THE UNIVERSITY of ADELAIDE

2010 Annual Report

The Environment Institute

Australian Centre for Evolutionary Biology & Biodiversity

ACEBB is a nationally recognised centre of expertise in systematics, evolutionary biology and biodiversity science.

www.adelaide.edu.au/environment/acebb

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Director's Report

The Australian Centre for Evolutionary Biology & Biodiversity (ACEBB) is a University-designated research centre within the Environment Institute that brings together expertise from three key organisations: The University of Adelaide, the South Australian Museum and the Department for Environment and Natural Resources (DENR), which houses the State Herbarium and Biological Survey for South Australia. The sharing of this expertise from different institutes in one centre is viewed enviably nationally as a "best practice" model. As well as the critical mass in research capability it creates, an important strength of this relationship is the access to high quality collections and research infrastructure.

ACEBB has been tremendously successful since its inception in 2000. With regard to outputs and outcomes, it has expanded every year, has an influential external board, successfully underwent its 5-year review in 2006 and is described as a nationally leading research centre in evolutionary biology, systematics and biodiversity. ACEBB members are also recognised as a leading group of academics, both nationally and internationally.

The **Mission** of the ACEBB is to be a leading national and international centre for research and training in evolutionary biology and biodiversity science, with an emphasis on fauna and flora of Australia. It aims to:

1) Provide a focus for, and a recognition of, the high-calibre research already being undertaken by researchers in Adelaide;
2) Provide more secure funding and first-class infrastructure and integrated networking/ coordination through collaboration among its members and with colleagues externally;
3) Attract postgraduates of excellence;
4) Be a focus for national and international visitors, and
5) Foster communication and ideas among members through seminars, discussion groups, workshops and conferences.

ACEBB is focussing its research effort around four key themes:

Species discovery and phylogenetics
Building on ACEBB's key strength in biodiversity discovery, taxonomy, systematics and phylogenetics, we are developing new molecular methods to understanding the evolutionary relationship species and their rapid identification, including DNA barcoding. In addition methods to incorporate evolutionary history into conservation assessments of species are being developed (e.g. phylogenetic diversity and endemism).

Evolutionary and landscape adaptation
Strengths in this area include; macroevolution, life history trait analysis, adaptational evolution, biogeographic history, phylogeography and recent landscape genetic and ecological changes. Through this research ACEBB scientists are able to advance our understanding of evolutionary adaptations in Australian systems due to historical impacts (long term climatic change, geological change) and contemporary landscape influences (fragmentation, invasive species, climate change).

Biodiversity and ecosystem analysis and monitoring
This theme aims to improve our understanding of the dynamics of species and ecosystems and how they change over time in response to climate change, fragmentation and invasive species through analysis and modelling. Part of the research involves establishing large scale remote monitoring programs in terrestrial and marine environments to track the trajectory of biodiversity and ecosystems over time, and includes the development of novel monitoring techniques, such as DNA barcoding, environmental genomics, image capture and analysis and remote data feedback.

Biodiversity management and conservation decision-making
At the applied end of science, we are using the unique capabilities of ACEBB to combine genetic and adaptation understanding into biodiversity and ecosystem analysis and modelling for conservation decision-making. This is a new and expanding area of ACEBB's focus. Novel technical skills in environmental forensics and assessment that use DNA barcoding and phylogeographic data are also being developed (e.g. tracking illegal logging).

This report covers the activities of the Centre during 2010, a period which has seen the consolidation of activities around the core themes of ACEBB, establishment of a business plan and strategic of the group to target external funding and build research infrastructure. We would also like to welcome Professor David Adelson and Dr Frank Grutzner who joined the Centre during 2010.

This report summarises the work and activities undertaken in the Centre of:

- 19 academic staff (both core staff of the University of Adelaide, joint appointments and affiliated staff from the Museum and Herbarium,
  and equivalent to 10 university FTEs),
- 17 postdoctoral researchers (staff and fellows) and
- 44 PhD students in the Centre,

and provides details on:

- **Research projects and grants**
  - (73 grants held in 2010, with a total value of income during 2010 >$6M, of which >$3M was category 1 funding)
- **Publications**
  - 122 peer-reviewed publications, of which 44% are in A* and A journals, including papers in internationally leading journals such *Science, Quaternary Science Reviews, Systematic Biology, Ecology Letters, Biology Letters, Plos One, Molecular Ecology, Ecology, Global Ecology and Biogeography, Molecular Phylogenetics and Evolution, Journal of Evolutionary Biology* and *Conservation Biology*
  - 7 book chapters
  - and one book
- **National and international collaborations**
- **Seminars and workshops**.
  - We had a very active seminar program during 2010, with 13 presenters, including 6 international speakers (from Canada, France, UK)
  - Three workshops attended by a range of local and national participants in
    - Population Genetics and Phylogeography, with guest instructors Prof Scott Edwards (USA) and Dr Juan Jose Robledo-Arnuncio (Spain), attended by 25 Australian postgraduate students and ECRs
    - Training in R provided by Steve Delean
    - Biodiverse: A Tool for the Spatial Analysis of Biological and Related Diversity, with guest instructor Dr Shawn Laffan (NSW)

Major projects that were undertaken this year include:

Andrew Austin - Systematics, biogeography and hosts of Australian scelionid wasps: parasitoids of insects and spider eggs (ABRS); Phylogeography and host specificity of stemborer parasitoids: essential components for the pre-emptive biocontrol of sugarcane pests in Australia (ARC Linkage); Biodiversity and population genetics of groundwater calcrete ecosystems of central Western Australia (ARC Linkage); Systematics and coevolution of insect herbivores on casuarinas: testing phylogenetic congruence for selection of plant biocontrol agents (ARC Linkage)

Corey Bradshaw - Density regulation as a major determinant of population persistence: advancing empirical and theoretical approaches to conserve biodiversity (ARC Discovery)

Barry Brook - Reconstructing past population dynamics to understand human and climatic impacts in prehistory (ARC Discovery); Systems modelling for synergistic ecological-climate dynamics (ARC Future Fellowship); Planning for a transformed future: Modelling synergistic climate change and land use impacts on biodiversity (ARC Linkage)

Steve Cooper - Systematics of *chiltoniidae* (Amphipoda: Crustacea) in mound springs and calcrete aquifers of Western and South Australia (ABRS)
Hugh Cross - 21st Century Taxonomy - DNA barcoding (CERF program)
Steve Donnellan - Phylogeography, evolution and taxonomy of humanity s greatest pest, *Rattus rattus*: Epidemiological, archaeological and conservation implications (ARC Discovery)
Damien Fordham - Range dynamics and demographics of spatially structured populations under global change (ARC Discovery)
Frank Grutzner - Many Ys in monotremes: multiple sex chromosomes and sex determination in platypus and echidna (ARC Discovery); Development of a diagnostic microarray to detect aneuploidy in single cells (ARC Linkage)
Fred Gurgel – Marine benthic algae of the Great Barrier Reef, Rhodophyta: Nemastomataceae, Schyzymeniaceae, Dumontiaceae, Ceramiaceae and Rhodomelaceae (ABRS), Marine benthic algae of the Great Australian Bight: study of the biodiversity and relict species concept (Natural Resource Research Grant); Ecology, Physiology and Phylogeography: an integrated approach to the study of the invasive marine green macroalga Caulerpa taxifolia in Australia (ARC Linkage)
Bob Hill - The role of atmospheric carbon dioxide in fostering hyperdiversity in Australian conifer palaeofloras (ARC Discovery)
John Jennings - Systematics of the Australian ensign wasps (ABRS)
Mike Lee - Insights into macroevolution using a model adaptive radiation of lizards (ARC Discovery) Mesozoic Austral Biodiversity: research and regional museum applications (ARC Linkage)
Andrew Lowe - Genomic approaches to DNA barcoding Australasian trees at the species boundaries in association with Bush Blitz (ABRS); National Scientific Reference Site Network – Australian Rangeland Ecosystems: TERN (NCRIS – DIISR); Eco-informatics – integrating and visualizing ecosystems information: TERN (NCRIS – DIISR); Transect for Environmental monitoring and Decision making (TREND) - Adaptive management of productive and native systems for climate change (SA Government - Premier's Science and Research Fund);
Nick Murphy - Evolution of the unique fauna of the Great Artesian Basin mound springs: the impact of aridification and climate change (ARC Linkage)
Kate Sanders - Sea Snake Diversification: Why Are Certain Taxa And Regions Species-Rich? (ARC)
Gary Taylor - Systematics and host associations of Australian psyllids (ABRS)
Ian Whittington - Metazoan parasite survey of selected macro-inshore fish of southeastern Australia (FRDC); Assessment of in situ monitoring techniques and life history parameters for monogenean skin and gill parasites (FRDC)

On behalf of the members of the Centre, I would like to thank the following people for their help with the successful operation of ACEBB: Professor Bob Hill (Executive Dean, Faculty of Sciences); Dr Sue Carthew (Head, School of Earth & Environmental Sciences); Advisory Board members; Dr Steve Morton (Chair and Group Executive, CSIRO Environment & Natural Resources), Dr Ian Gould (South Australian environmental visionary and mining sector representative), Dr Ross Knowles (Director, Ethinvest Pty Ltd), Ms Susanne Miller (Director, South Australian Museum), John O'Malley (ED, Information, Science and Technology Directorate, Department for Environment and Heritage) and Mike Young (Director, Environment Institute, University of Adelaide); and Ms Alison Jobling and Karen Lancaster for administrative support.

Professor Andrew Lowe, ACEBB Director

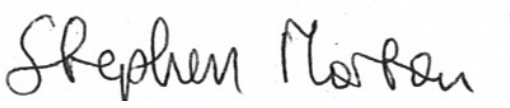
Chair of External Advisory Board's Report

I have been a member of the Advisory Board of the Australian Centre for Evolutionary Biology & Biodiversity (ACEBB) at The University of Adelaide since its beginning in 2000, and so have been in an ideal position to track its progress and development. This report covers the activities of ACEBB during 2010, a year that has been an exciting one for the Centre, and seen it flourish further as a high-ranked research entity of national and international stature. One important observation I can make is that the Centre has been able to capitalise on its previous solid performance, and has successfully responded to the recommendations I made in its 5-year review in 2007. Most significant in this respect has been the crafting of a detailed business plan to guide its future development and expansion into non-traditional sources of research funding while, at the same time, growing its national competitive (Category 1) funding, such as that from the Australian Research Council (ARC), over the same period.

During the last 10 years ACEBB has effectively used the Advisory Board as an external consultative group to help bench-mark its activities and explore future opportunities. In this respect the expansion of the Board in 2009 to bring together a wider range of high-calibre expertise from State and Federal Government and the private sector, has now seen this group coalesce into a constructive group that is well matched to the expansion and performance of the Centre. The ACEBB Advisory Board is looking forward to working with the Director and Management Committee over the next three years to help them achieve their goals and see the aims of the business plan come to fruition.

The major activities of ACEBB are its research programs, and these require a sustainable funding base. It is thus pleasing to see that 2010 has been another very successful year in this regard, particularly with the ARC Industry Linkage Scheme and the Australian Biological Resources Study. Concurrent with these has been an expansion in the number of industry partners funding ACEBB projects and the number of postdoctoral fellows and postgraduate students working across a range of projects. These include fundamental evolutionary biology and biodiversity research, population genetics, phylogeography, and the integration of these areas. Significantly, the Centre now has almost as many postdoctoral fellows as it does core research staff. This is an enviable position given that these people are the life-blood of any major research entity. Also of note is that ACEBB staff were significant contributors to the awarding of a top score of 5 (i.e. well above world standard) in evolutionary biology and environmental biology and a 4 score (i.e. above world standard) in ecology and genetics for the University in the recent Federal Government's Excellence in Research for Australia (ERA) assessment process. Of critical importance to ACEBB's expanding research portfolio has been the development of the *Transect for Environmental monitoring and Decision making* (TREND) funded by the South Australian Premier's Science and Research Fund, and two major projects within the NCRIIS-funded *Terrestrial Environmental Research Network* (TERN). Both these initiatives came up to full speed during 2010 and are making significant contributions to the ACEBB programs in Evolutionary and Landscape Adaptation and Biodiversity and Ecosystem Analysis and Monitoring.

I congratulate the Director of ACEBB, Professor Andy Lowe, and his Management Committee, Professors Andy Austin, Barry Brook and Steve Donnellan and Associate Professor Steve Cooper, for their activities in fostering high-calibre research in evolutionary biology and biodiversity studies at The University of Adelaide, and their leadership in developing significant research links with other organisations in Australia and overseas. As the Chair of the Advisory Board, I commend this report to the Deputy Vice Chancellor - Research, Professor Mike Brooks, as an accurate and readable account of ACEBB activities in 2010.



Dr Steve Morton, Chair of Advisory Board

Advisory Board

Dr Steve Morton - Group Executive, Manufacturing, Materials & Minerals, CSIRO. Steve's expertise is in arid-zone ecology, resource management and sustainability. He currently chairs CSIRO's Steering Committee for Indigenous Engagement Strategy, is Director of Bush Heritage Australia, and is the current Chair of the ACEBB Advisory Board.

Dr Ian Gould - Chancellor, University of South Australia. Ian has a long standing and high level association with the Australian mining industry, and a strong commitment to environmental research. Among other positions he is presently Chair of St Andrew's Hospital Board, the CSIRO Minerals Sector Advisory Council and is a member of the South Australian Economic Development Board. He is a past Chair of the Australian Institute of Marine Science (AIMS) and the Australian Biological Resources Study (ABRS) Advisory Committees.

Ross Knowles - Director, Ethinvest Pty Ltd. Ross was the co-founder of Ethinvest, the first Australian financial planning practice with a specialist ethical investment division. He was also the founding Co-President of the Ethical Investment Association (now the Responsible Investment Association of Australasia), and was editor of the book Ethical Investment (CHOICE Books 2000). Ross is a keen environmentalist and has had a close association with a number of Australian environmental NGO's over many years.

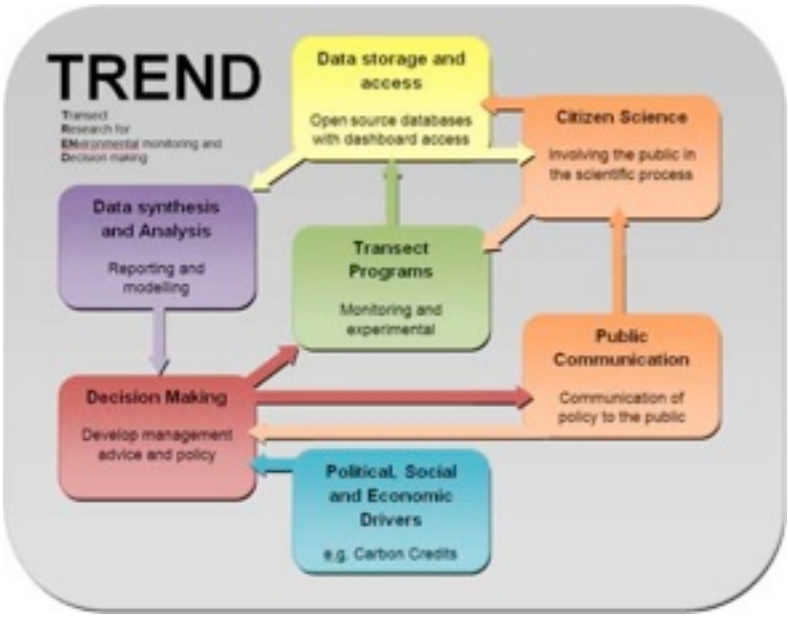
Professor Suzanne Miller – Director, South Australian Museum, and Affiliate Professor, School of Earth & Environmental Sciences. Suzanne has 20 years experience in geology and earth sciences including 12 years with National Museums Scotland where she was Head of Natural Sciences. She took up her current position with SA Museum in 2007 where she is utilising her keen interests in presenting, interpreting and communicating natural history through the medium of museum collections and exhibition displays.

John O'Malley - Executive Director, Department of Environment & Heritage, South Australia. John has been with the DEH for 31 years, performing various operational, strategic and executive management roles. He is currently Executive Director of the Information, Science and Technology Directorate and Chief Information Officer for DEH. His focus is on building a sustainable information management platform for DEH and the broader SA Government based on the life cycle of strategic asset management principles.

Dr Judy West - Executive Director, Australian National Botanic Gardens & Assistant Secretary, Parks & Biodiversity Science, Department of the Environment, Water, Heritage & the Arts. Judy has for some years been a Senior Principal Research Scientist in CSIRO Plant Industry and Director of the Centre for Plant Biodiversity Research and Australian National Herbarium. She has an adjunct Professorial position at Australian National University; for her contributions to Australian plant systematics she was awarded the Nancy Burbidge Memorial Medal in 2001, and an Order of Australia in 2003. Her scientific expertise is in plant systematics and phylogenetics, biodiversity informatics and conservation biology.

ACEBB Research in the News

PSRF contributes $1.35 million to TREND



As part of the Premier's Science and Research Fund (PSRF), the State Government is providing $1.35 million over three years to establish the Transect for Environmental Monitoring and Decision making - TREND - to monitor the agricultural and ecological impact of climate change.

TREND is a collaborative initiative between the University of Adelaide, the South Australian Research and Development Institute and the Department of Environment and Natural Resources.

"The TREND program will provide an early warning system for ecosystems shifts due to climate change, helping to plug a fundamental gap in our knowledge about how natural and production systems respond to this change. This will lead to improved modelling that will help inform effective management decisions for the future," said Professor Andy Lowe, Director of the Australian Centre for Evolutionary Biology and Biodiversity (ACEBB), the Environment Institute.

The TREND program will deliver a study of economically and ecologically important systems, running from Adelaide north through the Mt Lofty Ranges, the Barossa and Clare Valleys to the rangelands and eventually into the northern desert areas of the State. This project will involve and engage the wider community, by providing a forum for direct public involvement in data collection.

Over the next five years, it will provide resources to assist managers of natural and agricultural systems to incorporate climate change into their planning. Ultimately, it will provide a legacy of high-quality monitoring for future generations.

"The TREND line will provide vital data needed for research in climate adaptation and the development of effective and innovative approaches to sustaining our environment and securing our economic future," Premier Mike Rann said.

"This is the most significant investment in climate change understanding on the ground for any state or territory in Australia," Professor Lowe said.

Major National investment in Ecosystem Research

The Terrestrial Ecosystem Research Network (TERN) was established during 2010 and is a $20 milllion investment in Ecosystem Research by the Department of Innovation, Industry Science and Research (DIISR) under the National Collaborative Research Infrastructure Scheme. Coordinated through the University of Queensland, the University of Adelaide has received $7.5 million to coordinate national programs to establish a network of national ecosystem survey plots and to establish an ecoinformatics facility that will collate and visualize national ecosystem data

'These are both very exciting developments' says Professor Andy Lowe, Director of the TERN Adelaide node. 'We have a real chance now to bring together existing ecosystem monitoring activities by unifying fieldwork and integrating data analysis so that we can better understand the fundamental drivers of our Australian ecosystems so that we can improve their management'.

In addition a further investment in TERN made under DIISR's Education Infrastructure Fund has been announced and will provide a further $12 million to ecosystem monitoring and survey plot activities to be coordinated through the University of Adelaide node.

'This is probably the biggest investment we have even seen in national ecosystem infrastructure and it will allow us for the first time to bring together the ecosystem community for Australia' said Professor Andy Lowe.

A Tale of Biological Oases

The GAB springs, sometimes called ‘mound springs’, are a rich area of endemism in Australia given the fragmented size and location of these isolated arid zone aquatic habitats. The springs in South Australia are concentrated around the southern and western margins of the Great Artesian Basin (GAB) and are recognized federally as a biologically, culturally and hydrogeologically unique region. The endemic flora and fauna that inhabit the springs are considered relicts from a time when arid Australia was ‘warm and wet’ and are also likely indicators of spring health.

An ACEBB team led by postdoctoral fellows Dr Michelle Guzik, Dr Nick Murphy (now at La Trobe University) and Professor Andy Austin have been examining levels of genetic diversity among aquatic and other spring-dependent invertebrates, including hydrobiid snails, isopods, amphipods, ostracods and beetles. Their research has uncovered an unprecedented number of new lineages within each of the major taxa. These genetic groups correspond with both the ancient climatic history and geographic landscape structure of the Southern Lake Eyre region and of the arid region.

The aims of this work were to use molecular techniques to identify genetically distinct lineages and probable new species between the springs in four well-characterised groups of endemic species known from Southern Lake Eyre region. The second aim was to synthesise this information to develop a summary of our findings to identify areas of endemism. The research showed that 1) each of the taxa showed distinct lineages between spring groups and complexes that suggest dispersal between springs is low to absent; 2) the levels of biodiversity in GAB springs are vastly underestimated, and 3) these genetic differences correspond with similar geographic barriers amongst the different taxonomic groups. This similarity has prompted us to identify priority areas for conservation management of springs’ invertebrates. The project was funded by an ARC Discovery grant, and an ARC Linkage grant with support from the Department of Environment & Natural Resources SA, BHP Billiton, the SA Museum and the Nature Foundation SA.

Super Science Fellowships

New Super Science Fellowships at the University of Adelaide will result in real benefits to environmental and climate change modelling, rapid sensing of pandemic flu, crime scene evaluation and the detection of explosives.

The University has won eight of the Federal Government's new fellowships, which are aimed at attracting and retaining outstanding early career researchers in key areas of science critical to Australia's future.

The funding - more than $2.2 million - will help grow the substantial research talent base in two of the University's research institutes and centres: the Institute for Photonics & Advanced Sensing and the Australian Centre for Evolutionary Biology and Biodiversity.

"The Super Science Fellowships will enable the University of Adelaide to recruit more highly talented researchers," said the Deputy Vice-Chancellor (Research), Professor Mike Brooks.

Two fellowships have been awarded to the Environment Institute to examine environmental DNA barcoding and genomics, develop methods for rapid visual analysis of ecosystem change and improved climate change modelling approaches.

"The fellows will develop advanced predictions of ecosystem changes based on novel genetic and image analysis methods," said Professor Andrew Lowe, Director of the ACEBB and Chair of Plant Conservation Biology in the University's Environment Institute.

"This work is led by the ACEBB, and involves collaboration with the Australian Centre for Ancient DNA and the Australian Centre for Visual Technologies at the University."

Membership

Management Committee

Professor Andrew Lowe. ACEBB Director. Joint position as Professor of Plant Conservation Biology, School of Earth & Environmental Sciences and Head of Science, State Herbarium of South Australia, Science Resource Centre, Department of Environment and Natural Resources.

Professor Andrew Austin. ACEBB Deputy Director. School of Earth & Environmental Sciences

Professor Barry Brook. Foundation Sir Hubert Wilkins Chair of Climate Change, School of Earth & Environmental Sciences

Associate Professor Steven Cooper. Principal Researcher and Head of Biological Sciences at the South Australian Museum, and Affiliate Associate Professor, School of Earth & Environmental Sciences.

Professor Stephen Donnellan. Head of the Evolutionary Biology Unit, South Australian Museum, and Affiliate Professor, Schools of Earth & Environmental Sciences and Molecular & Biomedical Sciences.

Academic Staff and Affiliates

Professor David Adelson. School of Molecular and Biomedical Sciences.

Professor Corey Bradshaw. Joint appointment at SARDI-Aquatic Sciences (via Marine Innovation South Australia) and co-director of Climate and Ecology Centre and the Global Ecology Group, School of Earth & Environmental Sciences

Associate Professor William Breed. School of Medical Sciences.

Dr John Conran. School of Earth & Environmental Sciences

Dr Hugh Cross. State Herbarium of South Australia, Department of Environment and Natural Resources

Dr Mike Gardner. Joint position as Senior Lecturer at Flinders University and researcher at School of Earth & Environmental Sciences and Department of Environment and Natural Resources

Dr Fred Gurgel. Joint-appointment among the School of Earth & Environmental Sciences, State Herbarium of South Australia Department for Environment and Heritage and South Australia Research & Development Institute, Aquatic Sciences.

Professor Robert Hill. School of Earth & Environmental Sciences, and South Australian Museum

Dr Mark Hutchinson. South Australian Museum and Affiliate Lecturer in School of Molecular Biosciences

Dr John Jennings. School of Earth & Environmental Sciences

Dr Jürgen Kellermann. State Herbarium of South Australia Department for Environment and Heritage.

Associate Professor Mike Lee. South Australian Museum and School of Earth & Environmental Sciences

Dr Mark Stevens. South Australian Museum, and Senior Lecturer in School of Earth & Environmental Sciences

Associate Professor Ian Whittington. Joint appointment, South Australian Museum and School of Earth & Environmental Sciences

Postdoctoral Fellows and Research Associates

Dr Edward Biffin. School of Earth & Environmental Sciences
Dr Roger Burks. School of Earth & Environmental Sciences
Dr Ray Carpenter. School of Earth & Environmental Sciences
Dr Francis Clark. School of Earth & Environmental Sciences
Dr Kerrie Davies. School of Agriculture, Food & Wine
Dr Steve Delean. School of Earth & Environmental Sciences
Dr Gaynor Dolman. CSIRO, and School of Earth & Environmental Sciences
Dr Damien Fordham. School of Earth & Environmental Sciences
Dr Michelle Guzik. School of Earth & Environmental Sciences
Dr Lee Heard. School of Earth & Environmental Sciences, and Department of Environment and Natural Resources
Dr Rachael King. School of Earth & Environmental Sciences
Dr Melanie Lancaster. School of Earth & Environmental Sciences
Dr Kate Muirhead. School of Earth & Environmental Sciences
Dr Kym Ottewell. School of Earth & Environmental Sciences
Dr Kate Sanders. School of Earth & Environmental Sciences
Dr Adam Skinner. School of Earth & Environmental Sciences
Dr Gary Taylor. School of Earth & Environmental Sciences

Postgraduate Students

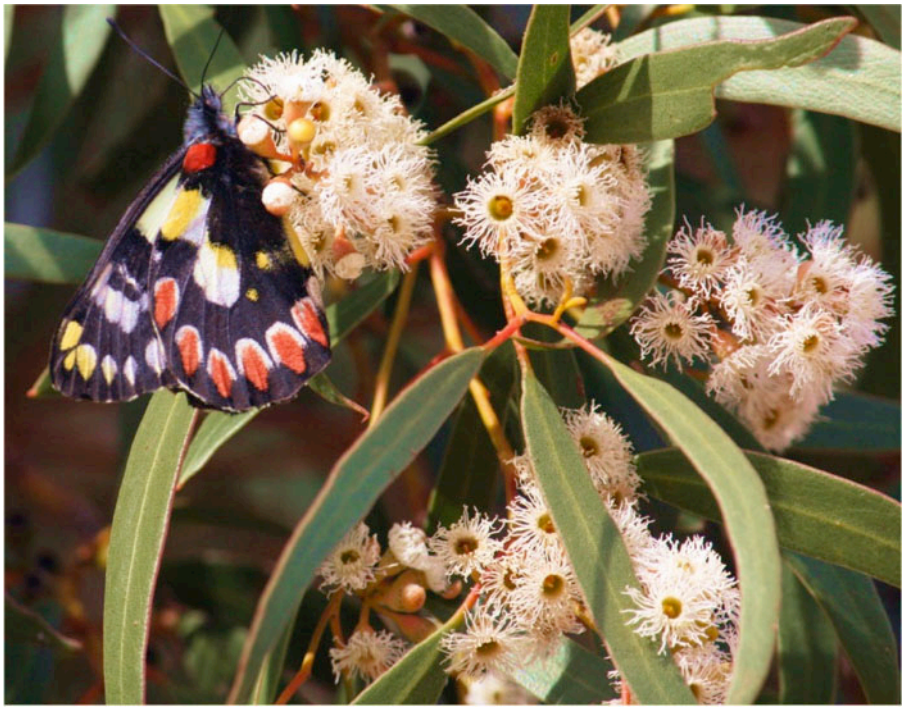
Ihsan Abdl Azez Abdul Raheem	Systematic and evolutionary studies of the eastern and southern Australian clade of the genus *Hibbertia* Andrews subgenus *Hemistema* (Thouars) J.W.Horn	J Conran [ext K Thiele, T Macfarlane]
Kym Abrams	Systematics and phylogeny of the Parabathynllidae (Bathynellacea, Crustacea) of Australia	A Austin, S Cooper, M Guzik, R King
Gareth Belton	Taxonomy, phylogenetics and phylogeography of the Great Australian Bight macroalgae: biodiversity and the relict species concept	A Lowe, F Gurgel
Martin Breed	Restoration genetics in Murray Mallee and Neotropical Forests: implications for management and planning	A Lowe, M Gardner, K Ottewell
Austin Brown	Speciation mechanisms in Australasian *Lachnagrostis*	A Lowe, Cross H [ext D Cantrill, D Murphy]
Alejandro Velasco Castrillon	Molecular studies on the origins and dispersal patterns of invertebrates in the Antarctic and sub-Antarctic	M Stevens, A Austin, S Cooper
Sarah Catalano	Mesozoan parasite fauna of southern Australian cephalopod species	I Whittington, S Donnellan [EES B Gillanders]
Craig Costion	The Australasian Floristic Interchange. Tree barcoding, conservation, and evolutionary origins of the Australasian wet tropics flora	A Lowe [ext D Crayn]
Matthew DeBoo	Using population genetics to inform building sound ecological strategies *Litoria aurea*	S Donnellan
Siobhan de Little	Demography and control of disease-carrying tropical mosquitoes in northern Australia	C Bradshaw, B Brook
Eleanor Dormontt	Why do only some exotics become invasive? Combining ecological and genomic approaches to address alternative hypotheses in a recent Australian weed.	A Lowe, M Gardner [ext P Prentis]
Bianca Dunker (Flinders remote)	Effects of fire on plant populations-Measuring dispersal in Mallee plants	M Bull, A Lowe
Patricia Fuentes-Cross	Humans as agents of landscape change in Australia: vegetation turn over and domestication	A Lowe, M Gardner [ext M Ryder]
Nicholas Fuller	Population genetics and socioecology of bats (*Nyctophilus gouldi* and *N. geoffroyi*) in fragmented populations of south-eastern Australia	S Cooper [EES S Carthew]
Francisco Gonzalez Pinilla	Phylogeography, evolution and taxonomy of humanity's greatest pest, *Rattus rattus*: Epidemiological, archaeological and conservation implications	S Donnellan [ACAD A Cooper , ext K Aplin]
Nerissa Haby	Does the inclusion of fine scale information to coarse parameter models improve population viability forecasts for small coastal and arid mammals?	B Brook
Bert Harris	The interactive effects of habitat degradation and climate change on Southeast Asian and Australian birds	B Brook, D Fordham [EES D Paton, ext N Sodhi]
James Hereward (UQ remote)	Host association, coevolution and gene flow in mirids	A Lowe
Salvador Herrando-Pérez	Factors controlling population size and extinction risk	C Bradshaw, B Brook, S Delean

Margaret Heslewood	Phylogeography and biogeography of genera in the family Cunoniaceae in Australia	A Lowe [ext M. Rossetto, D. Crayn]
Rebecca Kittel	Systematics and phylogeny of Cheloninae with an emphasis on Australian species	A Austin, S Cooper, J Jennings
You Li	Conservation genetics of the southern brown bandicoot	S Cooper, M Lancaster [EES S Carthew]
Andrew Lowther	Social and genetic factors shaping alternate foraging strategies within and between Australian sea lion subpopulations	S Donnellan
Jarod Lyon	Murray River riparian and in-stream habitat restoration	C Bradshaw
Fran McGillivray	Tracking phenological shifts and evolutionary impacts due to climate change	A Lowe, J Conran
Rohan Mellick	The affect of Quaternary climate change on the distribution of a rainforest gymnosperm (*Podocarpus elatus*) along the east coast of Australia using palynological and molecular evidence	A Lowe, R Hill [ext M Rossetto]
Mohammad Javidkar (Javid)	Systematic and biogeographic history of troglobitic isopods in western Australia	S Cooper, A Austin [ext W Humphreys]
Liberty Olds	Comparative studies on native rodents in NW Western Australia	B Breed [ext D Taggart, B Ostendorf]
Sally Potter	Life history and population genetics of rock wallabies in the north Kimberley	S Cooper [EES D Taggart, ext M Eldridge]
Terence Reardon	Systematics and biogeography of *Mormopterus* (Chiroptera: Molossidae)	S Cooper
Jolene Scoble	Novel approaches for assessing historical and contemporary vegetation condition in Australian rangelands	A Lowe, M Gardner
Ana Sequiera	Behavioural ecology of filter-feeding sharks: seasonal space use and foraging behaviour	C Bradshaw
Pranay Sharma	Integrating Morphological and Genetic Techniques for a Systematic Inventory of Zooplankton Communities in South Australian Drinking Water Reservoirs	S Mills
Mark Sistrom	The systematics and evolutionary history of the Gecko genus *Gehyra* in Australia	M Hutchinson, S Donnellan
Nuttanun Soisup	Molecular systematics of marine macroalgae	A Lowe, F Gurgel
Kate Sparks	Molecular systematics and ecology of the *Monomorium rothsteini* species complex (Hymenoptera: Formicidae)	A Austin, S Donnellan
Michael Stead	How the differing ecological traits of eucalypt species might influence their individual responses to climate change	B Brook, C Bradshaw
Karleah Trengove	The ecology and management of reintroduced populations of the greater bilby, *Macrotis lagotis*, in South Australia	B Breed, S Cooper
Kanishka Ukuwela	Systematics, Diversity and Conservation of the Indian ocean Sea snakes	K Sanders, M Lee
Daniel Walker	Potential control methods for the Western Cape Form of bridal creeper	J Conran
Thomas Wanger	Impact of land-use and climate change on amphibians and reptiles of Sulawesi (Indonesia)	B Brook, [ext N Sodhi, T Tscharntke]
Jessie Wells (UQ remote)	Spatial ecology of plant regeneration in secondary rainforests of the wet tropics	A Lowe
Andrew Wiewel	Phylogeography, evolution, and taxonomy of *Rattus rattus*: ecological, conservation, and epidemiological implications	S Donnellan [ACAD A Cooper]

Maria Zammit	Studies into the Ichthyosaur *Platypterygius lonemani* (Reptila: Diapsida: Ichtyopterygia)	J Jennings [ext B Kear, R Norris]

2010 Postgraduate Student Completions

Tessa Bradford	Modes of speciation in subterranean water beetles	S Cooper, A Austin
Aaron Camens	Diprotodontid palaeobiology and systematics	M Lee
Renate Faast	Pollination and reproductive success of terrestrial orchids: Implications of habitat fragmentation	A Austin [EES J Facelli]
Christopher Izzo	Telomere based ageing of chondrichthyan & teleost species	S Donnellan [EES B Gillanders]
Jaro Guzinski	Genetic population structure in parapatric ticks	S Donnellan
Kate Muirhead	Biosystematics and biology of the *Cotesia falvipes* complex of wasps	A Austin, S Donnellan
Paul Oliver	Biodiversity and evolution of Australian geckos	M Lee, S Cooper
Lizzie Perkins	Molecular systematics, phylogeny & radiation of Capsalidae (Monogenea)	I Whittington, S Donnellan
Udani Sirisena	Systematic studies on fringe lilies	J Conran
Elisa Sparrow	Reproductive biology and genetical relationships in wombats	B Breed, S Cooper [EES D Taggart]



Staff Profiles

David Adelson

David Adelson is Professor and Chair of Bioinformatics and Computational Genetics, in the School of Molecular and Biomedical Science at the University of Adelaide. Prof. Adelson's current research focuses on the computational analysis of repetitive, so called "Junk DNA" in mammalian genomes and on bioinformatic tools to mine Quantitative Trait Loci. He has led the analysis of repetitive DNA for the Bovine and Equine genome sequencing consortia and is currently working on the Elephant, Armadillo and Sheep repetitive DNA analyses. In addition to genome analysis, Prof. Adelson is also a founding member of bovinegenome.org, a single point of integration for bovine genome data. Prof. Adelson is currently Head of School for Molecular and Biomedical Science.

Biological mechanisms underlying genome evolution are believed to originate with retrotransposon insertions that ultimately lead to segmental (gene) duplications/deletions, incorporation of retrotransposons into protein coding genes (exaptation) or gene duplication via retro-gene formation. The resulting "churning" of both non-protein coding regions and protein domains are two of the major forces that drive adaptation and speciation. Prof. Adelson's primary research aim is to identify associations of RTE derived repeats that are conserved across mammalian genomes or species specific. Because evolutionary conservation is a hallmark of functional importance, these associations will uncover novel, functionally important aspects of genome structure. Whilst the main focus of this work is directed at evolutionary questions, retrotransposon insertions are believed to be frequent events that give rise to novel mutations.

This is an important research problem both in terms of our understanding of evolutionary mechanisms and processes but also due to the fact that these processes frequently give rise to mutations or structural variation affecting gene regulation and function which can result in disease or alter economically important agricultural traits.

Barry Brook

Professor Barry Brook became a member of ACEBB in 2009/10 and is a leading environmental scientist, holding the Sir Hubert Wilkins Chair of Climate Change at the School of Earth and Environmental Sciences, and is also Director of Climate Science at the University of Adelaide's Environment Institute.

He received a Future Fellowship from 2010, on improving forecasts of the response of biodiversity to future climate change and so improving on-ground conservation management. A systems modelling framework will be developed and tested against real-world data to integrate a wide variety of biological and geophysical inputs and so produce more realistic predictions.

He has published three books, over 170 refereed scientific papers and regularly writes popular articles for the media. He has received a number of distinguished awards for his research excellence (including the Australian Academy of Science Fenner Medal) and was awarded the 2010 Community Science Educator of the Year for his public outreach activities.

His research and teaching interests centre on climate change impacts and adaptation, computational and statistical modelling, systems analysis for sustainable energy, and synergies between human impacts on the biosphere.

He runs a popular climate science and energy options blog at http://bravenewclimate.com.

Roger Burks

Roger Burks completed his PhD at the University of California, Riverside in 2009, and has recently began work in Adelaide as part of the Platygastroidea PBI project with Professor Andy Austin. He has studied parasitoid wasps throughout his career, focusing on molecular systematics, morphology, and interactions with symbiotic bacteria. He began his career with Trichogrammatidae, at the same time writing Internet keys to parasitoid wasps.

His PhD work was mainly on two different families of parasitoid wasp, Pteromalidae and Eulophidae. His research on Pteromalidae focused on determining the position of *Nasonia* within Pteromalinae and surveying parasitoid wasps for the reproductive manipulator bacteria *Wolbachia*, which causes strain-specific crossing incompatibility between infected and uninfected wasps. He found that *Nasonia* is closely related to the large and diverse genus *Trichomalopsis*, but much work remains to be done before the over 300 genera of Pteromalinae can be classified into reasonable tribes. Roger's work on Eulophidae involved using 28S and mitochondrial DNA to resolve controversies in phylogenetics of the diverse subfamily Entedoninae.

Roger's current research is revising two different genera of Platygastroidea. Work on the Australian genus *Bracalba* is near completion. Revision of the much larger genus *Oxyscelio*, known from Africa, Australia, and southern Asia, is still underway. Both genera have turned out to be much more diverse than counts of already described species would indicate, each having over three times more species than previously known. In the case of *Oxyscelio*, this swells the number of species from 35 to over 150.

Fred Gurgel

Fred is a marine phycologist (the study of marine plants, algae) who completed his BSc and MSc at the Federal University of Rio de Janeiro, Brazil, and PhD at the University of Louisiana, USA. After 1-2 years postdoctoral terms at these two institutions, plus a third at the Smithsonian Institution (Fort Pierce Marine Station, Florida), he arrived in Adelaide in 2007 to take a joint-position among the University of Adelaide, SA State Herbarium (DNER), and SARDI Aquatic Sciences (MISA, PIRSA).

Fred's research team grew from 3 to 12 in 3 years. We now are 5 PhD students, 2 honours students, 1 research assistant, 1 part-time technical officer, and 1 honorary research associate (plus myself) thanks to a range of successful grant applications and collaborations (e.g. 2 x ARC Linkages, 1 x DIIRS, 3 x ABRS, 1 x FRDC, 2 x SA's Premier Science & Research Fund, several NRM grants, 2 x ARC-NZ Vegetation Function Network).

Current research projects involve a range of topics in molecular systematics (taxonomy, phylogenetics, DNA barcoding), molecular ecology (phylogeography), ecology (climate change experiments), and biogeography of marine macroalgae.

"DNA barcoding is revealing a huge number of new species. In red algae, for example, it also reveals information below the species level with which we can not only make solid inferences into the speciation process but also the associated biogeographic processes contributing to them" (Fred Gurgel).

Mark Stevens

Mark Stevens completed his undergraduate degree at Flinders University, but then escaped to New Zealand in pursuit of a PhD on Antarctic terrestrial fauna. After achieving that goal he was fortunate to obtain a postdoctoral position with David Penny at the Allan Wilson Centre in NZ and also in the same year (2003) obtained funding through the Australian Antarctic Division and NZFRST. This focussed Mark's research on Antarctic invertebrates, in particular work on Collembola. Lately, Mark has been combining morphological and molecular data to determine the systematic position of Antarctic and Australasian groups. An important aspect to Mark's work is an integrated molecular, systematic and palaeoecological approach to allow patterns in phylogenetic/phylogeographic diversification to be traced from origins to the present and contrasted against climate/biome shifts (e.g. aridification).

In 2008, Mark took up a research position at the South Australian Museum and in 2009 was awarded academic status (affiliate) in the School of Earth and Environmental Sciences, at Adelaide University. One highlight of his research relates to a strong record in studies of Collembola that incorporates work on species groups from throughout the Southern Hemisphere (New Zealand, Australia, Antarctica, and sub-Antarctic islands). One aspect of this research looks at the diversity of this group and its use as bioindicators of ecosystem health. His Antarctic research currently investigates the correlations between molecular dating, geological and glaciological hypotheses for continental terrestrial invertebrates in Antarctica.

Research Groups

Evolution, systematics and biology of terrestrial and groundwater invertebrates

Principal Investigators: Professor Andy Austin | Associate Professor Steve Cooper | Dr John Jennings | Dr Mark Stevens

Postdoctoral Associates: Dr Roger Burks | Dr Kerrie Davies | Dr Michelle Guzik | Dr Kate Muirhead | Dr Rachael King | Dr Kate Muirhead | Dr Gary Taylor

PhD Students: Kym Abrams, Tessa Bradford, Alejandro Velasco Castrillon, Renate Faast, Mohammad Javidkar, Rebecca Kittel, Vanesa Duran Racero, Kate Sparks, Nicholas Stevens

Our research, although fundamental in nature, has direct application to numerous real-world issues. For example, we are studying wasps that have application as biological control agents of pest insects; groundwater beetles and crustaceans whose habitat preferences have been dictated by climate change; insects and crustaceans that have very narrow distributions and represent significant challenges for conservation agencies; terrestrial and groundwater species that can be used to monitor habitat integrity and the impact of mining operations; and insects that are being considered as biological control agents of Australian native plants that are weeds overseas.

A major aspect of our research is the documentation of Australia's biodiversity, and in this respect we have recognised many new species of insects, collembolans, tardigrades, nematodes, rotiferans and crustaceans. These include the cryptic species that can only be identified using DNA sequence data.

Major Projects:

1. Evolution and biodiversity of mound spring fauna
2. Evolution of stygofauna in calcrete aquifers
3. Evolution and diversity of troglofauna
4. Evolution and systematics of parasitic Hymenoptera
5. Evolution and systematics of Collembola
6. Insect-Plant and Multitrophic Interactions.
7. Evolution, biodiversity and systematics of Antarctic terrestrial invertebrates.
8. Barcoding Australasian and Pacific invertebrates.

State Herbarium of South Australia: systematics of the Australian flora

Principal Investigators: Mr G.H. Bell | Mrs R.M. Barker | Mr C. Brodie | Dr H. Cross | Dr C.F. Gurgel | Dr J. Kellermann | Mr M.C. O'Leary | Dr P.J. Lang

Honorary Research Associates: Mr R.J. Baldock | Dr W.R. Barker | Mrs P.S. Catcheside | Dr R.J. Chinnock | Dr J.P. Jessop | Dr D.E. Symon | Dr H.R. Toelken

Research at the State Herbarium centres on the systematics, taxonomy, nomenclature and classification of Australian's native and naturalised flora. Work of staff members and Honorary Research Associates ranges from the recognition of new species and resolution of species complexes in South Australia to more extensive Australia-wide or even global revisions. Their work has in the past mainly involved traditional morphological study of herbarium and living material but is increasingly incorporating collaboration with molecular researchers in other institutions in Australia or overseas. The State Herbarium publishes a taxonomic periodical, the *Journal of the Adelaide Botanic Gardens*.

Research projects are undertaken in the following plant groups and topics:

- Acanthaceae
- Cactaceae, Rosaceae (*Rubus* in particular) and other plants naturalised in Australia
- Crassulaceae

- Dilleniaceae (*Hibbertia*)
- Fabaceae (especially *Acacia* and *Pultenaea*) in South Australia
- Malvaceae
- Myoporaceae
- Myrtaceae (*Kunzea*)
- Proteaceae (*Hakea*)
- Rhamnaceae
- Scrophulariaceae
- Solanaceae
- Stackhousiaceae
- Zygophyllaceae
- Bryophytes and lichens, particularly the mosses of Pottiaceae/Bartramiaceae
- Macrofungi
- Macroalgae (various groups – see separate entry for this research group)
- Botanical history

Evolution of mammalian gametes and gonads

Principal Investigators: Associate Professor Bill Breed | Emeritus Professor Brian Setchell | Dr David Taggart | Dr Mario Ricci | Dr Eleanor Peirce

PhD Students: Liberty Olds, Tasha Speight, Karleah Trengove, Harsha Wechalekar, Damien Hunter

Our general research interests encompass various comparative and evolutionary aspects of reproductive biology of Australian mammals, including both marsupials and native rodents.

Major research areas of interest at the present time include:

1. Co-evolution of male and female genital morphology in Australian rodents.
2. Sperm-egg interactions at the time of fertilisation in marsupials.
3. Effects of sexual selection on gonad and gamete morphology and size in rodents.
4. Effects of extreme environments, and in particular the arid zone, on the testis function and sperm production of native rodents and marsupials.
5. Distribution and function(s) of sperm head cytoskeleton proteins in rodents and marsupials.
6. Sperm nuclear proteins and sperm chromatin structural organisation in marsupials.
7. Molecular evolution of the sperm binding region of the egg coat in marsupials and rodents.
8. Organisation of the extracellular matrix of the egg coat, the zona pellucida, in mammals.
9. Application of reproductive technology to conservation of native rodents and marsupials.

Global ecology group

Principal Investigators: Professor Barry Brook | Professor Corey Bradshaw

Postdoctoral Associates: Dr Francis Clark | Dr Steve Delean | Dr Damien Fordham | Dr Camille Mellin

PhD students: Siobhan de Little, Nerissa Haby, Bert Harris, Salvador Herrando-Pérez, Jarod Lyon, Ana Sequeira, Michael Stead, Thomas Wanger,

Primary Research Foci:

1. Extinction theory and dynamics
2. Invasive species biology
3. Computational and statistical modelling
4. Climate change impacts and adaptation
5. Systems analysis for sustainable energy
6. Synergies between human impacts on Earth systems.

Adaptive evolution of the Australian flora

Principal Investigators: Dr John Conran

PhD students: Ihsan Abdl Azez Abdul Raheem, Daniel Walker

The diversity of the Australian flora is generally thought to be a result of adaptive response to environmental change and/or co-evolution with pollinators, dispersers, etc. There are numerous projects being undertaken to examine these hypotheses using morphological and molecular approaches, as well as studies of reproductive biology.

Major projects:

1. Diversity and biology of carnivorous plants in Australia, particularly *Byblis* (Byblidaceae) and *Drosera* subgen. *Bryastrum* (Droseraceae)
2. Ultraviolet floral patterning in Australian flowers in relation to pollination strategies within and between families, genera and species
3. Diversity, biology and the role of hybridisation in *Alyogyne* (Malvaceae)
4. Relationships, ecology and biology of the SW-WA endemic family Eremosynaceae
5. Evolution, diversity and biology of Australian petaloid monocots, especially Laxmanniaceae, Boryaceae and Hemerocallidaceae
6. Evolution and ecology of the basal monocot family Hydatellaceae.

Systematics, phylogeography and molecular ecology of Australian fauna

Principle Investigators: Assoc. Prof. Steve Cooper | Mr Mark Adams | Prof Andy Austin | Dr Michael Gardner | Dr Remko Leijs | Ms Kathy Saint | Dr Mark Stevens | Prof. Roger Butlin | Assoc. Prof. Sue Carthew | Dr Bill Humphreys | Assoc. Prof. Mike Schwarz | Dr David Taggart | Dr Andrea Taylor | Dr Chris Watts

Postdoctoral Associates: Dr Gaynor Dolman | Dr Taki Kawakami | Dr Melanie Lancaster

PhD Students: Tessa Bradford, Nicholas Fuller, Mohammed Javidkar, Paul Oliver, Sally Potter, Terence Reardon, Pranay Sharma, Karleah Trengrove, Alejandro Castrillon, You li

Major projects:

1. Phylogeography of Australian fauna: the biogeographic history of organisms and factors that influence speciation. Collaborators: Prof. R. Butlin (University of Sheffield, UK), T. Kawakami (Kansas State University, US): morabine grasshopper evolution. Dr. M. Gardner (Flinders University), Mr. M. Adams (SA Museum): phylogeography.
2. Molecular ecology of marsupials in fragmented forests of south-east South Australia; collaborators: Assoc. Prof. S. Carthew, The University of Adelaide; Dr. A. Taylor, Monash University; post docs: Dr Melanie Lancaster, Ph.D students: Mr Nicholas Fuller, Ms. You li (The University of Adelaide).
3. Conservation/ population genetics/ social behaviour/ systematic studies of bats, beetles, reptiles, marsupials, wasps, spiders and polychaetes; collaborators: Assoc. Prof. S. Carthew, Dr M. Lancaster, Dr. D. Taggart, Prof. Andy Austin, University of Adelaide; Dr M. Harvey WA Museum. Dr. C. Kemper, Mr M. Adams, Ms. K. Saint, Dr M. Stevens SA Museum, Dr. M. Malekian, Iran; Ph.D students: Mr T. Reardon, Ms. K. Trengrove, Ms. E. Sparrow, Ms. Magda Halt, Mr. P. Oliver, Ms. S. Thompson, Ms. S. Potter, Mr A. Castrillon.
4. Evolution of social behaviour and the biogeographic history of Australian native bees (Collaborating with Assoc. Prof. M. Schwarz, Flinders University).

Evolution and diversity of Australasian vertebrates

Principal Investigators: Professor Steve Donnellan | Dr Terry Bertozzi | Dr Mike Gardner | Dr Mark Hutchinson

Postdoctoral Associates: Dr Kyle Armstrong | Dr Gaynor Dolman

PhD Students: Matthew DeBoo, Christopher Izzo, Andrew Lowther, Francisco Gonzalez Pinilla, Mark Sistrom

Primary Research Foci:

1. Discovery and description of biodiversity in the Australasian region
2. Evolutionary history of the Australasian vertebrates
3. Understanding the evolutionary basis of the generation and maintenance of biodiversity

These basic research approaches generate knowledge and expertise that can be used for natural resource management and conservation and so consequently many opportunities arise for us to provide research solutions for a range of government and private resource management and conservation agencies.

We have substantial resources to support our exciting and diverse research program, including the Australian Biological Tissue Collection, one of the worlds largest tissue collections for molecular genetic research, a regional facility fully equipped and staffed for molecular ecology and evolutionary research, a world class ancient DNA laboratory, local supercomputer facilities for data analysis and a diverse field work program.

Our research is supported by the Australian Research Council, the Australian Biological Resources Study, the Commonwealth and South Australian Governments, and numerous private companies and foundations. We collaborate with a large number of researchers elsewhere in Australia and overseas and often organise reciprocal laboratory exchanges to facilitate our research.

Major Projects:

1. Conservation genetics of malleefowl
2. Telomere biology of fishes
3. Evolutionary ecology of island continental birds
4. Population biology of sea lions
5. Ecological restoration strategies for endangered amphibians
6. Systematics and Evolution of Australasian vertebrates
7. Diversification in major continental vertebrate radiations.

Sex chromosomes, sex determination and reproductive biology in egg-laying mammals

Principal investigator: Associate Professor Frank Grutzner | Dr Tasman Daish | Dr Enkjargal Tsend Ayush

PhD students: Aaron Casey, Deborah Toledo-Flores, Megan Wright, Shuly Lim, Diana Demyiah, Chuan He, David Stevens

Major Projects:

1. Sex determination in mammals
2. Meiotic organisation of the monotreme sex chromosome complex
3. Echidna Reproductive biology and Ecology at Monarto Zoo
4. Molecular basis of platypus fungal disease

Monotremes (platypuses and echidnas) are extraordinary mammals. They represent the most basal surviving mammalian lineage and feature an enigmatic mix of bird-like and mammalian characteristics. We

have been working on monotreme chromosomes and genes for nearly ten years. Highlights include the description of the ten sex chromosomes in platypus (Grutzner *et al.* 2004, Rens *et al.* 2004) and publication of the platypus whole genome sequence (Warren *et al.* 2008). We are using our unique tissue collection (Monotreme Resource Centre), expertise and the new genome information to investigate how monotremes determine sex and how they organise their sex chromosomes at meiosis. In addition we aim to use genomic information for conservation and field biology. For example we investigate reproductive biology and ecology of a wild echidna population at Monarto Zoo and the molecular basis of the lethal platypus fungal disease.

In order to foster interdisciplinary research on monotremes we organised a Boden Research Conference in 2008 "beyond the platypus genome" where we had over 60 national and international leaders in monotreme biology and genomics to discuss the future significance of this unique Australian species for comparative genomics and the need to combine molecular and field based approaches to gain insights into their fascinating biology and to help conservation of this iconic species (articles published in two special issues of Australian Journal of Zoology and Reproduction, Fertility and Development).

Molecular systematics, biogeography, ecology and evolution of marine plants (Phycology)

Principal Investigators: Dr Fred Gurgel

Research Assistants: Mr Bob Baldock | Ms Maria Marklund | Ms Carolyn Ricci

PhD students: Nuttanun Soisup, Gareth Smith Belton, Tracey Spokes, Samuel Taylor, William Grant

Our researchers use the latest technology to investigate evolutionary and ecological questions in marine phycology, that is the study of macroalgae (marine botany, if you will). This is facilitated through a strong and continuous partnership with the South Australia State Herbarium (Department for Environment and Natural Resources), and the South Australian Research and Development Institute Aquatic Sciences (SARDI - Aquatic Sciences).

Major projects:

1. Invasive species biology, ecology and genetics (ARC Linkage)
2. Biogeography of Australian marine macroalgal flora (ARC-NZ Vegetation Function Network)
3. Phylogeography and population genetics (DNER-CReefs-UoA / DIIRS)
4. DNA barcoding, phylogenetics and taxonomy (ABRS)
5. Floristic surveys (AMLR NRM)
6. Applied phycology, e.g. aquaculture (FRDC)

Evolution and palaeobiology of the Australian flora

Principal Investigators: Professor Bob Hill

Postdoctoral Associates: Dr Ray Carpenter

Southern Australia is the best place in the world to study the effects of long-term climate change on vegetation. This is because Australia has moved through approximately 20° of latitude since it separated from Antarctica about 35 million years ago, and during that time this movement has had a profound impact on the global and, more specifically, Australian climate. The study of the effect of this climate change on the vegetation is made possible by the excellent preservation of Cainozoic plant fossils in central and south-eastern Australia. This has been coupled with physiological research on the nearest living relatives of the fossils so that a reconstruction of the reasons behind plant evolution and/or distributional change can be attempted. This program utilises the fossil record and the living relatives of the fossils to document the impacts of lowering temperatures and reduced water availability on the vegetation of a large region. Such data are vital to our understanding of the potential impact of future, much shorter term, climate change.

Evolution, molecular phylogenetics, palaeontology

Principal Investigator: Associate Professor Mike Lee | Dr Mark Hutchinson

Postdoctoral Associates: Dr Kate Sanders | Dr Adam Skinner

PhD Students: Paul Oliver, Kanishka Ukuwela

We use molecular approaches, comparative anatomy, and the fossil record to understand major evolutionary events, such as adaptive radiations and major anatomical transitions. Reptiles - especially Australian lizards and snakes - are our study organisms of choice

Our research group uses multidisciplinary approaches to understand major evolutionary events - this includes molecular phylogenetics, anatomy, and the fossil record. Our group interacts with the Molecular Biology labs (Evolutionary Biology Unit), the Australian Centre for Ancient DNA (ACAD), and the Earth Sciences Section of the SA museum. Most students and postdocs are also affiliated with one or more of these groups and benefit from the multidisciplinary perspective.

Major Projects:

1. Snake origins and evolution
2. Biodiversity, phylogeny and evolution of Australian reptiles
3. Phylogenetic methodology, including morphological and molecular analyses, and molecular clocks
4. The "Cambrian explosion"

Ecological and evolutionary genetics of plants

Principal Investigators: Professor Andrew Lowe | Dr Mike Gardner | Dr Hugh Cross

Postdoctoral Associates: Dr Ed Biffin | Dr Greg Guerin | Dr Kym Ottewell | Dr Peter Prentis

PhD Students: Martin Breed, Austin Brown, Craig Costion, Eleanor Dormontt, Bianca Dunker, Patricia Fuentes-Cross, Margaret Heslewood, Fran MacGillivray, Rohan Mellick, Jolene Scoble, Nuttanun Soisup, Gareth Smith Belton

Our main research interests are in examining gene flow at different spatial, temporal and biological organisational scales, and the response of organisms to the ‘evil trio’ of major environmental impactors; habitat fragmentation, invasive species and historical and ongoing climate change.

Major Projects:

1. Restoration and Landscape Genetics
2. Invasive Species Genetics and Genomics
3. Biogeography and Biome Assembly
4. Climate Change and Phylogeography
5. DNA barcoding
6. South Australian State Herbarium and Biological survey
7. Biodiversity and ecosystem science
8. Genetic Resources and Domestication
9. Using genetic tools to track illegal logging

Biology, systematics, evolution of marine parasites

Principal Investigator: Associate Professor Ian Whittington

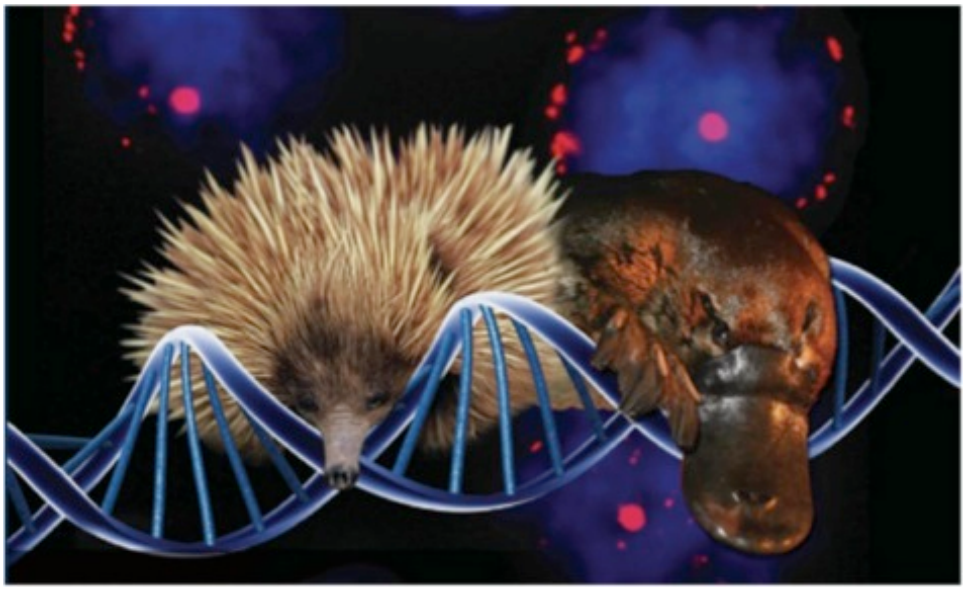
PhD Students: Lizzie Perkins, Sarah Catalano

The Monogenean Research Laboratory at The South Australian Museum and The Marine Parasitology Laboratory at The University of Adelaide focus on parasites of marine fishes. Of particular emphasis is the Monogenea, a class of flatworms with a direct life-cycle which chiefly parasitise skin, fins and gills of elasmobranch and teleost fishes. Some elements of our research are especially relevant to South Australia because teleost fish such as yellowtail kingfish, *Seriola lalandi*, reared in sea cage aquaculture in Spencer Gulf may experience parasite problems. Currently, our research programs embrace several discrete projects investigating parasites of wild and cultivated fish species locally and also overseas. Recent studies have also involved identifying flatworm parasites using morphological and molecular genetic methods in captivity in public display aquaria and from fish farms worldwide to determine how widespread and how host-specific some pathogens are on a global scale.

Major Projects:

1. Life cycle parameters of the monogenean parasites *Zeuxapta seriolae* and *Benedenia seriolae* from *Seriola lalandi* in South Australian finfish aquaculture
2. Development of automated software to count skin and gill flukes in cultured kingfish as an aid to farm health managers
3. Cryptic species complexes among pathogenic Monogenea on wild and cultivated warm water fishes
4. Capsaline Monogenea (Monopisthocotylea) of large, cosmopolitan, migratory pelagic fishes: revisiting species composition, diversity and distribution of the parasites
5. Phylogeny and evolution of the Capsalidae (Monogenea), ectoparasitic on a diversity of fishes, using morphological characters, molecular genetics and host associations
6. Systematics of Monogenea (Platyhelminthes) from the sharks and rays of Indonesian Borneo
7. Efficacy of potential chemotherapeutants against Monogenea of farmed *Seriola* species
8. Parasite assemblages of commercially important finfish species and candidate species for aquaculture in southern Australia.

All our studies are integrated to help us build a more complete picture about the evolution, associations and interactions between marine parasites and their fish hosts. A thorough knowledge of the biology of the parasites will help to develop methods by which they can be managed and controlled on captive hosts in public display aquaria and in aquaculture. During 2010, our parasitological activities involved 2 PhD students, 1 Honours student and 1 Research Assistant. Several long-standing projects include collaboration with colleagues nationally and internationally.



Collaboration

Members of ACEBB have strong links with many research groups around Australia and internationally. These have resulted in several initiatives, as well as numerous joint grant applications and co-authored publications during 2010. Some of the major linkages with ACEBB members over this period are:

Andy Austin

- Dr Mark Dowton, University of Wollongong, Project: The molecular evolution and phylogeny of the parasitic Hymenoptera.
- Dr Mark Harvey, Western Australian Museum, Project: Development of an interactive key to the identification of Australasian invertebrate orders.
- Dr Bill Humphreys, Western Australian Museum, Project: The evolution and diversity of stygofauna associated with calcretes in the Yilgarn region of Western Australia.
- Dr Norman Johnson, Ohio State University, Project: Systematics, phylogeny and higher-level classification of platygastroid wasps.
- Dr John La Salle, CSIRO, Entomology, Project: Development of an interactive platform for the identification of Australasian Hymenopteran families.
- Dr Nick Murphy, (La Trobe University): Evolution and biodiversity of Mound Springs fauna.
- Dr Jim Whitfield, University of Illinois, Project: Phylogeny of microgastroid braconid wasps.

Bill Breed

- Dr Larry Heaney - Field Museum of Natural History, Chicago, Project: Evolution of sperm morphology of murine rodents.
- Prof Richard Oko - Queens University, Kingston, Ontario Canada, Project: Cytoskeletal proteins in the sperm head of murine rodents.
- Dr Jamie Chapman - Discipline of Anatomy and Physiology, University of Tasmania, Project: Glycoproteins of the marsupial egg coat.
- Prof HDM Moore - University of Sheffield.
- Dr Ken Aplin and Dr Fred Ford - Australian National Wildlife Collection
- Dr Mike Carleton - Smithsonian Institute National Museum of Natural History, Washington, DC.

John Conran

- Ms Jennifer Bannister and Dr Daphne Lee, University of Otago, New Zealand, Project: Fossil monocots from New Zealand.
- Prof Mark Chase, RBG Kew, Project: The molecular systematics and phylogeny of Australian monocots.
- Mr Paul Forster, Qld Herbarium, Project: Systematics of Romnalda (Laxmanniaceae).
- Dr Jie Li Xishuangbanna, Tropical Botanical Garden, Kunming, P.R. China, Project: The molecular evolution and phylogeny of the Laureae (Lauraceae).
- Mr Allen Lowrie, Perth, Project: Evolution, systematics and biology of Australian carnivorous plants.
- Dr Terry Macfarlane, DEC WA, Project: Systematics of Australian Laxmannianceae.
- Dr Paula Rudall, RBG Kew, Project: The morphological evolution and diversity of Australian monocots.
- Prof Hiroshi Tobe, Kyoto University, Japan, Project: Evolution in the Smilacaceae.
- Mr Phillip Simpson, New Zealand, Project: Fossil palms in Miocene New Zealand.

Steve Cooper

- Prof. Roger Butlin (Sheffield University) and Dr Takeshi Kawakami (Kansas State University): Morabine grasshopper speciation.
- Prof. Bill Humphreys and Prof. Mark Harvey, Western Australian Museum, Project: Biodiversity and population genetics of groundwater calcrete ecosystems of central Western Australia.
- Dr Tom Karanovik : subterranean copepod taxonomy (Hanyang University, Korea).

- Assoc. Prof. Mike Schwarz (Flinders University): Social evolution and systematics of Australian bees
- Dr Chris Watts and Dr Remko Leijs (Scirid beetle systematics).

Hugh Cross

- Dr. Hope Jahren, University of Hawaii. Projects: 1) Genetic effects of elevated CO2 on a model plant; 2) Using leaf isotopes to measure plant stress in rangeland Australia.
- Dr. Anne Pringle, Harvard University. Projects: 1) Genomic and species diversity of foliose lichens; 2) Extracting DNA from museum specimens of fungus.
- Dr. Maria Kuzmina, Dr. Paul Hebert, Dr. Aron Fazekas, International Barcoding of Life Project (iBOL), University of Guelph, Canada. Project: DNA Barcoding of Australian plants.
- Dr. Natalia Ivanova. iBOL, University of Guelph, Canada. Project: DNA Barcoding of Australian lichens
- Dr. Jennifer Watling. Adelaide University. Project: Lichen Species Diversity in Murraylands.
- Dr. Fred Gurgel. Adelaide University. Project: DNA from type specimens of algae preserved in formalin.
- Dr. Daniel Murphy, Dr. Stuart Gardner, Royal Botanic Gardens, Melbourne. DNA barcoding of Australian grasses.

Steve Donnellan

- Dr Chris Austin, Louisiana State University, Baton Rouge, Project: The phylogeography of New Guinean reptiles and frogs.
- Dr Don Driscoll, Flinders University, Project: The impact on genetic diversity of drying of the palaeo-Lake Bungunnia – implications for conservation genetics.
- Dr Paul Doughty, Western Australian Museum, Project: Systematics of the brood frogs.
- Dr Joe Benshemesh, Monash University, Project: Systematics and population biology of marsupial moles.
- Dr Ken Aplin, Australian National Wildlife Collection, Project: Systematics of the Australian and New Guinean vertebrates.
- Professor Arthur Georges, Canberra University, Project: Conservation biology of the broad-shelled turtle
- Professor Craig Moritz, University of California, Project: Molecular systematics of the Australo-Papuan treefrogs (Hylidae).
- Associate Professor Michael Mahony, University of Newcastle, Project: Molecular systematics of the Australo-Papuan treefrogs (Hylidae).
- Professor Mike Bull, Flinders University, Project: Biology of Egernia group skinks lizards.

Mike Gardner

- Professor Rob Miller, University of New Mexico, Albuquerque USA. Project: Evolution of Mhc genes in *Tiliqua* and *Egernia* lizards.
- Xiaoxu Li, Aquatic Sciences, South Australian Research & Development Institute, Henley Beach, Adelaide. Project: Stock structure in sea cucumbers.
- Professor Mike Bull, Flinders University, Adelaide Australia. Project: Sleepy lizard phylogeography.
- Assoc. Prof Steve Cooper, South Australian Museum. Project: Identifying historic refugia in South Australia (joint grant application).
- Dr Greg Johnston, University of South Australia. Project: (joint student supervision), aspects of sociality in *Egernia stokesii*; Investigation of brood reduction in pelicans and cormorants.
- Dr Karsten Schonrogge, Centre for Ecology and Hydrology, Wallingford UK. Project: Co-evolution in mymecophilous hoverflies.
- Prof Mike Schwarz, Flinders University, Adelaide SA. Project: joint student supervision and grant applications (sociality in bees).
- Prof. Stanley Fox, University of Oklahoma USA. Sociality and parental care in Lioleamus lizards.
- Prof. Andrew Lowe, University of Adelaide. Joint supervision of students and publications.

Fred Gurgel

- Sean Connell, University of Adelaide (marine ecology)
- Corey Bradshaw, University of Adelaide (modelling and mathematical ecology)
- John Runcie, University of Sydney (photosynthesis and plant physiology)
- Marty Deveney, SARDI (marine invasive species biology)
- Julian Caley, AIMS (coral reef ecology and evolutionary biology)
- John Huisman, Murdoch University (phycology)
- Karla McDermid, University of Hawaii at Hilo, USA (phycology)
- Suzanne Fredericq, University of Louisiana, USA (phycology)
- James Norris, Smithsonian Institution, Washington DC, USA (phycology)

Bob Hill

- Dr Sung Soo Whang, Chonbuk National University, South Korea, Project: Conifer morphology.
- Dr Tim Brodribb, University of Tasmania, Project: Conifer eco-physiology.
- Assoc. Prof. Andrew Drinnan, University of Melbourne, Project: Plant macrofossil evidence for evolution of the Australian vegetation.

Mark Hutchinson

- Arthur Georges, Canberra University, Project: Conservation Biology of the broad-shelled turtle.
- Mike Bull, Flinders University, Project: Conservation biology of endangered lizards (*Tiliqua* and *Egernia*).
- David Chapple, Victoria University of Wellington, Project: Evolution of the *Egernia whitii* complex.

John Jennings

- Dr Alexandre Aguiar, Museu de Zoologia da Universidade de São Paulo, Avenida Nazaré 481, São Paulo, SP, Brazil. Systematics of Australasian stephanid wasps (Hymenoptera: Stephanidae).
- Dr Andy Deans, Department of Entomology, University of Illinois, Urbana, IL USA. Systematics of Australasian hatchet wasps (Hymenoptera: Evaniidae).
- Dr Lars Krogmann, State Museum of Natural History, Stuttgart, Germany. Hymenoptera of New Caledonia. Lower apocritan wasps in amber.
- Dr Nathan Schiff, USDA Forest Service, Center for Bottomland Hardwoods Research, Stoneville, MS USA. Revision of the Australasian wood-boring sawflies (Hymenoptera: Xiphydriidae).
- Dr Giuseppe Fabrizio Turrisi, Università di Catania, Dipartimento di Biologia Animale "Marcello La Greca", via Androne 81 – 95124 Catania Italy. Systematics of Aulacidae (Hymenoptera).

Jürgen Kellermann

- Dr Tingshuang Yi (Kumin Botanic Institute, China), Prof. Doug Soltis (University of Florida, USA) and others, Project: Worldwide phylogeny of Rhamnaceae
- Mr Dylan Burge (Duke University, USA), Project: *Ceanothus* diversification (Rhamnaceae)
- Prof. Diego Medan (Universita de Buenos Aires, Argentina), Dr Lone Aagesen (Instituto Botanica Darwinion, San Isidro, Argentina): Morphology of Australian and South American Rhamnaceae
- Dr Frank Udovicic & Mr Neville Walsh (National Herbarium of Victoria, Melbourne), Dr Kevin Thiele (Western Australian Herbarium, Perth): Revision of Rhamnaceae for *Flora of Australia*
- Dr Bill Barker (State Herbarium of South Australia, Adelaide), Project: *Spyridium* complexes in southern Australia (Rhamnaceae)

Mike Lee

- John Scanlon, University of NSW and Outback at Isa, Project: Early snake evolution.
- Mike Caldwell, University of Alberta, Edmonton, Project: Marine reptiles.
- Tod Reeder, San Diego State University, San Diego, Project: The deep scaley project (NSF Tree of Life grant).

Andrew Lowe

Hybridisation, speciation and weed evolution

- Prof Richard Abbott (University St Andrews, UK) – plant evolutionary and ecological genetics - former PhD supervisor, joint ARC discovery grant (2006-2009) and joint publications
- Prof Dave Richardson, Dr John Wilson and Dr Jaco La Roux (Stellenbosch University, South Africa) – weed ecology and evolution – joint Working for Water Programme grant, South African Government (2006-2010) and publications.

Phylogeography, gene flow and forest management

- Dr David Boshier (Oxford Forestry Institute, Oxford University, UK) – tree population genetics and phylogeography – joint EU project (SEEDSOURCE, 2005-2009) and joint publications
- Dr Stephen Cavers (Centre for Ecology and Hydrology, Edinburgh, UK) – tree population genetics and phylogeography – joint publications and EU project grants (GENEOTROPECO, 2002-2005; SEEDSOURCE, 2005-2009)
- Prof Bernd Degen (German Forestry Research Institute, BFI, Hambourg , Germany) – tree population genetics and phylogeography – joint publications and joint EU project grant (OAKFLOW 2000-2004; GENEOTROPECO, 2002-2005; SEEDSOURCE, 2005-2009)
- Dr Chris Dick (Michigan University, USA) – tree population genetics and phylogeography – joint publications and EU project grants (SEEDSOURCE, 2005-2009)
- Dr Carlos Navarro and Dr Bryan Finegan (Central American Tropical Research Institute, CATIE, Costa Rica) and Dr Heidy Villalobos (University of Costa Rica) – tropical tree ecology, gene flow and fitness – joint publications and joint EU project grant (GENEOTROPECO, 2002-2005; SEEDSOURCE, 2005-2009)
- Prof Beppe Vendramin (National Research Institute, CNR, Florence, Italy) – tree population genetics and phylogeography – joint publications and EU project grants (OAKFLOW 2000-2004; SEEDSOURCE, 2005-2009)
- Dr Maurizio Rosetto (Botanic Gardens Sydney) – phylogeography and gene flow – joint ARC grant (2006-2009) and PhD students (Rohan Mellick, Mark Heselwood)

DNA barcoding, biodiversity discovery and ecosystem science

- Dr Pete Hollingsworth (Royal Botanic Gardens, UK) and Sean Graham (University of British Columbia, Canada) – DNA barcoding, biogeography and evolutionary rates – joint ARC discovery grant (2006-2009) and joint publications
- Prof Darren Crayn (Australian Tropical Herbarium, Cairns) – DNA barcoding and phylgoegoraphy - joint ARC grant (2006-2009) and PhD students (Mark Heselwood, Craig Costion)
- Dr Peter Hayman (SARDI), Profs Corey Bradshaw, Barry Brook and Alan Cooper (University of Adelaide) ecosystem monitoring, modeling and genomics – joint projects (2010-2013).
- Dr Paul Coddington (University of Adelaide), Donald Hobern (Atlas for Living Australia, CSIRO), and Dan Faith (GEO BON), ecosystem and biodiversity science, advisory roles

Mark Stevens

- Assoc. Prof. Michael Schwarz, Flinders University, Project: Native bees in the South Pacific.
- Dr Mark Harvey, Western Australian Museum, Project: Development of an interactive key to the identification of Australasian invertebrate orders.
- Dr Bill Humphreys, Western Australian Museum, Project: The evolution and diversity of stygofauna associated with calcretes in the Yulgan region of Western Australia.
- Prof. Alan Cooper, Adelaide University, Project: Environmental genomics: mining, climate change, water, crime and health.
- Prof. S. Craig Cary, Waikato University, Project: Understanding, valuing and protecting Antarctica's unique terrestrial ecosystems: Predicting biocomplexity in Dry Valley ecosystems.
- Dr. Stephen Pointing, Hong Kong University; Chester Sands, British Antarctic Survey; Dr. Byron Adams, Brigham Young University, Project: Molecular studies of the origins and dispersal patterns of invertebrates in the antarctic and subantarctic.
- Ms. Penelope Greenslade, University of Ballarat, Project: Distributional, biological and phylogenetic studies on a new genus of Pseudachorutinae (Collembola: Neanuridae) endemic to South Australia.

- Assoc. Prof. Alexei Drummond, Auckland University, Project: A Model Ecosystem for New Zealand: pilot project.
- Prof. Louis Deharveng, Museum National d'Histoire Naturelle, Project: Barcoding of Life, Collembola project.

Ian Whittington

- Professor Janine Caira, University of Connecticut, Dr Kirsten Jensen, University of Kansas, Dr Gavin Naylor, Florida State University, Drs Peter Last and John Stevens, CSIRO Marine & Atmospheric Research, Hobart, Project: Collections of parasites from sharks and rays from northern Australia and Indonesian Borneo.
- Dr Marty Deveney, Aquatic Sciences, South Australian Research & Development Institute, Henley Beach, Adelaide, Project: Systematics of capsalid Monogenea.
- Dr Marcus Domingues, Universidade Federal do Pará, Campus Universitário de Bragança, Instituto de Estudos Costeiros, Alameda Leandro Ribeiro, Brasil, Project: Systematics of hexabothriid Monogenea.
- Professeur Jean-Lou Justine, Équipe Biogéographie Marine Tropicale, Unité Systématique, Adaptation, Évolution, Institut de Recherche pour le Développement, Nouméa New Caledonia, Projects: Systematics of Monogenea from reef fishes of New Caledonia.
- Roxana Inohuye Rivera and Juan Carlos Pérez Urbiola, Centro de Investigaciones Biológicas del Noroeste (CIBNOR), La Paz, Baja California Sur, México, Project: Complexities in the systematics of *Neobenedenia* 'species' known to occur on marine fishes in the region.
- Dr Graham Kearn, University of East Anglia, Norwich, U.K., Project: Biology and systematics of Monogenea from sharks, stingrays and teleost flatfishes.
- Dr Andy Shinn and Dr James Bron, Institute of Aquaculture, University of Stirling, Scotland, Project: Image analysis and recognition of parasites using image recognition software.
- David Vaughan, Two Oceans Aquarium, Cape Town, South Africa, Project: Monogenea of elasmobranchs and teleosts in public aquaria.
- Dr Olivier Verneau, Parasitologie Fonctionnelle et Evolutive, Université de Perpignan, France, Project: Use of parasitic platyhelminths to study the early evolution of neobatrachian frogs.

Communication

The website can be found at www.adelaide.edu.au/environment/acebb.html. It provides a portal into all of the activities of ACEBB, including information on members, research groups, grants, publications, seminars, journal club and workshops.

Seminars & Training

Date	Title and Speaker
3-Feb	Winkles and the origin of species *Speaker:* Professor Roger Butlin, Animal and Plant Sciences, The University of Sheffield
12-Feb	PPBio: an International System for Long Term Ecological Research *Speaker: Associate Professor Jean-Marc Hero*, Associate Professor, Griffith School of Environment
24-Feb	Pollinator- mediated floral evolution and speciation *Speaker: Dr Paul Rymer*, Marie Curie Fellow Royal Botanic Gardens, Kew and Imperial College London, UK
12-Mar	Assessing aquatic biodiversity using high-throughput sequencing and DNA microarrays *Speaker: Dr Chris Hardy*, Principal Research Scientist and Team Leader, Functional and Environmental Genomics, CSIRO
9-Apr	From individuals to populations: a tale of swarms, cannibals, ageing and human obesity *Speaker: Professor Steve Simpson*, ARC Laureate Fellow, School of Biological Sciences, University of Sydney
17 - 20 May	Population Genetics and Phylogeography Workshop *Organising committee: Prof Andrew Lowe; Assoc Prof Steve Cooper, Dr Mike Gardner* *Guest Instructors: Prof Mike Edwards, Dr Juan Jose Robledo-Arnuncio*
18-May	Indirect measures of propagule dispersal and gene flow Population Genetics and Phylogeography Workshop *Speaker: Dr Juan Jose Robledo-Arnuncio*, Ramon y Cajal Research Fellow Departamento de Ecología y Genética Forestal, Centro de Investigación Forestal (CIFOR), Spain
19-May	Evolutionary genomics of host-pathogen interactions: a tale of birds and bacteria Population Genetics and Phylogeography Workshop *Speaker: Professor Scott Edwards*, Edwards Laboratory, Harvard, USA
25-Jun	Accounting for uncertainty when estimating Pleistocene megafauna extinction times *Speaker: Professor Corey Bradshaw*, University of Adelaide
13-Aug	Incorporating evolutionary adaptation into climate change predictions *Speaker: Professor Ary Hoffmann*, Australian Laureate Fellow, Department of Genetics & Department of Zoology, University of Melbourne
27-Aug	Meeting the challenges of landscape management in the 21st century *Speaker: Professor Mike Wilkinson*, Institute of Biological, Environmental and Rural Sciences, Aberystwyth University, UK
17-Sep	Toads and the evolution of life-histories during range shift *Speaker: Dr Ben Phillips*, ARC QEII Fellow, James Cook University
29 Sept - 1 Oct	Introduction to R: A 3 day workshop *Organiser and Instructor: Dr Steve Delean*, University of Adelaide
22-Oct	Gene and species history: can we associate coalescence and phylogeny? An application to molecular taxonomy? *Speaker: Dr Alain Franc*, Department of Ecology of Forests, Grasslands and Water

	systems at French National Institute for Agricultural Research (INRA), France
12-Nov	Delving deeply in land-plant phylogeny - progress and pitfalls *Speaker: Dr Sean Graham*, Botanical Garden and Centre for Plant Research and Department of Botany, University of British Columbia, Canada
19-Nov	Boosted Trees: A Powerful Toolbox for Statistical Analysis *Speaker: Dr Glenn De'ath*, Principal Research Scientist at the Australian Institute of Marine Studies
26-Nov	Resource Selection Functions: The Fundamental Equations of Ecology? *Speaker: Dr Mark Boyce*, Department of Biological Sciences, University of Alberta, Canada
13 - 14 Dec	Biodiverse Training Workshop Biodiverse: A Tool for the Spatial Analysis of Biological and Related Diversity *Organiser: Prof Steve Donnellan* *Guest instructor: Dr Shawn Laffan*, University of New South Wales

ACEBB publications

Summary of publications

Publication type	Count	%
A* journal	14	12
A journal	39	32
B journal	32	26
C journal	28	23
Unranked journal	9	7
Total journal publications	**122**	**100**
Books	1	
Book chapters	7	

Journal Articles	#
Adelson DL, Raison JM, Garber M, Edgar RC. 2010. Interspersed repeats in the horse (*Equus caballus*); spatial correlations highlight conserved chromosomal domains. ***Animal Genetics***. 41. 91-99	1
Aguiar AP, **Jennings JT**, Turrisi GF. 2010. Three new Middle-Eastern *Foenatopus* Smith (Hymenoptera, Stephanidae) with a new host record and key to species with double spots on tergites. ***Zootaxa***. 2714. 40-58	2
Andris M, Aradottir GI, Arnau G, Audzijonyte A, Bess EC, Bonadonna F, Bourdel G, Bried J, Bugbee GJ, Burger PA, Chair H, Charruau PC, Ciampi AY, Costet L, Debarro PJ, Delatte H, Dubois MP, Eldridge MDB, England PR, Enkhbileg D, Fartek B, **Gardner MG**, Gray KA, Gunasekera RM, Hanley SJ, Havil N, **Hereward JP**, Hirase S, Hong Y, Jarne P, Qi JF, Johnson RN, Kanno M, Kijima A, Kim HC, Kim KS, Kim WJ, Larue E, Lee JW, Lee JH, Li CH, Liao MH, Lo N, **Lowe AJ**, Malausa T, Male PJG, Marko MD, Martin JF, Messing R, Miller KJ, Min BW, Myeong JI, Nibouche S, Noack AE, Noh JK, Orivel J, Park CJ, Petro D, Prapayotin-Riveros K, Quilichini A, Reynaud B, Riginos C, Risterucci AM, Rose HA, Sampaio I, Silbermayr K, Silva MB, Tero N, Thum RA, Vinson CC, Vorsino A, Vossbrinck CR, Walzer C, White JC, Wieczorek A, Wright M, Mol Ecology Resources Primer Dev C. 2010. Permanent genetic resources added to Molecular Ecology Resources Database 1 June 2010-31 July 2010. ***Molecular Ecology Resources***. 10. 1106-1108	3
Ayre D, O'Brien E, **Ottewell K**, Whelan R. 2010. The accumulation of genetic diversity within a canopy-stored seed bank. ***Molecular Ecology***. 19. 2640-2650	4
Bickford D, Ng TH, Qie L, Kudavidanage EP, **Bradshaw CJA**. 2010. Forest fragment and breeding habitat characteristics explain frog diversity and abundance in Singapore. ***Biotropica***. 42. 119-125	5
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Biffin E, Lucas EJ, Craven LA, da Costa IR, Harrington MG, Crisp MD. 2010. Evolution of exceptional species richness among lineages of fleshy-fruited Myrtaceae. ***Annals Of Botany***. 106. 79-93	7
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Bradford T, Adams M, Humphreys WF, **Austin AD, Cooper SJB**. 2010. DNA barcoding of stygofauna uncovers cryptic amphipod diversity in a calcrete aquifer in Western Australia's arid zone. ***Molecular Ecology Resources***. 10. 41-50	9
Bradshaw CJA, Giam X, Sodhi NS. 2010. Evaluating the relative environmental impact of countries. ***Plos One***. 5.	10
Breed WG, Leigh CM. 2010. The spermatozoon of the Old Endemic Australo-Papuan and Philippine rodents - its morphological diversity and evolution. ***Acta Zoologica***. 91. 279-294	11
Carpenter RJ, Bannister JM, Jordan GJ, Lee DE. 2010. Leaf fossils of Proteaceae tribe Persoonieae from the Late Oligocene-Early Miocene of New Zealand. ***Australian Systematic Botany***. 23. 1-15	12
Carpenter RJ, Jordan GJ, Lee DE, **Hill RS**. 2010. Leaf fossils of *Banksia* (Proteaceae) from New Zealand: an Australian abroad. ***American Journal of Botany***. 97. 288-297	13
Carpenter RJ, Truswell EM, Harris WK. 2010. Lauraceae fossils from a volcanic Palaeocene oceanic island, Ninetyeast Ridge, Indian Ocean: ancient long-distance dispersal? ***Journal of Biogeography***. 37. 1202-1213	14

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Catalano SR, Hutson KS, Ratcliff RM, **Whittington ID**. 2010. Redescriptions of two species of microcotylid monogeneans from three arripid hosts in southern Australian waters. ***Systematic Parasitology***. 76. 211-222	16
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Chapman JA, Chuah MI, **Breed WG**. 2010. Glycoconjugates within the oviduct and their functional significance with special reference to marsupials. ***Histology and Histopathology***. 25. 121-132	18
Clark F, Brook BW, Delean S, Reşit Akçakaya H, **Bradshaw CJA**. 2010. The theta-logistic is unreliable for modelling most census data. ***Methods in Ecology and Evolution***. 1. 253-262	19
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Craven LA, **Biffin E**. 2010. An infrageneric classification of *Syzygium* (Myrtaceae). ***Blumea***. 55. 94-99	21
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Davies K, Ye W, Giblin-Davis R, Thomas WK. 2010. *Schistonchus* (Aphelenchoididae) from *Ficus* (Moraceae) in Australia, with description of *S. aculeata* n. sp. ***Nematology***. 12. 935-958	23
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Dolman G, Stuart-Fox D. 2010. Processes driving male breeding colour and ecomorphological diversification in rainbow skinks: a phylogenetic comparative test. ***Evolutionary Ecology***. 24. 97-113	28
Dudaniec RY, **Gardner MG**, Kleindorfer S. 2010. Offspring genetic structure reveals mating and nest infestation behaviour of an invasive parasitic fly (*Philornis downsi*) of Galapagos birds. ***Biological Invasions***. 12. 581-592	29
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Justine J-L, Beveridge I, Boxshall GA, Bray RA, Moravec F, **Whittington ID**. 2010. An annotated list of fish parasites (Copepoda, Monogenea, Digenea, Cestoda and Nematoda) collected from Emperors and Emperor Bream (Lethrinidae) in New Caledonia further highlights parasite biodiversity estimates on coral reef fish. ***Zootaxa***. 2691. 1-40	48
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ACEBB Book Publications

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Go to http://www.adelaide.edu.au/environment/acebb/pubs/ for more information

ACEBB Industry and agency funding partners

The following organisations and agencies were funding partners for ACEBB research activities during 2010:

Private companies

Abalone Investments Ltd
Adam & Amos Abalone Foods Pty Ltd
BHP Billiton
BSES Ltd
Bennelongia Environmental Consultants
Coorong Aquaculture Pty Ltd
Double Helix Tracking Technologies Pty Ltd
GeneWorks Pty Ltd
Greening Australia (SA) Ltd
Marinova Pty Ltd
Minara Resources Ltd
Penrice Soda Products Pty Ltd
Reproductive Health Science (RHS) Pty Ltd
Seaweed Australia
Subterranean Ecology Pty Ltd

Non-government organisations, societies and endowments

ANZ Holsworth Wildlife Research Fund
Australian Geographic Society
Council of Australian Weed Societies
Fisheries Research & Development Corporation
Greenfleet
Hermon Slade Foundation
Lirabenda Endowment Fund
Loke Wan Tho Memorial Foundation
Nature Foundation SA
Native Vegetation Council of South Australia
The Norman Wettenhall Foundation
Trees for Life
Wildlife Preservation Society of Australia Inc

Local, state and federal government

Alinytjara Wilurara NRM Board
Atlas of Living Australia
Australian Antarctic Division (Department of Sustainability, Environment, Water, Population and Communities)
Australian Biological Resources Study (Department of Sustainability, Environment, Water, Population and Communities)
Australian Department of Foreign Affairs & Trade, China Council
Australian Research Council
Commonwealth Environment Research Facility Program
CSIRO Ecosystem Sciences
Department of Industry, Science & Technology, National Collaborative Research Infrastructure Scheme
Department of Innovation, Industry, Science & Research, International Science Linkage Scheme

Department for Water (SA)
Department of Climate Change, National Climate Change Adaption Research Facility
Department of Environment and Natural Resources (SA)
Department of Premier and Cabinet (SA)
Department of Primary Industries and Resources of South Australia
Eyre Peninsula NRM Board
Mount Lofty Ranges NRM Board
Murray Darling Basin NRM Board
Northern and Yorke NRM Board
Northern Territory Department for Natural Resources, Environment, The Arts & Sport Onkaparinga Council
South Australian Environmental Protection Authority
South Australian Premier's Science and Research Fund
South Australian Research & Development Institute, Aquatic Sciences
Tasmania Parks and Wildlife Service
Western Australian Museum

Other organisations

Australian Centre for Ecological Analysis and Synthesis (TERN)
Allan Wilson Centre for Molecular Ecology & Evolution, Massey University, New Zealand
Conservation International, Critical Ecosystem Partnership Fund
International Society for Subterranean Biology
National Science Foundation (USA)

ACEBB Funding

Summary of funding

Funding Breakdown	Amount
ACEBB PI	
Category 1 – Nationally competitive research grants	$3,164,358.00
Category 2 – Other public sector funding	$694,703.88
Category 3 – Australian industry and donations	$176,662.50
Consultancy income	$191,809.84
Non-University of Adelaide financed	$57,500.00
International	$75,143.00
ACEBB not PI	
University of Adelaide financed	$1,363,668.00
Non-University of Adelaide financed (incl. international)	$1,189,900.00
Total	
ACEBB member principal investigator	$4,350,177.22
ACEBB member not principal investigator	$2,553,568.00
2010 Total	**$6,913,745.22**

ACEBB member PI on University of Adelaide financed grant

Principal Investigator	Project Title	Funding Type	Funding Body & Scheme	Amount
Abrams,Kym	Systematics and biogeography of Australian Parabathynellidae (Crustacea)	Not Specified	ABRS Bursary for Student Travel	$1,000.00
Abrams,Kym	Systematics and Biogeography of the Australian Parabathynellidae	Category 2	DFAT Australia-China Council	$606.06
Abrams,Kym	Systematics and biogeography of Australian Parabathynellidae (Crustacea)	Category 3	International Society for	$500.00

			Subterranean Biology Travel Grant	
Austin,Andrew	Systematics, biogeography and hosts of Australian scelionid wasps (Hymenoptera: Scelionidae):parasitoids of insects and spider eggs	Category 1	ABRS	$35,200.00
Austin,Andrew	Phylogeography and host specificity of stemborer parasitoids: essential components for the pre-emptive biocontrol of sugarcane pests in Australia	Category 1	ARC Linkage	$208,517.00
Austin,Andrew	Biodiversity and population genetics of groundwater calcrete ecosystems of central Western Australia	Category 1	ARC Linkage	$55,000.00
Austin,Andrew	Systematics and coevolution of insect herbivores on casuarinas: testing phylogenetic congruence for selection of plant biocontrol agents	Category 1	ARC Linkage	$46,060.00
Belton,Gareth Smith	Unravelling the SA marine relicts: a phylogeographic approach	Category 2	DEH Wildlife Conservation Fund	$1,000.00
Bradford,Tessa	Evolution 2007 - the joint annual meeting of the Society for the Study of Evolution, the Society of the Systematic Biologist and the American Society of Naturalists; 16-20 June 2007, Christchurch, NZ	Not Specified	ABRS Bursary for Student Travel	$1,800.00
Bradshaw,Corey	Determining the relationship between environmental degradation and human health at the national scale	Category 3	AAS Scientific Visits to China	$3,500.00
Bradshaw,Corey	Density regulation as a major determinant of population persistence: advancing empirical and theoretical approaches to conserve biodiversity	Category 1	ARC Discovery	$111,536.00
Breed,Martin	Developing best practice approaches for restoring River Murray forest ecosystems that are resilient to climate change	Category 3	Australian Geographic Society - Sponsorship	$2,400.00
Breed,Martin	Developing best practice approaches for restoring River Murray forest ecosystems that are resilient to climate change	Category 3	Biology Society of SA Field Research Grants	$800.00
Breed,Martin	Restoration genetics in Murray mallee and Neotropical Forests: implications for management and planning	Category 2	Department of Climate Change National Climate Change Adaption Research Facility	$3,000.00
Breed,Martin	Developing best practice approaches for restoring Murray-Darling ecosystems that are resilient to climate change	Category 3	Lirabenda Endowment Fund	$2,500.00
Breed,Martin	Developing best practice approaches for restoring River Murray forest ecosystems that are resilient to climate change	Category 3	Nature Foundation of SA Research Grant	$4,687.50
Breed,Martin	Developing best practice approaches for restoring River Murray forest ecosystems that are resilient to climate change	Category 2	Native Vegetation Council of South Australia Research	$21,097.82

			Grant	
Breed,Martin	Developing best practice approaches for restoring River Murray forest ecosystems that are resilient to climate change	Category 3	Wildlife Preservation Society of Australia Inc - University Research Grant	$1,000.00
Brook,Barry	Reconstructing past population dynamics to understand human and climatic impacts in prehistory	Category 1	ARC Discovery	$210,325.00
Brook,Barry	Systems modelling for synergistic ecological-climate dynamics	Category 1	ARC Future Fellowships	$113,629.00
Brook,Barry	Planning for a transformed future: Modelling synergistic climate change and land use impacts on biodiversity	Category 1	ARC Linkage	$243,784.00
Brook,Barry	The Sir Hubert Wilkins Chair of Climate Change	Category 2	State Government Initiative	$250,000.00
Catalano,Sarah Roseann	Using Dicyemid mesozoan parasites to infer the population structure of giant Australian Cuttlefish (*Sepia apama*) in southern Australian waters	Category 3	ANZ Holsworth Wildlife Research Fund	$4,687.50
Catalano,Sarah Roseann	Using Dicyemid mesozoan parasites to infer the population structure of giant Australian cuttlefish (*Sepia apamia*) in southern Australian waters	Category 3	The Norman Wettenhall Foundation Research Grant	$6,500.00
Cooper,Steven	Systematics of chiltoniidae (Amphipoda: Crustacea) in mound springs and calcrete aquifers of Western and South Australia	Category 1	ABRS	$63,000.00
Costion,Craig Mitchell	DNA barcoding trees: species delineation and diversity estimation in the tropics	Not Specified	ABRS Bursary for Student Travel	$1,000.00
Costion,Craig Mitchell	Threatened endemic plants of Palau	Category 3	Conservation International - Critical Ecosystem Partnership Fund	$36,050.00
Costion,Craig Mitchell	Analysis of the biodiversity assets of South Australia in relation to the proposed East meets West Naturelinks corridor	Category 2	DEH Research Grant	$15,000.00
Cross,Hugh Bradley	21st century taxonomy - DNA barcoding	Category 1	Commonwealth Environment Research Facility Program	$63,000.00
Davies,Kerrie	New species of *Fergusobia* (Nematoda: Neotylenchidae)	Category 1	ABRS	$5,000.00
Donnellan,Stephen	Phylogeography, evolution and taxonomy of humanity s greatest pest, *Rattus rattus*: Epidemiological, archaeological and conservation implications	Category 1	ARC Discovery	$135,385.00
Dormontt,Eleanor	Conference presentation: The evolutionary consequences of hybridisation between a native and	Not Specified	ABRS Bursary for	$2,000.00

	invasive *Senecio*		Student Travel	
Dormontt,Eleanor	Investigating the global invasion of fireweed (*Senecio madagascariesis*) using chloroplast microsatellite markers	Category 3	Council of Australian Weed Societies Annual Student Travel Award	$2,000.00
Dormontt,Eleanor	A powerful emerging approach to assess the genetic consequences of invasions: Using molecular markers to compare native and invasive populations	Category 3	Council of Australian Weed Societies Annual Student Travel Award	$1,000.00
Duran Racero, Vanessa	Australian 'giant' springtails (Uchidanurinae): canaries of the undergrowth	Category 3	ANZ Holsworth Wildlife Research Fund	$6,000.00
Fordham,Damien	Range dynamics and demographics of spatially structured populations under global change	Category 1	ARC Discovery	$132,698.00
Fuentes-Cross, Patricia	*Santalum* spp. in the Flinders Rangers and the Eyre Peninsula: Genetics and indigenous knowledge to inform conservation strategies	Category 3	Nature Foundation of SA Research Grant	$4,937.50
Fuller,Nicholas	Population genetics and socioecology of Gould's long-eared bat (*Nyctophilus gouldi*) and the lesser long-eared bat (*N. geoffroyi*) in fragmented populations of south-eastern SA and western Victoria	Category 3	ANZ Holsworth Wildlife Research Fund	$10,000.00
Fuller,Nicholas	Population genetics and socioecology of Gould's long-eared bat (*Nyctophilus gouldi*) and the lesser long-eared bat (*N. geoffroyi*) in fragmented populations of south-eastern Australia	Category 2	DEH Wildlife Conservation Fund	$10,000.00
Fuller,Nicholas	Landscape genetics of long-eared bats (*Nyctophilus*) in fragmented populations of south-eastern Australia	Category 3	Nature Foundation of SA Research Grant	$2,000.00
Grutzner,Frank	Many Ys in monotremes: multiple sex chromosomes and sex determination in platypus and echidna	Category 1	ARC Discovery	$119,559.00
Grutzner,Frank	Development of a diagnostic microarray to detect aneuploidy in single cells	Category 1	ARC Linkage	$35,000.00
Grutzner,Frank	Understanding the molecular basis of platypus fungal disease	Category 3	Australian Geographic Society - Sponsorship	$3,500.00
Gurgel,Carlos	Marine benthic algae of the Great Barrier Reef, Rhodophyta: Nemastomataceae, Schyzymeniaceae, Dumontiaceae, Ceramiaceae and Rhodomelaceae	Category 1	ABRS	$80,000.00
Gurgel,Carlos	Marine benthic algae of the Great Australian Bight: study of the biodiversity and relict species concept	Category 3	Alinytjara Wilurara Natural Resource Research Grant	$46,600.00
Gurgel,Carlos	Ecology, physiology and phylogeography: an integrated approach to the study of the invasive marine green macroalga *Caulerpa taxifolia* in Australia	Category 1	ARC Linkage	$169,776.00

Gurgel,Carlos	Phylogeography and systematics of co-distributed marine macroalgae across Australia	Category 2	DEH Research Grant	$10,000.00
Gurgel,Carlos	Genetic diversity of calcareous macroalgae and their vulnerability to global climate changes	Category 3	DIISR Australia - International Science Linkage Scheme	$17,500.00
Harris,John	Interactive effects of climate change and habitat loss on southeast Asian birds	Category 3	Loke Wan Tho Memorial Foundation	$1,000.00
Hill,Robert	The role of atmospheric carbon dioxide in fostering hyperdiversity in Australian conifer palaeofloras	Category 1	ARC Discovery	$78,866.00
Hill,Robert	Funding towards appointment of chair of conservation biology	Category 2	DEH Research Grant	$80,000.00
Izzo,Christopher	Changes in telomere length may provide a non-lethal means of determining the ages of free-living chondrichthyan populations	Category 3	AAS Award for Rsch on the Conservation of Endangered Australian vertebrate Species	$3,000.00
Jennings,John	Systematics of the Australian ensign wasps (Hymenoptera: Evaniidae)	Category 1	ABRS	$90,000.00
Jennings,John	Atlas of Living Australia: purchase of digital imaging equipment	Category 2	DIST National Collaborative Research Infrastructure Scheme	$70,000.00
Lee,Michael	Insights into macroevolution using a model adaptive radiation of lizards (*Lerista*)	Category 1	ARC Discovery	$93,478.00
Lee,Michael	Mesozoic Austral Biodiversity: research and regional museum applications	Category 1	ARC Linkage	$190,000.00
Lowe,Andrew	Genomic approaches to DNA barcoding Australasian trees at the species boundaries in association with Bush Blitz	Category 1	ABRS	$30,000.00
Lowe,Andrew	National Scientific Reference Site Network – Australian Rangeland Ecosystems: TERN	Category 1	NCRIS - DIISR	$300,000.00
Lowe,Andrew	Eco-informatics – integrating and visualizing ecosystems information: TERN	Category 1	NCRIS - DIISR	$250,000.00
Lowe,Andrew	TRansect for ENvironmental monitoring and Decision making (TREND) - Adaptive management of productive and native systems for climate change	Category 2	SA Government - Premier's Science and Research Fund	$225,000.00
MacGillivray,Phyllis	Tracking phenological shifts and evolutionary impacts relating to climate change	Category 3	Australian Geographic Society - Sponsorship	$500.00
Murphy,Nick	Evolution of the unique fauna of the Great Artesian Basin mound springs: the impact of	Category 1	ARC Linkage	$75,000.00

	aridification and climate change			
Oliver,Paul	Systematics and taxonomy of Australian diplodactyloid geckos	Not Specified	ABRS Bursary for Student Travel	$2,010.00
Ottewell,Kym	Genetic analysis of *Allocasuarina robusta, Eucalyptus paludicola* and closely-related species.	Category 2	DEH Research Grant	$9,000.00
Sanders,Kate	Sea snake diversification: why are certain taxa and regions species-rich?	Category 1	ARC Discovery	$78,107.00
Sharma,Pranay	Revealing diversification of zooplankton in two South Australian drinking water reservoirs through integrated taxonomy	Not Specified	ABRS Bursary for Student Travel	$1,000.00
Sharma,Pranay	Integrating morphological and genetic techniques for a systematic inventory of zooplankton communities in South Australian drinking water reservoirs	Category 3	ANZ Holsworth Wildlife Research Fund	$6,500.00
Sparks,Kathryn	Systematics of the Australian species of *Monomorium* with particular reference to the *Rothsteini forel* species complex (Hymnoptera: Formicidae)	Not Specified	ABRS Bursary for Student Travel	$1,000.00
Taylor,Gary	Systematics and host associations of Australian psyllids (Hemiptera: Psylloidea)	Category 1	ABRS	$70,000.00
Trengove,Karleah	The ecology of the greater bilby (*Macrotis lagotis*): determining sociality, reproductive success and behaviour using field and genetic techniques...	Category 3	ANZ Holsworth Wildlife Research Fund	$7,000.00
Walker,Daniel	The life cycle and potential controls for the Western Cape form of bridal creeper in South Australia	Category 3	Lirabenda Endowment Fund	$2,500.00
Whittington,Ian	Metazoan parasite survey of selected macro-inshore fish of southeastern Australia, including species of commercial importance	Category 1	FRDC Grant	$56,438.00
Whittington,Ian	Assessment of in situ monitoring techniques and life history parameters for monogenean skin and gill parasites	Category 1	FRDC Grant	$25,000.00
Total				**$4,016,734.38**

ACEBB member not PI on University of Adelaide financed grant

Principal Investigator	ACEBB members	Project Title	Funding Type	Primary Funding Body	Amount
Brock,Emma Louise	Whittington,Ian	Metazoan parasite assemblages of an endemic commercial finfish, King George Whiting (*Sillanginodes punctatus*)	Category 1	ARC	$10,000.00
Carthew,Sue	Fuller,Nik; Cooper,Steve	Population genetics and socioecology of Gould's long-eared bat (*Nyctophilus gouldi*) and the lesser long-eared bat (*N. geoffroyi*) in fragmented populations of south-eastern Australia.	Category 2	SA DENR	$14,736.00
Connell,Sean	Gurgel, Fred	Forecasting change in subtidal habitats: connecting local pollution with global climate in temperate Australia.	Category 1	ARC	$104,842.00

Cooper,Alan	Adelson,David; Brook,Barry; Cross,Hugh; Stevens,Mark	Environmental Genomics: Mining, climate change, water, crime and health	Category 1	ARC	$701,144.00
Meyer,Wayne	Brook,Barry; Lowe,Andrew	Climate change, communities and environment: building research capability to identify climate change vulnerability and adaptation options for South Australian landscapes	Category 2	Premier's Science and Research Fund	$460,000.00
Paton,David	Lowe,Andrew; Hill,Bob	Habitat reconstruction and restoration: securing biodiversity assets in the face of climate change	Category 2	SA DENR	$17,000.00
Venning,Jackie	Brook,Barry	Research Institute for Climate and Sustainability, Executive Advisor	Category 2	PIRSA	$55,946.00
Total					**$1,363,668.00**

Non-University of Adelaide financed grants

ACEBB member	Project Title	Funding Type	Funding Body & Scheme	Amount
Bradshaw,Corey	Identifying cost-effective reforestation approaches for biodiversity conservation and carbon sequestration in the Australian wet tropics	Category 1	ARC Linkage	$130,000.00
Brook,Barry; Lowe,Andrew	Terrestrial Biodiversity Adaptation Research Network, National Climate Change Adaptation Research Facility	Category 1	Department of Climate Change	$400,000.00
Cooper,Steve	Systematics of Australian Marsh Beetles (Scirtidae; Coleoptera; Insecta)	Category 1	ABRS	$10,600
Dunker,Bianca (PI)	Managing fire for biodiversity - investigation on dispersal, re-colonization ability and population genetic structure of two distinctive plant species in Mallee ecosystems	Category 3	Nature Foundation of SA Research Grant	$6,000.00
Fuentes-Cross,Patricia (PI)	Vegetation turnover studies in South Australia: molecular and palaeobotanical approaches	Category 3	AINSE/School of Archaeology and Natural Sciences (ANU)	$1,500.00
Gurgel,Fred; Bradshaw,Corey	Forecasting climate-driven changes to the distribution and diversity of marine flora	Category 1	ARC-NZ Research Network for Vegetation Function	$10,000.00
Stevens,Mark	Native bees in the South Pacific	Category 2	Hermon Slade Foundation	$15,000.00
Stevens,Mark	Distributional, biological and phylogenetic studies on a new genus of Pseudachorutinae	Category 3	FNSSA - Lirabenda	$1,700.00

	(Collembola: Neanuridae) endemic to South Australia.		Endowment Fund	
Stevens,Mark (PI)	Molecular studies of the origins and dispersal patterns of invertebrates in the Antarctic and subantarctic.	Category 1	Australian Antarctic Division	$50,000.00
Total				**$624,800.00**

Consultancy income

ACEBB member	Project Title	Funding body	Amount
Austin,Andrew	Provision of taxonomic and nomenclatural treatments of Hymenoptera: Symphyta, Apocrita (other than Formicidae and Apoidea) - 2009/30382	Department of the Environment, Water, Heritage and the Arts	$51,882.00
Brook,Barry	Literature review of current climate change science relevant to NRM (10WLB03692)	Department for Water	$9,090.00
Bradshaw,Corey	Analysing feral camel populations to determine best practice control strategies for the Alinytjara Wilurara Natural Resource Management Region - CCAW084686-05	Alinytjara Wilurara Natural Resources Management Board	$40,000.00
Gurgel,Fred	Taxonomical identification of marine plant samples	SARDI-Aquatic Sciences	$1,437.50
Gurgel,Fred	Review of the conservation status of marine algae in the Adelaide and Mount Lofty Ranges Natural Resources Management region (N10/1017 R8.111)	Adelaide and Mount Lofty Ranges Natural Resources Management Board	$20,000.00
Gurgel,Fred	Biodiversity and conservation status of macroalgae in the Eyre Peninsula NRM region	Eyre Peninsula Natural Resources Management Board	$25,000.00
Lowe,Andrew	Watering points in the rangelands and the grazing impacts on native vegetation/biodiversity	Department for Water	$2,000.00
Lowe,Andrew	Merbau DNA database project	Double Helix Tracking Technologies Pte Ltd	$38,073.34
Taylor,Gary	Provision of taxonomic and nomenclatural treatments of Aphidae, Coccoidea, Psylloidea, Aleyrodoidea - 2009/30662	Department of the Environment, Water, Heritage and the Arts	$4,327.00
Total			**$191,809.84**

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