

Guide for camera trapping wild dogs, foxes and feral cats

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Introduction

'Camera trapping' is the most widely used survey tool for wildlife monitoring throughout the world. Effective use of camera traps requires an understanding of how they work and where to place them to maximise their value as a survey tool.

This Primefact provides a general guide for practitioners interested in using camera traps to survey wild dogs, foxes and feral cats (introduced predators).

Camera selection

Which model of camera trap to use will depend upon the specific research/monitoring question you are trying to answer. All camera trap models are different in:

- o how they detect animals
- o their detection speed
- o their illumination
- o how they are set for operation.

New models are constantly being developed for the market.

The camera trap model that has been most commonly used for wildlife monitoring purposes across the world is the Reconyx HC600 although it was superseded in 2018. Using this camera trap model allows consistent collection of data which can be compared spatially and temporally across monitoring programs.

Comparison and use of data between different camera trap models cannot be undertaken unless adequate calibration analysis has been conducted to reduce detection errors between camera trap models.

How camera traps work

Camera traps use a passive infra-red (PIR) sensor to detect the differential between the background temperature in front of the camera and a moving heat source (the animal). Animals will **only** be photographed when the heat signature of an animal is detected by, and moves across the PIR sensor (see Figure 2 and 3). Placement of camera traps is crucial to detecting animals.

Figure 1. Features of a Reconyx camera trap (copyright Reconyx)

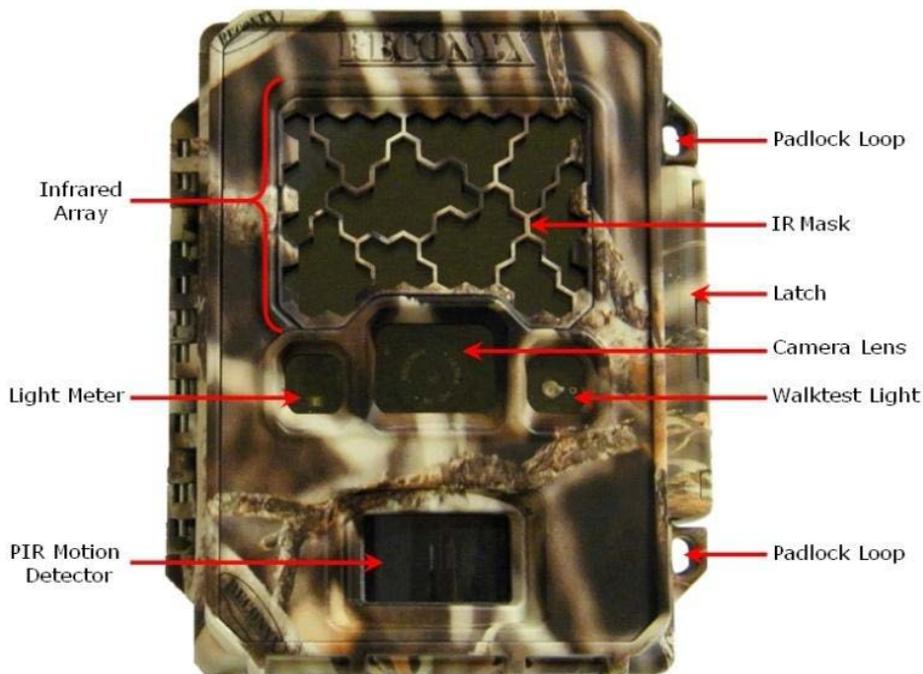
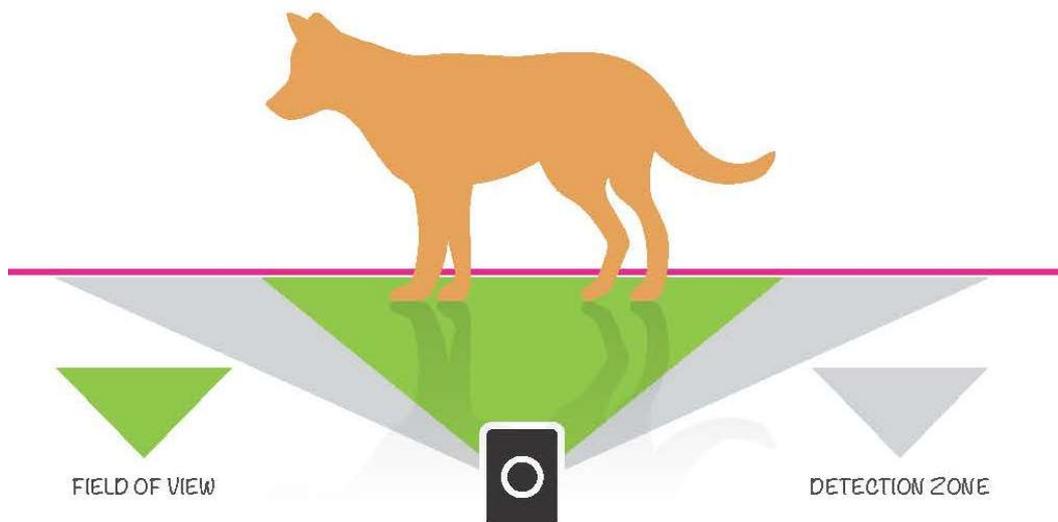


Figure 2. The difference between a camera trap detection zone and its field of view



Settings for camera traps

The settings used for monitoring programs will vary between camera trap models and the intended outcome of the program. Most models have the capacity to record photographs and videos. However, for consistency and rigour in introduced predator monitoring programs, photographs are the preferred settings to use in your camera trap.

Recommended settings for Reconyx camera traps

A general recommendation for setting Reconyx camera traps for consistency between monitoring programs and to optimise detection is:

- o rapidfire
- o no delay
- o 10 images per trigger
- o 3.1 mp resolution
- o high (high-medium) sensitivity
- o night mode: fast shutter or high quality.

Placing camera traps

For introduced predator detection and monitoring programs, camera traps should be placed along roadsides or tracks. Introduced predators use roadsides and tracks often and placing the camera traps there will increase the chance of detecting the animal. Passive placement is preferred – i.e. baits and lures should not be used to attract predators to the camera trap location.

The camera trap:

- o should be placed 30cm from the road or track edge
- o Fresnel lens/PIR heat-in-motion detector (see Figure 1) should be 50cm above the ground (see Figure 3)
- o should be oriented 23° to the road or track and facing away from the Sun's path, facing south and in shade is optimal (see Figure 4)
- o detection point is 4-6m from the camera trap in the middle of the road or track (see Figure 3)
- o should avoid having rock outcrops, reflective surfaces and shadows in the field of view
- o should not have vegetation so close that it can blow into the field of view
- o should be set parallel to the ground although this may vary depending on topography (use wedges behind the device to aim the camera properly; viewers and other computers can be used to check cameras field of view)
- o should be mounted the same way if multiple camera traps are used (camera traps have a female thread that can be used to attach to a bracket, tripod or like (Figure 5); cords can also be used to tie them to posts or trees but this is not ideal; steel security boxes can also be used)
- o should be deployed for a minimum period of four weeks.

Figure 3. Specifications for placing a camera trap for detection of introduced predators

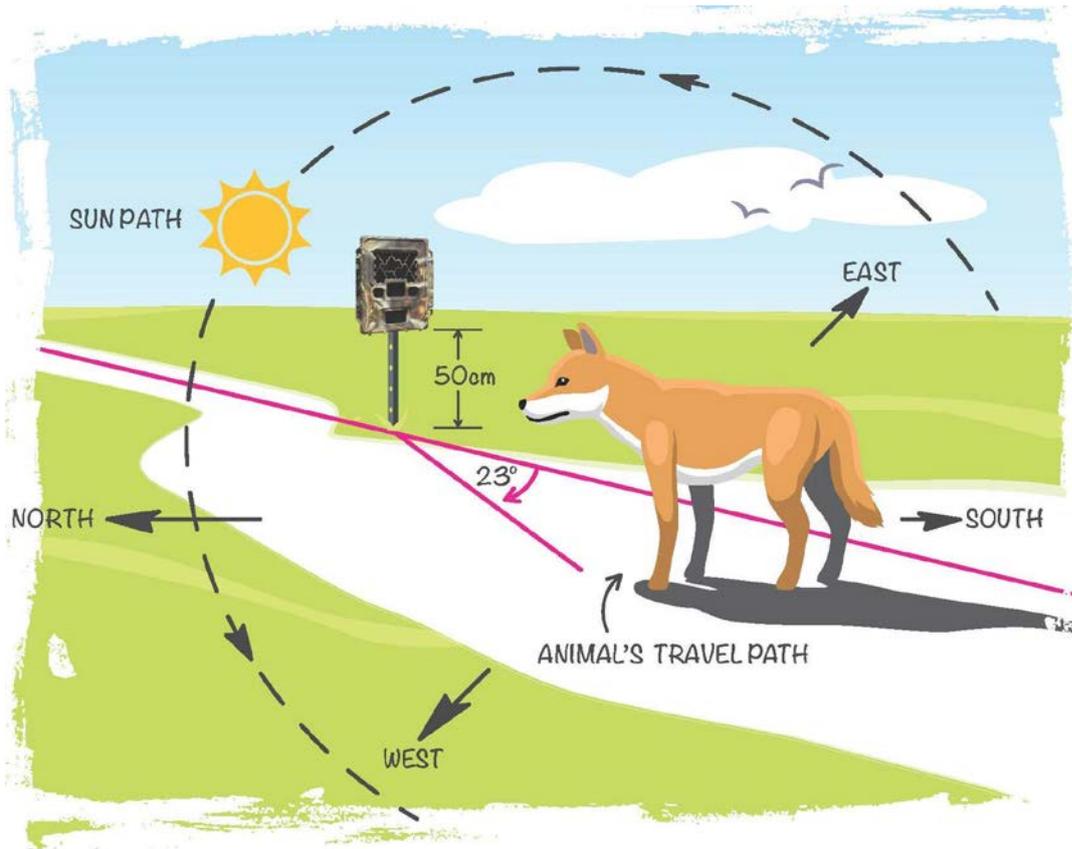


Figure 4. Camera trap set up facing away from the sun

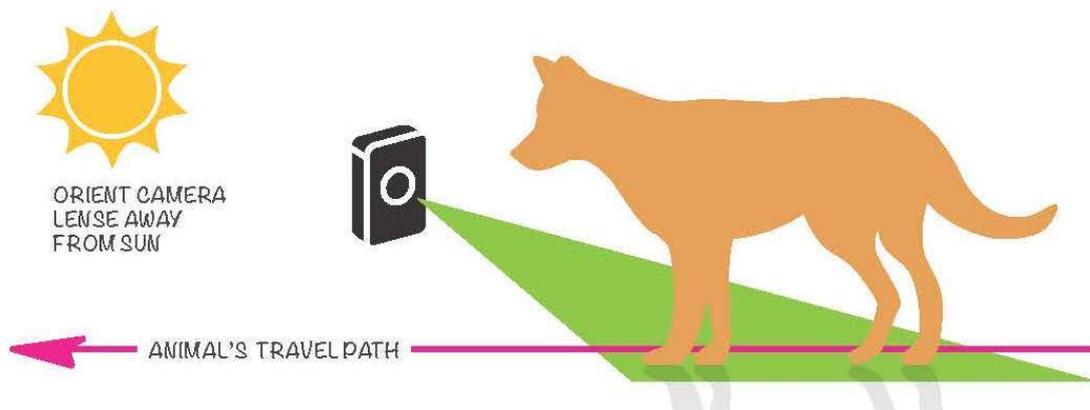


Figure 5. Two examples of camera trap mounts with adjustable swivels



Number of camera traps to use

The number of camera traps used will depend on the research question being asked. A robust predator monitoring program will often have at least 20-30 camera traps spaced ~1km apart. Consult an expert or biometrician for design advice to suit the research or monitoring question.

Power sources

NIMH batteries are the preferred choice of power system for the camera traps. Alkaline batteries should never be used. Lithium batteries operate well under temperature extremes but they are expensive and can't be recharged. NIMH batteries should be charged to >80% for deployment. **Never mix battery types.**

Checklists

Equipment

- GPS
- Flagging tape
- Locks with keys if using python locks
- Tripods and posts (pickets or droppers etc.) if being used
- Batteries and chargers
- Spare memory cards (camera trap models can use different cards)
- Additional rope, velcro, tie wire or cords for fixing cameras
- Image viewing device for setting up and checking during deployment e.g. laptop or SD card viewer
- Tools i.e. hammer, saw, knife, secateurs, hedge pruners, machete, pliers, rubber gloves
- Lens wipes
- Door / builders' wedges for setting camera angles against trees etc.

Setting up in the Field

- Make sure all batteries are charged before deployment.
- If CODELOC is used remember to have a written record so you can program and set the camera trap.
- Check settings including date and time stamp are correct including a site specific user label code.
- Use the walk test to check and verify motion detector's range. Take a photo with camera trap and upload the image to check the placement is correct.
- Record location data on data sheets or electronic storage application including a GPS point.
- Store data in a location that allows other people to locate the camera traps if you cant.

Further information

For recent reviews of camera trap models <https://www.trailcampro.com/collections/trail-camera-reviews>

On-line manuals and guidelines include:

https://www.pestsmart.org.au/wp-content/uploads/2012/09/CameraTrapManual_2012.pdf,
https://www.cdu.edu.au/sites/default/files/ori/documents/a_guide_for_the_use_of_remote_cameras_for_wildlife_survey_in_northern_australia_2015.pdf
<https://www.wwf.org.uk/conservationtechnology/documents/CameraTraps-WWF-guidelines.pdf>

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