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Improving the use of remote cameras as a survey and monitoring tool

Animal Science

Project Core Team

Supervising Scientist	Neil Thomas
Data Custodian	
Site Custodian	

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Project Team	granted
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Improving the use of remote cameras as a survey and monitoring tool

N Thomas, M Cowan, B MacMahon, S Garretson

Context

The use of camera traps is often regarded as an effective tool for fauna survey and monitoring with the assumption that they provide high quality, cost effective data. However, our understanding of appropriate methods for general survey and species detection, particularly in the small to medium sized range of mammals, remains poorly understood. Within Parks and Wildlife use of camera traps to date has usually been restricted to simple species inventories or behavioural studies and beyond this there has been little assessment of deployment methods or appropriate analytical techniques. This has sometimes led to erroneous conclusions being derived from captured images. Camera traps have the potential to offer a comparatively reliable and relatively unbiased method for monitoring medium to large native and introduced mammal species throughout the state, including a number of significant cryptic species that are currently not incorporated under the Western Shield fauna monitoring program. However, research is required to validate and test different survey designs (temporal and spatial components) and methods of deploying camera traps, and to interpret the results in a meaningful way. In particular, work is needed to determine how best to use remote cameras to provide rigorous data on species detectability, and species richness and density.

Aims

- Establish suitable methodology for use of camera traps to estimate the presence and relative abundances of native and introduced mammals species in the south-west of Western Australia.
- Investigate the effectiveness of baited (active) and un-baited (passive) cameras sets to inventory targeted species.
- Investigate and assess the most appropriate methods of image analysis and data storage.

Progress

- Continue to provide advice on camera trap survey methodology to other sections within Parks and Wildlife, tertiary institutions, industry and NGO's.
- The project has been incorporated, as a major field component, into the South West Fauna Recovery Project (Dryandra) with much of the day to day running of the field program being undertaken by the Great Southern District.
- A Science and Conservation Information Sheet on assessing camera traps to census mammals has been prepared.
- There have been ongoing developments with the open source Access database, CPW Photo Warehouse, as modifications are requested from departmental users to meet their specific requirement for a database to manage camera trap images.
- Reported to South West Fauna Recovery Project team the detection rates and spatial patterns for all critical weight range mammals and larger species within the primary Dryandra block for 2014. Data from 2015 to present is currently being assessed.
- Deliver presentation on using camera traps to the Kwongan Foundation's annual conference and to the UWA Environmental Studies Group.

Management implications

- Camera traps are an effective tool for detecting a suite of species currently not adequately monitored by the Western Shield program. However, there is growing evidence that they are not the covert tool that they were first thought to be and may have biases into detecting some species.
- Careful consideration is required where lures or baits are used as there is a considerable risk of introducing bias in detections.

- Managers need to give special consideration to the specific species being targeted, questions being addressed, type of camera trap, survey design and set-up before undertaking any camera trap survey.
- Reconyx camera traps (models HC600 and PC900) continue to be the most effective commercially available camera traps for departmental requirements and remain recommended for use.

Future directions

- Ongoing assessment of on track/off track use of camera traps to quantitatively monitor foxes and feral cats in Dryandra.
- Investigate potential biases in detections when using camera traps to monitor fauna and pest species such as trap avoidance/behavioural changes, and how to mitigate these biases.
- Integrate Dryandra camera trap work as a monitoring technique for cat bait effectiveness trials.
- Continue work on reviewing and/or modifying open source Access Camera trap databases as they become available so that their functionality better suits the Department's needs.
- Continue to undertake desktop reviews of new camera traps (particularly cameras with video capability) as they become available to determine if any new models are better suited to the Department's needs.