Examples of *Discovery* Projects commencing in 2014

**Australian Capital Territory**

Australian Capital Territory universities will receive more than $32 million through the Australian Research Council *Discovery Projects* scheme for 86 new research projects commencing in 2014.

Some examples of the ACT projects are provided below.

To view the summaries of all successful projects, visit the [ARC announcements page](#).

**The Australian National University**

*Lead Chief Investigator:* Professor Robert Heinsohn (DP140104202)

*Summary:* Introduced predators have wrought havoc on native species worldwide. The impacts on prey species may be exacerbated when they are subject to sex-selective predation, leading to biased adult sex ratios. In Tasmania, introduced sugar gliders are killing up to 100 per cent of nesting female endangered swift parrots at many of their breeding sites. This project integrates evolutionary theory, state-of-the-art population meta-models and field experiments to: achieve practical conservation outcomes; assess the evolutionary and ecological consequences of sex-selective predation on population dynamics; and determine whether swift parrots are modifying their behaviour adaptively through learned or genetic change.

*ARC funding:* $539 000 over three years

**The Australian National University**

*Lead Chief Investigator:* Professor Thushara Abhayapala (DP140103412)

*Summary:* This project aims to address the critical issues for creating acoustic quiet zones in a noisy environment. It will provide novel signal processing theory for further development of active noise cancellation techniques over spatial regions. New technologies developed from this project are expected to underpin the future development of acoustic signal processing research and will have a broad range of applications such as reduction of noise inside cars, creation of individual quiet zones in passenger planes and mitigation of acoustic noise made by industrial plants to neighbouring suburbs. The outcomes from this proposal will also have economic importance as it can reduce the health risk posed to people working or living in noisy environments.

*ARC funding:* $370 000 over three years

**The Australian National University**

*Lead Chief Investigator:* Professor Albert van Dijk (DP140103679)

*Summary:* Skillful seasonal water and crop forecasts could do much to help cope with drought and water-related food crises. Recent advances in hydrological modelling and satellite remote sensing of surface soil moisture, landscape water storage and vegetation biomass have created a great opportunity to produce such forecasts over large areas. This project will exploit that opportunity by assimilating the satellite observations into a global water and vegetation forecasting model. The resulting improvement in seasonal forecasts of stream flow, soil moisture and crop production will be quantified and compared to the limited forecasts that are currently available.

*ARC funding:* $450 000 over three years