

Summary of Discovery Projects Applications for Funding to Commence in 2006

Western Australia

Murdoch University

DP0664334 Dr TI Burgess; A/Prof B Dell; Prof MJ Wingfield; Dr D Xu

Approved Project Title **Biosecurity of Australia's eucalypts at risk from exotic diseases present in the Asian region**

2006 : \$95,000

2007 : \$85,000

2008 : \$80,000

Primary RFCD 3006 FORESTRY SCIENCES

Administering Institution Murdoch University

Project Summary

Biosecurity of Australia's flora and fauna is a National Research Priority, however currently there are no projects in Australia dealing with the threats and risks of exotic diseases to Australian native forests and hardwood plantations and consequently our proposed project is unique. It is through years of networking and collaboration that such a project is possible within our group. The network of scientists put together in this project, both in Australia and Asia, results in a team of trained scientists studying and estimating the risk of existing disease threats and being vigilant for new disease threats.

DP0665730 Dr PA Fleming; Prof S Nicolson; Dr TJ McWhorter

Approved Project Title **Sugar and water handling by honeyeaters and sunbirds**

2006 : \$130,000

2007 : \$80,000

2008 : \$80,000

Primary RFCD 2706 PHYSIOLOGY

APD Dr TJ McWhorter

Administering Institution Murdoch University

Project Summary

Honeyeaters are the major vertebrate pollinators in Australia, playing a vital role in maintenance of healthy ecosystems. These birds are faced with extreme physiological challenges due to their diet, ingesting 2-5 times their body mass in nectar to obtain their daily sugar requirement. Nectarivores are, consequently, masters at processing and assimilating sugars and water; comparative physiology of these charismatic birds will provide deep understanding of sugar and water handling mechanisms. Understanding gut and renal physiology and morphology contributes to the broad base of knowledge required to address pathological and clinical conditions in man, and will enhance our ability to predict effects of environmental change on these birds.

DP0663833 Dr D Fursa; Mr PL Bartlett; Prof Dr J Ullrich

Approved Project Title **A complete computational approach to electron-atom collisions**

2006 : \$80,000

2007 : \$80,000

2008 : \$80,000

Primary RFCD 2403 ATOMIC AND MOLECULAR PHYSICS; NUCLEAR AND PARTICLE PHYSICS; PLASMA PHYSICS

Administering Institution Murdoch University

Project Summary

Our research contributes to multidisciplinary efforts to improve the efficiency and reduce the toxicity of lighting systems, which has far-reaching implications for environmental sustainability. It will also facilitate significant improvements in the accuracy of astrophysical and artificial plasma modelling, as well as providing insight into many processes fundamental to nanotechnology research. The research project will further enhance our reputation in an area where Australian theorists are preeminent, and the research training will produce PhD graduates with a high-level ability in numerical modelling using supercomputers. Such skills are essential in many defense, mining and technological applications of national priority.

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DP0666805 Prof DT Hill

Approved Project Title **Secular modernisers in the Indonesian media: A biography of Mochtar Lubis (1922 - 2004)**

2006 : \$45,000

2007 : \$20,000

Primary RFCD 4001 JOURNALISM, COMMUNICATION AND MEDIA

Administering Institution Murdoch University

Project Summary

Democracy in post-Suharto Indonesia is being challenged by radical religious and communal interests. Precisely what form of polity will emerge remains unclear but, as Indonesia responds to such threats, Australia has a direct stake in the outcomes and needs new ways of understanding this dynamic. Media play a vital role in this. One of the most strained aspects of Australian-Indonesian relations has been the vastly differing assumptions on both sides about the relationship, exacerbated by a poor understanding of how the other's media operate. This research, and the biography of Mochtar Lubis, will provide a greater understanding of Indonesia's media, and of the unresolved struggle within it between secular democracy and sectarianism.

DP0665471 Prof RJ Hobbs

Approved Project Title **Setting and achieving realistic restoration goals in human-dominated ecosystems**

2006 : \$140,000

2007 : \$130,000

2008 : \$120,000

2009 : \$120,000

2010 : \$120,000

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

APF Prof RJ Hobbs

Administering Institution Murdoch University

Project Summary

Federal and state programs and community and NGO activities increasingly focus on ecosystem restoration as a tool in conservation and natural resource management. Clearer understanding of ecosystem dynamics and better articulation of realistic restoration goals can lead to much improved restoration success and better investment of government and private funds. This project will provide a better understanding of ecosystem dynamics both under current conditions and also as influenced by future environmental changes. The contribution to the theoretical and conceptual development of the field of restoration ecology will increase the profile of Australian science and enhance our reputation as leaders in this field.

DP0664515 Prof TJ Lyons; A/Prof JM Hacker; Dr W Junkermann; Dr US Nair

Approved Project Title **Impact of land use on cloud formation**

2006 : \$70,000

2007 : \$50,000

2008 : \$25,000

Primary RFCD 2606 ATMOSPHERIC SCIENCES

Administering Institution Murdoch University

Project Summary

Large scale land clearing has the potential to significantly modify regional climates yet current climate models do not incorporate an adequate representation of the land surface. Within Western Australia the rabbit fence provides a unique environment in which the interaction between the land surface and the atmosphere can be studied without other competing influences. A combination of satellite, aircraft and ground based observations will be used to relate cloud formation to land characteristics and provide a clearer insight into the climatic impact of human-induced land surface changes.

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DP0666075 Dr RG Strong; Prof J Tonkin; Em/Prof GC Bolton

Approved Project Title Religion at the End of the World: Anglican Communities in Western Australia 1829-c.2000

2006 : \$35,000

2007 : \$20,336

2008 : \$27,736

Primary RFCD 4402 RELIGION AND RELIGIOUS TRADITIONS

Administering Institution Murdoch University

Project Summary

As the project will study Anglicanism as an internal variety of forms it will benefit minority groups in understanding their 'agency' in shaping religious traditions. The project will also contribute to breaking down stereotypical generalities about religions and religious groups in Australia that result from approaching any religion as a monochrome and uniform phenomenon. The identification of the various forms of Anglicanism in Western Australia and their own particular religious cultures will be of benefit in substantiating the part played by indigenous, rural, and regional communities in the history of Western Australian society through the agency of Anglicanism.

DP0666933 Prof SE Volet

Approved Project Title Internationalisation of higher education:Sociocultural dynamics of group learning

2006 : \$62,000

2007 : \$62,000

2008 : \$65,000

Primary RFCD 3301 EDUCATION STUDIES

Administering Institution Murdoch University

Project Summary

A better understanding of the challenges created by social and cultural diversity in the context of internationalisation of higher education will lead to educational and social benefits. The research will provide a conceptual basis for the development of innovative teaching practices, which address these challenges and capitalise on diversity to enrich the learning of both international and local students. It directly addresses the national research priority of enhancing Australia's capacity to interpret and engage with its regional and global environment, through greater reciprocal understanding of the interface of diverse cultures and societies.

DP0665543 Prof J Warren

Approved Project Title Captivity Remembered: Slavery, Islam and Identity Formation in the Sulu Zone, 1768-1898

2006 : \$75,000

2007 : \$25,000

2008 : \$21,000

Primary RFCD 4301 HISTORICAL STUDIES

Administering Institution Murdoch University

Project Summary

This project will promote collaborative and comparative research on slavery and other forms of unfree labour, Islam and cultural hybridity. It will provide knowledge to governments, educators and religious leaders concerned with ending Muslim-Christian conflict in the Philippines, about the more socially inclusive nature of Islam and the process by which Muslim states and societies changed the ethnic identities and spiritual beliefs of captives. It will also reveal the paradoxes of the historically conditioned response to the trauma and difference caused by Muslim slavery in the Sulu Zone that has governed the thinking and social practise of the Philippine community and other nations.