

AUSTRALIAN BIOLOGICAL RESOURCES STUDY

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A biannual newsletter which provides information on the progress of the ABRS Participatory Program, Publications and other activities.



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Department of the Environment and Heritage

A PROGRAM OF ENVIRONMENT AUSTRALIA

CONTENTS

INTRODUCTION

UPDATE ON ABRS ACTIVITIES

ABRS Director's report

PARTICIPATORY PROGRAM

Research grants

Update on 2002/2003 applications

List of Grants 2002

Article from ABRS Grantees

Research scholarships

Update on 2002 Scholarships

Bursaries

Call for 2002 applications

Article from Bursary Student

Australian Botanical Liaison Officer

Update on ABLO - Review

PUBLICATIONS

Pull out brochure on ABRS products for sale

New publications launched

Forthcoming publications

ABRS Staff Publications

Products arising from ABRS Grants

INTERNATIONAL NEWS

Global Biodiversity Information Facility

Sixth Conference of Parties of the Convention on Biological Diversity

ABRS DIRECTORY ON-LINE

OBITUARY

Newsletter Editor: Liz Visher

INTRODUCTION

The Australian Biological Resources Study (ABRS) is a Program of Environment Australia. It was initiated in 1973 by the Commonwealth Government to address the lack of adequate knowledge of the flora and fauna of Australia. ABRS promotes taxonomic and biogeographic studies of Australian biodiversity through two mechanisms:

- the Participatory Program, a unique research grants scheme which provides funds towards taxonomic and biogeographic research; and
- the Scientific and Communication Subprograms which produce major national series of flora and fauna books, electronic products and databases. ABRS also produces occasional publications on taxonomy, biogeography and closely related subjects.

In addition to the grants scheme and the publications, ABRS also offers other information services and funding schemes. Details of these programs and services are provided in this newsletter, and are also available on-line at the **new ABRS Website home page**:

<http://www.ea.gov.au/biodiversity/abrs/>

ABRS has also recently released an attractive brochure on the ABRS Strategic Plan for 2001-2006. To get your copy contact Liz Visher on phone 02 6250 9554 or email: liz.visher@ea.gov.au.

UPDATE ON ABRS ACTIVITIES

ABRS Director's report

In November 2001 Dr David Kemp was newly appointed as Minister of Environment and Heritage, following a Cabinet reshuffle which saw our previous Minister, Robert Hill move to Defence. Dr Kemp met with Environment Australia staff on 28 November 2002 to outline his vision for the Portfolio. Of particular interest Dr Kemp emphasised the need for fact based decision making, and the need for training to provide the necessary skill base for Environment Australia to fulfil its mission. This is heartening news for ABRS as of course we have been pressing for many years to address the lack of taxonomists, who are needed to provide the underlying information for conservation and sustainable use of biodiversity.

I am also very pleased to report that the Minister has appointed three new members of the ABRS Advisory Committee, namely Associate Professor Andrew Austin, Professor Anne Ashford and Dr Jane Gilmour. Associate Professor Austin is from University of Adelaide. He has an international reputation as an insect systematist specialising in parasitic wasps (Hymenoptera). Aside from being a renowned researcher, he is currently President of the Australian Entomological Society, past President of the Society of Australian Systematic Biologists, and is the inaugural Director of Adelaide University's Centre for Evolutionary Biology and Biodiversity.

Professor Ashford is from the School of Biological Science, University of New South Wales, and leads a scientific team that studies the beneficial role of fungi in aiding mineral uptake by Australian plants. Professor Ashford is an end-user of taxonomy and consequently is well-placed to determine appropriate methods of dissemination of taxonomic information to non-specialists. She has received numerous awards and also has published extensively.

Dr Gilmour is the Executive Director of Earthwatch Institute – Australia, and has strong skills in media and public relations. Earthwatch is an international non-profit organisation which supports scientific field research and public education. We are extremely happy to include their mix of skills onto the Advisory Committee. I would also like to take the opportunity to thank our retiring Advisory Committee members, Dr Judy West and Professor David Patterson for all their excellent work the past years.

Long time ABRS-watchers will remember a time nearly 10 years ago when David Kay was Director of ABRS, among other duties while Branch Head based at the Australian National Botanic Gardens. We are pleased to welcome back David Kay as the Assistant Secretary, Parks Australia South, with direct responsibility for ABRS in Environment Australia. David Kay has a long history of involvement with ABRS since 1987 when he was first attended the ABRS Advisory Committee meeting. In more recent times David has been the Director of ABRS, amongst other duties, while Branch Head based at the Australian National Botanic Gardens. In more recent times David has been with the Marine area of Environment Australia.

Over the past 6 months work has continued in ABRS on the development of all our products, and I am pleased to see the publication of another electronic key *Mites in Soil* (actually a set of 5 keys one of which is to the micro-arthropods) and the book *Nature's Investigator: The Diary of Robert Brown in Australia 1801–1805*. I would like to express my thanks to all those contributors who have made these products possible. The development of our databases for delivery of taxonomic information via the Web has also increased this year, with numerous contracts given to Australian and international authors to complete a variety of treatments. One of our best known products is the *Flora of Australia*, and work continues on many volumes, with the first grasses volume and next lichen volume nearing completion.

To all our collaborators in all our many and varied publications I give thanks, and urge you, no matter whether it is a labour of love or a hard and fast contract, to put in as much effort as possible to complete overdue work. We have a huge volume of work out with the taxonomic community, and many more products could be completed and made available if we could get in-house the remaining elements of many existing projects.

An important task I have taken on over the past six months has been to start to organise a Working Group to guide the development of the Australian node(s) for GBIF (the Global Biodiversity Information Facility). GBIF is organised through national governments; the Australian Government is responsible for our international engagement in the process, and pays Australia's yearly contribution to GBIF (US\$100,000). On behalf of the Australian Government I have been asked to chair this Working Group to design a process for the establishment of the Australian node(s) to GBIF. In October 2001 I circulated widely a call for nominations for the working group, and I am pleased to say that the Working Group has now formed.

The role of the working group will be to develop a process by which we can capture as much digitally available biodiversity information as possible through a series of portals. The Australian Virtual Herbarium is an excellent example of one such portal to which the Australian node would connect, thereby connecting to all major State/Territory and Commonwealth herbaria. The challenge before us is to work out how to link up to the many and varied data sources in Australia that are not so well organised. I hope the working group will be able to convene before the next Governing Board meeting of GBIF to be held in Canberra in March 2002.

In November 2001, the Royal Botanic Gardens, Sydney and the Australian Museum hosted an innovative cross-taxon meeting called the Biodiversity Knowledge Management Forum. Several ABRS staff attended different parts of the Forum, which was an extremely useful event.

In December 2001 the ABRS Advisory Committee agreed to the letting of a large contract to establish a 10 year research strategy for protists, fungi and algae. This project will involve broad stakeholder consultation to determine and document the areas of high priority both from a scientific perspective and also from the broader community and industry perspective. (See below for a full description of the project and how you can contribute to it).

In February 2002 I attended a preparatory meeting in Japan to organise details for holding a large Asian regional meeting for the Global Taxonomy Initiative (GTI). The preparatory meeting successfully decided on a host, venue and time for this meeting, but there is much more work to do to gain all the necessary funding and finalise the participant list. The meeting will be held in Kuala Lumpur on 10-13 September 2002. The main aim of the regional meeting is to determine regional taxonomic priorities that to be addressed under the GTI Programme of Work. I also attended an advisory committee meeting for the Species 2000 Asia Oceania group, in particular to provide advice on the current Japanese-funded projects for Species 2000.

In conclusion I would urge you all to participate in any discussions or meetings that may occur in your region regarding the ABRS integrated research strategies project, the Australian node of GBIF, or GTI. All of these processes are endeavouring to guide the development of better ways to support our taxonomic effort, and with your input they will be stronger.

PARTICIPATORY PROGRAM

Research Grants

Update on 2002/2003 applications

As outlined in detail in the last issue of *Biologue*, ABRS has changed the awarding of research grants from calendar to financial year. The first year of full implementation of the financial year arrangement is 2002/2003 and grants were called in October 2001, with a closing deadline for applications on 10 November 2001. Over 150 applications were received across a wide range of taxa. It is the first time ABRS has accepted electronic applications, and only required one original paper copy for audit verification. In January 2002, ABRS distributed the new grant applications via email for external peer review, and accepted electronic assessor reports. This has helped streamline the procedure and we thank you all for your help in its implementation.

The Advisory Committee met on 19-21 March 2002 to consider the grant applications, plus program operational and policy issues. Recommendations from the Advisory Committee on successful grants were sent to the Minister, and notification to applicants will follow ministerial approval of the Committee recommendations. Letters are likely to be distributed in May with signed offer-of-grant forms to be returned in June. This will be in time for the July 2002 grant payments. Some Participatory Program projects may be offered under an agreed contract for service and will require a period of negotiation with ABRS staff before settlement.

ABRS Administration and Support Unit is keen to receive any feedback on the new electronic processing of grant applications. Contact Liz Visher on phone 02 6250 9554 or email liz.visher@ea.gov.au if you have any ideas on improvements on the processes for next round.

List of Grants 2002

The Participatory Program budget for 2001/2002 was \$1.798 million. Approximately \$855,000 has been allocated to continuing projects which required funding from July 2001 to June 2002, with an additional \$174,000 allocated towards the existing ABRS training schemes such as the postgraduate scholarship, bursaries and Australian Botanical Liaison Officer (ABLO).

Some \$740,500 was available for new projects for 2001/2002 only. ABRS liaised with the taxonomic community and the Advisory Committee to develop a range of projects which were recommended to the Minister, and approved in September 2001. The Minister approved ABRS' establishment of a new postgraduate scholarship designated the Ebbe Nielsen Regional Scholarship in memory of Ebbe Nielsen (see *Biologue* 24), and allocated \$28,500 for the first year of funding in 2001/2002. See below for more information on this award.

The list of projects awarded funding in 2001 (calendar year) was provided in *Biologue* issue 24 in June last year. The full list of all projects awarded funding for 2002 (up to 30 June) is provided below. The next issue of *Biologue* in October 2002 will provide the list of grant approved for 2002/2003.

* indicates new project (2001/2002 - one year only)
continuing project (funding for Jan- Jun 2002 only)

Algae

* Investigator: Dr A García

Project Title: Preparation of sample treatments of Charophyta for *Algae of Australia*

Located: University of Wollongong, Wollongong, NSW

Amount: \$35,000

Investigators: Dr T Entwisle & Dr S Skinner

Project Title: Taxonomic revision of the order Oedogoniales (Chlorophyta) in Australia

Located: Royal Botanic Gardens, Sydney, NSW

Amount: \$15,000

Investigators: Assoc Prof GM Hallegraeff & Dr CS Bolch

Project Title: Molecular phylogeny and morpho-taxonomy of Australian gymnodinoid dinoflagellates

Located: University of Tasmania, Hobart, TAS

Amount: \$22,500

Investigators: Dr JM Huisman & Assoc Prof WJ Woelkerling
Project Title: Revision of the Acrochaetiales and Bonnemaisoniales (Rhodophyta) in Australia
Located: Murdoch University, Murdoch, WA
Amount: \$20,000

Investigators: Dr GT Kraft
Project Title: The Marine Red Algae of Tropical and Subtropical Eastern Australia
Located: University of Melbourne, Melbourne, VIC
Amount: \$10,000

Investigators: Prof WG Vyverman, Dr KH Sabbe & Prof DG Mann
Project Title: Diversity, ecology and biogeography of Australian freshwater diatoms - a revision of the Eunotiophycidae and selected genera within the Bacillariophycidae
Located: University of Gent, United Kingdom
Amount: \$7,500

Animals (Vertebrates and Invertebrates)

* Investigators: Dr S Ahyong; Dr P Horwitz; Dr J Merrick; Dr C Austin, Dr L Evans.
Project Title: Australian Freshwater Crayfishes and Yabbies for Species Bank
Located: Dr Horwitz - Edith Cowan University, Perth WA. Dr Ahyong - Australian Museum, Sydney, NSW. Dr Merrick, Macquarie University, Sydney, NSW. Dr Austin, Deakin University, Melbourne, VIC. Dr Evans, Curtin University, Perth, WA.
Amount: \$6,000

* Investigators: Dr A Andersen, Dr R Kohout, Dr J Majer, Dr B Heterick, Dr D O'Dowd.
Project Title: Australian Ants for Species Bank
Located: Dr Andersen: CSIRO Sustainable Ecosystems, Winnellie, NT. Dr Kohout, Queensland Museum, Brisbane, Qld. Dr Majer & Dr Heterick, Curtin University, Perth, WA. Dr O'Dowd, Monash University, VIC.
Amount: \$6,000

Investigators: Prof JS Ashe
Project Title: Aleocharine staphylinids (Coleoptera) of Australia
Located: Natural History Museum, University of Kansas, USA
Amount: \$20,000

Investigators: Dr BC Baehr & Dr RJ Raven
Project Title: Australian ant spiders (Araneae, Zodariidae, Storeninae): biodiversity of the Australian fauna, taxonomy, systematics and phylogeny of the Australian species
Located: Queensland Museum, Brisbane, QLD
Amount: \$20,000

* Investigator: Dr BA Bain
Project Title: Pycnogonida (Sea Spiders): ABIF-Fauna Checklist and Bibliography
Located: Monash University, Melbourne, VIC
Amount: \$3,600

* Investigator: Dr P Bock
Project Title: Moss animals and Lace Corals of Australia: A WWW information centre to bryozoan families and species.
Located: C/- Deakin University, Melbourne, VIC
Amount: \$25,000

Investigator: Dr AA Calder
Project Title: Australian Cerambycine genera: overview and keys
Located: CSIRO, Division of Entomology, Canberra, ACT
Amount: \$25,000

Investigator: Dr LRG Cannon
Project Title: Taxonomy of the typhloplanid microturbellarians (Platyhelminthes) of Australia
Located: Queensland Museum, Brisbane, QLD
Amount: \$17,500

Investigators: Dr TH Cribb & Dr MA Schneider
Project Title: Taxonomy of thelastomatoid nematodes of Australian cockroaches
Located: University of Queensland, Brisbane, QLD
Amount: \$11,000

Investigator: Dr VE Davies
Project Title: New spiders (Araneae: Amaurobioidea) from Australian forests
Located: Queensland Museum, Brisbane, QLD
Amount: \$5,000

* Investigators: Dr L Gershwin & Dr W Zeidler
Project Title: Systematics and biogeography of Australian pelagic coelenterates (Scyphomedusae, Cubomedusae, Hydromedusae, Siphonophora and Ctenophora).
Located: University of Adelaide, Adelaide, SA
Amount: \$13,000

Investigator: Dr B Halliday
Project Title: Generic overview of Australia non-psoroptid Astigamata (Acari)
Located: CSIRO, Division of Entomology, Canberra, ACT
Amount: \$25,000

Investigator: Dr RJ Hoare
Project Title: The Depressarilid Genera of Australia (Lepidoptera: Gelechioidea)
Located: Landcare Research, New Zealand
Amount: \$6,000

* Investigator: Dr D Hollis
Project Title: The jumping Plantlice (Psylloidea) of Australia
Located: Natural History Museum, London, UK/ CSIRO Division of Entomology
Amount: \$26,000

Investigator: Dr WF Humphreys
Project Title: Towards the documentation of the subterranean fresh-water fauna of inland Australia
Located: Western Australian Museum, Perth, WA
Amount: \$7,500

* Investigator: Professor BGM Jamieson
Project Title: Oligochaeta (Earthworms and Enchytraeids): ABIF-Fauna Checklist and Bibliography
Located: unattached, Brisbane, QLD
Amount: \$15,000

Investigators: Dr JT Jennings & Assoc Prof AD Austin
Project Title: Evanioid wasps of Australia (Insecta: Hymenoptera): taxonomy, distribution and host relationships
Located: University of Adelaide, Adelaide, SA
Amount: \$7,000

Investigator: Dr J Just
Project Title: Australia's Paramunnidae, marine Isopoda (Asellota, Janiroidea)
Located: Queensland Museum, Brisbane, QLD
Amount: \$7,500

Investigator: Mr RJ Kohout
Project Title: Towards a complete treatment of the Australian spiny ants, *Polyrhachis* (Formicidae: formicinae); revision of the subgenus *Hagiomyrma* Wheeler
Located: Queensland Museum, Brisbane, QLD
Amount: \$500

Investigator: Dr P Mather
Project Title: Taxonomy of the Ascidiacea
Located: C/- Queensland Museum, Brisbane, QLD
Amount: \$17,500

* Investigators: Drs G Maynard, K Walker; T Houston.
Project Title: Australian Bees for Species Bank
Located: Dr Maynard – AQIS, Agriculture, Fisheries and Forestry Australia, Melbourne, VIC. Dr Walker – Museum of Victoria, Melbourne, VIC. Dr T Houston – Western Australian Museum, Perth.
Amount: \$6,000

* Investigator: Dr Robert Mesibov
Project Title: Millipedes: ABIF-Fauna Checklist and Bibliography
Located: Queen Victoria Museum and Art Gallery, Launceston, TAS
Amount: \$5,000

* Investigator: Dr P Middlefart
Project Title: Brachiopoda (Lamp Shells): ABIF-Fauna Checklist and Bibliography
Located: Australian Museum, Sydney, NSW
Amount: \$1,000

* Investigator: Dr P Middlefart
Project Title: Mollusca: ABIF-Fauna Checklist and Bibliography Stage 4
Located: Australian Museum, Sydney, NSW
Amount: \$35,000

* Investigator: Dr L Newman
Project Title: Fabulous Flatworms: Illustrated Electronic Guide & Identification Tool to Australasian Marine Flatworms
Located: Southern Cross University, Lismore, NSW.
Amount: \$50,000

Investigator: Dr L Newman
Project Title: Taxonomy of polyclad flatworms (pseudocerotidae & Euryleptidae) from Australian waters.
Located: Southern Cross University, Lismore, NSW.
Amount: \$2,014

Investigators: Prof R Pearson & Dr R Sluys
Project Title: Biodiversity, biogeography, and phylogeny of Australian aquatic planarians (Platyhelminthes, Tricladida, Paludicola)
Located: James Cook University, Townsville, QLD
Amount: \$20,000

* Investigator: Dr U Scheller and P Greenslade
Project Title: Pauropoda (Pauropods) and Symphyla ('False Centipedes'): ABIF-Fauna Checklist and Bibliography
Located: Dr Scheller, unattached, Germany, Dr Greenslade, Australian National University, Canberra, ACT.
Amount: \$2,500

* Investigators: Dr P Unmack, Dr R Wager & Dr H Larson
Project Title: Australian Desert Fishes for Species Bank
Located: Dr Unmack – Arizona State University, USA, Dr Wager – Qld Department of Primary Industry, Brisbane QLD, Dr Larson – Northern Territory Museum and Art Gallery, Darwin, NT.
Amount: \$10,000

* Investigator: Dr C Wallace
Project Title: Anthozoa (Corals and Sea Anemones): ABIF-Fauna Checklist and Bibliography
Located: Museum of Tropical Queensland, Townsville, QLD
Amount: \$17,800

Investigators: Dr G Worheide & Dr J Hooper
Project Title: Australian calcereous sponges (Porifera: Calcarea): biodiversity of the Great Barrier Reef fauna, taxonomy and systematics of Australian species
Located: Queensland Museum, Brisbane, QLD
Amount: \$15,000

Investigators: Dr DK Yeates & Prof ME Irwin
Project Title: Expeditions to inform systematic research on Australian Stiletto Flies (Diptera: Therevidae)
Located: University of Queensland, Brisbane, QLD
Amount: \$5,000

Bryophytes

* Investigators: Dr C Cargill, Dr N Klazenga
Project Title: Taxonomic accounts of selected families, genera and species of Australian mosses
Located: National Herbarium of Victoria
Amount: \$35,000

Fungi

Investigators: Dr AW Claridge, Prof JM Trappe & Dr MA Castellano
Project Title: Taxonomy and biogeography of Australia sequestrate fungi in the Pezizales, Elaphomycetales, Boletales and Hysterangiales
Located: NSW National Parks & Wildlife Service, Queanbeyan, NSW
Amount: \$3,000

* Investigators: Under Tender
Project Title: *Truffle Fungi of Australia*, part 1 of the sequestrate Cortinariaceae
Located: TBA after completion of open tender
Budget: \$40,000

* Organisation: Fungal Diversity Press, Hong Kong
Project Title: *Mycena* in South-eastern Australia
Located: C/- University of Hong Kong
Amount: \$10,000

Investigator: Dr T Lebel
Project Title: A taxonomic and systematic revision of the sequestrate Russulales of Australia and their allies, based on morphological and molecular characters
Located: Royal Botanic Gardens, Melbourne, VIC
Amount: \$5,000

Investigators: Dr TW May & Mr SH Lewis
Project Title: Interactive key and synopsis to the genera of macrofungi in Australia
Located: Royal Botanic Gardens, Melbourne, VIC
Amount: \$25,000

* Investigator: Dr A Wood

Project Title: Macrofungi: Part 1, treatment for *Galerina* for *Fungi of Australia*

Located: University of New South Wales, Sydney, NSW

Amount: \$5,000

Lichens

* Investigator: Dr G Kantvilas

Project Title: Taxonomic revision of selected, environmentally sensitive lichen families in Australia

Located: Tasmanian Herbarium, Hobart, TAS

Amount: \$15,000

Protists

Investigators: Dr RD Adlard & Dr M Peirce

Project Title: Characterisation of blood-borne protozoan parasites of Australian birds

Located: Queensland Museum, Brisbane, QLD

Amount: \$4,000

* Investigator: Assoc Prof AD Albani

Project Title: Foraminifera Protozoa: Checklist, Bibliography and Associated Data

Located: University of New South Wales, Sydney, NSW

Amount: \$15,000

* Investigator: Prof D Patterson

Project Title: Free-living Protozoa: ABIF Checklist and Bibliography

Located: University of Sydney, Sydney, NSW

Amount: \$50,000

Vascular Plants

Investigator: Dr RJ Bayer

Project Title: Systematics of Australian Polygalaceae and Xanthophyllaceae

Located: CSIRO, Division of Plant Industry, Canberra, ACT

Amount: \$9,250

Investigators: Dr JA Chappill & Dr MD Crisp

Project Title: Taxonomic revision and phylogenetic analysis of *Aotus*, *Phyllota*, *Otton ined.*, *Urodon*, *Eutaxia*, *Euchilopsis* and *Latrobea* (Leguminosae, Mirbelieae)

Located: University of Western Australia

Amount: \$10,000

* Investigator: Dr Rogier de Kok

Project Title: Completion of Interactive key - Pea-Flowered Legumes

Located: CSIRO, Centre for Plant Biodiversity Research, Canberra, ACT

Budget: \$50,000

Investigators: Dr MF Duretto & Prof PY Ladiges

Project Title: A systematic and biogeographic analysis of *Phebalium* (Rutaceae) and its allies based on morphology and molecules

Located: University of Melbourne, Melbourne, VIC

Amount: \$3,500

Investigator: Mr JA Jeanes

Project Title: A taxonomic revision of the genus *Thelymitra* J.R. Forst. Et G. Forst. (Orchidaceae) in Australia

Located: Royal Botanic Gardens, Melbourne, VIC

Amount: \$16,000

Investigators: Prof PY Ladiges, Dr JW Grimes, & Dr F Udovicic
Project Title: Phylogeny of *Acacia* subgenus *Phyllodineae* - new characters for the discovery of sectional groups
Located: University of Melbourne, Melbourne, VIC
Amount: \$5,000

Investigators: Dr CJ Quinn & Dr PG Wilson
Project Title: Generic concepts in the *Baekea* complex
Located: University of New South Wales, Kensington, NSW
Amount: \$15,000

* Investigator: Mr B Symon
Project Title: Panicoid Grasses
Located: Queensland Herbarium, Brisbane, QLD
Budget: \$40,000

Investigators: Dr IR Thompson & Dr NG Walsh
Project Title: A taxonomic review of *Senecio* (Asteraceae) and a treatment of taxa in tribes Senecioneae, Anthemideae and Lactuceae for *Flora of Australia*
Located: University of Melbourne, Melbourne, VIC
Amount: \$20,000

* Investigator: Mr PG Wilson
Project Title: *Flora of Australia* treatment of *Bracteantha* (Daisies)
Located: Western Australian Herbarium, Perth, WA
Budget: \$25,000

* Investigator: Dr N Walsh & Dr J Jeanes
Project Title: *Flora of Australia* treatment of Ranunculaceae
Located: National Herbarium of Victoria, Melbourne, VIC.
Budget: \$15,000

Integrated Research Strategy for Algae, Fungi and Protista – focusing on Microorganisms

* Organisation: ACIL Consulting Pty Ltd
Project Title: Development of Integrated Research Strategies for Algae, Protista and Fungi
Located: Sydney, NSW
Total Budget: \$150,612

Project Description

What's the best strategy?

ACIL Consulting is assisting the Australian Biological Resources Study (ABRS) to conduct a review of current research into algae, fungi and protista, with a focus on microorganisms in order to develop strategies for formulating and disseminating new research.

The aim of the project is to develop a ten year workplan for nationally integrated research strategies to advance knowledge of algae, protista and fungi, in particular microorganisms. Information about their taxonomy is essential for the conservation and sustainable use of Australia's biodiversity. Whilst there is a large amount of useful information on higher order Australian plants and animals, the same cannot be said for the vastly more diverse and numerous lower plants, animals and other organisms, partly because they are less – or not – visible. Nonetheless, there is a critical need to identify and classify these key micro-elements of biodiversity because of their significance for the environment and the economic activity which ultimately depends on them.

In order to achieve the best outcome from limited resources it is essential that (i) research should be concentrated on areas that are hoped to have the greatest payoff, (ii) new information should be disseminated promptly and effectively to meet the needs of all stakeholders and (iii) new partnerships be built with stakeholders – industry, science and the community. This raises questions of where, why, who decides and how?

What will this project achieve?

The project is being conducted by ACIL Consulting which has broadly based expertise in the organization of research, the development of research strategies and the identification of strategic partners.

The project will cover:

1. an initial research phase describing the way research and documentation is currently undertaken (including existing ABRS activities), plus discussion on some alternative methods;
2. a synthesis of existing estimates of the size and taxonomic structure of the groups;
3. a census of what groups are currently being worked on and an indication of rate of progress;
4. an estimate of how long it would take to document all groups using existing methods, and some suggested new methods; and
5. identification of, and extensive consultation with a broad range of, stakeholders in order to develop a process determining research priorities, a strategy for the program and a ten year workplan.

Key Dates

The project commenced on 11 February 2002 and concludes on 31 August 2002 with the submission of a final report. The key milestones are set out in the following table.

Date	Milestone
11 February	Project commencement and set up.
22 February	Meeting with Steering Committee in Sydney.
8 March	Workshop with Advisory Committee Task force, ABRS staff and consultants in Canberra.
3 rd week of March	Meeting with Advisory Committee in Canberra.
19 April	Interim report on scientific and research issues.
30 April	Consultation with Steering Committee on interim report and the plans for the consultation program.
31 May	Consultation with Steering Committee on initial findings from consultations.
28 June	Submission of interim report.
1 st week of July	Consultation with Steering Committee on interim report.
30 August	Submission of final report

What we will want from you

1. At present, what are the major problems with, and conversely benefits from, research into microorganisms?
2. Who are the major stakeholders in discovering more about microorganisms?
3. Who are the major clients for this information?
4. How should we attract greater private sector participation in, and support for, taxonomic study of Australia's microorganisms.
5. What other potential partnerships should be investigated to help increase our research effort?
6. By what ways should we set research priorities?
7. In what areas should research resources be invested?
8. How should taxonomic information on these organisms be documented and disseminated?
9. What examples can you give where information on the taxonomy of microorganisms has been useful (including unexpected benefits) or lack of information has had a cost?

We would be most appreciative of your views, comments and suggestions.

Steering Committee

The members of the Steering Committee are:

Dr David Morrison
Department of Environmental Sciences
University of Technology, Sydney

Dr Timothy Entwisle
Royal Botanic Gardens, Sydney

Dr John Pitt
Food Science Australia
CSIRO, Sydney

Professor Ronald Quinn
Astra Zeneca
Brisbane

Mr Ian Cresswell
Australian Biological Resources Study
Environment Australia, Canberra

How you can input

The consultants will be seeking input from interested stakeholders during the month of May. However you may wish to register your interests or initial comments now. You can do so by letter or email. You should address your comments to Alan Smart or Ian Wearing at any of the following:

Postal address	ACIL Consulting GPO Box 1322 Canberra ACT 2601
Telephone	02-6249 8055
Facsimile	02 6257 4170
e-mail	a.smart@acilconsulting.com.au i.wearing@acilconsulting.com.au

Information on the project and its progress will be available at <http://www.acilconsulting.com.au/>

Article from ABRS Grantees

Mites In Soil – An Interactive Key to Mites and Other Soil Microarthropods (ABRS Identification Series)
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Article by

Heather Proctor, Australian School of
Environmental Studies
Griffith University, Nathan 4111 QLD

David Walter, Department of Zoology &
Entomology, University of Queensland
St. Lucia 4072 OLD

Soil systems support all of terrestrial life, and contain an extraordinary diversity of organisms; yet, we know more about freshwater faunas than those of the ground we tread. Soil has been described as “the poor man’s rainforest” and “the last biotic frontier” because its inhabitants are so exuberantly diverse and yet so little understood.

Even a handful of forest litter may contain hundreds of species, including dozens of tiny arthropods of bizarre form and from unusual groups (e.g. proturans, pauropods, palpigrades). With increasing recognition of the importance of soil animals to soil health, there is a growing need for ecologists to identify organisms beyond the traditional, but taxonomically uninformative, size categories of micro-, meso-, and macrofauna. General keys to soil fauna are rare, however, making the ecologist’s task a daunting one. This CD’s richly illustrated keys to the mites and other microarthropods that dominate soil faunas will be an invaluable tool for researchers, teachers and students interested in understanding the bustling communities beneath our feet.

Mites in Soil includes five LucID interactive keys to soil animals. Although most of the animals illustrated are from Australia, non-Australian taxa have been included so that the keys can be used anywhere in the world to identify classes of soil arthropods; orders of arachnids; orders, suborders and cohorts of mites; and families of soil-inhabiting mites (except oribatids). Each of the keys is lavishly illustrated with original line drawings, photographs, and superb scanning-electron micrographs.

As well as images, each taxon is characterised by a written diagnosis and notes on ecology, behaviour, distribution and important literature. The preface to the CD includes an overview to collecting and mounting mites and other soil microarthropods. All keys allow the user to start

anywhere in the list of characters when keying a specimen. This is one of the strongest advantages of interactive keys, as it removes the frustration of dead-end couplets. For example, with the traditional dichotomous key if the first couplet was "eyes: present or absent" and your animal lacked a head, you were stuck. With LucID interactive keys, you can start your identification using any region of your specimen. The other strong point of this software is the convenience of hyperlinked text, which allows one to instantly move from written descriptions of animals or their characters to images of the animal or structure. When the authors began the long process of designing and illustrating these keys, they were still hesitant about abandoning the good old tradition of dichotomous keys on paper. Now we can't imagine going back to those primitive times. The ease and convenience of these interactive keys should convince even the most recalcitrant ecologist that identifying organisms is fun.

The most general key, and the one most likely to become a fixture in undergraduate classrooms, is "Classes and Orders of Microarthropods in Soil". This key allows the user to identify 31 major taxa of arthropods common in soil, including some leggy non-arthropods such as tardigrades and onychophorans. This key is notable for its excellent images of such rarely illustrated taxa as Pauropoda, Symphyla, Palpigradi and Schizomida.

It is not intended as a replacement for the LucID interactive key to insects, however, and identifies insects only to class. The other four keys are devoted to the authors' passion – mites. Soil mites from almost anywhere in the world can be keyed to family, with the few families excluded from the keys diagnosed in introductory notes. The most general of these keys, "Orders, Suborders and Cohorts", allows the user to place any mite into a higher taxon, even mites relatively unlikely to be encountered in soil (e.g. soft ticks). Members of the mite suborder Oribatida can be keyed to cohort, but are not taken further in this CD (oribatids of Australia can be identified to species using the interactive key of Hunt *et al.* 1998). Members of the other major groups of soil-dwelling mites can be identified using "Families of Parasitiformes in Soil" (46 families of Holothyrida, Ixodida and Mesostigmata), "Families of Prostigmata in Soil" (43 families), and "Endeostigmata and Sphaerolichida" (12 families). These three family level keys include detailed written diagnoses, how to distinguish each family from 'look-alike' taxa, discussions of ecology and behaviour, important literature, and lists of genera known from Australia (these can be updated by clicking on the hyperlink to Bruce Halliday's ABIF page at <http://www.environment.gov.au/abrs/ABIF-Fauna/>).

These five keys should be installed on the computers of anyone interested in soil ecology, mites, or arthropods in general. We hope that they will help ecologists to further understand the pedobiological world, and seduce students into the fascinating field of acarology.

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The Mites in Soil CD is available from:

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The Ant Spiders (Araneae: Zodariidae) of Australia.

Article by

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Ant Spiders are one of the most colourful, medium-sized (2.5 – 20 mm), day-active hunters in Australia (Fig.1). Most species can be easily recognized by their bright yellow or orange spots on dark brown

background on their back (Figs. 1,2). Their legs look like the spiders are wearing white, black and orange banded socks. Zodariids feed exclusively on ants. They live together with ants, mimicking their behaviour and sometimes even their chemical traits. For example, *Habronestes bradleyi* mimics ant pheromones so that ants can't recognize them (R. Allan et al., 1996). In Australia, the ant fauna is one of the most important components in all ecosystems. This could be the reason for the uniquely high diversity and the extreme evolutionary success of ant spiders in Australia. Recent surveys with pitfall traps in NT, WA, NSW and QLD have shown that ant spiders are one of the most dominant groups of all ground-living spider families in semi-arid and arid ecosystems.

With an estimated 300-350 species, Australia has the richest zodariid fauna worldwide. For the Australian continent only 19 species were described in the first 130 years of investigation. In the last 10 years, 55 new species have been described by B. Baehr, & R. Jocqué (1994, 1996, 2000) and R. J. Raven & B. Baehr (2000). Supported by this ABRS grant, 33 new species were described this year (B. Baehr, & R. Jocqué 2001; B. Baehr, & M. Gray submitted). Based upon our examination of museum collections, we estimate that only about 30% of the existing fauna is named.

The most important character by which to distinguish the different species is the male sexual organs—the “male palps”—which are extremely complicated in most genera. Before mating, the male uses the palpal organ to pick up the sperm discharged from the male genital aperture onto a tiny web. Hence, the sperm transfer is indirect. The structure of the palp is thought to bear some relationship to the structure of the female genital organ, the epigyne. However, the correspondence is minimal as often the female epigyne is externally quite simple. Hence, the many complex components of the male palp simply reflect species differences. Figs. 3 – 5 show male palps from the basic genus *Pentasteron* (Fig. 3) with a quite simple palp and more complex palps from the genera *Habronestes* (Fig 4.) and *Euasteron* (Fig. 5).

With the funding from ABRS, we are revealing the exciting world of ant spiders, describing the species and making them useful:

- for any survey undertaken to understand the biological diversity of the Australian invertebrate terrestrial fauna, because most of the ant spider species have a distinct distribution or occur only in distinct habitats;
- as “Indicator Species” in environmental conservation, because they are restricted to certain habitats as well as to certain ant species.

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A Taxonomic Revision of the genus *Thelymitra* J. & G. Forst. (Orchidaceae) in Australia.

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Thelymitra is a complex genus consisting of about 75 described species, several described natural hybrids and an uncertain number of undescribed taxa. It is mainly concentrated in higher rainfall areas of temperate Australia, but a few species occur in tropical north-eastern Australia, about 10 endemic species occur in New Zealand and four additional species occur in Indonesia, New Caledonia, New Guinea and the Philippines.

J.R. Forster and G. Forster described *Thelymitra* in 1776, the type species being *Thelymitra longifolia* from New Zealand. In 1810 Robert Brown prepared the first account of the genus in Australia in which 10 species were described. Bentham (1873) recognised 16 species in 3 sections, Fitzgerald (1875–94) recognised 19 species, Nicholls (1951) recognised 35 species and Jones (1988) recognised 46 species. The most recent work done on the genus has been either taxonomic treatments at a State level in various popular books and in State floras, or as a piecemeal characterisation and description of species in various journal articles. To date, a complete taxonomic revision has never been done of *Thelymitra* in Australia.

The flowers of *Thelymitra* are unusual for orchids in that the labellum lacks ornamentation and is virtually the same shape, size and colour as the petals and sepals. Traditionally, the column has provided the main suite of characters used to distinguish between the species in *Thelymitra*. To a large degree this remains true in my research, but vegetative characters such as leaf size, shape, texture and colour and the number, size and colour of the sterile bracts can sometimes help to characterise the species. Other useful features that should be taken into account relate to the colour of the flowers, the colour of the various parts of the column, habitat preference and flowering time. It is evident from the literature, and from my own field and herbarium research, that the genus remains poorly understood and much of the current taxonomy is simplistic and outmoded. In particular several species complexes have never been fully resolved and are in need of further study. The presence of apparent hybrid taxa further complicates the taxonomy of the genus. To date my research has revealed the presence of about 25 new *Thelymitra* taxa in Australia. I have described five of these in recent journal articles and several more will be described shortly. My ongoing research will undoubtedly reveal the presence of further taxa that are in need of recognition.

Calcareous sponges (Porifera: Calcarea) provide clues for the conservation biology of the Great Barrier Reef World Heritage Area

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Our recent phylogeographic studies of western Pacific calcareous sponges (Porifera: Calcarea) have highlighted the importance of outlier (exogenous) populations to the conservation biology of the Great Barrier Reef (GBR), emphasising the underpinning role of systematics in marine resource management. Calcareous sponges are a small (circa 500 spp worldwide) and largely understudied groups, but nevertheless are already acknowledged to be phylogenetically important. Recent molecular data suggest that they may be more closely related to Cnidaria and Ctenophora than to the other sponge classes, Demospongiae and Hexactinellida, probably rendering phylum Porifera paraphyletic (Borchiellini *et al.*, 2001; Medina *et al.*, 2001).

The temperate Australian fauna is relatively well known from the naturalistic/scientific studies of the late 19th century (e.g. Carter, 1886), whereas the tropical fauna was very poorly known prior to this current project. This shortcoming is partly attributed to the mostly cryptic lifestyle of calcareans in tropical coral reefs, where they mainly live in cryptic habitats, like caves and overhangs and other sciaphilic habitats, which the early naturalist explorers were rarely able to sample. Prior to our project, only 14 species had been described from the entire GBR in over 100 years. By comparison, since the start of the project we have already published 14 new species, redescribed 7 others that were barely recognisable from their original descriptions (Wörheide & Hooper, 1999, 2002; Figure 1), and have also amassed a large collection of both undescribed species (awaiting publication) and populations of known species (awaiting genetic analysis) from different parts of the GBR.

These collections were undertaken during various biodiversity surveys of sessile marine invertebrates by the Queensland Museum, for which this particular component was initially funded (1998-2000) by a postdoctoral fellowship from the German Academic Exchange Service (DAAD) to GW, and subsequently (2000-2002) by a research grant from ABRS and research fellowships from AstraZeneca R&D Griffith University (to GW and JH). The number of new species of calcareans is expected to increase dramatically in the near future as these data are published, and already the project has contributed significantly to revising many initial decisions published in the *Zoological Catalogue of Australia, Porifera* (Hooper & Wiedenmayer, 1994).

Calcarean taxonomy is extremely difficult, certainly in comparison to other sponge taxa, requiring specialised histological preparation techniques that permit the study of skeletal and soft tissue features to differentiate species (Fig. 2). The systematics of this group is even more challenging, requiring new tools (e.g. molecular data) to corroborate or refute morphological hypotheses. We found in a preliminary phylogenetic study of GBR calcarean family Leucettidae, that the phylogenetic relationships inferred from classical morphological characters are not concordant with the phylogeny inferred from molecular data, requiring a complete revision of this family – and probably others too. A second recently completed phylogeographic study focussed on the allegedly widespread western Pacific species *Leucetta chagosensis* (Calcinea: Leucettidae) as a model taxon (Wörheide *et al.*, 2000; Wörheide *et al.*, in prep). It revealed a genetic separation of the GBR populations of *L. chagosensis* into two divergent clades.

We discovered a northern/central clade, which also included specimens from Guam and Taiwan, and a southern/subtropical clade, which extended south to Brisbane. Both clades overlapped only narrowly in their geographic distributions, with a demarcation line extending from the Whitsunday Islands to the Swain Reefs. A nested clade analysis inferred that the distribution of both GBR clades was controlled by past fragmentation events with subsequent range expansion, most likely during past (glacial) sea level oscillations. It was inferred that during sea level low stands, when the GBR was dry, and thus uninhabitable by marine organisms, the northern GBR clade found refuge on the Queensland Plateau and the southern clade in the subtropical regions. With rising sea level, the GBR was repopulated from the Queensland Plateau and the subtropical regions, giving rise to present day

heterogeneous distributions of these two populations. Our data highlight the importance of both regions for future conservation studies of the GBR, which are probably pivotal to its conservation and management as they might provide the GBR with an essential potential for restocking after catastrophic events.

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ABRS, NSF, CSIRO Entomology and The Schlinger Foundation: A Partnership for the Discovery of Australia's Insect Fauna

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Australia is home to over 200,000 species of insects, and discovering the identity, distribution and relationships is a "big science" research program critical to the management of our biological heritage. The task requires significant resourcing, and increasingly this research is being funded by consortia of organizations and funding bodies with complementary agendas. Like ABRS, The US National Science Foundation (NSF) Partnerships for Enhancing Expertise in Taxonomy (PEET) program supports systematic research projects that target groups of poorly known organisms such as insects. ABRS, together with NSF PEET, CSIRO and the Schlinger Foundation, has formed a partnership to enhance and stimulate systematic research and help prepare future generations of taxonomic experts. Besides training and producing systematic research, this effort is designed to translate current expertise into electronic databases and other formats with broad accessibility to the scientific community. The focus of this particular partnership is stiletto flies (Diptera: Therevidae) (http://www.inhs.uiuc.edu/cee/therevid/stiletto_fly.html).

The PEET grant itself is a collaboration between three principal investigators, Professor Michael Irwin at the University of Illinois, Associate Professor Brian Wiegmann at North Carolina State University and David Yeates. Worldwide, the family Therevidae contains around 3,000 species, and we estimate that about 30% of these occur in Australia. This disproportionately high species diversity results from a number of evolutionary radiations in our semi-arid and arid ecosystems. Adults feed on nectar and pollen and the predaceous larvae live in dry, friable, often sandy soils and consume other insect larvae and macroinvertebrates in the soil. We don't really have a good explanation for Australia's high therevid diversity, but it may be generated through intense larval prey resource partitioning. Only

a small proportion of Australia's Therevidae are described, and they are poorly represented in collections.

Adult stiletto flies are cryptic, and most efficiently collected with malaise traps. These are tent-like structures that are particularly effective for sampling diurnal flying insects such as flies and wasps. In order to comprehend and describe the fauna, new fieldwork is required to intensively sample select habitats using malaise trapping techniques. One recent expedition supported directly by ABRS focussed on a newly gazetted National Park on the Great Dividing Range at the base of Cape York. Black Braes National Park is situated on a plateau standing at 1,000 metres above sea level and about 300 km (as the crow flies) west of Townsville. Vegetation in the area comprises a mosaic of open woodland communities depending on soil type and rainfall, with isolated patches of dry vine thicket in fire shadow areas. This locality was selected because it complemented other survey localities on the east coast which had uncovered very high levels of therevid diversity on or adjacent to part of the Great Divide such as the Warrumbungle Mountains, Mt Kaputar, and Carnarvon Gorge.

The expedition lasted 3 weeks during November 2001, and included CSIRO Entomology staff David Yeates, Christine Lambkin, Noel Starick and Joanna Hamilton. Dr Christine Lambkin, a CSIRO Postdoctoral fellow, is employed to conduct revisionary systematics of Australian Therevidae; her primary focus will be a clade containing the genus *Ectinorhynchus* Macquart and its relatives. The expedition was mounted from CSIRO Entomology's Australian National Insect Collection (ANIC) laboratories in Canberra. Driving the 4 wheel drive expedition vehicle and trailer from Canberra took the best part of three days in each direction. Once at the park, we received assistance, advice and accommodation from the rangers in charge, Jamie Anderson and Joy Atkinson. The bulk of the expedition time was spent setting a total of 25 malaise traps, servicing the traps every few days and sorting the samples into taxonomic groups for further processing. We also spent 4 days just north at Undarra Crater National Park, and liased with Rangers and the general public there about the nature and relevance of our work.

Although samples are still being processed, over 1500 therevid specimens representing almost 30 species belonging to 10 genera were obtained during the expedition. Most of the species and genera are undescribed. Species overlap was surprisingly low between Black Braes and Undarra Crater, belying their geographic proximity and suggesting a high beta diversity in the region. Joanna Hamilton and Christine Lambkin are now processing and curating the specimens and adding data to the large Biolink specimen database of Therevidae in ANIC. These specimens will be included in systematic revisions of the fauna conducted by Christine, and complement the material obtained during other fieldwork and that already held in collections. Another ABRS-sponsored expedition is planned this year to the Mount Moffatt section of Carnarvon Gorge National Park in central Queensland.

The Aleocharinae (Coleoptera: Staphylinidae) of Australia

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The rove beetles or Staphylinidae are one of the largest families of beetles, with more than 46,000 species described from throughout the World. The staphylinid subfamily Aleocharinae, the largest subfamily of staphylinids, includes more than 1000 described genera and 12,000 species and is one of the most poorly known of any large group of beetles. The Australian fauna of aleocharine staphylinids, currently consisting of 58 described genera and 201 named species, is currently inaccessible even to the most dedicated specialist because of lack of a modern taxonomic synthesis and identification guide. Most of the current generic assignments were made by the early part of this century (50% before 1895, 80% by 1912, and 90% by 1921). Except for the recent work of David Kistner and his associated on termitophiles, there have been no modern comprehensive revisions and no syntheses.

Aleocharines are abundant, and often dominant, inhabitants of many microhabitats throughout the

world, and their abundance and diversity suggest that they have substantial ecological impact. They are among the most abundant generalist predators in most leaf litter and soil communities. Further, various lineages have specialized as inquilines (guests) in ant and termite nests. Representatives of other major lineages are found: in association with mushrooms and fungi, in the intertidal areas of seashores; as "parasites" of Diptera puparia (members of *Aleochara*); as major pollinators of some palm trees; and as inhabitants of the web-covered burrows of hepialid moth caterpillars (adults and larvae of the genus *Tachiona*). Many other examples of ecological specialization could be cited. Aleocharines also produce a rich array of chemicals for defense, sexual recognition and other functions.

Some aleocharines are known to have significant agricultural importance. For example, some *Aleochara* species are of economic importance as natural enemies of noxious flies. Also members of the genus *Oligota* are known to be important predators on agriculturally important phytophagous mites. Others are of significant abundance and diversity in agricultural situations and are likely to have substantial impact as micropredators. However, because of the lack of identification guides the agricultural importance of aleocharine staphylinids in Australia has not been investigated. The overall goals of this study are to produce a complete, extensively illustrated guide to the Aleocharinae of Australia with special emphasis on the described and obvious undescribed genera and higher taxa. These guides will be published as both a printed version and a electronic version that takes advantage of the capabilities of available interactive key programs such as LUCID.

Recent, on-going work in connection with this project allows the following generalizations.

1. The Australian aleocharines fauna is much richer, has more unique higher taxa, and is much more diverse than current knowledge would suggest. This faunal richness is embodied in much more than just an abundance of undescribed species (though this is true as well). There is a great diversity of undescribed genera and higher taxa, that, taken together, constitute a unique and remarkable, and hitherto unexpected, "Australian fauna". Current taxonomic knowledge of the Australian Aleocharinae does not give any indication of the uniqueness, taxonomic diversity and richness of the Australian fauna, and indeed, gives a completely false impression of the pattern of aleocharine diversity in Australia. This unexpected diversity of new higher taxa has led me to adjust my work plan to describe many of the distinctive genera and other higher taxa before completion of a more general identification guide.
2. Some described higher taxa of Australian Aleocharinae are inappropriately applied, heterogeneous in named species assigned to them, and cause much confusion in understanding of the Australian fauna. Of particular importance in this regard are the genera "*Calodera*" and "*Polylobus*" (each coincidentally containing 22 described Australian species). Both of these genera, as applied to the Australian fauna, are heterogeneous assemblages of species that actually represent numerous higher taxa (mostly undescribed). I have not seen any Australian aleocharines that can be correctly assigned to *Calodera*, and most of the species currently assigned to *Polylobus* are not members of that genus. (The only described species of *Polylobus* that I have encountered thus far is described as a species of *Calodera*). These genera will require complete revision before general or accurate conclusions can be formulated about the Australian aleocharine fauna. A similar problem exists, though less dramatically so, for the described Australian species of the genera *Atheta*, *Ocalea* and *Falagria*.
3. The fauna of the aleocharines that live in the nests of termites (called termitophiles) is unusually diverse (23 genera in 10 tribes or subtribes, represented 60 described species), and remarkably well known thanks to the work of David Kistner and his associates.
- 4.

Unveiling the secrets of below-ground, truffle-like fungi
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Article by
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Dr Andrew Claridge of the NSW National Parks and Wildlife Service and Dr Jim Trappe of Oregon State University have received \$13,000 for two years to explore the diversity and habitat requirements of the important, truffle-like mycorrhizal fungi in mainland south-eastern Australia. These fungi serve as a major food source for a range of terrestrial mammals. The many new fungal taxa so far discovered will be published in generic monographs. Habitat requirements for major species are also being modelled for use in forest management to enhance this important food base for wildlife.

Most bush walkers in Australia's forest don't realize that below the ground on which they tread hides a treasure of fungi. Amongst these, the sequestrate, or truffle-like fungi play particularly important roles in the forest web of life. Their mold growth connects tree roots to the soil, and it is through these fungal filaments that the tree acquires most nutrients. Their small, potato-like fruiting bodies are a major food source for native mammals, including bandicoots, potoroos and rodents. These fungi, in turn, rely on being eaten by the animals for dispersal of spores: the animal digests all the fruiting body except the spores, which pass through the digestive tract to be deposited on the forest floor in faecal pellets.

The project consists of 134 plots, each 50 x 20 m, selected to represent a wide range of vegetation types, soils and climates in south-eastern mainland Australia. Plots have so far been sampled 4 times by a time-constraint procedure, beginning in 1996. The plots are raked about 2-4 cm into the mineral soil, and all fruiting bodies found are collected and bagged by species. In about a year the raked areas are barely noticeable, and after 2 years the sites have fully recovered. Detailed data on habitat characteristics are recorded for each plot for the habitat modelling exercise.

Although Drs Claridge and Trappe expected a satisfying variety of these fungi, the diversity encountered over the study sites has been astonishing. So far the researchers have identified nearly 60 genera, of which at least 10 are new to science. Of the more than 200 species identified, at least 125 are undescribed. Monographs of these new taxa are being prepared for publication in the scientific literature. Although the data are not yet fully entered on a database, it appears that some plots may have well over a dozen species. Most are endemic to Australia, although many of the genera occur on other continents. Statistical analyses reveal that some species are regularly associated with others. For example, *Cortinarius globuliformis* and *Chamonixia vittatispora* regularly occur on the same sites; indeed their fruiting bodies are often intermingled. Sampling of the plots is expected to continue for the foreseeable future, on a two-yearly basis, to better document long-term patterns in the diversity and occurrence of sequestrate fungi in our Australian temperate forest environments.

Survey of the Seaweeds of Lord Howe Island

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Rising abruptly and spectacularly out of the south Pacific Ocean between Australia and New Zealand is Lord Howe Island, one of the scenic and biological wonders of the world and the first area in all of Australia to gain World Heritage listing. Unconnected to any land mass since its volcanic birth some 6 to 7 million years ago - a length of time which just coincidentally happens to be (so the paleontologists and molecular geneticists tell us) about as long as it's taken for us humans to evolve from our primate ancestors - it has rightly been called Australia's Galapagos due to the wealth and, at times, bizarreness of its endemic plants and animals.

In the early 1970s, as a student of marine algae with Professor Bryan Womersley at the University of Adelaide, I looked at a map with an idea to picking out the most desirable unexplored places in the country for launching studies of seaweed biodiversity. On seeing where Lord Howe lay I exclaimed, much in the manner of Joseph Smith, "This is the place". Lying some 780 km northeast of Sydney and site of the world's southernmost coral reef, it looked like promising a bit of everything: an almost certainly unique mixture of temperate, tropical and endemic floral elements and a made-to-order laboratory for considering taxonomic and biogeographical questions like "What's to be found in such

an isolated place, and where did everything that's there come from?"

When I looked to see what was already known of Lord Howe macroalgae, I found that its first seaweeds had been described almost exactly 100 years earlier by an obscure Venetian phycologist (i.e., student of algae) named Zanardini from the collections of two even obscurer Sydney gardeners commissioned for a land-and-sea botanical survey of the island by Baron von Mueller. The 15 or so new species minimally (and unillustratedly) described in 1874 by Zanardini were the sum total of our floristic knowledge of the algae of the island until 60 years later, when the former Sydney headmaster and amateur phycologist A.H.S. Lucas briefly described 93 green, brown and red seaweeds, 15 of them new, from a mid-winter month spent on Lord Howe. So the scope for more detailed work was definitely there, especially now that SCUBA technology was at hand for conducting deep-water explorations and modern transport put the island in reach during every season.

Since 1976, just a year after the famous Flying Boats were replaced by twin-engine commuter planes, I've been surveying the seaweed flora of Lord Howe and finding that it more than matches expectations. For a place just 11 km long and never more than three km wide, it must be one of the richest areas for marine algae, metre-for-metre, of any spot in the world. Not only its lifelong isolation but also its position at the border of tropical and temperate biological provinces (it is said that winter water temperatures there are at the lower limit for sustaining an existing coral reef and below the threshold should you want to start one up) and the huge range of habitat niches (from intertidal flats and tidepools to shallow sandy and coral-paved lagoons to deeply plunging basalt and fringing outer-reef slopes) are probable major contributors to the unique character and richness of its marine flora.

What kind of marine flora does it have? Most of its 350+ species show tropical (Great Barrier Reef and Indo-Pacific) affinities, with relatively few being common to the southern Australian coast and even fewer having New Zealand links. What this means in terms of ABRS priorities for documenting the tropical marine floras of Australia that are currently so poorly known (compared to the temperate regions, now thankfully, comprehensively monographed by Prof. Womersley) is that Lord Howe serves particularly well as an accessible, condensed and pristine habitat displaying a good proportion of the algal elements of our tropical north. This claim is backed up by our own studies of the Great Barrier Reef and those of Norfolk Island by Dr Alan Millar.

How much real endemism is there at Lord Howe? That's an interesting and problematic question to which the answer keeps changing with new discoveries at Lord Howe and better documentation of Pacific floras to the north, including Papua-New Guinea, Fiji, Samoa, Hawaii, the Micronesian islands and the Philippines. Over the years my colleagues and I have described a new genus and 34 new species for which Lord Howe is type locality, but we are finding that many of what appeared to be endemics later turn up in other areas as better studies are carried out in those regions. A good example is *Codium platyclados* Jones & Kraft, probably the largest green alga on the island and one that is common from barely subtidal to 30 m depths. It has now been recorded from the Philippines. The golden-brown, translucent *Cutleria mollis* Allender & Kraft was thought to be endemic until also found at Norfolk Island and later the Kermadec Islands of New Zealand. Although the monotypic red-algal genus *Reptataxis* Kraft, which grows from low-intertidal to 20 m depths, has not been found so far in any other locality, *Meristotheca procumbens* Gabrielson & Kraft is now reported from Fiji, where it has long been harvested and eaten by the inhabitants of Rotuma Island.

The Lord Howe studies are continuing and accelerating. A monograph of the greens has recently been completed, one on the browns is in final preparation, and attention has now turned to the largest group, the reds. Two new approaches in addition to that of classical, morphology-based taxonomy now figure in the Lord Howe studies: molecular biology (with Dr Gary Saunders of the University of New Brunswick) is giving us vital clues to the identity and relationships of many of the species, and carbohydrate chemistry (in collaboration with Dr Tony Chiovitti and student Nicole Watt) is assessing the potential commercial value of carrageenophytes such as *Meristotheca procumbens* and *Reptataxis rhizophora* (Lucas) Kraft. Lord Howe continues to throw out surprises with each new excursion we make, and to reward its researchers with a wealth of taxonomic riches.

Research scholarships

Update on 2002 Scholarships

National Scholarship Awarded to ANU student

ABRS called for applications for the 2002 ABRS Postgraduate Scholarship in October 2001. Five applications were received, and the Advisory Committee selected Mr Edward Biffen from the Australian National University (ANU), Division of Botany and Zoology. His project for the research PhD is entitled: "An investigation of generic-level relationships in *Syzygium* and allies (Myrtaceae) using a phylogenetic analysis of new molecular and morphological character datasets." His supervisors are Dr Mike Crisp from ANU, Dr Lyn Craven from the Centre of Plant Biodiversity Research, and Dr Paul Gadek from James Cook University. ABRS congratulates Mr Biffen for obtaining the three year scholarship.

Establishment of New Scholarship

ABRS continues to focus on the need to train young taxonomists, both in Australia and throughout the region as a matter of high priority. In 2001 the ABRS Advisory Committee recommended to the Minister that ABRS establish a new award called the Ebbe Nielsen Regional Postgraduate Scholarship, which the Minister subsequently approved. Following the death in March 2001 of Dr Ebbe Nielsen, an outstanding taxonomist from CSIRO Division of Entomology, ABRS set up a memorial training award, in the form of a postgraduate scholarship. Dr Nielsen was a pioneer in establishing taxonomic networks such as the Global Biodiversity Information Facility (GBIF), and promoted the importance of taxonomy in Australia and abroad. The objectives of the Ebbe Nielsen postgraduate scholarship are to foster research training in taxonomy in the Australasian region focused on Australasian flora and fauna, and thereby promoting outstanding students pursuing higher degrees in taxonomy.

Under the Ebbe Nielsen Award, students are offered the opportunity to obtain a postgraduate qualification and to gain experience with leading Australian taxonomists. The Scholarship is open to international students from countries within the Australasian region, who wish to undertake quality taxonomic research for a period of three years for a Doctorate by research degree in Australia. One award is given each year.

To obtain an application form write to:

Ms Liz Visher
Business Manager
Administration and Support Unit
Australian Biological Resources Study
GPO BOX 787
CANBERRA ACT 2601
Ph. (02) 62509 554
Fax (02) 62509 555
Email: liz.visher@ea.gov.au

Or download the application from the ABRS website – and the address is:

<http://www.ea.gov.au/biodiversity/abrs/>.

Closing Date for applications is: 12 MARCH 2002

Bursaries

Call for 2002 applications

Each year ABRS offers financial support to postgraduate students in Australian institutions for travel to a national or international conference relevant to both the student's research program in systematics or taxonomy, and the Aim and Objectives of the ABRS. A maximum of \$1,000 is available for an international conference, and \$500 for travel within Australia. Up to \$10,000 is available each year for these awards.

Eligibility

1. ABRS Bursaries are open to permanent residents of Australia.
2. The student must be currently enrolled in a PhD or Masters degree (including a research

- component) in the field of systematics or taxonomy.
3. The conference must be relevant to systematics or taxonomy.
 4. The student must show that a poster or oral paper presentation has been accepted by the organisers of the conference.
 5. The student must demonstrate the benefits of the travel to their research and to the Aim and Objectives of ABRS.
 6. Preference may be given to applicants who receive matching funding from their home institution or other source.

To obtain an application form contact:

Ms Liz Visher
Business Manager
Australian Biological Resources Study
GPO BOX 787
CANBERRA ACT 2601
Ph. (02) 6250 9554
Fax (02) 6250 9555
Email: liz.visher@ea.gov.au.

Or download the form via the ABRS website: <http://www.ea.gov.au/biodiversity/abrs/>.

Article from Bursary Student

Recipient of ABRS year 2001 Bursary Award
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Article by
Gilianne Brodie
James Cook University
TOWNVILLE QLD 4810

My name is Gilianne Brodie and I am studying in the School of Marine Biology and Aquaculture at James Cook University, Townsville, North Queensland. I am currently finishing a part-time PhD on the systematics and phylogeny of dendrodorid nudibranchs (seaslugs). Members of this groups of nudibranchs are particularly interesting for several reasons, but primarily because they have lost the characteristic molluscan radula or feeding tongue and have therefore evolved novel ways to digest their sponge prey.

In May 2001, I was very proud to be awarded an Australian Biological Resources Study Bursary, which assisted with my conference expenses and travel to attend the 14th World Mollusc Congress in Vienna, Austria. This conference was held at the historic University of Vienna and for me, included a visit to the Naturhistorisches Museum Wien and a field trip to the Danube Valley. The meeting involved over 400 scientists from over 60 countries, including six participants from Australia. Without ABRS support I would not have been able to attend this meeting and give an oral presentation on my PhD results to such a distinguished international audience. The opportunity to give this presentation, at such a vital stage of my thesis writing, was invaluable. The constructive feedback and encouragement I received from experienced researchers in my field was very motivating and had me impatient to be home and able to incorporate their valuable comments into my analyses.

In my oral presentation I concentrated on my phylogenetic results highlighting some of the new histological characters I have utilised. These characters include uniquely structured glands in the mantle and digestive system, and symbiotic bacteria in the reproductive system of several species. One of the conference highlights for me, was a keynote address by Professor Patricia Morse from the University of Washington. Although I had never met her, it was Professor Morse's research on molluscs (while she was undertaking a Fullbright Scholarship in Fiji) that led indirectly to my own interest in studying marine molluscs. Was it sheer coincidence that her presentation contained a strong message on the importance of role models, and their influence on inspiring student research! I was so enthused by the conference experience that I have now offered to assist with an opisthobranch mollusc activity at the next World Mollusc Congress to be held in Perth, Western Australia in 2004.

I would like to conclude by saying how much I appreciate the support of ABRS. I have often found studying taxonomy at a regional Australian university very isolating (although I never have to worry about whose idea it was!), particularly in a School dominated by ecologists. I would therefore like to thank ABRS for addressing this isolation and for its support of postgraduate students who would like to undertake taxonomic studies. It makes a huge difference for a student to be recognised by such an award and on moral grounds alone, is invaluable in a climate of dwindling funds for basic research and a lack of adequate recognition of the fundamental importance of taxonomy to all scientific research programs.

Australian Botanical Liaison Officer

Since the 1930's, an Australian Botanical Liaison Officer has been appointed annually to work at the Royal Botanic Gardens at Kew in the United Kingdom. The role of the Officer is primarily to assist Australian Botanists with relevant searches of library and plant specimen holdings at the Kew Herbarium. Applications are invited each year from experienced Australian taxonomic botanists. The appointment is up to 12 months, with the Officer's own institution providing a salary and allowances, and ABRS contributing towards travel and living expenses. The appointments for 2001 and 2002 are listed below:

Awarded to: Dr N Marchart, Western Australian Herbarium
Tenure: September 2001 – February 2002
Amount: \$25,000

Awarded to: Mr P Bostock, Queensland Herbarium
Tenure: March to August 2002
Amount: \$25,000

Awarded to: Dr Roberta Cowan, Murdoch University
Tenure: September 2002 – August 2003
Amount: \$50,000

ABLO - Review

The Council of Heads of Australian Herbaria are currently reviewing the Australian Botanical Liaison Officer position. More information on the outcomes of the review will be made available in the next issue of *Biologue*.

PUBLICATIONS

Pull out brochure on ABRS products for sale

For the first time ABRS is providing a special pull out brochure on ABRS products for sale. It is the centrefold section of this issue of *Biologue* which allows you to pull the brochure out. It contains information on all the latest ABRS publications and other products, including a summary of contents, availability and prices. Contact ABRS to obtain your copy of this brochure.

New Publications Launched

Nature's Investigator: The Diary of Robert Brown in Australia 1801–1805, compiled by T.G.Vallance, D.T.Moore & E.W.Groves, was published on 23 November 2001.

In 1801, at the age of twenty-nine, Robert Brown was chosen by Sir Joseph Banks as the botanist to accompany Matthew Flinders in the *Investigator* on the first circumnavigation of the Australian continent.

The voyage was to extend over 5 years, and Brown used his time well, assembling substantial collections of plants, animals and minerals. He kept a diary of his observations on the natural history, the appearance of the country, and the peoples they met. Brown returned to England with his scientific reputation established, becoming one of the leading botanists of his time.

This book provides the first complete transcript of his diary, a key Australian historical and scientific document. The transcription is supplemented with a detailed interpretation of Brown's notes, and supporting extracts from the journals of Flinders, Good, and other contemporaries.

The book is essential reading for botanists, zoologists, geologists, anthropologists, historians, and all those who just enjoy tales of adventure and discovery.

Allan Cunningham – Australian Collecting Localities, by S.Curry, B.R.Maslin & J.A.Maslin, was published on 3 December 2001.

Allan Cunningham was one of Australia's foremost botanist explorers. During his 17 years in Australia, he was responsible for collecting more than 3000 specimens of plants and exploring much of eastern New South Wales and southern Queensland.

This book provides precise locality information for the numerous localities visited by Allan Cunningham between December 1817 and April 1822 when he was the botanist accompanying Phillip Parker King on his hydro-graphic surveys of the Australian coastline. The information will facilitate the curation of Cunningham's plant specimens, which are distributed among herbaria worldwide, and will assist those who wish to revisit his collecting localities.

Also provided is a synoptic, chronological listing of Cunningham's entire itinerary for the period of his stay in Australia (1816–1839).

Both of the above books were launched at the Investigator 200 Symposium in Albany, WA, on 10 December, by Prof. David Mabberley. This was a very nice conjunction of events. The conference was timed to coincide with the 200th anniversary of the first Australian landing of the *Investigator* expedition (of which Brown was botanist/naturalist) at King George Sound. Just 20 years later, Allan Cunningham also landed at King George Sound, as part of the Phillip Parker King voyages. King and Cunningham had been sent to complete the *Investigator* surveys, curtailed when the *Investigator* became unseaworthy. As King was the natural successor to Flinders in terms of mapping the coastline, so Cunningham was a worthy successor to Robert Brown as a major and influential botanist of the Australian flora. Thus the two books are complementary in many ways.

However, it should be noted that while the Brown book is a full transcription of his diary, the Cunningham book contains only locality information and maps. Publication of the full Cunningham diaries awaits another day. We were particularly fortunate that the biographer of Robert Brown, David Mabberley, agreed to launch the two books. His knowledge of Brown is unsurpassed, and his biography, *Jupiter Botanicus*, provides an important perspective on Brown, the man, and the context for his diaries.

The Albany conference was extremely well attended, and all there were treated to some extremely interesting papers on Australian botany, zoology and biological history. Copies of the Brown and Cunningham books were available for sale, and a generous supply was exhausted by lunchtime on the first day. The books continue to sell well and are being promoted at other bicentenary events around Australia during 2002. They are available by mail order from ABRS (see brochure in the centre of this issue of *Biologue* for more details).

Forthcoming Publications

Key to the Genera of Australian Mosses (Flora of Australia Supp. Series 14) by W.M.Buck, D.H.Vitt & W.M.Malcolm

An identification guide to the 291 genera of mosses known from Australia and its external territories illustrated with more than 350 colour photographs. [April 2002]

Tasmanian Lichens: Identification, Distribution and Conservation Status. Vol. 1 Parmeliaceae (Flora of Australia Supplementary Series No. 15) by G.Kantvilas, J.A.Elix & J.Jarman [in partnership with the Tasmanian Herbarium].

This is a detailed taxonomic and ecological account of the dominant family in the Tasmanian lichen flora (more than 140 species), with special emphasis on forest-indicator value and conservation status and requirements. [April 2002]

The Mosses of Norfolk Island (Flora of Australia Supp. Series 16) by H.Streimann

A Flora-style account of the 70 species of mosses known from Norfolk Island illustrated in colour and with numerous b/w anatomical drawings. [June 2002]

In all cases distribution will be handled by ABRS. See our website or write to Dr P.McCarthy, ABRS, GPO Box 787, Canberra ACT 2601; Patrick.McCarthy@ea.gov.au

ABRS Staff Publications

Below is a list of recent publications from ABRS staff members:

Brummitt, R.K. , Castroviejo, S., Chikuni, A.C., **Orchard, A.E.**, Smith, G.F. & Wagner, W.L. (2001), The Species Plantarum Project, an international collaborative initiative for higher plant taxonomy, *Taxon* 50(4): 1217-1230.

Orchard, A.E. (2001), What are the roles of Floras in an electronic age? *ASBS Newsletter* 109: 14-16.

Grgurinovic, C.A. & Simpson, J.A. (2001). Conservation status of the known Agaricales, Boletales, Cantharellales, Lycoperdales, Phallales and Russulales of South Australia. *Fungal Diversity* 8: 97-127.

Simpson, J.A., Walker, J., **Grgurinovic, C.A.** & Buchanan, P. (2001). What is an Adequate Collection of Fungi? *Australasian Mycologist* 20: 71-78.

Ross, G.J.B. (2002). Humpback Dolphins *Sousa chinensis*, *S. plumbea* & *S. teuszi*. pp. 585-589 in Perrin, W.F., Würsig, B. & Thewissen, J.G.M. (Eds) *The Encyclopedia of Marine Mammals*. Academic Press : San Diego.

Products arising from Grants

New Grantee Publication - Tadpoles of South-eastern Australia: A Guide with Keys, by Marion Anstis
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Article by
Marion Anstis
c/- Australian Museum
6 College Street
SYDNEY SOUTH NSW 2010

The mysterious disappearance of frog species throughout the world is causing consternation among zoologists and environmentalists. In Queensland's mountain rainforest streams, extinctions and declines are rapid and some are reaching epidemic proportions. Environmental agencies, community groups and concerned individuals everywhere are desperately seeking clues to what is really happening. The first step is to find out what frogs are where - and that is not as easy as it sounds. Most Australian frogs are small elusive and nocturnal. Tadpoles, however, are easier to find. While some tadpoles are recognised as the larvae of certain frog species, many have remained unidentified. Only now with my new publication, *Tadpoles of South-eastern Australia*, can we begin to identify with confidence the species to which a tadpole belongs.

The first part of this book deals with frog classification, developmental stages, collecting and raising tadpoles and conservation issues. Part two is concerned with keying out the tadpole species with the aid of finely detailed line drawings. There is even a key to frog eggs, as they too, have distinctive features. Part three describes in detail the life cycles of 84 species of tadpoles living in Tasmania, Victoria, New South Wales and just over the border into Queensland. Each species is illustrated with colour photographs and carefully executed drawings of the tadpoles. With over 260 photographs and 300 line drawings, this book represents a body of work that will be drawn upon as a reference for many years to come.

On Friday, 1 February 2002 this book was launched at the Hallstrom Theatre, Australian Museum hosted by the NSW Frog and Tadpole Study Group and New Holland Publishers. Guest speakers included Dr Hal Cogger, an outstanding Australian reptile and amphibian expert, and Stan Orchard who is the coordinator of the World Wide Fund for Nature/Rio Tinto National *Frogs!* Program. Hal Cogger was a previous chairman of the ABRS Advisory Committee, plus Deputy Director of the Australian Museum, while Stan Orchard is the coordinator of the *Frogs!* program which aims to assist frog conservation in Australia through funding pure and applied science, education, community-based conservation and species recovery.

ABRS congratulates Marion Anstis for the completion of her outstanding book!

A GROUND-BREAKING NEW BOOK

Supported by ABRS in 1999 and co-sponsored by WWF

This unique book is set to make a big impact in Australia and across the world as an outstanding contribution to our knowledge of the fascinating life histories of our frogs, many of which are now in decline and in great need of conservation.

- 281 pages, high quality glossy paper, hard cover with jacket
- 268 colour photos of tadpoles, adult frogs and eggs plus 300 drawings
- Detailed descriptions of 84 species of tadpoles and frog eggs
- Distribution maps for each species
- Notes on behaviour, breeding, metamorphosis and similar species
- Keys to tadpoles and to eggs and embryos
- Fully illustrated explanations of terms used
- Overview of frog and tadpole conservation issues, how to collect and raise tadpoles and more.....

Available from book shops and the publishers (see below) from 12th January 2002.

RRP: \$59.95 (Aus)

Reed New Holland

ISBN: 1876 33463 0

4/14 Aquatic Drive, Frenchs Forest, NSW 2086

Australia

New Grantee Publication - Guide to Squid, cuttlefish and octopuses of Australasia by M Norman and A Reid
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Article by
Dr Mark Norman
University of Melbourne
PARKVILLE VIC 3052

ABRS-funded research has enabled a quantum leap in our knowledge of the octopuses of Australia's coastal waters. ABRS sponsored comprehensive diving field surveys along Australia's south and west coasts from 1998 to 2000. These surveys mainly consisted of night scuba dives and intertidal reef walks at regular intervals along the coast from Adelaide to Broome, completing an Australia-wide survey of these creatures over the past decade.

The surveys resulted in the discovery of numerous new species of octopus, raising the Australian tally to 76 species of which 59 were discovered in the last 10 years. This diversity is the highest reported for octopuses for any region in the world. On one Western Australian stretch of coastline alone, nine new octopus species were encountered in the same number of dives. This rich octopus fauna is also incredibly diverse in form, habitats and behaviour. They come in all shapes and sizes, from pygmies fully mature at the size of a jelly bean to 3m arm-span monsters. The list includes long-armed arm-droppers, squat muscular species, camouflage experts, sand-swimmers and four new poisonous blue-ringed octopus species (each with their own signature iridescent blue colour patterns).

New species were encountered in diverse habitats from mudflats to intertidal rocky shores, coral reefs, rocky reefs, lagoons, surf zones, seagrass beds, sand plains and rubble banks. Pygmy species were found to be associated with specific microhabitats such as small coral heads or kelp holdfasts.

The information resulting from this study includes:

- Recognition and description of new taxa
- Lodgement of reference specimens in Australian museum collections
- Collation of distributional, biological and behavioural information
- Collection of tissue samples for ongoing molecular studies on the evolution of octopuses and other cephalopod groups (through student supervision at both James Cook University and Oxford)
- Collation of fisheries information on currently exploited taxa and those of commercial potential.

All other cephalopods (squid, cuttlefish and nautilus) encountered in the course of these surveys also were observed, photographed and where necessary collected as voucher specimens. Additional new species were recognised amongst these groups.

The resulting information and images of all encountered cephalopods have contributed to a number of publications. These include formal taxonomic descriptions, contributions to fisheries reviews (for the Food and Agriculture Organisation, UN), and papers on unique behavioural or morphological attributes. Live animal images and information have been collated into two popular field guide books. "A Guide to Squid, Cuttlefish and Octopuses of Australasia" (Norman and Reid) was published through CSIRO Publishing and the Gould League in May 2000. "Cephalopods: a world guide" (Norman) was published by IKAN Publishing and ConchBooks in English, German and Spanish in October 2000.

The Guide to Squid, Cuttlefish and Octopuses of Australasia is available for \$29.95 from:

CSIRO PUBLISHING
150 Oxford St, PO Box 1139
Collingwood, VIC 3066
Freecall: 1800 645 051 (in Australia)
Fax: (03) 9662 7555
Email: publishing.sales@csiro.au
Web: www.publish.csiro.au

INTERNATIONAL NEWS

Global Biodiversity Information Facility (GBIF)

The Global Biodiversity Information Facility (GBIF) will be a distributed network of databases containing the world's biodiversity information. It will make biodiversity data widely available and improve information flows between scientists, industry and information managers by coordinating the collection, processing and dissemination of existing and new data in a standard digital form.

The Australian Government was one of the first countries to sign up to GBIF, and we have played a major part in its development (much of the original vision for GBIF was conceived and carefully developed by Ebbe Nielsen, who died shortly after GBIF formally came into being).

The Fourth GBIF Governing Board meeting will be held in Canberra at the Australian Academy of Science Shine Dome, 20 - 22 March 2002. The Governing Board meeting will include discussions on reports from various GBIF committees, As well as a report from the first Scientific and Technical Advisory Group meeting in Sydney and the awarding of the inaugural GBIF Ebbe Nielsen Prize. The Australian Government has asked the Director of ABRS, Ian Cresswell, to chair a Working Party to oversee the development of a strategy for how we shall most effectively establish an Australian interface to GBIF. The Working Party consists of:

Chair - Ian Cresswell (ABRS, ACT)
Andrew Beattie (Macquarie University, NSW)
Gerry Cassis (Australian Museum, NSW)
Ross Coppell (Monash University, VIC)
Jim Croft (Centre for Plant Biodiversity Research, ACT)
Roger Fryer (Kings Park Botanic Gardens and Parks Authority, WA)
Ian Naumann (AFFA, ACT)
Ex-officio: John Curran (CSIRO Entomology, ACT and Chair of GBIF Science committee).

The Terms of Reference for the Australian Working Party are as follows:

Objective

To coordinate the work plan of the Australian Node(s) of the Global Biodiversity Information Facility (GBIF) in accordance with the Memorandum of Understanding (MOU).

Scope

As defined in the MOU, a Node is a stable computing gateway that allows real-time inter-operational search of multiple institutional, national, regional and/or subregional databases containing primary or meta-level biodiversity data (such as specimen records, catalogues, bibliographic, sequence, protein and ecosystem data) or a single, web-accessible computer containing one or more significant maintained biodiversity databases. The Node(s) must provide descriptions of an accepted standard of metadata of the contents and quality of each database. The node must state an explicit policy

regarding Intellectual Property Rights. The node may also contain or link to software tools, including data validation tools.

The Biodiversity Data refers to scientific information primarily about biological species and specimens. At the species level, such data would include the scientific names of the species and all of its synonyms; the common name(s) of the species; and other information about the species, such as a description of the species, its physiological properties, its genetics, its geographic distribution, its phylogenetic relationships, its role in the dynamics of ecosystem processes including samples for the molecular analysis, would include the scientific name of the species to which the specimen belongs; information on where, when and by whom the specimen was collected; where the specimen is currently located; who identified it; what is the specimen number; and other associated information derived from the specimen (e.g. living culture, frozen tissues, photographs, parasites, hosts) and any other related field notes written by the collector of the specimen.

Strategy

An Australian GBIF Node Working Party will establish and coordinate the management of the Australian Node(s). The Working Party will be composed of eminent Australian bioinformatics scientists identified through consultation with the Australian Research Council, CSIRO, Environment Australia, Department of Industry, Science and Resources and the National Health and Medical Research Council. The Working Party will be Chaired initially by the Director of the Australian Biological Resource Study, Dr Ian Cresswell. The Chair of the Working Party will be elected on an annual basis by the Task Force.

The Working Party will report annually to the Chair of the Interdepartmental Committee for Australia's involvement in GBIF. The report will detail:

- the objectives and outcomes of the Working Party;
- the current work plan of the Working Party;
- where Australian nodes are located;
- list of members of the Working Party;
- any lessons issues arising from involvement in GBIF, to inform Australia's approach to international research collaboration.

The Australian Node will operate for the life of GBIF, which is currently agreed for a period of 5 years from the 1 March 2001.

Sixth Conference of Parties of the Convention on Biological Diversity

The sixth Conference of Parties (COP) of the Convention on Biological Diversity (CBD) will be held from 7 to 19 April 2002 in The Hague, Netherlands. Several key issues of interest to the taxonomic community will be discussed and below is a very brief synopsis of these main issues are outlined. There will be many other issues covered, and readers are referred to the CBD website for more information.

Background

At the 1992 Earth Summit in Rio de Janeiro, world leaders agreed on a comprehensive strategy for "sustainable development" meeting our needs while ensuring that we leave a healthy and viable world for future generations. One of the key agreements adopted at Rio was the Convention on Biological Diversity. This pact among the vast majority of the world's governments sets out commitments for maintaining the world's ecological underpinnings as we go about the business of economic development. The Convention establishes three main goals: the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits from the use of genetic resources.

As one of the 17 most biologically diverse nations in the world, Australia is a party to the Convention on Biological Diversity. Australia implements its obligations under the CBD through the *National Strategy for the Conservation of Australia's Biological Diversity* and a range of other initiatives such as:

1. the Natural Heritage Trust;
2. The Environment Protection and Biodiversity Conservation Act 1999; and
3. biodiversity conservation strategies developed at the State and regional level, for example the

1999 *Biodiversity Plan for the South East of South Australia*.

Most recently a *Review of the National Strategy for the Conservation of Australia's Biological Diversity* has been conducted in 2000 by the Australian and New Zealand Environment and Conservation Council (ANZECC). To address the issues identified by the review the *National Objectives and Targets for Biodiversity Conservation 2001 – 2005* were finalised in 2001.

Sixth Meeting of the Conference of Parties, April 2002

The Conference of Parties to the Convention meets every 2 years to discuss ways and means to implement the goals of the Convention. The sixth COP will consider a range of issues, with the main issues being a revised and expanded programme of work on forest biological diversity; a set of guidelines on alien species that threaten ecosystems, habitats or species; a work program for the Global Taxonomy Initiative; endorsement of a Global Strategy for Plant Conservation; and discussions on Access to Genetic Resources and Benefit-sharing.

The forest biological diversity work programme will identify a range of tasks, actors for those tasks and timeframes and milestones to measure progress against those tasks. The work programme is long and detailed (around 38 pages) and can be accessed at www.biodiv.org. The COP will also discuss other ways and means to protect forest biodiversity beyond those identified in the work programme, based on the proposals made by participants at the COP.

The purpose of these guidelines for alien species that threaten ecosystems, habitats or species is to assist parties in preventing and mitigating the impacts of alien species that threaten ecosystems, habitats or species. The guidelines are available at the CBD website www.biodiv.org. The COP will also consider other measures to combat alien species. These include improving international cooperation across different international bodies and improving scientific understanding and technical cooperation.

The purpose of the Global Taxonomy Initiative (GTI) is to address the lack of taxonomic capacity in a majority of countries. COP6 will consider progress on implementation of the GTI and a work programme to implement the GTI. The work programme is available at the CBD website www.biodiv.org

The COP will consider endorsing a Global Strategy for Plant Conservation. The purpose of the strategy is to draw attention to the need to conserve plants both in-situ (ie in the wild) and ex-situ (eg in botanic gardens) and propose a range of measures to address that need. Discussions at COP will look at the role of time orientated targets in the strategy, the appropriateness of CBD endorsing such a strategy and its relative priority; and the balance between ex-situ and in-situ conservation activities.

'Access and Benefit-sharing as related to genetic resources' is a priority issue for COP6, and discussions will chiefly focus on the final nature, scope and content of Guidelines on Access and Benefit and the development of an action plan for capacity building.

More information as well as comments can be provided to: Gareth Rees, Biodiversity Policy Section by:

e-mail: gareth.rees@ea.gov.au;
fax: 02 6274 2532; and
mail: Gareth Rees, Biodiversity Policy Section, Environment Australia, GPO Box 787, Canberra, ACT, 2601.

If you have any queries please do not hesitate to call 02 6274 1476.

ABRS DIRECTORY ON-LINE

The ABRS has created a public access, on-line registration and search facility called the *ABRS Directory*. It can be found via the ABRS Website on:

<http://www.ea.gov.au/biodiversity/abrs/about/directory.html>

The *Directory* is a database that will contain names and research interests of scientists engaged in taxonomic and biogeographic studies on Australian biodiversity. Illustrators and photographers are also included. The *Directory* has a comprehensive search and report facility. With support from the community, the *Directory* will develop into a valuable and readily accessible source of information on

taxonomic expertise. Registrants receive regular information on ABRS, including the ABRS newsletter, *Biologue*.

Those with a general interest in the aim and objectives of ABRS are now invited to register. Instructions on how to register are provided on the Website and registrants are free to enter details they wish to make available on the database. Each registration is checked before it is made publicly available on the Website. Users may also wish to encourage others to explore the *Directory*. We welcome feedback on this interactive facility.

OBITUARY

Professor Bill (WD) Williams passed away quietly at 3:30 pm, Brisbane time on Saturday 26th January 2002, Australia Day from leukaemia. A service was held at Centennial Park Crematorium in Adelaide on Thursday, 31st January. Professor Williams was a former and highly valued member of the ABRS Advisory Committee, and a highly respected peer in the taxonomic community, and internationally renowned for his limnological work. The ABRS staff extends its condolences to his wife Anne and family.