Introduction
Camera traps have become increasingly popular in animal ecology, and offer many advantages for wildlife and environmental monitoring:

- Non-invasive and automated data collection
- Allow collection of data in remote areas
- Relatively easy to use, reliable and affordable
- A picture is worth a thousand words

However, currently available commercial camera traps also have disadvantages:

- Maintenance and image retrieval can be labour intensive
- Data and fault diagnosis are retrospective
- Huge amounts of data are generated with problems for processing and sharing
- Prone to high rate (circa. 95%) of ‘false positives’, and largely unknown number of false negatives
- Commercially available units are often inflexible and not designed for scientific research purposes

The amount of data and non-information (false positives) collected by current camera trap technologies are seen as the Achilles heel of camera trapping in animal ecology.

To date camera traps have largely failed to exploit the advantages of wireless, satellite and Internet technology, or the availability of small, powerful computers to control multiple sensors and carry out in situ image processing.

The WiSE project is researching and testing new digital image capture and transport techniques for automated wildlife monitoring in remote environments

The WiSE System

- WiSE has developed a solar powered camera system that is currently deployed and live in the Cairngorms National Park
- The system combines image and video capture to monitor a remote study site
- Image capture is controlled by multiple, configurable sensors that can run singularly or in series
- The system is built around a Raspberry Pi computer that controls all communications, sensors and image capture, and allows on-board image processing to reduce the volume of unwanted (false positive) images, and system & data management
- The system is linked via satellite Internet (IPv6) that allows two way communications between the system and end user, scheduled and ‘on demand’ access to imagery

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Benefits

- Flexible open source platform
- ‘On demand’ image streaming and system management
- Reduced costs and improved efficiency
- Facilitate public engagement, narratives and contextualisation of the environment