



Trail camera guide

For predator control community groups and projects

Trail cameras are one of the best tools for understanding how predators behave around your traps. This guide is for community groups who want to get started or improve their skills with trail cameras. Use what you learn to sharpen your predator control skills and see more impact from your efforts.

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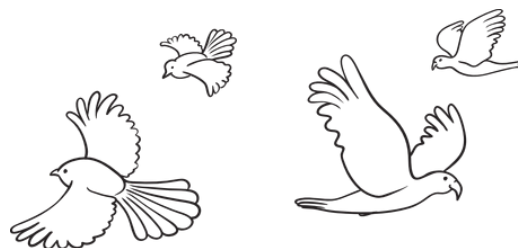
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With thanks to:

Biz Bell (Wildlife Management International Ltd), John Bissell (Backblocks Environmental Management Ltd), Tim Day (Day in the Bush), Tim Sjöberg (Pest Free Banks Peninsula), Lindsay Wilson (Hollyford Conservation Trust), Cam Speedy (Wildlife Management Associates Ltd), Nick Poutu (Department of Conservation).

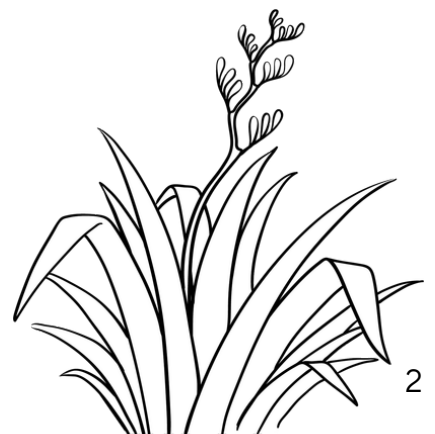
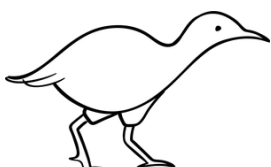
Start simple



You don't need dozens of cameras or a complicated programme to get started: start small, learn what works, then build from there.

Golden tips for getting started:

- **Start with one or two cameras** before buying more.
- **Factor in time to review footage.** The value of trail cameras comes from watching what animals do and using those insights to improve your trapping.
- **Treat cameras as a learning tool.** If you see predators where you didn't expect to, that's useful intel, not evidence of failure.
- **Get the right camera for your goals and budget.** Think about the questions you are trying to answer before purchasing.
- **Keep using tracking tunnels or chew cards** for monitoring whilst introducing cameras: a mixed-tool approach is long-term, scalable and cost-effective.
- **Share footage thoughtfully.** A photo of a trap catch might be motivating for some people, but off-putting for others.



Choose the right approach

It's helpful to hone in on what you *actually* want to achieve with your trail cameras.

Of course, it will depend on your budget, project area, target species and how often you can service the cameras, but **we've identified three common goals:**

If you want to:	Consider:
 Observe animal behaviour around devices • See how predators behave around traps • See why your traps aren't catching anything, eg. bait lost • Improve device placement and use • See native wildlife and engage volunteers	• 2-3 cameras will give you plenty of information to learn from • Move your cameras to focus on different devices as needed • Videos are better than still photos, but take more time to review and use more battery and storage
 Detect if predators are present, and which ones • Know which predators are in your area • See if your predator control is working • See seasonal changes • Get a baseline for comparison • See what native wildlife is around • Measure impact and tell your story	• 5+ cameras ideally (depending on your project area and target species) • A mix of photos (3-5 rapid fire) and videos is effective • Lure the camera sites • Be consistent: use the same site, time, lure and settings • Image classification tools can speed up processing (but still need to be checked) • Continue other monitoring methods eg. tracking tunnels and chew cards
 Monitor predator numbers over time (advanced) • Measure changes in predator numbers • Show the impact of predator control and tell your story • Assess whether an area may be suitable for species reintroductions	• Multiple cameras. The number depends on the home range of your target species eg. approx 1 camera per 25 hectares for cats and mustelids • Seek planning help from a local predator control expert, DOC office or regional council • Tracking trends and indices takes significant budget and time • Continue other monitoring methods

Whatever approach you choose, ensure you:

- Have the appropriate permissions for using cameras on the land you're working on.
- Have clear privacy protocols and delete any photos/videos featuring people. This is mandatory when working on public conservation land (PCL) and is a good idea in general.
- Save copies of relevant photos and videos so you can compare results over time.
- Record your results in a spreadsheet, [Trap.nz](https://trap.nz/) or another data management system.



Basic monitoring with just a few cameras

- Try placing a camera or two in specific spots, for 2 weeks at the same 3-4 times a year, for example when pests are breeding, or birds are fledging: refer to [our Predator Control Calendar](#) for key timings. Count and record the species that you see.
- Compare like with like: use consistent placement and timing. Keep records to track change over time.
- With more cameras and expert help, you can scale up this approach over a larger area.



Camera with moto-lure.
Image: Predator Free Wellington



Existing fence-posts make sturdy bases for cameras. Image: Tim Sjoberg

Camera placement and set-up

A well-positioned camera will capture more useful footage, reduce false triggers and make it easier to answer the questions you're asking.

1. Test cameras at home first

Before taking your camera into the field, spend a little time getting to know it. Set it up in your backyard and walk past it during the day and at night. This helps you to understand how sensitive the motion sensor is and gives you a chance to experiment with different settings.

2. Set up in the field

- **Always set up and service the camera in dry conditions**, or use an umbrella or tarp. Most cameras are vulnerable to moisture when the cover is open.
- **Point the camera between south-east and south-west** to prevent the sun and moon shining directly into the lens.
- **Choose sites where predators are likely to travel**, along tracks, ridges and spurs: don't stick to a rigid grid. Move your cameras around to better spots if you're not seeing anything.
- **Position your camera first**, then place the lure (eg. a trap, chew card, or auto-lure dispenser) centred in the viewfinder so you can use it for scale, eg when distinguishing between mice and rats. It's easier to adjust a lure than to reposition the whole camera.
- **Attach the camera to a sturdy tree or post**, making sure it doesn't sway in the wind. Angle the camera if needed: a cheap rubber door wedge is useful for this. Sticks work but can rot or get bumped.
- **Keep cameras secure.** If theft is a concern, place cameras away from busy walking tracks. Security cases, cables and locks can provide extra protection.



Camera secured with Masterlock python cable. Image: Tim Day

3. Match your set-up to your goal



To observe animal behaviour around devices...

- Mount the camera at chest height and angle it down towards the lure or trap.
- Position it about 4-6 metres from the lure or trap.
- You can also angle it about 30 degrees to (not across) a predator trail. A camera at right angles to the trail will miss fast-moving animals.
- In general, 15-20 second videos or a photo burst (fast trigger) will capture how animals interact with traps or lures. See step 4 for species-specific camera setting recommendations.



To detect if predators are present, and which ones...

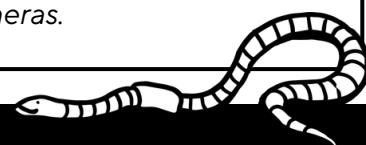
- Place the camera close to the ground (knee-height or lower).
- Position it 1.5 to 2 metres from the lure (this set-up works especially well for smaller species like rodents and weasels).
- In general, a 3-5 photo burst will capture most animals. See step 4 for species-specific camera setting recommendations.



4. Vary lures and settings by species

The best lure and camera settings can vary by species. Existing traps make excellent camera lures, especially when paired with automatic lure dispensers or regularly refreshed bait. Try these specific lures to attract specific animals to your camera:

Target species	Lure	Camera settings and set-up
Possums	Use scented flour blaze, and carrots, or an automatic mayonnaise dispenser as a long-lasting lure.	Place lures in trees with signs of possum activity and aim cameras there, from 4-6 metres away. Use a 3-5 photo burst and slower trigger speed settings, as possums will linger around lures. Possum behaviour changes depending on seasonal food opportunities, so be prepared to move cameras around. Unlured (passive) cameras placed at human chest height along tracks and runs can also work well for possums.
Cats and ferrets	Secure large meat chunks inside wire mesh and peg firmly in place.	Video is great for observing behaviour and direction of travel. Use slower trigger speed settings as cats move slowly. Set lures further away from cameras to reduce caution.
Stoats	Secure meat inside wire mesh and peg to a post or the ground. Or use an automatic mayo lure dispenser.	Use video with sensitive trigger speed settings – stoats move quickly. Position camera and lures closer together (approx 2-3m), as stoats are small and fast.
Weasels	Meat chunks, secured in place, or fresh mice.	Use video with sensitive trigger speed settings and a closer camera position than for stoats, approx 1.5m away.
Rodents	Trap, peanut butter on a chew card or automatic mayonnaise dispenser.	Use a 3-5 photo burst, or video. Rats are small and fast, so position the camera approx 1.5-2m away from trap or lure. For ship rats in bush areas, point some cameras up at lures in tree branches, as ship rats spend a lot of time off the ground. <i>Note: chew cards or wax blocks may be a more cost-effective monitoring tool for rodents than cameras.</i>



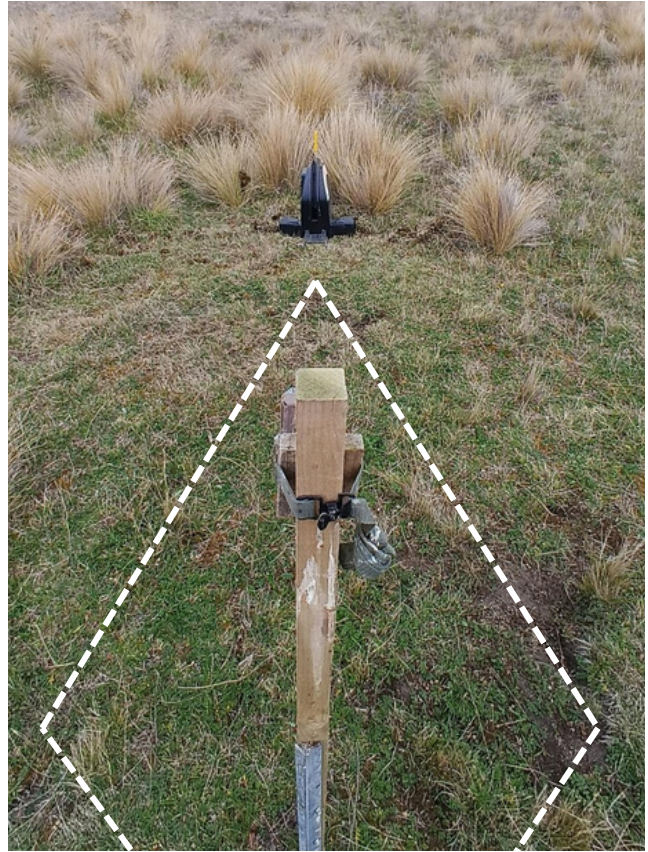
5. Reduce false triggers



Nothing fills a memory card faster than hundreds of photos of waving grass.

Before leaving your site:

- Clear leaves, grasses, ferns etc to approx two metres in front of and behind the camera.
- Make sure the camera strap is snug and not flapping in the wind. Metal or wooden posts can expand, so don't tie the camera too tightly.
- Check for shiny objects, such as metal traps or even cobwebs, that could reflect sunlight.



Clear a diamond shape of about 2m in front and behind the camera, to avoid false triggering.

Image: Tim Sjoberg, Pest Free Banks Peninsula



Batteries and storage

Videos drain batteries faster and use more storage than photos. Photos are quicker to analyse than videos, and require less storage space, but don't show the full context of animals' behaviour. Experiment to find a balance between storage, cost and how frequently you can service your cameras.

Batteries

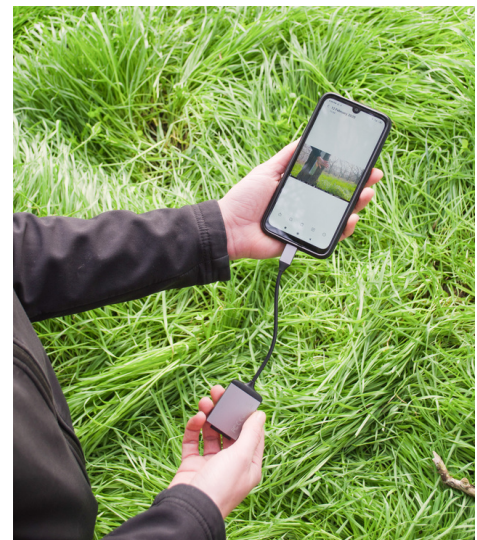
- Use good quality batteries where possible – they cost more but will last longer and perform more reliably in the field.
- Check your camera manual as some cameras have specific battery requirements, eg. cannot use rechargeables.
- Always check the battery indicator when servicing cameras. If the battery life drops below 50% on some models, the camera will stop taking photos at night (when most predators are active).
- Check the camera date and time are correct each time you change the batteries. These timestamp details are useful for tracking data over time.



Trail camera battery compartment

SD cards and storage

- We recommend having multiple SD cards so you can swap one card out for image analysis, leaving the camera running with another card.
- If your camera doesn't have a built-in screen, you may need an SD card reader to view images and videos on a laptop or mobile phone.
- Some newer models can connect directly to mobile networks and send images to your phone without an SD card, but can be more expensive.



SD card reader for mobile phone
Images: Becky Clements

Act on what you see: review data in the field

Advice from an expert: "We take adapters into the field when we check our cameras so we can respond in real time. We just remove an SD card, plug the adapter into our phones, review the footage on the spot, and adjust the camera or respond as needed. This has been useful to help us understand whether we should keep a camera in place, or whether we can pull it out."

5. Reviewing, saving and sharing camera footage

Once you've got some footage, you'll need time to go through it properly. AI and image classification tools can speed up sorting and tagging, but they won't always capture behavioural patterns or subtle details. A manual review is still important! This is a great role for volunteers who prefer to stay indoors rather than out on the trapline.

Save and share your data

Volunteers can come and go on projects, so it's important to have good data management systems. Be consistent and you'll have great data to compare over time.

Open source platforms like Dropbox or Google Drive are widely used and allow you to share and access files easily.

A basic spreadsheet can be useful for tracking change over time. It might feel slow or repetitive at first, but patterns often become clear once data is recorded consistently and graphed over time. Try these headers in your spreadsheet:

	A	B	C	D	E	F	G	H
1	Camera number	Date installed	Location	Bait	Setting: photo or video	Date/Time	Species seen	Count (one or multiple)

Tag and sort footage for different uses:

- For follow up targeted predator removal eg. placing or repositioning traps.
- To share with volunteers, supporters, on social media, with neighbouring projects etc. Remember to delete any photos of people.
- For comparing different animal behaviours around traps and lures: use descriptive labels eg. 'Rat takes bait from DOC 200' to help you keep track and make informed decisions about what you might want to change with your predator control.

Feral cat camera count

At first glance, an experienced trapper's cameras counted 14 cat sightings. If he hadn't reviewed the photos carefully, he wouldn't have known those numbers represented only two cats. *"The tabby and the ginger are not the same cat, they're individuals, with different behaviours and preferences. Observing animals in your project areas helps you stay connected with the landscape – it's a critical part of your learning journey."*





A possum caught on trail camera. Image credit: Leigh Harbour Valley Society

Image classification tools

Here are three options for free image classification tools, depending on your project needs:

Animl.camera

- Open source, cloud-based and easy to use
- Species lists provide good coverage for NZ predators and native animals
- Currently free of charge (this may change)

AddaxAI

- Can be slow to install and needs a lot of disk space
- Species lists are evolving but may be limited – check it meets your requirements first
- Works on PC and Mac

ZIP Classifier

- Requires manual classification (not AI)
- Allows custom species categories to suit your project
- PC only



Camera recommendations

Choosing a camera is a balance between budget, project goals and how you plan to use the data. For example, 30 basic trail cameras can cost the same as two thermal cameras.

Straight out of the box, camera defaults are often set for larger game animals. Tailor your camera settings and shutter speeds for your project goals and target predators, and get help from your local camera supplier or predator control expert if needed.

Whatever camera you choose, buy one first and try it out before getting more.

Here are three recommended trail camera models:

Browning Dark Ops FHDR

Widely used in NZ with strong local support.

- Dark flash means animals won't be alerted to the camera's presence
- Good quality video and images

UOVision Select 30

Good value, with similar functionality to Browning FHDR.

- Also features dark flash
- Built-in viewing screen (no SD card reader needed to view images)

Reconyx HyperFire 4K

High-end option with excellent image quality.

- Excellent high definition photos and video footage
- Strong performance for detecting smaller predators like rats and mice

Beyond trail cameras

Networked cameras

eg. WiseEye are an alternative to SD-card trail cameras.

These can upload images and (smaller) videos directly over cellular networks, so you get updates via email or mobile, but can cost more.

Thermal cameras

eg. DOC AI Cam from Cacophony Project are higher quality and capture nearly everything, including smaller, faster predators but they come with a large battery and significant price tag.



Further resources

Written:

[5 tips for trail cameras](#) Cam Speedy

[Field guide: How to install lured trail cameras for predator detection](#)
Zero Invasive Predators

Video:

[How to effectively use trail cameras](#)
Predator Free NZ Trust

[Chasing Zero: How to position trail cameras](#)
John Bissell, Save the kiwi