

EVOLUTION & ECOLOGY RESEARCH CENTRE

2009 ANNUAL REPORT

The Evolution & Ecology Research Centre (E&ERC) was formally established in September 2007, and this Annual Report covers the operation of the centre for 2009.

Summary

- In 2009, Centre members held five QEII, one ARF, one APD and one Future (Biro) Fellowships. In 2009, the Centre won one new ARF, one APF, and one further Future Fellow to start in 2010.
- The E&ERC was involved in the appointment of three new members of academic staff, who will be part of BEES and the E&ERC from early 2010. Dr Terry Ord (Harvard) was appointed as Lecturer in Evolution, and Dr Matthew Taylor (UNSW, already a centre member) and Dr Adriana Verges (Edith Cowan University) were appointed lecturers in Applied Marine Ecology and Conservation.
- The Graduate Program in Evolution & Ecology expanded and was established as one of the top graduate programs at UNSW with its focus on quality research supervision and an enhanced postgraduate experience.
- PhD Enrolments have grown strongly from 26 in 2007 and 42 in 2008, to 46 in 2009 exceeding our projected growth in the Centre proposal. Ten PhD and two Masters students completed in 2009.
- In 2009, Centre members held \$3.2 million in NCGP funding. Nine discovery, two linkage, one NH&MRC and two Future Fellowships commenced in 2009 to a total value of \$6.9 million over the life of the grants.
- Centre members won a further three discovery, two linkage and two LEIF grants to commence in 2010, valued at \$2.56 million over the lifetime of the grants.
- Non-NCGP funding exceeded \$2.0 million over the lifetime of the grants, more than double our target at establishment.
- With 105 publications in 2009, the E&ERC exceeded our publishing goals by 40%.
- Centre members won several major awards in 2009 including a Fenner Medal (Brooks) and Young Tall Poppy Award (Warton).
- The Centre finished 2009 with no remaining operating (OP001) funds and a surplus of \$99,132.91 in SPF01 funds which carry forward to 2010.

**Table 1. Evolution & Ecology Research Centre
Performance Data for 2007-2009, * with up-to-date information for 2010**

| | | 2007 | 2008 | 2009 | *2010 |
|------------------------------|------------------------------|--------------|--------------|--------------|--------------|
| NCGP Grants | | | | | |
| | Discovery (\$M) | 895 | 1292 | 2542 | 2041 |
| | Other (\$M) | 597 | 638 | 657 | 1499 |
| | TOTAL | 1,492 | 1,930 | 3,199 | 3,540 |
| AIM | | 1,370 | 1,600 | 1,900 | 2,300 |
| | Mean grant size (DP only) | 99 | 108 | 111 | 113 |
| | Discovery (n) | 9 | 12 | 23 | 18 |
| | Other (n) | 7 | 6 | 5 | 10 |
| | TOTAL | 16 | 18 | 28 | 28 |
| OTHER EXTERNAL GRANTS | | | | | |
| | Number | 6 | 17 | 20 | 18 |
| | Value (\$,000) | 600 | 1113 | 1942 | 2063 |
| AIM (\$,000) | | 350 | 425 | 500 | 1000 |
| POSTGRADUATE NUMBERS | | | | | |
| | PhD Enrollments (<7 sess FT) | 26 | 42 | 45 | 49 |
| | Masters | 1 | 3 | 8 | 7 |
| | Weighted (Masters = 0.5*PhD) | 26.5 | 43.5 | 49 | 52.5 |
| AIM | | 26.5 | 31.5 | 36 | 46.5 |
| | PhD completions | 5 | 7 | 12 | 7 |
| | Masters completions | 0 | 1 | 2 | 4 |
| | Weighted (Mphil = 0.5*PhD) | 5 | 7.5 | 4 | 9 |
| AIM | | 8 | 9.5 | 12.5 | 11 |
| PUBLICATIONS | | | | | |
| | Publications | 94 | 70 | 105 | |
| AIM | | 48 | 54 | 75 | 88 |

Centre Performance

A Summary of the centre's performance for the year in relation to its identified aims and strategies, and an indication of major goals for the coming year

Membership

The E&ERC comprised 27 members in 2009, of whom 19 were continuing members of staff and seven were non-continuing research fellows or associates. Members came from three schools within the Science faculty, BEES, BABS and MATHS.

In 2009, Centre members held five QEII (Brooks, Wroe, Tanaka, Brown and Moles), one ARF (Bonduriansky), one APD (Kasumovic) and one Future (Biro) Fellowships. In 2010, the Centre won one new ARF (Johnston), one QEII expired and is now an APF (Brooks), and one further Future Fellow (Ebach) started

A full membership list is given in Appendix A.

Aims and Strategies

1. To further build and support excellence in research in Evolution and Ecology.

The E&ERC was involved in the appointment of three new members of academic staff, who will be part of BEES and the E&ERC from early 2010. Dr Terry Ord (Harvard) was appointed as Lecturer in Evolution, and Dr Matthew Taylor (UNSW, already a centre member) and Dr Adriana Verges (Edith Cowan University) were appointed lecturers in Applied Marine Ecology and Conservation. We recruited two new Future Fellows from outside UNSW (Dr Peter Biro from Alberta, and Dr Malte Ebach a returning Australian from Arizona).

2. Continue to grow the number of top-quality Higher Degree Research students via ongoing improvements to the Graduate Program in Evolution & Ecology and aggressive recruitment strategies.

Centre postgraduate numbers grew steadily in 2009, helped somewhat by the greater availability of APA's. The E&ERC identifies overseas student growth as an excellent place to recruit top-quality PhD students, but the constraints on scholarship numbers are a serious obstacle.

The Centre has developed a five-point plan for improving the graduate program and growing the number of top-quality postgraduates we recruit.

3. Support the increase in external funding to Centre members, including development of explicit strategies to diversify funding, and to succeed in new schemes such as Future Fellowships and the federal government's new postdoctoral fellowship scheme announced in the May budget .

Grant Diversification Workshop: Run in March, the Research Committee organised a workshop, *Beyond the ARC*, on the topic of grant diversification – ideas for new ways to seek funding for research. Peter Baverstock was the guest speaker.

Centre efforts to diversify the sources of funding that members draw on are starting to bear fruit, with the non-NCGP funds won by members reaching double the amount projected at Centre startup.

E&ERC members also continued their strong growth in NCGP grant funding. Emma Johnston won the largest grant in Centre history (a Linkage Project) as well as an Australian Research Fellowship.

The E&ERC won two of the three Future Fellowships applied for.

The Super Science Fellowships proved out of Centre members reach due to the restricted and highly political nature of the scheme.

4. Contribute to the improvement in the undergraduate curriculum including establishment of a new major in Evolution.

The curriculum review being undertaken in BEES in 2010 provides the appropriate mechanism within which to establish the major in evolution.

Other measures of performance

2009 Awards to Centre Members

- *Prof Rob Brooks* was awarded the Fenner medal by the Australian Academy of Sciences.
- *Dr David Warton* was honoured at the 2009 Young Tall Poppy Awards hosted by the Australian Institute of Policy and Science.
- *Dr Nik Tatarnik* won the Jabez King Heydon Memorial Prize in Biological Sciences at the University of Sydney, for most meritorious PhD in the past 12 months.
- *Dr Carolyn Hogg*, visiting fellow to the E&ERC was awarded the F.G. Wood Memorial Scholarship for the best student manuscript published in Marine Mammal Science during the past two years.
- *Dr Christian Rutz* visiting fellow to the E&ERC from Oxford University, was awarded a prestigious David Phillips Fellowship by the UK's Biotechnology and Biological Sciences Research Council (BBSRC).

2009 External Awards to Centre Postgraduate Students

- Alexandra Campbell won a presentation prize at the Climate Change and Environmental Sustainability Showcase, UNSW.
- Andrew McKinley won the Sydney Aquarium Conservation Fund/AMSA Student Research Award.
- Jonathon Gilson was awarded the John Lake Poster award at the Australian Society for Fish Biology conference.

Outstanding Evolution and Ecology (Postgraduate) Researcher of the Year

Alex Jordan

Outstanding Evolution and Ecology Postgraduate Paper of the Year

Joint winners:

Lee Ann Rollins, Andrew P Woolnough, Alan Wilton and William B Sherwin Invasive species can't cover their tracks: using microsatellites to assist management of starling (*Sturnus vulgaris*) populations in Western Australia. *Molecular Ecology* 18: 1560-1573 (2009).

Felix Zajitschek, Chad E. Brassil, Russell Bonduriansky and Robert C Brooks. Sex effects on life span and senescence in the wild when dates of birth and death are unknown. *Ecology* 90(6): 1698-1707 (2009).

Outstanding Evolution and Ecology PhD Thesis

Alex James "Development of resource-rich patches by soil-disturbing animals in arid environments." PhD thesis, UNSW.

Outstanding Presentation in the E&ERC Postgraduate Forum

June 2009 – **Alex Jordan** for 'Wise investments in troubled times: the influence of social conditions on sexual returns.'

November 2009 – **Ray Blick** for 'Morphological similarity in mistletoe-host interactions.'

E&ERC Supervisor Excellence Award

(Awarded for outstanding supervision of postgraduates by an E&ERC member)

Peter Banks

E&ERC Citation Classic Award

(Paper with most citations in the year, Centre member or student as primary or corresponding author)

Warton, D 2006. 'Bivariate line-fitting methods for allometry.' *Biological Reviews* 81(2): 359-291. 73 citations in 2009.

E&ERC Impact Paper Award

(Paper in highest Impact Journal, Centre member or student as primary or corresponding author)

Joint winners:

Biro, PA, Dingemans NJ. 'Sampling bias resulting from animal personality. *Trends in Ecology and Evolution*' 24: 66-68 (2009). *Impact Factor (2008 JCR Science Edition): 12*

Fry BG, Wroe S et al. 'A central role for venom in predation by *Varanus komodoensis* (Komodo Dragon) and the extinct giant *Varanus (Megalania) priscus*.' *PNAS* 106(22): 8969-8974 (2009). *Impact Factor (2008 JCR Science Edition): 9.38*

E&ERC Significant New Collaboration Award

Tanaka, M, Kendal JR, Laland KN 'From traditional medicine to witchcraft: why medical treatments are not always efficacious'. *PLoS One* 4(4): e5192 (2009).

Media Coverage

Media monitoring shows that E&ERC members had at least 18 unique media stories in 2009. Most of these stories were carried by multiple media. Work was covered in *The Australian*, *The Sydney Morning Herald*, *BBC News*, *Channel 7 News*, *UNSW Science* and others.

These estimates are conservative due to the limitations of media monitoring and because Centre members prioritise exposure for UNSW over the E&ERC or their School (as per UNSW policy). Those stories that we are aware of are summarized in Appendix E.

Significant Conferences

Dr Angela Moles and student Joanna Buswell arranged a one-day conference on Invasion Biology, entitled the *Invasion Occasion* in March 2009. It was attended by about 40 researchers from across Sydney and the E&ERC as well as several international guests who were in Sydney for other E&ERC sponsored activities.

BEES and E&ERC Interactions

BEES provided the desk space for the E&ERC Manager, including all communications needs, and O&HS structures. The E&ERC in turn provided BEES with administrative support. In particular the E&ERC manager was responsible for the collection and collation of data related to the HERDCC Publications Collection, and significant portions of the organisation of bi-annual Postgraduate Research Forums. Both BEES and the E&ERC work collectively to manage joint financial obligations.

Major Goals for 2010

The two long-term goals of the E&ERC are:

1. To be consistently recognised as being within the top three in Australia in Evolution and Ecology.

2. To be recognised as the best place outside of Europe and North America (and among the best world-wide) for postgraduate study in Evolution and Ecology.

In 2010, the E&ERC proposes to continue to run its core activities in order to achieve the Centre goals. The Centre proposes to grow the number of students in the graduate program at ten percent per year over the next five years, and to turn recent growth in postgraduate numbers into completions. The Centre also proposes to grow NCGP funding by 10 percent per year and non-NCGP funding by 25 percent a year over the next five years.

In addition the Centre proposes in 2010 to add the following additional components to its graduate program:

1. A short exchange program with the University of California at Davis,
2. A Postgraduate Writing and Skills Transfer Award, and
3. The Sydney Area Evolution & Ecology Student Conference.
4. Raising an endowment for a Prestigious International Scholarship to help grow the program and build top-quality International research.
5. An advertising campaign based on out program that is targeted at attracting the best Australian and New Zealand postgraduates.

Centre members are currently putting these changes in place or raising the money to fund these changes.

The E&ERC will also, in 2010, relaunch its website.

Resources

Financial performance

The Centre is funded by a Strategic Priorities Fund award (SPF01, PS15212) with a fixed total of \$988,000 over the years 2007-2010. The Deputy Vice Chancellor (Research) has allowed monies unspent in one year to be reallocated to future years. The Centre is also allocated an amount by the faculty (OP001, PS15230) on the basis of research performance metrics (in agreement with members' schools).

Financial performance is summarized in Table 2 and a full report is appended as Appendix G. Due to time it took to appoint some staff, and for facilities to make their space available, we carried a surplus in our SPF01 funds of \$99,132.91 into 2010.

Table 2. Financial performance of the E&ERC

| | 2009 | 2008 |
|---------------------------|--------------|--------------|
| Income | \$307,324.86 | \$451,292.93 |
| Expenses | | |
| Payroll | \$166,647.39 | \$245,088.90 |
| Equipment | \$33,228.06 | \$42,509.38 |
| Materials and Maintenance | \$138,500.64 | \$144,907.37 |
| Travel Expenses | \$31,948.77 | \$18,787.28 |
| Total expenses | \$370,324.86 | \$451,292.93 |
| Budget-expenses | \$0.00 | \$0 |

In-kind contributions

This section is not relevant to the E&ERC.

Publications, research projects, consultancies

See appendix D.

Management

Details of significant managerial or personnel changes

1. Alistair Poore finished a two year term as Director of the Graduate Program. He was replaced by Steve Bonser (July 2009-June 2011).
2. David Warton went on Sabbatical leave in January 2010, and was replaced as Deputy Director for Research by Emma Johnston who began her two-year term (January 2010- December 2011).
3. With Angela Moles taking maternity leave in January 2010, we chose to eliminate the role of Deputy Director for Outreach.

Meetings of the centre's management board and advisory committee

The E&ERC management board met on 26 May 2009. Minutes are appended as Appendix H.

The E&ERC has no advisory committee.

Teaching and research supervision

Graduate Program in Evolution & Ecology

The E&ERC offered two special courses in 2009 as part of the Graduate Program in Evolution & Ecology. More details of these courses are given in Appendix D.

SEMESTER 1 2009: Selling Your Science. Taught by Tracey Rogers.

SEMESTER 1 2009: Strategies for Early Careers Workshop. Guest presenter A/Prof Jennifer Forbey (Boise State University, USA)

SEMESTER 2 2009: Philosophy of Science. Coordinated by Russell Bonduriansky.

Appendices

APPENDIX A: Members of the Evolution & Ecology Research Centre in 2009 and their home Schools

| | NAME | SCHOOL |
|-----------------|---|--------|
| Prof & QEII | Rob Brooks (Director) | BEES |
| Sen Lect & QEII | Dr Angela Moles (Deputy Director, Outreach) | BEES |
| Sen Lecturer | Dr Alistair Poore (Dep. Director, Graduate | BEES |
| Sen Lecturer | Dr David Warton (Deputy Director, Research) | MATHS |
| Prof | William Ballard | BABS |
| Prof | Gerry Cassis | BEES |
| Prof | Des Cooper | BEES |
| Prof | Iain Suthers | BEES |
| A/Prof | William Sherwin | BEES |
| A/Prof | David Eldridge | BEES |
| Sen Lecturer | Dr Peter Banks | BEES |
| Sen Lecturer | Dr Darren Curnoe | BEES |
| Sen Lecturer | Dr Emma Johnston | BEES |
| Sen Lecturer | Dr Tracey Rogers | BEES |
| Sen Lect & QEII | Dr Mark Tanaka | BABS |
| Sen Lecturer | Dr Alan Wilton | BABS |
| QEII Fellow | Dr Mark Brown | BABS |
| QEII Fellow | Dr Stephen Wroe | BEES |
| Future Fellow | Dr Peter Biro | BEES |
| Lecturer & ARF | Dr Russell Bonduriansky | BEES |
| Lecturer | Dr Stephen Bonser | BEES |
| APDI Fellow | Dr Matthew Taylor | BEES |
| APD Fellow | Dr Michael Kasumovic | BEES |
| APDI Fellow | Dr Nathan Knott | BEES |
| Res Associate | Dr Nikolai Tatarnic | BEES |
| Res Associate | Dr Matthew Hall | BEES |

In 2009, we were joined by three new members, Dr David Eldridge, Dr Peter Biro (BEES) and Dr Mark Brown (BABS).

In 2010, we expect four new continuing staff members are joining the E&ERC (all in BEES), Dr Malte Ebach, Dr Terry Ord, Dr Matthew Taylor and Dr Adriana Verges.

APPENDIX B: Postgraduate Students

Current employment status of E&ERC Postgraduate students who graduated in 2008 and 2009:

| | Total | Based Overseas |
|---|-----------|----------------|
| RESEARCH POSITIONS | | |
| Independent research fellows | 4 | 2 |
| Grant-funded postdoctoral associates | 9 | 3 |
| Conservation or government research | 5 | 1 |
| Teaching and research | 2 | |
| Research support | 1 | |
| TOTAL | 21 | 6 |
| NON-RESEARCH POSITIONS | | |
| Conservation | 1 | |
| Other | 1 | |
| TOTAL | 2 | 0 |
| GRAND TOTAL | 23 | 6 |
| Proportion of our graduates who are women | 57% | |

PhD

1. Clark, G. Can pollution facilitate invasion in marine systems?. Supervisor E. Johnston
2. Dafforn, K. Do artificial substrates enhance the spread of marine pests? Supervisor E. Johnston
3. Frere, C. Molecular ecology, phylogeography, conservation genetics, population genetics. Supervisor W. Sherwin
4. Forster, M. Plant ecology and evolution. Supervisor S. Bonser
5. Heagney, E. Palagic Fish in Coastal Ecosystems and the Significance of Marine Protected Areas. Supervisor I. Suthers
6. Hall, M. The evolutionary consequences of sexual conflict. Supervisor Rob Brooks.
7. Hill, N. Assessing the Impact of Contaminated Sediments on hard-substrate Antarctic marine communities. Supervisor E. Johnston
8. Hughes, N. Predator-prey interactions. Supervisor Peter Banks.
9. James, A. Development of resource-rich patches by soil-foraging animals. Supervisor David Eldridge
10. Miller, E. Genetic and morphometric traits that influence male reproductive success in marsupials: implications for management. Supervisor D. Cooper
11. Reyes, J. Analysing and visualising genetic variation in pathogens using graph-theoretic tools and evolutionary models. Supervisor M. Tanaka
12. Rollins, L. How to stop a range expansion: A molecular ecological examination of the European Starling. Supervisor W. Sherwin

MPhil

1. Hellyer, C. Managing shark nets for the benefit of seahorses in Sydney Harbour. Supervisor A. Poore
2. Chandrosoma, U. Metabolism, longevity and ageing in insects. Supervisors R. Brooks, R. Bonduriansky

PhD

1. Adler, M. Ageing and sexual selection: How do males and females shape each other's life histories? Supervisors R. Bonduriansky, R. Brooks
2. Attard, M. Foraging Strategies. Supervisor T Rogers.
3. Birdsey, E. Habitat forming marine species and associated mobile fauna. Supervisors A. Poore, E Johnston
4. Campbell, A. Disease in red algae. Supervisors P. Steinberg, A. Poore
5. Cardoso, M. Population and conservation genetics. Supervisor B Sherwin, K. Firestone
6. Carlsson, B. Genetics of the Dingo. Supervisor A. Wilton
7. Carlyon, K. Koalas (Kangaroo Island). Supervisor D. Cooper.
8. Chan, J. Genetic monitoring of stocked eastern king prawns. Supervisor M. Taylor, B. Sherwin
9. Clark, G. Can pollution facilitate invasion in marine systems?. Supervisor E. Johnston
10. Callander, Geographic variation in Leopard seals in Antarctic waters. S. Supervisor T. Rogers.
11. Constantinou, Spatial behaviour of leopard seals (GIS, Modelling, Acoustic surveying) . N. Supervisor T. Rogers.
12. Cristescu, Ecology of North Stradbroke Island koalas, with a particular focus on mine disturbance and rehabilitation. R. Supervisor D. Cooper
13. Dafforn, K. Do artificial substrates enhance the spread of marine pests? Supervisor E. Johnston
14. Daniel, C. Population genetics of bottlenose dolphins (*Tursiops* sp.). Supervisor W. Sherwin.
15. Edwards, N. Diving ecology of Leopard seals. Supervisor T. Rogers
16. Fairfax, A. Migratory behaviour of large estuarine predatory finfish. Supervisor M. Taylor, I Suthers.
17. Ferrara, T. Biomechanics of the feeding apparatus in sharks. Supervisor S. Wroe
18. Folpp, H. Artificial reefs and fisheries. Supervisor I. Suthers
19. Forster, M. Plant ecology and evolution. Supervisor S. Bonser
20. Frere, C. Molecular ecology, phylogeography, conservation genetics, population genetics. Supervisor W. Sherwin
21. Gillson, J. Impacts of freshwater flow on fisheries production. Supervisor I. Suthers
22. Guy, A. Vervet Monkey rehabilitation. Supervisor D. Curnoe.
23. Hamilton, S. Conservation genetics of PNG mammals. Supervisor W. Sherwin.
24. Heagney, E. Palagic Fish in Coastal Ecosystems and the Significance of Marine Protected Areas. Supervisor I. Suthers
25. Hedge, L. Larval supply and invasion. Supervisor E. Johnston
26. Hill, N. Assessing the Impact of Contaminated Sediments on hard-substrate Antarctic marine communities. Supervisor E. Johnston
27. Hughes, N. Predator-prey interactions. Supervisor P. Banks.
28. Hughes, J. Eastern Australian salmon fishery. Supervisor I. Suthers
29. Jordan, L.A. Courtship behaviour in fishies. Supervisor R. Brooks
30. James, A. Development of resource-rich patches by soil-foraging animals David Eldridge
31. Kopps, A. Forces shaping behavioural variation in social vertebrates: genetic and non-genetic factors in female bottlenose dolphins. Supervisor Sherwin, B

32. McKenzie, L. Evolution of metal tolerance in non-indigenous marine invertebrates
Supervisors E. Johnston, R. Brooks.
33. McKinley, A. Exotoxicology of Marine Systems. Supervisor E Johnston.
34. Miller, E. Genetic and morphometric traits that influence male reproductive success in marsupials: implications for management. Supervisor D. Cooper
35. Mullaney, T. Larval fish ecology of the EAC and Tasman front. Supervisor I. Suthers
36. Nelson, T. Implications of climate warming on movement of anthropogenic disease into Antarctic community (Microbiology). Supervisor T. Rogers.
37. Ochwada, F. Stocking Eastern King Prawns. Supervisor I. Suthers.
38. Price, C. Novel techniques to improve reintroduction success for endangered wildlife.
Supervisor P. Banks
39. Pursche, A. Mulloway restocking. Supervisors M. Taylor, I. Suthers
40. Reyes, J. Analysing and visualising genetic variation in pathogens using graph-theoretic tools and evolutionary models. Supervisor M. Tanaka
41. Rollins, L. How to stop a range expansion: A molecular ecological examination of the European Starling. Supervisor W. Sherwin
42. Smith, J. Optimising the stocking of Australian bass in impoundments. Supervisor I. Suthers
43. Sukhn, C. Bioaccumulation of toxicants from complex effluents. Supervisor E. Johnston
44. Threlfall, C. Microbats in Sydney. Supervisor P. Banks
45. Tsang L. Bootstrapping linear and generalised linear models. Supervisor D. Warton
46. Warman, L. Vegetation dynamics in Australian Rainforests. Supervisor A. Moles

MSc

47. Gleen, W. Social Organisation of the bush rat. Supervisor P Banks.
48. Hazali, R. Systematics of the *Pseudoloxops* complex (Insecta: Heteroptera; Miridae).
Supervisor G. Cassis

MPhil

49. Cayetano, L. Evolution of Insect Genitalia. Supervisor R Bonduriansky.
50. Chandrosoma, U. Metabolism, longevity and ageing in insects. Supervisors R. Brooks, R. Bonduriansky
51. Gall, M. Effects of contamination on predatory prey interactions. Supervisors E Johnston, A. Poore
52. Hanson, N. Demographic Responses of Rats to localised pest control. Supervisor P Banks.
53. Hellyer, C. Managing shark nets for the benefit of seahorses in Sydney Harbour.
Supervisor A. Poore
54. Kinsella, W. Supervisor S Bonser.
55. Weerakoon, M. Detecting rodent movements across an urban/bushland interface using Rhodamine B. Supervisor P Banks.

APPENDIX C: Grants commencing in 2009

ARC Discovery Grant - DP0984240

Investigators A/Prof RC Brooks; Prof JW Ballard

Title *Linking the evolutionary and bioenergetic causes of sex differences in lifespan and ageing.*

2009 \$ 200,000

2010 \$ 180,000

2011 \$ 180,000

ARC Discovery Grant - DP0984222

Investigators Dr AT Moles; Prof R Frankham; A/Prof WB Sherwin

Title *How are weeds adapting to life in Australia? Quantifying the rate and direction of evolution in introduced species.*

2009 \$ 180,000

2010 \$ 120,000

2011 \$ 130,000

2012 \$ 150,000

2013 \$ 150,000

ARC Discovery Grant - DP0988818

Investigators Prof IM Suthers; Dr PR Oke

Title *Coastal cold core eddies of the East Australian Current and their fisheries potential*

2009 \$ 80,000

2010 \$ 80,000

2011 \$ 80,000

ARC Discovery Grant - DP0987985

Investigators Dr SW Wroe; Dr DK Curnoe

Title *The mechanics of being human*

2009 \$ 60,000

2010 \$ 50,000

2011 \$ 60,000

ARC Discovery Grant - DP0987302

Investigators Dr MM Tanaka; A/Prof AR Francis; Dr R Lan

Title *Mathematical models and bioinformatic analyses of bacterial genome evolution*

2009 \$ 118,000

2010 \$ 120,000

2011 \$ 118,000

2012 \$ 127,000

2013 \$ 132,000

ARC Discovery Grant - DP0985886

Investigators Dr DI Warton; Dr NR Andrew; Dr H Gibb

Title *Predicting the effect of climate change on community structure and function: an assessment using temperate grassland invertebrates*

2009 \$ 120,000

2010 \$ 90,000

2011 \$ 90,000

ARC Discovery Grant - DP0987729

Investigators Dr DI Warton

Title *Advances in statistical methods for analysing high dimensional count data*

2009 \$ 94,000

2010 \$ 94,000

2011 \$ 94,000

ARC Discovery Grant - DP0988002

Investigators Dr MV Brown; Prof JA Fuhrman

Title *Towards a predictive model for coastal marine microbial assemblages*

2009 \$ 150,000

2010 \$ 145,000

2011 \$ 130,000

2012 \$ 135,000

2013 \$ 135,000

ARC Linkage Grant - LP0990640

Investigators Dr EL Johnston; Dr BP Kelaher; Dr MA Coleman

Title *Assessing and understanding ecological changes in highly disturbed estuaries: addressing the complexity of multiple stressors*

2009 \$ 83,000

2010 \$ 165,000

2011 \$ 167,500

2012 \$ 183,000

2013 \$ 98,000

NSW Recreational Saltwater Fishing Trust

Investigators Dr M Taylor, Gray et al.

2009 \$ 95,000

WV Scott Foundation

Investigators Sinclair

2009 \$ 61,000

National Science Foundation (USA)

Investigators Dr A Poore, Lowry

2009 \$ 122,000

2010 \$ 122,000

2011 \$ 122,000

Winifred Scott Foundation

Investigators Dr T Rogers

Title Changes in food web due to the influence of climate warming

2009 \$ 90,000

Winifred Scott Foundation

Investigators Dr T Rogers

Title Predicting the influence climatic warming will have on the pupping habitat of the Antarctic pack ice seal, the leopard seal

2009 \$ 90,000

Winifred Scott Foundation

Investigators Dr T Rogers

2009 \$ 90,000

Winifred Scott Foundation

Investigators T Rogers

2009 \$ 90,000

NSW Recreation Saltwater Fishing Trust

Investigators Dr M Taylor, Dr I Suthers

2009 \$ 133,000

2010 \$ 70,000

2011 \$ 36,000

Australian Institute of Nuclear Science and Engineering

Investigators Dr M Taylor, Everett, Dr I Suthers

2009 \$ 6,000

Marine National Facility

Investigators Dr I Suthers, Dr M Baird, Everett, Dr M Taylor

2009 \$ 602,000

Australian Biological Resources Study

Investigators Dr G Cassis

2009 \$ 60,000

2010 \$ 60,000

2011 \$ 60,000

Hermon Slade Foundation

Investigators Dr G Cassis

2009 \$ 30,000

2010 \$ 30,000

2011 \$ 30,000

Australia and Pacific Science Foundation

Investigators Dr N Tatarnic, Dr G Cassis

2009 \$ 15,000

2010 \$ 15,000

2011 \$ 15,000

Australian Biological Resources Foundation

Investigators Dr G Cassis

2009 \$ 10,000

2010 \$ 1,000

APPENDIX D: Publications in 2009

Chapter - Other Research

1. Gray, R, Rogers, T, & Canfield, P 2009, *Health assessment of the leopard seal, Hydrurga leptonyx, in Prydz Bay, Eastern Antarctica and NSW, Australia, Health status of the Leopard-seal (Hydrurga leptonyx) in Prydz Bay, Eastern Antarctica* (10, First, pp. 167 - 192). , Springer-Verlag, Berlin.
2. Hogg, C, & Rogers, T 2009, *Measuring Stress in Antarctic Seals, Health status of the Leopard-seal (Hydrurga leptonyx) in Prydz Bay, Eastern Antarctica* (2105, First, pp. 263 - 270). , Springer-Verlag, Berlin.
3. Rogers, T 2009, *The leopard seal, Hydrurga leptonyx, Encyclopedia of Marine Mammals* (34, Second, pp. 673 - 674). , Academic Press, San Diego.
4. Thomas, J.A., & Rogers, T 2009, *The Ross seal, Ommatophoca rossii, Encyclopedia of Marine Mammals* (16, Second, pp. 988 - 990). , Academic Press, San Diego.

Encyclopaedia Entries

5. Curnoe, D (ed) 2009, *The Bed 3 mandible, The Cave of Hearths: Makapan Middle Pleistocene Research Project*, Archaeopress, Oxford.

Chapter - Textbook

6. Redden, AM, Kobayashi, T, Suthers, IM, Bowling, L, et al, 2009, *Plankton processes and the environment, Plankton: A Guide to Their Ecology and Monitoring for Water Quality* (103, 1, pp. 15 - 39). , CSIRO Publishing, Melbourne.
7. Rissik, D, Van senden, D, Doherty, M, Ingleton, T, et al, 2009, *Plankton-related environmental and water-quality issues, Plankton: A Guide to Their Ecology and Monitoring for Water Quality* (97, 1, pp. 39 - 72). , CSIRO Publishing, Melbourne.
8. Suthers, IM, Dawson, M, Pitt, K, & Miskiewicz, A.G. 2009, *Coastal and marine zooplankton: diversity and biology, Plankton: A Guide to Their Ecology and Monitoring for Water Quality* (18, 1, pp. 181 - 221). , CSIRO Publishing, Melbourne.
9. Suthers, IM, Bowling, L, Kobayashi, T, & Rissik, D 2009, *Sampling methods for plankton, Plankton: A Guide to Their Ecology and Monitoring for Water Quality* (77, 1, pp. 73 - 114). , CSIRO Publishing, Melbourne.

10. Suthers, IM, & Rissik, D 2009, *The Importance of Plankton, Plankton: A Guide to Their Ecology and Monitoring for Water Quality* (18, 1, pp. 1 - 14). , CSIRO Publishing, Melbourne.

Journal - Refereed & Scholarly Article

11. Ballard, JW, Puslednik, L, Wolff, J, & Russell, R 2009, 'Variation Under Nature: A Sesquicentennial DNA Barcoding Perspective', *Chiang Mai Journal of Science* , 36, pp. 188 - 199.
12. Best, P, Glass, J, Ryan, P, & Dalebout, ML 2009, 'Cetacean records from tristan da cunha, South Atlantic', *Journal of the Marine Biological Association of the United Kingdom* , 89, pp. 1023 - 1032.
13. Bonduriansky, R 2009, 'Condition dependence of developmental stability in the sexually dimorphic fly *Telostylinus angusticollis* (Diptera: Neriidae)', *Journal of Evolutionary Biology* , 22, pp. 861 - 872.
14. Bonduriansky, R, & Chenoweth, S 2009, 'Intralocus sexual conflict', *Trends in Ecology and Evolution* , 24, pp. 280 - 288.
15. Bonduriansky, R, & Day, T 2009, 'Nongenetic inheritance and its evolutionary implications', *Annual Review of Ecology Evolution and Systematics* , 40, pp. 103 - 125.
16. Bonduriansky, R 2009, 'Reappraising sexual coevolution and the sex-roles', *PLoS Biology* , 7, pp. 31000255 - 2503.
17. Bonser, SP, & Aarssen, L 2009, 'Interpreting reproductive allometry: Individual strategies of allocation explain size-dependent reproduction in plant populations', *Perspectives in Plant Ecology Evolution and Systematics* , 11, pp. 31 - 40.
18. Carlini, A.R., Negrete, J., Daneri, G.A., Rogers, T, et al, 2009, 'Immobilization of adult male southern elephant seals (*Mirounga leonina*) during the breeding and molting periods using a tiletamine/zolazepam mixture and ketamine', *Polar Biology* , 32, pp. 915 - 921.
19. Cassis, G, & Monteith, G 2009, 'A new genus and species of Cylapinae from New Caledonia with re-analysis of the Vannius complex phylogeny (Heteroptera: Miridae)', *Memoirs of the Queensland Museum* , 52, pp. 13 - 26.
20. Chew, SJ, & Bonser, SP 2009, 'The evolution of growth rate, resource allocation and competitive ability in seeder and resprouter tree seedlings', *Evolutionary Ecology* , 23, pp. 723 - 735.
21. Clark, GF, & Johnston, E 2009, 'Propagule pressure and disturbance interact to overcome biotic resistance of marine invertebrate communities', *Oikos* , 118, pp. 1679 - 1686.
22. Cristescu, R, Cahill, V, Sherwin, WB, Handasyde, K, et al, 2009, 'Inbreeding and testicular abnormalities in a bottlenecked population of koalas (*Phascolarctos cinereus*)', *Wildlife Research* , 36, pp. 299 - 308.
23. Curnoe, D 2009, 'Possible causes and significance of cranial robusticity among Pleistocene-Early Holocene Australians', *Journal of Archaeological Science* , 36, pp. 980 - 990.
24. Curnoe, D, & Green, HM 2009, 'Sexual dimorphism in Southeast Asian crania: a geometric morphometric approach', *Homo-Journal of Comparative Human Biology* , 60, pp. 517 - 534.
25. Dafforn, KA, Glasby, T, & Johnston, E 2009, 'Links between estuarine condition and spatial distributions of marine invaders', *Diversity and Distributions* , 15, pp. 807 - 821.
26. Dafforn, KA, Johnston, E, & Glasby, T 2009, 'Shallow moving structures promote marine invader dominance', *Biofouling* , 25, pp. 277 - 287.

27. Donohoe, M, Von Hippel, WH, & Brooks, RC 2009, 'Beyond waist-hip ratio: Experimental multivariate evidence that average women`s torsos are most attractive', *Behavioral Ecology* , 20, pp. 716 - 721.
28. Edwards, W, & Moles, AT 2009, 'Re-contemplate an entangled bank: The Power of Movement in Plants revisited', *Botanical Journal of the Linnean Society* , 160, pp. 111 - 118.
29. Eldridge, DJ, Whitford, W, & Duval, B 2009, 'Animal disturbances promote shrub maintenance in a desertified grassland', *Journal of Ecology* , 97, pp. 1302 - 1310.
30. Eldridge, DJ 2009, 'Badger (taxidea taxus) mounds affect soil hydrological properties in a degraded shrub-steppe', *American Midland Naturalist* , 161, pp. 350 - 358.
31. Eldridge, DJ, & Whitford, W 2009, 'Soil disturbance by native animals along grazing gradients in an arid grassland', *Journal of Arid Environments* , 73, pp. 1144 - 1148.
32. Eldridge, DJ, & James, AI 2009, 'Soil-disturbance by native animals plays a critical role in maintaining healthy Australian landscapes', *Ecological Management and Restoration* , 10, pp. 1302 - 1310.
33. Fey, K, Banks, P, Oksanen, L, & Korpimaki, E 2009, 'Does removal of an alien predator from small islands in the Baltic Sea induce a trophic cascade?', *Ecography* , 32, pp. 546 - 552.
34. Forster, MA, & Bonser, SP 2009, 'Heteroblastic Development and Shade-avoidance in Response to Blue and Red Light Signals in *Acacia implexa*', *Photochemistry and Photobiology* , 85, pp. 1375 - 1383.
35. Forster, MA, & Bonser, SP 2009, 'Heteroblastic development and the optimal partitioning of traits among contrasting environments in *Acacia implexa*', *Annals of Botany* , 103, pp. 95 - 105.
36. Fry, B, Wroe, S, Teeuwisse, W, Van Osch, M, et al, 2009, 'A central role for venom in predation by *Varanus komodoensis* (Komodo Dragon) and the extinct giant *Varanus* (*Megalania*) *priscus*', *Proceedings of the National Academy of Sciences of the United States of America - Biological Sciences* , 106, pp. 8969 - 8974.
37. Gerhardt, H, & Brooks, RC 2009, 'Experimental analysis of multivariate female choice in gray treefrogs (*Hyla versicolor*): Evidence for directional and stabilizing selection', *Evolution* , 63, pp. 2504 - 2512.
38. Gillson, J, Scandol, J, & Suthers, IM 2009, 'Estuarine gillnet fishery catch rates decline during drought in eastern Australia', *Fisheries Research* , 99, pp. 26 - 37.
39. Gollan, J, Ashcroft, M, Cassis, G, Donnelly, A, & et al, 2009, 'Testing common habitat-based surrogates of invertebrate diversity in a semi-arid rangeland', *Biodiversity and Conservation* , 18, pp. 1147 - 1159.
40. Hall, M, Bussiyre, L, & Brooks, RC 2009, 'Diet-dependent female evolution influences male lifespan in a nuptial feeding insect', *Journal of Evolutionary Biology* , 22, pp. 873 - 881.
41. Hedge, L, Knott, NA, & Johnston, E 2009, 'Dredging related metal bioaccumulation in oysters', *Marine Pollution Bulletin* , 58, pp. 832 - 840.
42. Herries, AI, Curnoe, D, & Adams, JW 2009, 'A multi-disciplinary seriation of early Homo and Paranthropus bearing palaeocaves in southern Africa', *Quaternary International* , 202, pp. 14 - 28.
43. Hill, NA, King, CK, Perrett, LA, & Johnston, E 2009, 'Contaminated suspended sediments toxic to an Antarctic filter feeder: Aqueous- and particulate-phase effects', *Environmental Toxicology and Chemistry* , 28, pp. 409 - 417.
44. Hogg, C, Rogers, T, Shorter, A., Barton, K., et al, 2009, 'Determination of steroid hormones in whale blow: It is possible', *Marine Mammal Science* , 25, pp. 605 - 618.

45. Hughes, NK, Kelley, JL, & Banks, P 2009, 'Receiving behaviour is sensitive to risks from eavesdropping predators', *Oecologia* , 160, pp. 609 - 617.
46. James, AI, Eldridge, DJ, & Hill, B 2009, 'Foraging animals create fertile patches in an Australian desert shrubland', *Ecography* , 32, pp. 723 - 732.
47. Johnston, E, & Roberts, DA 2009, 'Contaminants reduce the richness and evenness of marine communities: A review and meta-analysis', *Environmental Pollution* , 157, pp. 1745 - 1752.
48. Johnston, E 2009, 'Fatty Acid Composition of the Estuarine Amphipod, *Melita Plumlosa* (Zeidler): Link between diet and fecundity', *Environmental Toxicology* , 28, pp. 123 - 132.
49. Kasumovic, M, & Andrade, M 2009, 'A change in competitive context reverses sexual selection on male size', *Journal of Evolutionary Biology* , 22, pp. 324 - 333.
50. Kasumovic, M, Brooks, RC, & Andrade, M 2009, 'Body condition but not dietary restriction prolongs lifespan in a semelparous capital breeder', *Biology Letters* , 5, pp. 636 - 638.
51. Kasumovic, M, Elias, D, Punzalan, D, Mason, A, & et al, 2009, 'Experience affects the outcome of agonistic contests without affecting the selective advantage of size', *Animal Behaviour* , 77, pp. 1533 - 1538.
52. Kasumovic, M, Radcliffe, L, & Boag, P 2009, 'Habitat Fragmentation and Paternity in Least Flycatchers', *The Wilson Journal of Ornithology* , 121, pp. 306 - 313.
53. Kasumovic, M, Bruce, M, Andrade, M, & Herberstein, M 2009, 'Plasticity in response to demographic variation may help explain continuous phenotypic variation in nature', *Ecology* , 90, pp. 2287 - 2296.
54. Kingsford, R, Watson, J, Lundquist, C, Venter, O, et al, 2009, 'Major conservation policy issues for biodiversity in oecania', *Conservation Biology* , 23, pp. 834 - 840.
55. Knott, NA, Aulbury, J, Brown, T, & Johnston, E 2009, 'Contemporary ecological threats from historical pollution sources: Impacts of large-scale resuspension of contaminated sediments on sessile invertebrate recruitment', *Journal of Applied Ecology* , 46, pp. 770 - 781.
56. Ladd, BM, Pepper, DA, & Bonser, SP 2009, 'Competition intensity at local versus regional spatial', *Plant Biology*.
57. Ladd, BM, Bonser, SP, Peri, P, Larsen, J, et al, 2009, 'Towards a physical description of habitat: Quantifying environmental adversity (abiotic stress) in temperate forest and woodland ecosystems', *Journal of Ecology* , 97, pp. 964 - 971.
58. Lillioja, SA, & Wilton, AN 2009, 'Agreement among type 2 diabetes linkage studies but a poor correlation with results from genome-wide association studies', *Diabetologia* , 52, pp. 1061 - 1074.
59. Luciani, F, Sisson, SA, Jiang, H, Francis, AR, & et al, 2009, 'The epidemiological fitness cost of drug resistance in *Mycobacterium tuberculosis*', *Proceedings of the National Academy of Sciences of the United States of America - Biological Sciences* , 106, pp. 14711 - 14715.
60. Lukoschek, V, Funahashi, N, Lavery, S, Dalebout, ML, et al, 2009, 'High proportion of protected minke whales sold on Japanese markets is due to illegal, unreported or unregulated exploitation', *Animal Conservation* , 12, pp. 385 - 395.
61. Lukoschek, V, Funahashi, N, Lavery, S, Dalebout, ML, et al, 2009, 'The rise of commercial `by-catch whaling` in Japan and Korea', *Animal Conservation* , 12, pp. 398 - 399.
62. Maklakov, AA, Hall, M, Simpson, SJ, Dessmann, J, et al, 2009, 'Sex differences in nutrient-dependent reproductive ageing', *Aging Cell* , 8, pp. 324 - 330.

63. Maklakov, AA, & Bonduriansky, R 2009, 'Sex differences in survival costs of homosexual and heterosexual interactions: evidence from a fly and a beetle', *Animal Behaviour* , 77, pp. 1375 - 1379.
64. Maklakov, AA, Bonduriansky, R, & Brooks, RC 2009, 'Sex differences, sexual selection, and ageing: An experimental evolution approach', *Evolution* , 63, pp. 2491 - 2503.
65. Moles, AT, Warton, DI, Warman, L, Swenson, N, et al, 2009, 'Global patterns in plant height', *Journal of Ecology* , 97, pp. 923 - 932.
66. Monro, K, & Poore, AG 2009, 'Performance benefits of growth-form plasticity in a clonal red seaweed', *Biological Journal of the Linnean Society* , 97, pp. 80 - 89.
67. Monro, K, & Poore, AG 2009, 'The evolvability of growth form in a clonal seaweed', *Evolution* , 63, pp. 3147 - 3157.
68. Monro, K, & Poore, AG 2009, 'The potential for evolutionary responses to cell-lineage selection on growth form and its plasticity in a red seaweed', *American Naturalist* , 173, pp. 151 - 163.
69. Neaves, L, Zenger, K, Prince, R, Eldridge, MD, & et al, 2009, 'Landscape discontinuities influence gene flow and genetic structure in a large, vagile Australian mammal, *Macropus fuliginosus*', *Molecular Ecology* , 18, pp. 3363 - 3378.
70. O`Bryan, K, Prober, S, Lunt, I, & Eldridge, DJ 2009, 'Frequent fire promotes diversity and cover of biological soil crusts in a derived temperate grassland', *Oecologia* , 159, pp. 827 - 838.
71. Ochwada, F, Loneragan, N, Gray, CA, Suthers, IM, & et al, 2009, 'Complexity affects habitat preference and Predation mortality in postlarval *Penaeus plebejus*: Implications for stock enhancement', *Marine Ecology - Progress Series* , 380, pp. 161 - 171.
72. Paplinska, J, Eldridge, MD, Cooper, DW, Temple-Smith, PD, & et al, 2009, 'Use of genetic methods to male-biased dispersal in a cryptic mammal, the swamp wallaby (*Wallabia bicolor*)', *Australian Journal of Zoology* , 57, pp. 65 - 72.
73. Piola, RF, & Johnston, E 2009, 'Comparing differential tolerance of native and non-indigenous marine species to metal pollution using novel assay techniques', *Environmental Pollution* , 157, pp. 2853 - 2864.
74. Piola, RF, Dafforn, KA, & Johnston, E 2009, 'The influence of antifouling practices on marine invasions', *Biofouling* , 25, pp. 633 - 644.
75. Poore, AG, Campbell, AH, & Steinberg, PD 2009, 'Natural densities of mesograzers fail to limit growth of macroalgae or their epiphytes in a temperate algal bed', *Journal of Ecology* , 97, pp. 164 - 175.
76. Postma, E, Den Tex, R, Van Noordwijk, A, & Mateman, A 2009, 'Neutral markers mirror small-scale quantitative genetic differentiation in an avian island population', *Biological Journal of the Linnean Society* , 97, pp. 867 - 875.
77. Pursche, A, Suthers, IM, & Taylor, MD 2009, 'Tethering induces increased stress artifacts in social fish species', *Journal of Fish Biology* , 74, pp. 1525 - 1531.
78. Rissik, D, Shon, EH, Newell, B, Baird, ME, & et al, 2009, 'Plankton dynamics due to rainfall, eutrophication, dilution, grazing and assimilation in an urbanized coastal lagoon', *Estuarine Coastal and Shelf Science* , 84, pp. 99 - 107.
79. Rollins, LA, Woolnough, AP, Wilton, AN, Sinclair, R, & et al, 2009, 'Invasive species can't cover their tracks: Using microsatellites to assist management of starling (*Sturnus vulgaris*) populations in Western Australia', *Molecular Ecology* , 18, pp. 1560 - 1573.
80. Slater, J, Schuh, R, Cassis, G, Johnson, C, & et al, 2009, 'Revision of *Laryngodius Herrich-Schaeffer*, an *Allocasuarina* feeder, with comments on its biology and the

- classification of the family (Heteroptera:Lygaeoidea: Rhyparochromidae)', *Invertebrate Systematics* , 23, pp. 111 - 133.
81. Sotka, E, Forbey, J, Horn, M, Poore, AG, et al, 2009, 'The emerging role of pharmacology in understanding consumer-prey interactions in marine and freshwater systems', *Integrative and Comparative Biology* , 49, pp. 291 - 313.
 82. Sotka, E, Forbey, J, Horn, M, Poore, AG, et al, 2009, 'The emerging role of pharmacology in understanding the ecology and evolution of marine and freshwater consumers', *Integrative and Comparative Biology* , 49, pp. 231 - 313.
 83. Stokes, VL, Banks, P, Pech, RP, & Spratt, D 2009, 'Competition in an invaded rodent community reveals black rats as a threat to native bush rats in littoral rainforest of south-eastern Australia', *Journal of Applied Ecology* , 46, pp. 1239 - 1247.
 84. Stokes, VL, Banks, P, Pech, RP, & Williams, R 2009, 'Invasion by *Rattus rattus* into native coastal forests of south-eastern Australia: Are native small mammals at risk?', *Austral Ecology* , 34, pp. 395 - 408.
 85. Suthers, IM, Ives, M, & Scandol, J 2009, 'Modelling the possible effects of climate change in on an Australian multi-fleet prawn fishery', *Marine and Freshwater Research* , 60, pp. 1211 - 1222.
 86. Tanaka, M, Cristescu, R, & Cooper, DW 2009, 'Effective population size of koala populations under different population management regimes including contraception', *Wildlife Research* , 36, pp. 601 - 609.
 87. Tanaka, M, Kendal, J, & Laland, K 2009, 'From traditional medicine to witchcraft: Why medical treatments are not always efficacious', *PLOS One* , 4, pp. 259 - 276.
 88. Tanaka, M, Sisson, SA, & King, GC 2009, 'High affinity extremes in combinatorial libraries and repertoires', *Journal of Theoretical Biology* , 261, pp. 260 - 265.
 89. Tatarnic, NJ 2009, 'Dampierella and Goodeniaphila: two new genera and three new species of Halticini from Australia, with a species key to the Halticini of Australia (Hemiptera: Heteroptera: Miridae: Orthotylinae)', *Zootaxa* , 2105, pp. 43 - 60.
 90. Taylor, MD, Fielder, SL, & Suthers, IM 2009, 'Growth and viability of hatchery-reared *Argyrosomus japonicus* released into open and semi-closed systems', *Fisheries Management and Ecology* , 16, pp. 478 - 483.
 91. Taylor, MD 2009, 'Growth and viability of hatchery-reared *Argyrosomus japonicus* releases into open and semi-closed systems', *Fisheries Management and Ecology* , 16, pp. 478 - 483.
 92. Tripovich, JS, Rogers, T, & Dutton, G 2009, 'Faecal testosterone concentrations and the acoustic behaviour of two captive male Australian fur seals', *Australian Mammalogy* , 31, pp. 117 - 122.
 93. Tripovich, JS, Canfield, R, Rogers, T, & Arnould, JP 2009, 'Individual variation of the female attraction call produced by Australian fur seal pups throughout the maternal dependence period', *Bioacoustics - the International Journal of Animal Sound and Its Recording* , 18, pp. 259 - 276.
 94. Tschirren, B, Rutstein, AN, Postma, E, Mariette, M, & et al, 2009, 'Short- and long-term consequences of early developmental conditions: A case study on wild and domesticated zebra finches', *Journal of Evolutionary Biology* , 22, pp. 387 - 395.
 95. Warman, L, & Moles, AT 2009, 'Alternative stable states in Australia's Wet Tropics: A theoretical framework for the field data and a field-case for the theory', *Landscape Ecology* , 24, pp. 1 - 13.
 96. Weirauch, C, & Cassis, G 2009, 'Frena and druckknopf: a synopsis of two fore wing-to-body coupling mechanisms in Heteropteroidea (Hemiptera)', *Insect Systematics and Evolution* , 40, pp. 229 - 252.

97. Westoby, M, Moles, AT, & Falster, D 2009, 'Evolutionary coordination between offspring size at independence and adult size', *Journal of Ecology* , 97, pp. 23 - 26.
98. Zajitschek, F, Hunt, JC, Jennions, M, Hall, M, & et al, 2009, 'Effects of juvenile and adult diet on ageing and reproductive effort of male and female black field crickets, *Teleogryllus commodus*', *Functional Ecology* , 23, pp. 602 - 611.
99. Zajitschek, F, Brassil, CE, Bonduriansky, R, & Brooks, RC 2009, 'Sex effects on life span and senescence in the wild when dates of birth and death are unknown', *Ecology*, 90, pp. 1698 - 1707.
100. Zajitschek, F, Bonduriansky, R, Zajitschek, S, & Brooks, RC 2009, 'Sexual dimorphism in life history: Age, survival, and reproduction in male and female field crickets *teleogryllus commodus* under seminatural conditions', *American Naturalist* , 173, pp. 792 - 802.
101. Zajitschek, S, Lindholm, AK, Evans, JP, & Brooks, RC 2009, 'Experimental evidence that high levels of inbreeding depress sperm competitiveness', *Journal of Evolutionary Biology* , 22, pp. 1338 - 1345.

Journal - Non Refereed Article

102. Moles, AT, & Edwards, W 2009, 'A curly question: why do most vines twine anticlockwise?', *Australasian Science*, June, pp. 30 - 32.
- 103. Conference - Abstract Only**
104. Curnoe, D 2009, 'Human material and recent excavations at Maludong Cave, Yunnan Province, China', *Paleoanthropology Society Meetings*, San Juan, Puerto Rico, 2009, .
105. Lailvaux, SP, Hall, M, & Brooks, RC 2009, 'Does whole-organism performance indicate genetic quality? A test using the black field cricket (*Teleogryllus commodus*)', *Integrative and Comparative Biology*.
106. Poore, AG, & Sotka, E 2009, 'Historical constraints on host use in herbivorous marine amphipods', *Integrative and Comparative Biology*, 16, p. E137.

APPENDIX E: Media Coverage

Our brains are wired up for god 12 March 2009, *The Australian*.
Prof. Rob Brooks.

Toxic Hotspots Plague the Harbour 14 March 2009, *The Sydney Morning Herald*.
Dr Emma Johnston.

Marine biology: Snotty sampling 26 March 2009, *nature*.
Dr Tracey Rogers.

Clockwise or anti-clockwise? 9 April 2009, *L'Oreal Australia*.
Dr Angela Moles.

Ecology: from tundra to rainforest, desert to savanna 14 April 2009, *L'Oreal Australia*.
Dr Angela Moles.

Well, blow me! A home-made whale of an idea 14 April 2009, *The Sydney Morning Herald*.
Dr Tracey Rogers.

From Traditional Medicine to Witchcraft 29 April 2009, *PLoS ONE*, *ABC News*, *New Scientist*, *MSN Health*, *iParaiba*, *UNSW Science* and various blogs and other news sources (over a dozen).
Dr Mark Tanaka.

“Sexy” Tusks Lead to New Whale Species? 6 May 2009, *National Geographic News*.
Dr Merel Dalebout.

Komodo Dragons use poison to kill their prey 20 May 2009, *PNAS*.
Dr Stephen Wroe.

Bio-blitz at the Charles Darwin Reserve, WA 21 May 2009, *The Australian*.
Celia Symonds.

The beauty of an average body 11 June 2009, *New Scientist*, *Telegraph.co.uk*, *LittleAbout*, *Herald Sun*, *UNSW Science*.
Prof. Robert Brooks.

Where giant plants dare to grow 25 June 2009, *BBC News*, *Softpedia*.
Dr Angela Moles.

You'd be dead luck to win Oz Lotto 26 June 2009, *UNSW Science*, *Channel 7 News*, *news.com.au*.
Dr David Warton.

Darren Curnoe interviewed on Mornings with Margaret Throsby 4 August 2009, *ABC Classic FM*.

New drug-resistant TB strains could become widespread 11 August 2009, *UNSW Science News, The Sydney Morning Herald*.
Dr Mark Tanaka

Bad hair day? Dogs blame genes 28 August 2009, *The Australian*.
Dr Alan Wilton.

Professor Iain Suthers on Mornings with Margaret Throsby 1 October 2009, *ABC Classic FM*.

Mini Monsters of Amazonia 18 October 2009, *CBC-Tv*.
Dr Nikolai Tatarnik.

APPENDIX F: Teaching carried out by the centre on behalf of academic units

Special Interest Courses offered in 2009

SEMESTER 2 2009: Selling Your Science

Enrolment: This is a course targeted to postgraduates within the *Evolution & Ecology Research Centre* and honours students. It is limited to 15 students. Honours students enrol in BEES0006 Special Program UG 6uoc, PhD and MPhil students enrol in BEES5001 Topics in Biological Science.

Course Facilitator: Tracey Rogers

Course Topic: In this course we will work through the process of building your confidence in the media and from a public outreach perspective. Topics that will be covered include: media training, an understanding of what the media are looking for or not looking for, insights about how the media works, and practical tips about what you can do when you're put on the spot. At the end of the course you should feel comfortable with developing media around your research project.

SEMESTER 2 2009: Strategies for Early Careers Workshop

Enrolment: This is a one day workshop.

Course Facilitator: A/Prof Jennifer Forbey (Boise State University, USA)

Course Topic: This session will discuss strategies for early career researchers from the perspective of someone who has recently obtained an academic position. After finishing her PhD at the University of Utah in 2003, Jennifer Forbey conducted postdoctoral research at ANU and worked in the pharmaceutical industry. She has returned to academia with an appointment at Boise State University in Idaho and has become a leader in the application of pharmacology to understand plant-herbivore interactions (in animals as diverse as rodents, primates and marine invertebrates). She currently conducts multidisciplinary research in collaboration with the pharmaceutical industry, conservation agencies and academics. She

will talk to us about the steps she has taken to kick-start her research career and will provide tips on how to succeed in science.

SEMESTER 2 2009: Philosophy of Science

Enrolment: This is a course targeted to postgraduates within the *Evolution & Ecology Research Centre*. Enrolment is limited to 15 students. PhD and MPhil students enrol in BEES5001 Topics in Biological Science.

Course Facilitator: Russell Bonduriansky

Course Topic: What are we, as scientists, aiming to achieve? What (if anything) is the ‘scientific method’? What is theory, and how does it relate to empirical research? Is science ‘objective’? In this course, we will examine some key ideas in the philosophy of science (with a focus on the Biological sciences), and use these ideas to examine our own practice as researchers.

Format: The group will meet weekly for about 90 minutes. Each week, students will be expected to read one or two articles, or prepare a mini-presentation and lead a discussion. This topic is being offered only in Session 2, 2009. This course requires a willingness to read and to form and defend opinions. Class participation is essential for the success of the course and there will opportunity for feedback on your own publishing experiences.

**Statement of Financial Performance
for the Year Ended 31 December 2009**

| | 2009 \$ | 2008 \$ | Notes |
|--|--------------------|--------------------|-------|
| Income | | | |
| External Funds * | 0.00 | 0.00 | |
| UNSW Contribution | 370,324.86 | 451,292.93 | 1 |
| Total Income | <u>370,324.86</u> | <u>451,292.93</u> | |
| Expenses | | | |
| Payroll | 166,647.39 | 245,088.90 | |
| Equipment | 33,228.06 | 42,509.38 | |
| Materials | 138,500.64 | 144,907.37 | |
| Travel | 31,948.77 | 18,787.28 | |
| Total Expenses | <u>370,324.86</u> | <u>451,292.93</u> | |
| Operating result | 0.00 | 0.00 | |
| Surplus(Deficit) Bfwd from Prior Year | 0.00 | 0.00 | |
| Accumulated Funds Surplus(Deficit) | <u><u>0.00</u></u> | <u><u>0.00</u></u> | |
| | | | |
| * Excludes debtors (unpaid invoices) | 0.00 | 0.00 | |

Notes to the Statement of Financial Performance

1 Does not include \$12,000 contribution to RE399

**UNSW Evolution & Ecology Research Centre
Management Board Meeting**

9h00 26 May 2009

MINUTES

1. **Present:** Professor Michael Archer (Dean and Chair), Professor Robert Brooks, Associate Professor David Cohen, Professor Matthew England
2. **2007 and 2008 Annual Report.** Prof Brooks tabled the Centre's first Annual report, covering the period from the Centre's inception in September 2007 to the end of 2008. The board found the Centre's progress to be excellent and accepted the report.
3. **Replacement of board member.** Due to the departure of Professor Christopher Barner-Kowollik, the board accepted the recommendation that he be replaced by Professor Brett Neilan, ARC Federation Fellows, from the School of Biotechnology and Biomolecular Sciences.

The meeting closed at 9h25