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Participants (below) at the VIIIth Australasian workshop are gathered around our senior bryologist (Helen Ramsay) outside the Gumburu Environmental Education Centre (on left) at Paluma, north of Townsville, Queensland. A full report and list of attendees is given in the following pages.

Cover page

Attendees at workshop from top left are: Matt Renner, Peter Beveridge, Chris Tyshing, Gary & Suzanne Clark, Mary Gibson, Aaron Burnham, Marianne Worley, Emma Warren, Aaron Floyed, Allan Fife, Niels Klazenga, David Glenny, John Spence, Josh Salter, Nicole Vella, Karen Beckmann, Lyn Cave, Emma Pharo, Bruce Fuhrer, Louise Biggs, Rosemary Lovatt, Chantal Carrigan, David Meagher, Andi Cairns, Helen Jolley, Helen Ramsay, Alison Downing, Pina Milne, Sapphire McMullan-Fisher, Chris Cargill, Ainslie Langdon, Joanne Cross, Elizabeth Brown and Paddy Dalton is behind the camera

VIIIth Australasian Bryophyte Workshop, Paluma, North Queensland 25 – 30 June 2005

It seemed that the biggest challenge facing the 8th Australasian workshop occurred before it had even begun, as fog impeded the travel of some participants anxious to fly into Townsville a day early. But, by Saturday all the eager bryologists were shown mercy from the heavens and arrived in the Paluma Range with nothing but blue skies and tasty treats (made by our favourite person- cook Judy) to greet them. After an introduction to the surrounding vegetation by local expert and principal workshop organiser, Andi Cairns, we were ready to delve into the unknown- paralysis ticks, stinging trees and all.

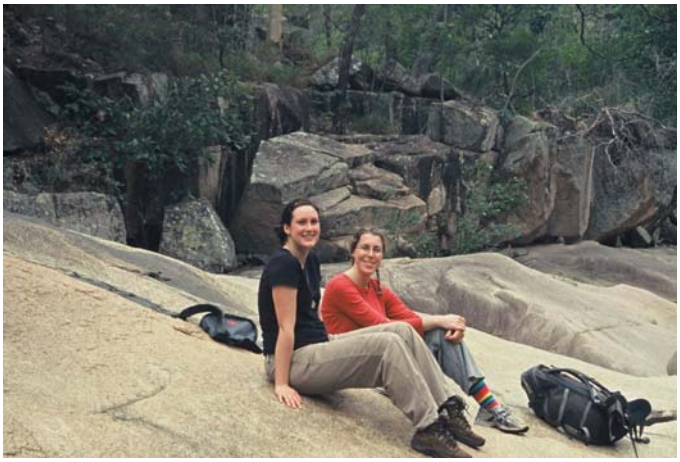
Matt Renner, who gave a scintillating performance at the workshop seminars, is seen here pointing out to participants the consequence of failing to adhere to our permit conditions. A list of species recorded from the sites visited is provided at the conclusion of this report.

Niels Klazenga, Matt Renner, Karen Beckmann, Joanne Cross, Peter Beveridge, Emma Warren and Allan Fife take a well earned lunch break at Cloudy Creek. This locality provided interesting collecting and yielded at least one new hepatic species and contained along the creek bank several giant King Ferns (*Marattia sp*)

Everyone was up bright and early on Sunday, ready to explore Little Crystal Creek, Upper Birthday Creek or Puzzle Creek and the surrounding areas. The walk to Upper Birthday Creek revealed such a diversity of fungal fruiting bodies that we could have been forgiven for thinking the lure was purely mycological. Fortunately, Bruce Fuhrer and Sapphire McMullan-Fisher were at hand to tell us about these fascinating fungi and could identify those species that had previously been described. We came across many bryophytes

along the trip too and were rewarded at the creek itself, with some patches of *Megaceros* sp. Along the track to Birthday Creek and Falls the bryophytes were abundant too with *Macromitrium* sp., *Leucobryum* sp and *Bazzania* sp. the most common. It was on this walk that we found an interesting lichen – *Chenogonium* sp. To those who are not familiar with it, it looks like green cotton wool! But we were here to look at bryophytes I think…..!

In the afternoon Andi explained how *Megaceros* sp and the moss *Platyhypnidium muelleri* are a favourite food of caddis fly larvae and David Glenny introduced us to his interactive liverwort key. The day concluded with Emma Warren's presentation on Melbournian urban bryophytes and Aaron Floyed's seminar on heavy metal accumulation in mosses around Melbourne.



A postcard snap of Marianne Worley and Emma Warren relaxing on the boulders along the stream bed below Jourama Falls. Although not rich in bryophytes, it still provided an attractive appearance!

On our first venture down the mountain on Monday we were spoilt by the beautiful show of *Xanthorrhoea's* in flower, and the lovely scenery with large boulders and rock pools. We were on our way to investigate the drier environment surrounding Jourama Falls. The waterfalls were spectacular and it was on this walk that we discovered that one member of our group was a green ant enthusiast! The ants had built nests in all types of vegetation, much to the delight of Nicole! The bright red fruits on the cycads were stunning and Sapphire introduced us to *Eucalyptus tessellatus* with its distinctive rough bark. Our list of previously unrecorded bryophyte species for the region continued to grow (including *Racopilum cuspidergium*), as well as our interest in birds and butterflies, spurred on by the expert knowledge of John Spence. A highlight of the day was the well-deserved refreshments of ice cream and sorbet that we enjoyed at the Frosty Mango - a fitting reward for a good day's work.

It seems Andi Cairns and David Meagher even negotiated with the weatherman for the rainy day to coincide with "master class Tuesday", where we battened down the hatches and stayed indoors for an insightful look at selected bryophyte families in detail. John Spence took us on a journey through the controversial classification of the Bryaceae, while the beauty of the Neckeraceae was revealed by Pina Milne. Niels Klazenga showed us the value of good leaf cross-sections for differentiating between *Campylopus* species and Elizabeth Brown and David Meagher demonstrated that the key to the Lepidoziaceae is all in the type of branching.

Bruce Fuhrer is captured performing his photographic techniques. His skill as one of the nation's leading nature photographers is readily viewed in books on wildflowers, fungi, mosses and liverworts. (photo courtesy David Meagher)

We enjoyed a refreshing break from our seminars with a short stroll to the Paluma Pottery. I'm sure most would agree that Len Cook's work was exquisite, with many participants purchasing precious pieces! The seminar series continued with Karen Beckmann's perplexing *Riccia* complex, Chantel Carrigan's stream bryophyte diversity and a journey through the history of moss collections in the National Herbarium of Victoria with Helen Jolley. Sapphire McMullan-Fisher spoke about moss and macrofungal assemblages in a number of Tasmanian vegetation types, Emma Pharo outlined important aspects for cryptogam conservation in Australia and Marianne Worley discussed the influence of environmental factors on bryophyte diversity in cool temperate rainforests. However, the best was certainly left for last with the most entertaining seminar many of us had ever seen!!! Matt Renner outlined the hilarious taxonomic history of the Lejeuneaceae by focussing on the hepaticologists and how often they changed their minds. Dr Stephani was a particular favourite, as was Matt's illustration of *Frullania* branching – it looked like a New Zealand haka!!!!! Nevertheless, we gained a rich understanding of the taxonomic mess of the Lejeuneaceae and commend Matt on his enthusiasm in tackling this difficult group (and for entertaining us). All of the speakers from the workshop were presented with a copy of David and Bruce's Field Guide to the Mosses of Southern Australia which were signed by all of the workshop participants. It was a very thoughtful gesture and I will treasure my copy! There were also four posters presented at the workshop: Louisa Biggs' presentation on *Atrichum androgynum* in wet forests of Victoria; from JCU Townsville Jennifer Parsons, Andi Cairns, Simon Robson & Chris Johnson's Moss on the Menu?; Chris Tyshing with her close up of peristomes and Melbourne's Marvellous Mosses by Helen Jolley.

By Wednesday the clouds had disappeared and it was all blue skies for our return to the great outdoors. We again split up into groups, exploring Little Crystal Creek, Birthday Creek or Wallaman Falls and the surrounding areas. There were 14 brave (or silly) souls and David who embarked on a short stroll along a mountain track…..or so we thought it would be! Instead it was just over the mountain ridge of approx. 1000 feet and down to Tom Bullocky's Creek. However, the hard climb was indeed worth the effort, the creek and environs were just wonderful. We spent a couple of hours in bryological heaven! There were many interesting discoveries, including the *Calymperes* with their clusters of gemmae on the leaf tips. In fact, we collected 4 of the 5 species known from Paluma. Thus the climb back didn't seem so bad after all. It was after such a physically challenging and rewarding day that Emma felt inclined to relax a little, with a quick dip in Crystal Creek, before we enjoyed another quick stop at the Frosty Mango. It was an eventful day for the local students, with Ainslie Langdon bravely brushing aside her close encounter with a stinging tree and Jo Cross spotting a very well camouflaged stick insect- a highlight for at least one phasmid enthusiast (Nicole again!).

"The awesome foursome"
Chris Cargill, Pina Milne, Helen Jolley and Karen Beckmann are caught enjoying the presentation of the prestigious workshop awards.

The evening concluded with David Meagher and Pina's pictorial highlights of the week and the prestigious workshop awards, which are outlined below:

Geoffrey Blainey Tyranny of Distance Award	Louise Biggs
Struan Sutherland Award for Contributions to Tick Paralysis Research	David Glenny
Graham Kennedy Award for Best Live Entertainment	Matt Renner

Royal Melbourne Hospital Siamese Twins Award .....Gary & Suzanne Clark
Ian Thorpe Award for Swimming Enthusiasm.....Emma Warren
Red Cross Award for Extreme Pain and Suffering ..... Ainslie Langton
Trevor Chappell Award for Trans-Tasman Goodwill.....Peter Beveridge

On Thursday morning we bid the Paluma Range farewell, but our departure from Townsville seemed to mirror the arrival of some participants with many flights delayed again. However, the 8th Australasian Bryophyte Workshop was a huge success, with the collections revealing an extensive list of bryophyte species that had not been recorded from the region. The species list from the workshop includes 37 liverworts, 2 hornworts and 68 mosses!! *Himantocladium cyclophyllum* was an interesting find as no Neckeraceae species had been recorded for the Paluma Range. *Diphyscium mucronifolium* (collected by Peter Beveridge) was the southern most record to date.
Special thanks to the workshop organizers- Andi Cairns, David Meagher, Chris Cargill and Elizabeth Brown; also to Helen Ramsay and Bruce Fuhrer for attending the workshop; to John Spence who traveled from the USA; the Kiwi contingent of David Glenny, Peter Beveridge, Alan Fife and Josh Salter and also to Louise Biggs from WA. We are grateful to all of you for making the workshop the experience it was! See you all in Tasmania in 2007!!!

Helen Jolley, Royal Botanic Gardens, Melbourne & Nicole Vella, Macquarie University, Sydney

8th Australasian Bryophyte Workshop Paluma, Far North Queensland
List of species recorded at Workshop

Marchantiophyta
Jungermanniales
Acromastigum echinatiforme
Archilejeunea polymorpha
Bazzania intermedia
Bazzania nova
Bazzania subtilis
Bazzania vittate
Caudalejeunea reniloba
Cheilolejeunea falsinervis
Cheilolejeunea meyeniana
Cheilolejeunea parvidens
Chiloscyphus cf semiteres
Cololejeunea floccosa
Cololejeunea goebelii
Cololejeunea lanciloba
Cololejeunea ?tenella
Colura acroloba
Frullania hypoleuca
Heteroscyphus argutus
Heteroscyphus coalitus
Heteroscyphus fissistipus
Lejeunea (Metalejeunea) cucullata
Leptolejeunea elliptica
Lopholejeunea muelleriana
Lopholejeunea subfusca
Mastigolejeunea indica
Notoscyphus lutescens
Otolejeunea australiensis
Radula ocellata
Radula sp.
Telaranea disparata
Thysananthus australis
Thysananthus spathulistipus
Trichocolea hatcheri
Zoopsis liukiuensis

Metzgeriales
Riccardia macdonaldiana
Riccardia rupicola
Riccardia wattsiana

Anthocerophyta
Dendroceros crispatus
Megaceros flagellaris

Bryophyta
Aerobryopsis longissima
Barbellopsis trichophora
Brachymenium nepalense
Calymperes afzelii
Calymperes crassinerve
Calymperes moluccense
Calymperes motleyi
Calymperes tenerum
Camptochaete curvata
Camptochaete excavata
Campylopus introflexus
Claopodium assurgens
Cryphaea tenella

Dicranoloma leichhardtii
Diphyscium mucronifolium
Ectropothecium spp. (2)
Entodon mackaviensis
Entosthodon radians
Eucamptodon scalarirete
Euptychium cuspidatum
Euptychium setigerum
Fallaciella gracilis
Fissidens beckettii
Fissidens ceylonensis
Fissidens (hyophilus) oblongifolius
Fissidens ?linearis
Fissidens pallidus
Gemmabryum apiculatum
Gemmabryum coronatum
Himantocladium cyclophyllum
Homaliodendron exiguum
Hyophila involuta
Hypnodendron vitiense subsp. australe
Isocladiella wattsii
Isopterygium sp.
Leucobryum aduncum
Leucobryum sanctum
Leucophanes ?angustifolium
Leucophanes octoblepharioides
Lopidium struthiopteris
Macromitrium hortoniae
Macromitrium involutifolium subsp. ptychomitrioides
Macromitrium ligulaefolium
Macromitrium microstomum
Meteoriopsis reclinata
Muellerobryum whiteleggei
Octoblepharum albidum
Pyrrhobryum latifolium
Pyrrhobryum medium
Pyrrhobryum mnioides
Racopilum cuspidigerum var. cuspidigerum
Rhaphidorrhynchium amoenum
Rhizogonium graeffeanum
Rosulabryum lamingtonicum
Rosulabryum subfasciculatum
Rosulabryum wightii
Sclerodontium clavinerve
Sclerodontium pallidum ssp. pallidum
?Sematophyllaceae
Sematophyllum subpinnatum
Syrrhopodon armatus
Syrrhopodon trachyphyllus
Thamnobryum pandum
Thamnobryum pumilum
Thuidiopsis sparsa
Trachyphyllum inflexum
Trichosteleum boschii
Wijkia extenuata

Dawsonia polytrichoides

Mesochaete undulata (photo courtesy David Meagher)

NEW ZEALAND'S THREATENED BRYOPHYTE FLORA

Introduction

In November 2004, meetings were convened by the Department of Conservation (DOC) to update New Zealand threatened species lists. One of these meetings considered the threatened bryophyte list published in 2002 (Hitchmough, 2002). Those who attended were: Jessica Beever, John Braggins, Patrick Brownsey, Allan Fife, David Glenny, and Matt Renner. Rod Hitchmough and Leigh Bull of DOC convened. DOC plans to update these lists every three years, and holds similar meetings on most groups of organisms, such as fungi and arthropods. A list of threatened lichens has not yet been compiled.

The list attempts to be all-inclusive because it is based on DOC's precautionary approach to species conservation. Hence there are a large number of undescribed liverworts, particularly in the Data Deficient category. The list, as a result, also indicates priorities for taxonomic research.

The threat categories and their criteria are explained in detail in Molloy *et al.* (2002). The criteria are in two parts: status (current numbers and numbers of separate populations) and trend (decline in the last 100 years

and predicted decline in the next 10 years). The categories that have bryophytes assigned to them are briefly described below.

Nationally critical: very small population or a very high predicted decline.
Nationally endangered: small populations and moderate to high recent or predicted decline.
Nationally vulnerable: small to moderate population and moderate decline.
Sparse: naturally or unnaturally rare and not restricted to a small geographical area.
Range restricted: naturally or unnaturally rare, restricted to a small geographic area, a very specific habitat or substrate.
Data deficient: species for which information is too poor to assign them to one of the categories above.

There are other categories available which do not have any bryophytes assigned to them. No New Zealand bryophytes have been assigned to the "extinct" category. Although a few bryophyte species (e.g., *Bartramia alaris* or *Isotachis westlandica*) have not been observed for many decades it is difficult to be certain of their absence. This is particularly so when the localities and habitats of early collections are poorly documented or where the original collections are from areas that have received little subsequent bryological attention.
The most subjective part of the assessment for a species is estimating past and future decline, since collections of rare species are too infrequent to allow the documentation of a progressive loss of habitat.
The habitat where losses have been greatest are lowland forests, particularly in Northland and the eastern North and South Islands. There are few liverwort collections from these habitats and estimations of decline of species confined to these habitats must be made on the basis of the known decline of the habitat itself.
There are species on the list which are rare in New Zealand but common outside of New Zealand, for example *Dumortiera hirsuta* and *Goniomitrium acuminatum*, and these have a qualifier "Secure Overseas" added. There is some uncertainty whether to add this qualifier to some species shared with Australia or other regions. For example, is *Brevianthus flavus* "secure" in Tasmania? It is not listed in Scott (1997). Is *Erpodium glaucum* "secure" in any portion of its widely scattered range? Stone (1997) recorded single localities in both N. S. W. and Queensland as well as occurrences in Argentina, Brazil, Mexico, and Sri Lanka. Is *Macromitrium angulatum* "secure" in Samoa (see Vitt and Ramsay, 1985, p. 411)? We are unable to answer these questions.
It became apparent at the 2004 meeting that considerable effort has gone into searching for most of the species on the list in the last 10 or so years. This effort has confirmed in some cases (particularly in the case of mosses) that the species are indeed rare, while in other cases, more localities have been found and the threat category can be set more accurately. Where the threat category is least likely to be correct is for species that have been recently described or recently found in New Zealand. A good example of the latter is the hepatic *Mnioloma fuscum*, found first in New Zealand in 2003 (Renner, 2003) and now known from three widely spread localities (Fiordland, central Westland, Coromandel Peninsula). It is rated as Sparse, but further searching is likely to result in the species being deleted from the list.
There were relatively few changes to the moss list (10 were added and 12 deleted), while there were 75 additions and 14 deletions from the liverwort list. This reflects a much better knowledge of the mosses than the liverworts, but it has to be admitted, there is a difference in attitude among the bryologists. The muscologists are disinclined to admit a species to the list unless reasonably sure of its rarity, while the hepaticologists take the precautionary approach more seriously and put any species on the list that on current evidence are rare, but are likely to turn out to be merely uncommon.
The function of this list needs to be made clear. In contrast to the situation in Australia and the United States, these listed species and varieties do not have any legal protection. The list is equivalent to the Australian State threatened plant lists. The function of the list is to help DOC manage threatened species on the conservation estate that it administers, and to advocate their protection on other land. DOC has a mandate to advocate conservation on all land in New Zealand. Whenever permission is sought to develop land under the Resource Management Act (RMA), if there is any threat to conservation interests, DOC makes submissions to a regional council, and if the development is opposed, to the Environment Court. The presence of a species on the threatened plant list ensures that it won't be overlooked by DOC staff preparing RMA submissions, or by anyone proposing or opposing a development on the land.

HORNWORTS

Just one hornwort is on the list, *Phaeoceros hirticalyx*, in the Nationally Critical category. This is based on specimens that are possibly a misidentification of *P. coriaceus* (J.-C. Villareal, pers. comm. 2005).

LIVERWORTS

The 2002 list had 90 liverworts, this one has 157 taxa – a large increase. Why such an increase? Better knowledge of the species and their distribution has resulted from new taxonomic papers and flora work, and this is a large part of the reason. Thirty-two are undescribed entities, which range from species awaiting publication through to uncertain entities where there is some question over their distinctness from a described species.

Nationally critical: 41 species and 1 variety where the species as a whole is not threatened, *Acromastigum brachyphyllum, A. verticale, Allisoniella recurva, A. scottii, Anastrophyllum papillosum, Austroscyphus nitidissimus, Bragginsella anomala, Cephalolobus hodgsonae, Cheilolejeunea tenella, Cololejeunea cardiocarpa, C. ellipsoidea, C. falcidentata, C. pulchella* var. *stylifera, Dumortiera hirsuta,*
Herzobryum atrocapillum, H. filiforme, H. vermiculare, Isotachis westlandica, Leiomitra julacea, Lejeunea cyanophora, Lophozia autoica, L. nivicola, L. pumicola, L. subalpina, Pachyschistochila papillifera, Paracromastigum fiordlandiae, Petalophyllum hodgsoniae, Plagiochila baylisii, P. fragmentisima, P. hatcheri, P. kermadecensis, Ptychanthus stephensoniana, Riccardia intercellula, R. pseudodendroceros, R. umida, Schistochila pellucida, S. pluriciliata, Seppeltia succuba, Telaranea exigua, T. plumulosa, Temnoma angustifolium, and *Xenothallus vulcanicus*.
In addition, 3 undescribed entities: *Frullania* "Radar Bush", *Brevianthus* sp. (the Northland population is thought to differ from *B. flavus*, also on the list), and *Riccardia* aff. *pallidevirens*.

Nationally endangered: 10 species, *Brevianthus flavus, Cephalolobus squarrosus, Chaetophyllopsis whiteleggei, Goebelobryum unguiculatum, Lejeunea taylinayi,*
Neogrollea notabilis, Petalophyllum australe, Radula papulosa, Ricciocarpos natans, and *Stenolejeunea acuminata*.
Two undescribed entities: *Cololejeunea* sp. 1 and *Siphonolejeunea* "rock".

Nationally vulnerable: 1 species, *Zoopsis nitida.*

Sparse: 23 species, *Acromastigum cunninghamii, A. marginatum, Archeophylla schusteri, Austrolejeunea hispida, Austroscyphus phoenichorhizus, Bazzania nova, Cephalozia badia, Chloranthelia berggrenii, Drucella integristipula, Haplomitrium ovalifolium, Isophyllaria attenuata, Kurzia tenax, Lepidozia acantha, Metzgeria bartlettii, Mnioloma fusca, Pachyschistochila latiloba, Papillolejeunea pocsii, Pedinophyllum monoicum, Porella pulcherrima, Pseudocephalozia lepidozioides, Radula ratkowskiana, Rectolejeunea ocellata,* and *Riccardia multicorpora*.
Two undescribed entities: *Goebelobryum* aff. *unguiculatum* and *Rectolejeunea* sp.

Range restricted: 18 species, *Chiloscyphus tuberculatus, Drepanolejeunea vesciculosa* ssp. *euvesciculosa, Harpalejeunea filicuspis, Herzogianthus sanguineus, Hygrolembidium triquetrum, Lejeunea anisophylla, Lepidozia elobata, Leptolejeunea elliptica* subsp. *subacuta, Marchantia macropora, Metzgeria alpina, Paracromastigum drucei, Plagiochila bazzanioides, Pseudolophocolea denticulata, Radula javanica, Riccardia furtiva, R. pennata, Schistochila nitidissima,* and *Stolonivector fiordlandiae*.
Eight undescribed entities: *Cephaloziella* aff. *pulcherrima, Frullania* "coastal", *Lejeunea* "no lobes", *Lopholejeunea* "black", *Pallavicinia* aff. *rubristipa, Radula* aff. *cordiloba* "Raoul Island", *Zoopsis* "Croesus Track", and *Z.* "Rata Peak".

Data deficient: 29 species and 17 undescribed entities whose identity is uncertain are in this category. These are “data deficient” in a variety of ways. For instance, in some cases they are very recently described species known only from their types, and in the case of *Cephaloziella*, very difficult to identify. In other cases, their presence in New Zealand is unconfirmed or no specimens are available to back published records. In the case of *Haplomitrium minutum*, the species is only known from cultivation, and its provenance is uncertain. Undescribed entities, or entities whose identity is uncertain are almost half of this list.

Andrewsianthus confusus, Cephalozia pachygyna, Cephaloziella aenigmatica, C. exigua, C. grandiretis, C. hispidissima, C. invisa, C. muelleriana, C. nothogena, C. pellucida, C. pseudocrassigyna, C. subspinosa, Cheilolejeunea imbricata, Chiloscyphus beckettianus, C. erosus, C. hattorii, Cryptostipula inundata, Eoisotachis nigella, Gymnomitrion strictum var. *inequalis, Haplomitrium minutum, Lepidozia fugax, Nephelolejeunea taylinayi, Paracromastigum fissifolium, P. kirkii, Radula parviretis, Rectolejeunea denudata, Riccia fluitans, Stolonivector waipouensis, Triandrophyllum symmetricum.*

Undescribed entities (17): *Acromastigum* aff. *tenax*, *Aneura* aff. *rodwayi*, *Cololejeunea* sp. 2, *Drepanolejeunea* aff. *pentadactyla*, *Drepanolejeunea* aff. *ternatensis, Frullania rostrata* var. "*draco*", *Hyalolepidozia* "microphylla", , *Lejeunea* AK253889, *Lejeunea* sp. 768, *Lejeunea* sp. 799, *Radula* "big Dave", *Radula* aff. *retroflexa*, *Radula* sp., *Scapania* cf. *nemorosa*, *Scapania* cf. *undulata*, *Telaranea* aff. *pseudozoopsis*, *Treubia* aff. *tasmanica*.

Six species, *Anthelia juratzkana, Frullania falciloba, F. subrostrata, Riccardia* aff. *wattsiana*, *R. asperulata,* and *Zoopsis macrophylla,* were deleted from the list of 2002 on the grounds that they are insufficiently rare to be listed. Eight species, *Frullania hypoleuca, Metzgeria albinea, M. australis, M. campbelliensis, M. crassipaginula, M. epiphylla, M. pinnata,* and *M. vittii,* were deleted on the grounds that they either don't occur in New Zealand or are synonyms of more common species.

MOSSES

Nationally endangered: 6 species, *Archidium elatum, Chorisodontium aciphyllum, Fissidens berteroi, F. integerrimus, F. strictus,* and *Seligeria diminuta*.

Nationally critical: 21 species and one subspecies, *Bartramia alaris, Bryum tenuidens, Calliergidium austro-stramineum, Crossidium davidai, Crossidium geheebii, Cyclodictyon blumeanum, Dicranoweisia spenceri, Didymodon calycinus, Ditrichum brachycarpum, Ditrichum rufo-aureum, Epipterygium opararense, Erpodium glaucum, Goniomitrium acuminatum, Grimmia plagiopoda, Hampeella pallens, Lindbergia maritima, Macromitrium angulatum, Physcomitrella patens* subsp. *readeri, Physcomitrium pusillum, Plagiopus oederiana,* and *Scorpiurium cucullatum*.

Sparse: a single species, *Calomnion brownseyi*.

Range restricted: 29 species and one variety, *Aloina bifrons, Bartramia crassinervia, Blindia contecta, B. lewinskyae, B. seppeltii, Brachythecium subpilosum, Bryum algovicum* var. *rutheanum, B. amblyodon, B. pallescens, Buxbaumia novae-zelandiae, Cratoneuron filicinum, Crosbya nervosa, Ectropothecium sandwichense, Entosthodon muehlenbergii, Gigaspermum repens, Grimmia affinis, Hypnobartlettia fontana, Macromitrium brevicaule, Muelleriella angustifolia, M. aucklandica, Notoligotrichum bellii, Pyrrhobryum paramattense, Racomitrium crumianum, Sphagnum perichaetiale, Timmia norvegica, Tortella mooreae, Tortula mucronifolia, T. viridipila, Verrucidens turpis,* and *Zygodon rufescens.*

Data deficient: 4 species and 1 variety, *Dicranella temperata, Fissidens oblongifolius* var. *oblongifolius, Hymenostylium recurvirostrum, Trichostomum imshaugii,* and *Willia calobolax.*

Twelve species in the 2002 list were deleted from the list: *Bryum muehlenbeckii, Coscinodon australis, Ditrichum austro-georgicum, Eccremidium arcuatum, Grimmia argentea, G. montana, Gymnostomum recurvirostrum, Hypnum revolutum, Orthodontium ruahinense, Sphagnum teres, Tortella cirrhata,* and *Trematodon cheesemanii*. Most of these deletions were the result of reinterpretations of critical specimens and their assignment to more widespread species.

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David Glenny and Allan Fife, Landcare Research, PO Box 69, Lincoln 8152, New Zealand.

The Forgotten Flora

Authors: Dr Josephine Milne
Dr Teresa Lebell
Illustrator: Dr Anneke Veenstra-Quah

The *Forgotten Flora*, an educational project featuring bryophytes, lichens and fungi, was launched on the 11th March, 2005 at the Royal Botanic Gardens Melbourne. Cheryl Beale, from the Science Teachers' Association of Victoria gave the opening address, with guests then free to enjoy a splendid display which included posters from the project, art work used in development of the project, and some outstanding examples of scientific illustration, including bryophyte illustrations by Rod Seppelt. Live plants and fungi also featured in the display.

Authors Josephine (Pina) Milne and Teresa Lebell and illustrator Anneke Veenstra-Quah were congratulated on their outstanding work. The *Forgotten Flora*, funded by the CASS Foundation, comprises a set of ten magnificent posters and three CDs, each partially interactive. The posters are superbly designed, with clear, concise text, and unmistakable drawings and photographs. The posters are not only very attractive, but also very clearly and accurately illustrate the range of organisms presented. The poster titles include: *Key to the Forgotten Flora, Taking a liking to Lichens, Bryophytes – more than just moss, Where do Forgotten Flora grow?, The whole fungus, More than mushrooms, Miniature forests and carpets, Truffles – underground treasures, Invertebrates and the Forgotten Flora* and *Poisonous mushrooms* (!). Each CD (one each for bryophytes, fungi and lichens) gives a general background to the group, incorporates figures and photographs that can be used in presentations, practical information on how to study each group, suggested activities and a comprehensive list of additional resources.

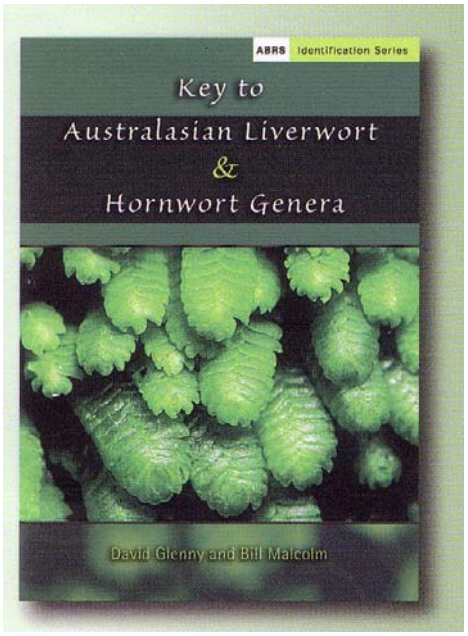
The set of CDs and posters are an outstanding aid for teaching bryophytes, fungi and lichens, for school, college and university. They would also be a valuable asset for field studies centres, information centres in National Parks and State Forests and for designing special displays, for example school or university "open days". There are many activities designed to interest young people in particular, but which would also attract the interest of people of all ages. Although designed with the Australian environment as backdrop, much of the information would be of interest and relevance worldwide.

More detail can be found at the *Forgotten Flora* website:
http://www.rbg.vic.gov.au/plant_science/publications/forgotten_flora
Email: forgottenflora@rbg.vic.gov.au

Or write to: Forgotten Flora Project, Royal Botanic Gardens Melbourne,
Private Bag 2000, Birdwood Avenue,
South Yarra, Victoria. 3141, Australia.

Alison Downing, Downing Herbarium, Macquarie University

New and Forthcoming Publications



This interactive CD ROM by David Glenny and with superb images from Bill Malcolm is an invaluable tool for anyone interested in pursuing a study of Australasian hepatics. It utilizes the latest web-integrated Lucid Player (PC & MAC) to provide a key to the genera of liverworts and hornworts known from Australia and New Zealand.

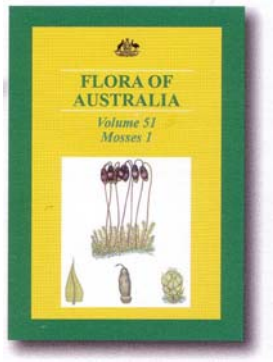
Features include:

- 90 characters to aid accurate identification & works in most cases with sterile material
- over 1000 photographs & drawings
- comprehensive glossary accessible by hyperlinks
- diagnostic features of each genus, along with details of habitat & distribution
- overview of liverwort & hornwort floras with an introduction to the biology, taxonomy & biogeography in the Australasian region
- references to the literature on each genus
- up-to-date checklists of species of both countries
- advice on how to collect & examine specimens

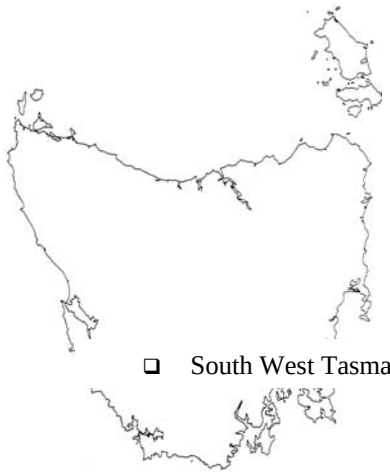
Available from:
Centre for Biological Information Technology, Level 6, Hartley-Teakle Building, The University of Queensland, Brisbane, QLD 4072
Or
Manaaki Whenua Press, PO Box 40, Lincoln 8152, New Zealand

Flora of Australia Volume 51 Mosses 1

This first volume describing the bryophyte flora of Australia is due for publication in 2006. It will contain an introduction documenting 200years of research on Australian mosses; moss classification, morphology and sexuality; ecology and biodiversity; the origin and evolution of mosses; fossil bryophytes; and a key to the moss genera.
This volume includes descriptions of 22 families, 42 genera and 238 species and infra-specific taxa.



IXth Australasian Bryophyte Workshop



❑ South West Tasmania

Preliminary Notice

The next Australasian Bryophyte Workshop returns to Tasmania, where the first workshop was held in 1988. It will be held from 3rd to 8th December in 2007. On this occasion it is proposed to base the workshop on the "doorstep" of the World Heritage area, south west Tasmania. Participants will experience unique environments such as Gondwanan cool temperate rainforests, lowland and alpine sedgeland communities and old growth eucalypt forests of the Florentine valley. Confirmed details will appear in the next newsletter.

Convenors of the workshop:
Paddy Dalton: P.J.Dalton@utas.edu.au
Emma Pharo: epharo@utas.edu.au
Rod Seppelt: Rod.Seppelt@aad.gov.au

TOM MOSS STUDENT AWARD IN BRYOLOGY

Tom Moss, who died recently in Wellington, was a very private man, but members of the Wellington Botanical Society and participants in the annual John Child Bryophyte Workshop will remember him for his love of native plants. His dedication to finding rare and unusual plants is legendary, and species such as *Fissidens berteroi* and *Leptinella nana* in the Wellington region will always be associated with him. Tom was also the finder of the type and only collection of the liverwort *Triandrophyllum symmetricum* during his wanderings on Hawkins Hill.

Tom was an active member of the Wellington Botanical Society from 1967 and became a life member in 1974. He was a participant in the very first John Child Bryophyte Workshop in 1983. He helped to organise the second Workshop at Akatarawa in 1984 and attended most years after that until the Kaikoura Workshop of 1993. He was always keen to encourage students and beginners, and had an unerring eye for plants that he knew were of particular interest to experts. Above all, he had a wicked sense of humour and an infectious laugh that always endeared him to his colleagues.

To commemorate his name, his contribution to New Zealand botany, and his particular interest in bryology, it is proposed to set up a Trust Fund. Interest from the Fund will be used to provide a small annual prize for the best student contribution to New Zealand bryology. This will be known as the Tom Moss Student Award in Bryology. Presentations at the John Child Bryophyte Workshop, or papers published in the previous year and submitted to the awarding Committee prior to the Workshop, will be considered.

The Fund will be administered by the Wellington Botanical Society, which already has experience of running a number of similar Funds such as the Jubilee Award and Student Award schemes. The Society also enjoys a charitable status which means that no tax is paid on accrued interest, and all donations to the Trust Fund are tax deductible.

The Award will be advertised annually by the Wellington Botanical Society in association with the John Child Bryophyte Workshop. The Award will be made by a panel of three appropriate judges appointed by the Wellington Botanical Society Committee on the recommendation of the organisers of the John Child Bryophyte Workshop. The panel may reserve the right to make no award if there are no suitable contributions in any one year.

Contributions to establish the Fund are now invited from all those who knew Tom, or would like to promote the study of bryology in New Zealand. Cheques should be made payable to the Wellington Botanical Society and sent to The Treasurer, Wellington Botanical Society, P.O. Box 10-412, Wellington.

If you would like any further information, please contact Patrick Brownsey, Te Papa, P.O. Box 467, Wellington (or after 6pm on 04 476 4047; or by email patb@tepapa.govt.nz) .

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I would like to make a donation to the Tom Moss Student Award in Bryology.

I enclose a cheque for $

All donations are tax deductible. If you would like a receipt please provide details of your name and address below.

Name …………………………………………………………………………………………

Address

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