Use of trail cameras to learn what happens when you are not there
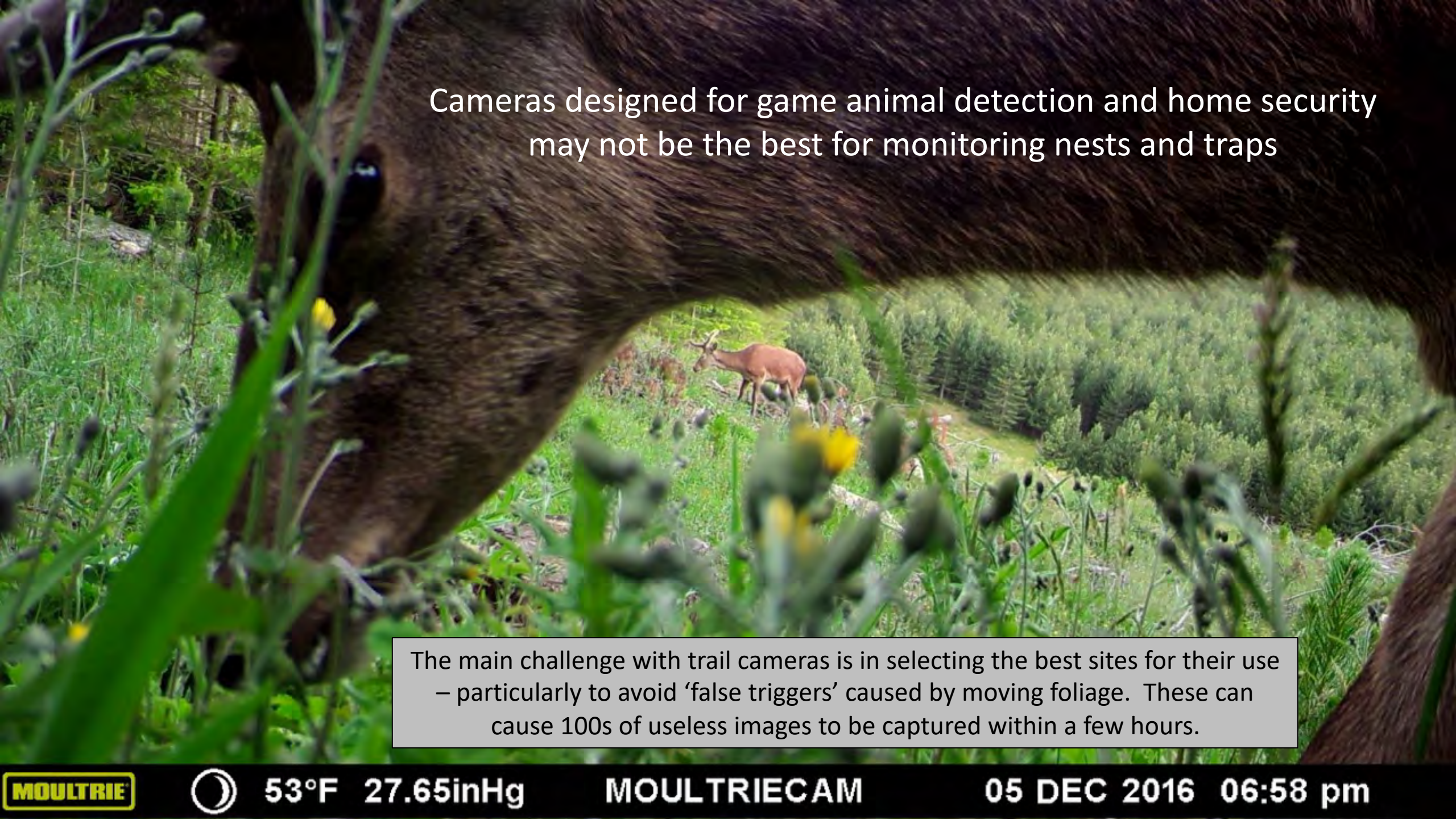
Brad Edwards (DoC)
Nick Ledgard (ARRG)

Trail cameras are a useful to learn more about nesting birds, predators and trapping on riverbeds

Cameras designed for game animal detection and home security may not be the best for monitoring nests and traps

The main challenge with trail cameras is in selecting the best sites for their use – particularly to avoid 'false triggers' caused by moving foliage. These can cause 100s of useless images to be captured within a few hours.

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Camera's – are they needed?

Often a valuable tool for observation but …

- If used as part of a monitoring project you need to consider the camera carefully with regards to how much quantitative data you will gain, as often the information gained is only qualitative

- Can be an intrusive method

- Predators can detect trail cams and may show altered behaviors

- Expense. Stands, photocells, batteries, chargers, SD cards, hard drives, TIME.

- If we don't cover the monitoring basics well, cameras will add little value

Trail cameras for observing nesting birds

Every effort must be made not to unnecessarily stress nesting birds when using a camera

- Initially place camera some meters away and observe bird reoccupying the nest.
- Once the bird is obviously comfortably settled, the camera can be moved closer.
- There should be no need for a camera to be closer than 1m

Nest Monitoring

- Good quality nest monitoring is very reliable and nest cameras can clear up hard-to-determine issues – particularly relative to failure.

- For nests, one camera should be sufficient, but for colonies (such as BFTs) two cameras will give you better assurance.

- Gives confidence in monitoring technique. Rangitata 2016-17 season. Trappers wanted to identify what was causing nest predations at Forest Ck area and deployed cameras on 10 wrybill nests. In every case the nest monitoring team's suspicions with regard to breeding failures was supported by the observed camera footage.

- So rather than primary monitoring tool, the cameras add invaluable background information.

Predators.

Nests and predation

Upper Rakaia river

Predators. Nests and predation

- Rakaia 2019 Harrier predation of wrybill nests with cameras

- Waitaki 2017-18 Black Backed Gull predation BFT

- Clarence 2015-16 BFT monitoring higher hatch rates with cameras

Warning. Cameras can alter predator beahviour

01/07/2011 06:28:32

Predators

- Discovering your predator guild or specific active predators

- Alternative to tracking tunnels - comparative recorded rates well in favor of cameras for larger mammalian species

Anton V et al.2017. Evaluation of remote cameras for monitoring multiple invasive mammals in NZ.

Smith DH, Weston K. 2017. Capturing the Cryptic: A comparison of detection methods for stoats in alpine areas.

Predator behavior at trap sites insightful as to species involved and how to target them

Ltl Acorn   ●   068°F   020℃   01/09/2016   14:50:04

Predators

This rat refused to go in a Timms trap, but readily entered the DOC200

Orari Protection Group
A community group's feedback on camera usefulness

Used a camera in the Orari 2019 Season overlooking Vance Rd BFT colony.

- Level of public river bed use was illuminating, surprised by frequency of colony intrusions in the mid-Orari river

- Confirmed colony activity had ceased

- Can see future potential in confirming the nature of disturbances, any predator involvement, and the likes of flood impacts at different flow rates

Siting cameras in braided riverbeds

- In Rangitata not one mammalian nest predation has been recorded in daylight – maximise your night setup to capture mammalian predations

- Range : Nests too close flare infra red - max infra red reach probably only 10m

- Consider ambient light –town lights, moon, sunset/rise

- Beware false triggers! Usually grasses and twigs/branches

- Sand pitting lens's problematic - don't orient straight up/down rivers

- Be prepared to lose some - floods, damage, people

- Have all the camera settings sorted before approaching your observation site – reduce your disturbance time when close to sensitive nests/colonies

Features- (LTL Acorn model)

- Use extra battery packs and solar units (the units will run for months in summer without battery swaps in this configuration)

- SD Cards - make sure you know what the maximum size the camera will support

- Change the settings dependent on your predicted recovery time to make the best use of batteries and memory space

- Some models have side sensors that make them more successful at detecting fast moving predators. Different cameras have variable reaction times generally 1-5 seconds. This model responds 0.2-0.8 sec. We still miss predators!

- PIR Passive Infrared Sensors. Often thought of as motion sensors but actually monitor changes in ambient temperature signatures

- Night time surveillance of nests critical with majority of nest predations in Rangitata occurring at night. The night time features on some cameras are now claimed as undetectable 'no-glow'. Older models have red glow when running on infra-red. Note limited range stated to be 65ft on infra-red.

Settings Ltl-5310 Acorn Model (Viewtech)

Using Ltl-SUN solar charger, stand made by Menzshed Ashburton, 16GB SD card size, rechargeable NiMH AA batteries

- Mode: Camera/Video/Cam+video (I switch to Camera if uncertain about return time)
- Format: Y   format a card every time it goes into a camera and always turn the camera OFF before adding or removing a SD card or it will get scrambled
- Photo size: 12MP
- Video size: 1280x720 (some staff prefer higher res 1280)
- Set clock: note American format
- Photo no: 01photo
- Video length: AV10S
- Interval: 1min
- Sense level: normal
- Timestamp: ON
- Password: ON If you want to use the password lockout feature, use same password across whole fleet and mark stand 'Password Protected'
- Serial no:
- Side PIR: ON if I am confident I can recheck the camera within 10 days