

South Australia

The University of Adelaide

FT0991420 Dr P Cassey

Approved Project Title **The evolution of species traits and spread during biological invasions**

Project Title

2009 : \$ 98,600
2010 : \$ 197,200
2011 : \$ 197,200
2012 : \$ 197,200
2013 : \$ 98,600

Primary RFCD 2799 OTHER BIOLOGICAL SCIENCES

Administering Organisation The University of Adelaide

Project Summary

Exotic species pose a dire threat to Australia's biodiversity and natural resources due to the speed at which non-indigenous pests spread and the ecological and environmental damage they are capable of causing. The proposed research, on identifying traits associated with the spread of exotic vertebrate species and modelling the reproductive and dispersal parameters among different populations, will provide new knowledge and aid in developing innovative solutions for arresting the spread of exotic species. The validation of current models of spread will represent a major and timely addition to the national research capability on exotic species, and add substantially to Australia's reputation as a global leader in evolutionary ecology.

FT0991953 A/Prof SD Connell

Approved Project Title **Kelp forest ecosystems near and far: Putting a new theory explaining dynamic ecological systems to the test**

2009 : \$ 98,600
2010 : \$ 197,200
2011 : \$ 197,200
2012 : \$ 197,200
2013 : \$ 98,600

Primary RFCD 2707 ECOLOGY AND EVOLUTION

Administering Organisation The University of Adelaide

Project Summary

Few, if any, ecological models account for the biological diversity and observed vulnerability of ecosystems, from the molecular to the oceanic scale. This project aims to investigate kelp forests in ways that integrate previously disparate approaches to the study of ecosystems in order to prove the value of a novel framework for understanding how broad-scale and local phenomena interrelate to maintain the diversity and function of ecosystems or to provoke their decline, transition or collapse. This new conceptualisation of ecosystem processes will assist in forecasting the consequences of their management and the effects of external stimuli on normally robust systems.

Summary of ARC Future Fellowships Proposals for Funding to Commence in 2009

FT0992331 Prof A Cooper

Approved Project Title **From Biodiversity to Health: Performing the first genetic audits of Australia**

2009 : \$ 111,400
2010 : \$ 222,800
2011 : \$ 222,800
2012 : \$ 222,800
2013 : \$ 111,400

Primary RFCD 3008 ENVIRONMENTAL SCIENCES

Administering Organisation The University of Adelaide

Project Summary

This project will establish a new technology for the rapid measurement of environmental biodiversity, whether that be in natural resources such as forests, or pathogens in water supplies or hospitals. The method is fast, low-cost and will provide much higher resolution than current methods. It will provide some of the first ever comprehensive environmental impact assessments, permitting responsible resource development with major benefits to industry and the economy. It also provides a common platform for government agencies, from Department of Environment and Heritage to the Federal Police, and will create new tools to improve water management, biosecurity, forensics/policing and human health, as reflected by the wide range of industry partners supporting the project.

FT0990785 Dr DL Russell

Approved Project Title **Regulation of tissue morphogenesis in reproductive function and metastatic cancer**

2009 : \$ 85,800
2010 : \$ 171,600
2011 : \$ 171,600
2012 : \$ 171,600
2013 : \$ 85,800

Primary RFCD 3210 CLINICAL SCIENCES

Administering Organisation The University of Adelaide

Project Summary

Infertility, endocrine and metabolic disorders and reproductive cancers are all increasing medical problems and principal contributors to morbidity and mortality in the Australian community. This research takes the novel approach of investigating the mechanisms of dynamic remodeling in reproductive organs. Novel hormonally controlled mechanisms of tissue remodeling unique to reproductive organs and cancers in adults have been discovered. The results are being applied to new medical alternatives for infertile patients and new diagnostics and therapeutics for patients with metastatic cancers. The information is also being applied to improve reproductive efficiency in animal production industries.

FT0991910 Dr CJ Sumbly

Approved Project Title **Internally decorated discrete Metallo-supramolecular Assemblies and infinite Metal-Organic Frameworks as molecular containers**

2009 : \$ 85,800
2010 : \$ 171,600
2011 : \$ 171,600
2012 : \$ 171,600
2013 : \$ 85,800

Primary RFCD 2599 OTHER CHEMICAL SCIENCES

Administering Organisation The University of Adelaide

Project Summary

In the macroscopic world, containers are used to hold, provide physical protection, or create a modified environment for their contents. This project will result in the synthesis of novel molecular container materials that provide decorated internal surfaces capable of selectively binding chemical species. In addition to the breakthrough scientific benefits of establishing the fundamentals of these systems, the binding of chemicals, which are environmental contaminants, will provide the grounding for applications that will contribute to the national priority of 'Frontier technologies'. Furthermore, this research will lead to the training of the next generation of Australian scientists by quality international researchers.