

CAMERA TRAPS

BACKGROUND

In recent years passive infra-red motion sensor triggered digital camera traps with infra-red flashes have become available. I have been using cameras for identifying wildlife since the early 1980's. The early cameras were 8mm movie cameras run by car batteries and triggered by pressure mats.

These new cameras have a wide range of functions making them an easy and comprehensive tool to use for monitoring animals. There is a multitude of possible uses and this is primarily about use for animal observation and management.

TOPICS COVERED

1. Functions of a typical commercially available camera trap.
2. Accessories available.
3. Outcomes.
4. Advantages.
5. Legalities.
6. Pitfalls.
7. Where and how to set.
8. Where to purchase, approximate cost and useful websites.
9. Display of photographs.

FUNCTIONS OF A TYPICAL COMMERCIALY AVAILABLE CAMERA TRAP

- External DC input: Accepts external power source of batteries, solar panels. When operating on external power source internal batteries are not used, when external power source goes below voltage it automatically switches to internal batteries.
- TV out: Can view pictures and videos on TV and other screens.
- SD memory card: Generally camera traps accept normal SD cards; card sizes vary from 1-4 gigabyte. Some cameras also have a small amount of internal memory.
- USB connector: Capacity for downloading pictures and videos to computer. The download procedure is the same as a digital camera.
- Motion sensor aim: Motion sensor can be enabled to precisely aim camera during set up.
- Images: Still or movie images of varying quality and various intervals of capture.
- Flash: Older camera traps had normal flashes and some models now have an infra-red (IR) flash which minimises the disturbance to wildlife and also assists with keeping cameras hidden from view at night.

Modes of operation: There are three main modes, as follows:

1. Set up/Test: For setting up cameras and changing settings.
2. Auto/Live mode: For normal image capture.
3. Handheld: Camera traps can be used as a normal camera.

Settings: There are a number of common settings, as follows:

1. Time and date: Date and time can be set and displayed on each image.
2. Info strip: Allows information to be displayed, or not, on image.
3. IR aim: For testing the motion sensor beam during set up of camera.
4. Remote control: A remote control can be attached to the camera unit instead of motion sensor beam operation.
5. Update software: Software updates can be downloaded to the camera.
6. Temperature: Some models have temperature display which is continually measured and can be displayed on the image in either Celsius or Fahrenheit. Some also have a moon phase display.
7. Camera ID: A name and number can be given to some camera units and can be displayed on the image.
8. Image delay: This allows delay between images from 1.2 seconds to 1 minute.
9. Multi image: After the motion sensor beam is disrupted an image is taken and then a number of images can be taken after the first image-each image has a minimum of about 1.2 seconds between each picture.
10. Video Length: Videos can run from 1 second to 60 seconds.
11. Image quality: Image quality settings for still images giving quality of 1 to 5 megabytes. There are generally two image quality settings for video operation-resolution of 320x240 and 640x480.
12. Capture mode: Setting for either still images or video.
13. Restore default settings: Allows default settings to be reset.

ACCESSORIES AVAILABLE

- Solar panels;
- Tripods;
- Tree mounts;
- Weather hoods;
- Game feeders.

OUTCOMES

Some outcomes from the use of camera traps are as follows:

1. Species present.
2. Species numbers.
3. Appreciation and education of wildlife and their role in the Tasmanian ecosystem.
4. Breeding status.
5. Condition of animals (e.g. Devil Facial Tumour Disease or DFTD).
6. Gender and gender ratio.
7. Species composition; that is, percentage of different species present.
8. Age classes.
9. Seasonal fluctuations in species and numbers.
10. Time period when a particular species or animal is active and traveling (very useful when targeting introduced animals).
11. Movement linked with weather conditions.
12. Cohabitation of species (e.g. wombats and devils in same den).
13. Increased understanding of what animals are in an area.
14. Addition of new species for GIS data.

ADVANTAGES

1. Minimal disturbance to wildlife.
2. Operate continually and silently.
3. Infrared flash cameras have low disturbance and visibility.
4. Degree of certainty of species in an area.
5. Provides proof of species present-quantitative not qualitative.
6. Can teach what prints and scats go with which species.
7. Can provide evidence for management and policy decisions and policies (e.g. introduced animal control in certain areas-reserves etc).
8. Cost effective monitoring tool.
9. Takes little time and resources input to set and retrieve compared to amount of information received. More invasive and intensive survey and monitoring tools such as live trap and release; hair traps etc. take more time and resources.
10. Monitoring tool that is entirely repeatable and therefore can be used as a baseline tool and then used to quantify changes in species and numbers over time.
11. Easy to use tool that is interesting and fun.
12. Can not be easily seen by other people when using an infrared flash.
13. Can replace the use of more invasive survey and monitoring techniques such as live trap and release.
14. Shows species or individuals that may be untrappable with other methods.
15. Can be left for up to six months as battery power and SD card size allows.
16. Take off the shelf hardware such as normal 'D', 'AA' size batteries and SD cards.
17. New models are now compatible with most digital cameras which allows field viewing of photos including zooming in on photos and functions such as photo deleting to clear SD cards.

LEGALITIES

Please be mindful of the possible legal ramifications of the use of camera traps. On private property the permission of the land owner is required and on public land the permission of the managing authority is required.

If you are going to use bait for attracting animals to camera traps then if you are considering using roadkills of native wildlife be mindful of the wildlife regulations and the possession legislation.

PITFALLS

Some issues found while using camera traps are:

1. Moving vegetation in front of the infrared beam will set the camera off. It is important that the beam is placed in an area where there is no vegetation drooping across. Heavy rain can also set off the cameras.
2. I have had the cameras ripped off their anchoring points or moved enough to affect operation by devils and possums on a number of occasions. Make sure that the cameras are securely attached to a stable and secure anchor.
3. Setting the camera low makes them accessible to devils which tend to chew on them.
4. Camera traps are water-resistant and NOT water-proof so taking steps to ensure water does not interfere with electronics is essential.
5. I have found that the Scoutguard cameras have a very bright infrared flash and this can over expose photos if the images are triggered close to the camera.

WHERE AND HOW TO SET CAMERA TRAPS

For general monitoring of species in an area some basic rules apply:

- Set on a well used animal track, preferably where a number of tracks merge into one.
- Set in a reasonably clear area where you can get clear images not interrupted by vegetation.
- Set at focus points or access to focus points like watering points or clear areas where animals can rest and sun themselves.
- Try to set where animals are moving from one habitat type to another to maximise opportunities of observing different species.
- Use roads and walking tracks as animals tend to use these as access.

Where the camera is set is dependent on your purpose, if you are trying to capture a particular species set the trap in the type of habitat that animal is normally found in and/or in areas where their food sources are.

The use of food as bait can also be useful for capturing images of animals. A good example would be Tasmanian devils by the placement of carrion in front of the camera trap. This can be very useful for seeing what species are in an area, how many individuals and what state of health they are in – for example DFTD.

How to set the traps:

- Set the trap *securely* to a tree, post or tripod.
- Make sure that no vegetation can interrupt the IR beam including on windy days.
- Setting the cameras low seems to be better than high. Cameras set low to the ground-say about 30 centimetres above ground level tend to capture small and larger animals.
- Set so motion sensor beam runs along a track, not across, to maximise time period of animal in front of camera and therefore chances of a good quality image.
- If using an external power source such as a solar panel ensures maximum solar radiation by orientation north and angle best for the time of year.
- Consider prevailing weather direction and potential bad weather events and try to shelter the camera trap where possible.

WHERE TO GET THEM AND HOW MUCH

The best internet sites found are below:

<http://www.huntingcamonline.com>
<http://www.wildlifemonitoring.com.au>
<http://www.trailcampro.com/>
<http://www.digital-trail-camera.com>
<http://www.moultriefeeders.com/>
<http://trailcameras.net/>

The Scout guard SG550 infrared camera shown for this talk cost me \$385 in January 2010. I find the camera excellent but there are lots to choose from and the other sites above will show you lots of other types and combinations.

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