



Using digital technologies to track farmland ecological condition in remote arid Australia

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Project Description

Digital acoustic monitoring is increasingly used in wildlife studies around the globe. Acoustic monitoring devices are a powerful and cost-effective method to survey wildlife due to their ease in deployment and ability to continually monitor populations across time through the use of “soundscapes”. Digital monitoring is particularly important for tracking ecosystem condition in remote, poorly accessible locations, such as much of arid Australia where livestock grazing predominates. Numerous metrics can be derived from ecoacoustic monitoring datasets, including sound diversity (a potential surrogate for wildlife diversity) and sound abundance (a potential indicator for wildlife abundance or activity). However, the recency of these technologies means that there is little scientific evidence for a clear link between acoustic monitoring metrics and the condition of wildlife and landscapes. This project has 3 components:

- a) Building hypotheses for how different digital acoustic monitoring metrics might inform us about wildlife and landscape condition on farm and natural habitats in the grazing rangelands of arid Australia
- b) Building metrics from ecoacoustic monitoring to evaluate soundscapes on farms and natural habitats and compare soundscapes to on-ground monitoring of landscape health.
- c) Evaluating the ability of a digital sensor network to fill critical knowledge gaps on bird abundance and diversity in remote farming landscapes

Location of research

The project proposes to offer student projects (Honours) based at the University of Sydney to investigate one or more of the objectives above. Acoustic monitoring and bird monitoring datasets will be provided from the Desert Ecology Research Group (DERG), who run a long-term remote monitoring program in the Simpson Desert, Queensland. There is no field work involved, all data will be analysed through desktop analyses.

Scholarship

There is an ARC DECRA Honours scholarship of \$500 available to one Honours student.