



## Examples of new *Linkage Projects* in 2010

### Queensland

#### **The University of Queensland** (Contact: 07 3365 1120)

*Impact of reforestation on the mitigation of climate extremes in eastern Australia resulting from global warming* (LP100100738)

**Summary:** This project will provide new information for climate change policy development and the goal of an Environmentally Sustainable Australia. It has a strong policy-management imperative, investigating the need for the maintenance and restoration of healthy native vegetation cover as part of Australia's climate change mitigation and adaptation strategies. Our previous research has shown that land clearing has contributed to climate change, including more severe and persisting droughts, in eastern Australia. Successful implementation of the research findings will lead to an increased ability of regional landscapes to buffer against a more extreme future climate driven by increased concentrations of greenhouse gases.

*Chief Investigator: Dr Clive McAlpine*

**ARC funding:** \$385,000 over 3 years

#### **Queensland University of Technology** (Contact: 07 3138 2361)

*Bayesian statistical models for understanding outcomes and improving decision-making for women screened for breast cancer* (LP100100570)

**Summary:** This project has two key benefits: the development of frontier statistical methods for spatio-temporal analysis and data synthesis, which are imperative in a wide range of disciplines; and the application of these methods for improved understanding of breast cancer outcomes for women screened in Queensland. The project results will lead to direct health and financial benefits through targeted policies for increasing screening uptake and reducing cancer morbidity and mortality and therefore health spending in this area. Importantly, the project represents an excellent training opportunity to develop a PhD candidate into an experienced interdisciplinary researcher.

*Chief Investigator: Professor Kerrie Mengersen*

**ARC funding:** \$80,007 over 3 years

#### **James Cook University** (Contact: 07 4781 4822)

*Mammal declines in northern Australia: science for conservation and recovery* (LP100100033)

**Summary:** Australia's unique mammal fauna is a rich biological heritage for the nation. It provides a wealth of ecosystem services, and many mammal species have special cultural or aesthetic value. However, our mammals are sadly depleted, and we already have the worst record of recent mammal extinction of any nation. Preventing further mammal extinctions, and managing environments to allow declining mammals to recover, will be of great benefit to Australian biodiversity and to the ecosystem processes and human values that depend on it.

*Chief Investigator: Professor Christopher Johnson*

**ARC funding:** \$1,110,000 over 4 years



**Griffith University** (Contact: 07 3735 6458)

*Incorporating Indigenous Landscape Values into Regional Planning Processes*  
(LP100100396)

**Summary:** Following on from the successful indigenous engagement in this project's pilot study, this research has the potential to make significant contributions to Australia's reconciliation process. It will work towards an equitable and balanced approach to the way our society manages the landscape, through inclusion of the aspirations, priorities and values of indigenous communities. This elevation of indigenous landscape values, which by and large have been excluded from traditional planning processes, will facilitate cross-cultural understanding and can extend into associated fields of community development. Achieving these proactive outcomes will significantly improve landscape management whilst strengthening community ties.

*Chief Investigator: Associate Professor Darryl Low Choy*

**ARC funding:** \$241,669 over 3 years

**The University of Queensland** (Contact: 07 3365 1120)

*Enabling Molecular Plant Breeding for Drought Adaptation Using Genome-to-Phenome Modelling Technologies* (LP100100495)

**Summary:** Effective molecular plant breeding for improved water productivity of sorghum would generate significant economic and social benefits for rural communities in northeast Australia. There is a significant opportunity to expand the sorghum industry in the region. Despite the global financial crisis, global demand for meat continues to increase, generating strong demand from intensive livestock industries for feed grain. Price is projected to return to high levels given continuing use of major feed grains for biofuel. A 10 per cent increase in sorghum production would add net value of \$48 million annually, much via employment. The scientific content of this project positions Australia at the leading edge globally in this emerging research field.

*Chief Investigator: Professor Graeme Hammer*

**ARC funding:** \$710,280 over 3 years

**The University of Queensland** (Contact: 07 3365 1120)

*Redirecting Carbon Flow through Mesophyll and Bundle Sheath Cells of Sugarcane to Produce Poly-3-Hydroxybutyrate* (LP100100659)

**Summary:** This project is part of the national priorities Frontier Technologies for Building and Transforming Australian Industries. Using innovative plant metabolic engineering technologies combined with sophisticated computer modeling we are generating green plants that produce renewable, biodegradable, bioplastics possessing properties such that they are suitable replacements for petroleum-derived products in many applications. During the course of these studies, we are increasing our basic level of understanding of plant metabolism of important bioenergy crops. The production of renewable, bioplastics in sugarcane will help to diversify the Australian sugarcane industry by providing a value-added product with significant world-wide markets.

*Chief Investigator: Dr Stevens Brumbley*

**ARC funding:** \$1,678,558 over 5 years