

# Summary of Linkage Projects Applications for Funding to Commence in 2006

## South Australia

### The University of Adelaide

LP0669062 Prof AD Austin; Dr NP Murphy; Dr SJ Cooper; Mr MA Adams

**Approved Project Title** **Comparative phylogeography of mound springs-invertebrates: identifying genetically divergent populations for conservation and management**

**2006 :** \$37,170

**2007 :** \$74,340

**2008 :** \$74,340

**2009 :** \$37,170

**Primary RFCD** 2707 ECOLOGY AND EVOLUTION

APDI Dr NP Murphy

#### Partner Organisation(s)

Department of Environment and Heritage South Australia

South Australian Museum

Nature Foundation of South Australia Inc

BHP Billiton

**Administering Institution** The University of Adelaide

#### Project Summary

The mound springs of the Great Artesian Basin represent one of Australia's most unique and significant environments and are of national biodiversity, cultural and economic significance. The conservation of these unique environments is a national issue following their listing as a threatened ecological community. As economic productivity in the GAB intensifies, the mound springs are under increasing threat from escalating groundwater use. The results of this study of genetic diversity in the spring communities will provide a means for the management groups to incorporate a significant biological information into their decision making and help facilitate the conservation of mound springs communities in the Lake Eyre region

LP0669007 Dr J Brugger; Mr F Reith; Mr J Kirby; Dr SA Wakelin; Prof A Pring; Mr SJ Ellis; Dr N Radford

**Approved Project Title** **Bacterial mechanisms of gold mobilisation and precipitation with applications to mineral processing and exploration**

**2006 :** \$72,500

**2007 :** \$138,000

**2008 :** \$133,500

**2009 :** \$68,000

**Primary RFCD** 2703 MICROBIOLOGY

APDI Mr F Reith

#### Partner Organisation(s)

Newmont Australia

South Australian Museum

Barrick Gold of Australia Limited (ACN 008 143 137)

**Administering Institution** The University of Adelaide

#### Project Summary

The development of a comprehensive model for the biogeochemical behaviour of gold in the environment will aid mineral explorers to interpret existing exploration data and to develop better exploration strategies. Moreover, this project aims to develop the basis for a new geomicrobiological gold exploration method by identifying organisms and microbial gene sequences that could be used as biomarkers for mineralisation. This research will also provide the fundamental information required to copy nature and engineer new cost-efficient and environmentally friendly technologies for gold processing using microorganisms that occur naturally in Australian soils.

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**LP0668987** Dr SM Carthew; Dr AC Taylor; Dr SJ Cooper

**Approved Project Title** **Conservation genetics and socio-ecology of marsupials in fragmented populations of south-eastern South Australia: towards a regional biodiversity management plan**

**2006 :** \$32,000

**2007 :** \$62,000

**2008 :** \$65,000

**2009 :** \$35,000

**Primary RFCD** 2707 ECOLOGY AND EVOLUTION

### Partner Organisation(s)

Hancock Victorian Plantations Pty Ltd

ForestrySA

Department for Environment and Heritage (SA)

Nature Foundation of Australia Inc.

South Australian Museum

**Administering Institution** The University of Adelaide

### Project Summary

Habitat destruction and fragmentation is causing the decline of many species in native forests of eastern and southern Australia. Our project will investigate the interplay between the human activities of agriculture and forestry and their effects on native forest ecosystems. It will provide new data on the consequences of fragmentation to native mammal species in the rural and regional communities of south-east South Australia and western Victoria. It will establish a strong collaborative partnership between two forestry companies, conservation agencies and university conservation biologists to develop strategies to sustainably manage biodiversity in native forests and conserve populations of rare and threatened native mammals species.

**LP0669378** Dr BM Gillanders; A/Prof HR Maier; Dr TS Elsdon

**Approved Project Title** **Effects of urbanisation and introduced species on rivers and estuaries: a whole of catchment approach**

**2006 :** \$42,000

**2007 :** \$83,000

**2008 :** \$72,000

**2009 :** \$31,000

**Primary RFCD** 2707 ECOLOGY AND EVOLUTION

APA(I) Award(s): 2

### Partner Organisation(s)

Department for Environment and Heritage

PIRSA - Fisheries

**Administering Institution** The University of Adelaide

### Project Summary

Humans have converted land into urban and agricultural areas, as well as intentionally or accidentally introduced species into aquatic systems. Estuaries and rivers are some of the most degraded systems on earth and fishes are among the most endangered vertebrates worldwide. We will utilise novel modelling techniques to provide predictive models that investigate fish-environment relationships. We will also investigate impacts of trout introductions on native fish including dietary, competitive and assemblage level changes to the system. Essential data for the sustainable management of freshwater and estuarine systems will be obtained, which will lead to an environmentally sustainable Australia.

## Summary of Linkage Projects Applications for Funding to Commence in 2006

**LP0669816** Dr V Jiranek; Dr NA Yap; Dr PR Grbin

**Approved Project Title** **Evaluating the applicability of Directed Evolution to the optimisation of industrial yeast strains**

**2006 :** \$20,000

**2007 :** \$40,000

**2008 :** \$20,000

**Primary RFCD** 2901 INDUSTRIAL BIOTECHNOLOGY AND FOOD SCIENCES

### **Partner Organisation(s)**

Mauri Yeast Australia Pty Ltd

**Administering Institution** The University of Adelaide

### **Project Summary**

The fermentation industries, particularly the wine industry, are of great economic importance to Australia. Wine exports exceed \$2 billion per year. Moreover, the industry and those supporting it are major employers in regional Australia. To maintain and grow our share of the international market, Australian wine must remain competitive by increasing production efficiency, maximizing quality and keeping up with changing consumer preferences, and with minimal environmental impact. As a cornerstone to the winemaking process, the yeast is a vehicle for achieving these needs. This project will develop and evaluate a method for generation of unique yeast which are non-recombinant and which yield superior wine under modern winemaking conditions.

**LP0668808** A/Prof HR Maier; Prof GC Dandy; A/Prof GG Ganf; Dr MB Lane; Dr CT Simmons; Dr CT de Koning

**Approved Project Title** **Innovative Approach to the Optimal Management of Water Resources and Application to the Upper South East Region of South Australia**

**2006 :** \$62,500

**2007 :** \$115,000

**2008 :** \$102,500

**2009 :** \$100,000

**2010 :** \$50,000

**Primary RFCD** 3008 ENVIRONMENTAL SCIENCES

APA(I) Award(s): 2

### **Partner Organisation(s)**

Department of Water, Land and Biodiversity Conservation

**Administering Institution** The University of Adelaide

### **Project Summary**

This project will increase Australia's capacity to manage water resources in an integrated and sustainable manner. The outcomes of this project will also provide significant economic, social and environmental benefits to the Upper South East region of South Australia, as well as the broader Australian community. The project is expected to result in a significant reduction in the economic and social costs associated with dryland salinity and flooding whilst simultaneously increasing the environmental benefits associated with the maintenance and rehabilitation of the ecological value of the some of the region's approximately 200 wetlands.

**LP0669248** Dr V Moore; Dr K Doherty; A/Prof P Ryan

**Approved Project Title** **The impact of haemoglobin deferral on blood donors: perceptions, health and non-return.**

**2006 :** \$14,878

**2007 :** \$29,907

**2008 :** \$15,029

**Primary RFCD** 3212 PUBLIC HEALTH AND HEALTH SERVICES

APA(I) Award(s): 1

### **Partner Organisation(s)**

Australian Red Cross Blood Service

**Administering Institution** The University of Adelaide

### **Project Summary**

Blood donors are an vital in ensuring the health of the Australian community. However, they are few in number and difficult to recruit. It is crucial to keep existing donors in the system so that Australia has an assured blood supply, not only for the traditional reasons (road trauma, replacement in surgery, treatment of diseases such as cancer), but also to cope with natural disasters, emergent diseases and the potential results of terrorist activities. Apart from providing new information on blood donor behaviour, the project will also contribute to more general knowledge about volunteers in the community and their role in the maintenance and development of health services.

## Summary of Linkage Projects Applications for Funding to Commence in 2006

**LP0668939** Prof P Mühlhäusler; Ms ED Semple; Mrs JM Davidson; The Hon DE Buffett

**Approved Project Title** Preserving and reviving language and culture of Norfolk Island

**2006 :** \$22,500

**2007 :** \$46,000

**2008 :** \$47,000

**2009 :** \$23,500

**Primary RFCD** 3802 LINGUISTICS

### Partner Organisation(s)

Norfolk Island Museum  
Norfolk Island Central School  
Norfolk Island Government

**Administering Institution** The University of Adelaide

### Project Summary

The project will help revive the endangered Norfolk Island language, thereby strengthening the sense of identity of the Norfolk Islanders. It will help achieve greater visibility of the language through an exhibition, interpretive signage and production of educational resources. The training provided will open up employment opportunities in education and cultural tourism in a remote community.

**LP0669161** Prof SE Smith; Dr KM Ophel-Keller; Dr RE Holloway; Prof FA Smith

**Approved Project Title** Novel technologies to resolve interactions between arbuscular mycorrhizal (AM) fungi, phosphate fertilisers and root disease in wheat production

**2006 :** \$35,000

**2007 :** \$67,500

**2008 :** \$65,000

**2009 :** \$32,500

**Primary RFCD** 3002 CROP AND PASTURE PRODUCTION

### Partner Organisation(s)

South Australian Grain Industry Trust

**Administering Institution** The University of Adelaide

### Project Summary

Soils in Australia are often phosphate (P) deficient. Fertiliser P costs ~\$1.5 billion pa, yet much is wasted because of fixation in soils. This waste must be stopped and soil reserves unlocked, because supplies of rock phosphate for fertiliser manufacture will run out in the next ~70 years. We will investigate the potential of combining two approaches to maximise P fertiliser use by wheat - application of new, fluid fertiliser formulations and soil management to increase populations of beneficial arbuscular mycorrhizal (AM) fungi that have large effects on the way plants absorb P from soil. A new DNA-based method to monitor AM fungal communities will be applicable both in agricultural management and studies of AM fungal biodiversity.