle

QLD: Summit of Mount Spec, near Paluma, on bark of tree in open forest, mixed with *Radula queenslandica*; coll. June 2007; MELU.

Note: This is a tiny liverwort that creeps among other bryophytes, hardly recognisable as a *Plagiochila*. The leaves are widely spaced on the stem and angled towards the shoot apex. They are rather club-shaped, narrow at the base and widest near the apex, and have several large teeth around the apex and often on the ventral margin. Branching is unusual in being wholly lateral-intercalary. Inoue (1972) and Piippo (1989) described the colour as pale brown to yellowish brown (which no doubt it is in old herbarium collections, like many other *Plagiochila* species), but in life it is dark green. The leaf cells have distinct trigones and the oil bodies are \pm spindle-shaped but also ellipsoid and globular, slightly granular, several per cell. *Plagiochila bicornuta* Steph. from Oceania seems very similar and might be conspecific. If so, that name has priority. Duplicates will be lodged in BRI and CANB.

Verdoornia succulenta R.M.Schust.

VIC: (1) Bogong High Plains, Pretty Valley, submerged in small creek in subalpine grassland, coll. Jan 2001; MELU. (2) Baw Baw Plateau, The Morass, submerged in subalpine fen; coll Feb 2007; MEL.

NSW: Kosciuszko National Park, submerged in creek, tributary of Thredbo River, in subalpine woodland, coll. Jan 2002; MELU.

Note: This odd thallose liverwort, originally placed in Makinoaceae but apparently belonging to the Aneuraceae (Crandall-Stotler & Millar 2004) was originally described from a few localities in New Zealand (Schuster 1963: 291). It is what I have called *Aneura 'notoalpina'* (Meagher *et al.* 2003) and '*Aneura* sp. A' in the key to thallose liverworts of Victoria (Meagher 2006). It was only the collection of new material from the Baw Baws that made me realise the true identity of these specimens. I suspect that the plant described and illustrated by Allison & Child (1975) as *Aneura* sp. (?) *rodwayi* is the same thing.

New to Victoria

Chiloscyphus lentus (Hook.f. & Tayl.) J.J.Engel & R.M.Schust.

VIC: Baw Baw Plateau, Baragwanath Flat, among leaf litter in boggy area in damp subalpine heathland, 1485 m asl; coll. Feb. 2007; MELU, dupl. for MEL.

Note: This is a tiny, yellowish liverwort with deeply bifid leaves that have \pm parallel sides (lobes long and sometimes ciliate, and usually divergent) and 4-fid underleaves with widely divergent ciliate lobes (two middle lobes much longer). Small forms of *C. latifolius* can look similar, but they have the ventral margin of the leaf clearly rounded. A duplicate will be lodged in MEL.

Kiaeria pumila (Mitt.) Ochyra

VIC: Baw Baw Plateau, The Tors, in crevice on shady side of large boulder in subalpine woodland, 1540 m asl; coll. Apr. 2007; MELU, dupl. for MEL.

Note: This moss was once known as *Dicranum aucklandicum* Dix. It has been reported from several localities in Tasmania and also New Zealand, southern South America and other south temperate and subantarctic regions, where it has many synonyms (Ochyra & Broughton 2004). The identity of the Victorian specimen was confirmed by Niels Klazenga. A duplicate will be lodged in MEL.

New to Tasmania

Frullania spinigastria Hattori

TAS: South Sister (near St Marys), on branch of *Bedfordia* in montane sclerophyll forest, 750 m asl; coll. Nov 2006; MELU.

Note: This species is very distinct in having the underleaves armed all around with small spines, rather like the underleaves of *Gackstroemia weindorferi*, and spiny-lacerate female bracteoles. The leaf lobules are bluntly claw-shaped, as in *F. falciloba*. Overall it seems to be somewhere between *F. falciloba* and *F. monocera*. *F. spinigastria* was known previously only from the type, from near Blackheath in NSW, coll. W.W. Watts 1000b (Jan. 1913), isotype in MEL(!). A duplicate will be lodged in HO and F.

An interesting record

Chandonanthus squarrosus (Menzies ex Hook.) Mitt.

VIC: Baw Baw Plateau, The Tors Range, on eastern face of granodiorite tor, coll. Feb. 2007; MELU.

Note: This curious and very distinctive species is quite common in New Zealand and Tasmania, but on the Australian mainland it was previously known only from a single record from the eastern end of the same plateau, collected by Arthur Thies in 1988 (MEL 2249298). Reports of *C. squarrosus* from Queensland are based on old collections in CANB that have all turned out to be *C. hirtellus*. In Australia *C. squarrosus* grows mainly on rock but is sometimes epiphytic.

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Tick forms and perhaps a new atlas project for Australian bryophytes

While walking in Walls of Jerusalem National Park, just before we got driven off the mountain by a hail storm, but after David had discovered a new locality for *Pseudocephalozia paludicola*, we discussed how good it would be to also have records of the species we do not collect, but also that rather than writing everything longhand in our notebooks it would be much easier to have a printed form on which we could just tick them off. Hence, as soon as we had returned to civilisation, we designed forms with all the names of bryophytes occurring in each state. These forms are now available from the Royal Botanic Gardens website (http://www.rbg.vic.gov.au/research_and_conservation/scientificcollections_staff/niels_klazenga).

Continuing our brainstorm we thought how great it would be if we could use these forms to get an atlas project off the ground. Therefore, we also designed an electronic form to which people can copy their records from the printed forms and add additional records if they wish.

The design of the forms has been a bit of a rush job, as we wanted to get this announcement into this newsletter, rather than waiting six months for the next one. In the next couple of months we will upgrade the forms and put some more infrastructure in place. In the meantime, we welcome suggestions for improvements to the forms, and your data of course.

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Forthcoming Workshop **24th John Child Bryophyte Workshop – First Notice**

This workshop will be held from the 12th to 17th December 2008, in the Catlins area of south east New Zealand. This is a fascinating area, which is species rich and provides a great opportunity to explore a broad range of indigenous vegetation. Microscopes will be available and a number of field trips are planned to encompass a variety of vegetation types – *Nothofagus* and podocarp, coastal, swamp.

Accommodation with laboratory facilities will be based at the Tautuku Outdoor Education Centre and numbers are limited. The Catlins is fairly remote, about 100km south of Dunedin and approx. 80 km west of Invercargill. Some transport will be available from Dunedin, an excellent starting/finishing point for a holiday.

For further information or registration of intent, please contact John Steel, Department of Botany, University of Otago, PO Box 56, Dunedin, New Zealand or email john.steel@botany.otago.ac.nz