## Topic Info

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## Note banner

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## Overview

```{include} include/00\_coming\_soon.md

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## In-depth

```{include} include/00\_coming\_soon.md

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## Figures

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|  | figure5\_filename.png | figure5\_caption | figure5\_ref\_id |
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## Video

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## Analytical tools & resources

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## References / Glossary

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| Refs | keys\_here |

## Notes

* Leorna, S, and T Brinkman. "Camera Trap Sampling Protocols for Open Landscapes: The Value of Time-Lapse Imagery." *CONSERVATION SCIENCE AND PRACTICE*, February 19, 2024. <https://doi.org/10.1111/csp2.13094>.

## Camera Settings

Consideration of the camera settings is an important step when designing asurvey. It is recommended that cameras are set to capture images rather than videos unless the objective is related to monitoring specific animal behaviour. By default, camera traps are set to record images when an animal is detected by the motion and/or infrared sensor(s). An example of the settings available in a Reconyx camera is included in Appendix 1 - Table 3; some examples of the ideal settings for reaching different objectives are included in section **Error! Reference source not found.**.

### Photos per Trigger (aka "Number of images")

The **Photos per Trigger** setting describes the number of photos taken eachtime the camera was triggered (e.g., 1, 3, etc.). If the Photos per Trigger is set to take multiple images (>1), when the camera is triggered, it will take the set number of images, regardless of whether the animal remains in the detection zone.

The value set for the Photos per Trigger setting often appears in the image metadata as **Sequence**, which describes the order in which the image was taken in a **series** (e.g., "1 of 1", "1 of 3", etc.). However, it is important to note that "Sequence" is also used to describe the order of images in user-defined series when defining a "detection event."

### Quiet Period Setting

The Quiet Period Setting provides thetime, in seconds, between shutter "triggers."

### Trigger Sensitivity

The Trigger Sensitivity setting is a critical feature of camera traps and is responsible for how sensitive a camera is to activation ("triggering") via the infrared and/or heat sensors (if applicable, e.g., Reconyx HyperFire cameras have a choice between ‘low,’ ‘low/medium,’ ‘medium,’ ‘medium/high’ and ‘high’ sensitivity). Fast trigger speeds are less necessary if attractants (e.g., bait or lure set or camera directed to a carcass) are present (Rovero et al., 2013).

### Trigger Speed

The delay between sensing an animal and taking an image or sequence of images.

### Flash Type

There are two types of **white flash**: Xenon white flash and white LED flash. A Xenon flash is created when current passes through two electrodes inside a "flash tube" (Wearn & Glover-Kapfer, 2017). When Xenon gas floods the tube, light and an audible sound are briefly emitted. Xenon flash types require a brief recovery period (~30 seconds) and thus are less effective when the goal is to collect continuous images or videos at night (Wearn & Glover-Kapfer, 2017). LEDs are the more efficient, silent (less invasive) alternative that does not require a recovery period between firing (Xenon flash cameras require at least 30 seconds). However, LED flashes are less powerful and tend to reduce the effective detection distance and more often result in blurry images (Wearn & Glover-Kapfer, 2017). **Infrared (IR)** flashes use LEDs that emit energy in the infrared or near-infrared range (Wearn & Glover-Kapfer, 2017). Near-IR flashes are not completely invisible (e.g., Meek et al. 2014a; Newbold & King, 2009) and thus are also referred to as "low glow" flashes (Wearn & Glover-Kapfer, 2017). **Black flashes** (or "no-glow" flashes) do not emit any light and thus are less noticeable to wildlife and thus reduce the chance that wildlife will react. Cameras with black flash capability are ideal for REM (due to the necessity to estimate movement speed). However, they are generally more expensive.

Some flash types might be less invasive than others. There is evidence to suggest that IR flashes may be less noticeable to wildlife (e.g., Sharma et al., 2010; Schipper, 2007; Wegge et al., 2004). However, the extent to which is not clear. Henrich et al. (2020) evaluated the effects of black flash vs. standard IR on the behaviour of two deer species; they found that both species were more likely to react to standard IR flash than to black flash. However, there were disparities between the twostudy areas that suggested that these findings may have been confounded by variability in hunting pressure (Henrich et al., 2020). Wegge et al. (2004) found a reduction in the trapping rate of tigers in response to Xenon flash, yet the response materialized within five days of deployment. Wegge et al. (2004) and Sharma et al. (2010) both found a behavioural "trap-shy" response by tigers to white flash.

### Time-lapse

Time-lapse images are images taken at a regular interval (e.g., hourly or daily, on the hour). It is **critical** to take a minimum of 1time-lapse image per day at 12:00 pm (noon); doing so creates a record of camera functionality and local environmental conditions (e.g., snow cover, plant growth, etc.).

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