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CAMERA TRAPS INVISIBLE TO MAMMALS AND BIRDS

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Abstract: *Mammals and birds can detect wildlife cameras available in online stores and shops. In order to observe the natural behavior of animals, we have developed a camera trap that cannot be detected by them.*

• Introduction

We have examined over 70 camera traps available in stores and online, especially the ones with 1080p, 2K and 4K resolution, 25,30,50,60 frames per second. The results of the tests were startling because it turned out that there is no commercially produced wildlife camera series that would go unnoticed by the examined 27 mammal and bird species.

• Material and method

We tested the latest wildlife cameras with 840 nm and 940 nm LED (light-emitting diode) specimens multiple times in their natural habitats. During the tests, only one camera trap was deployed at a time period. Based on the large sample size, we can conclude that these cameras consistently alter the behavior of mammals and birds. The detection of camera traps depends on the following factors:

- The camera emits electromagnetic waves not within the spectrum range specified in the manufacturer's data, but with a starting decay below 800 nm;

- The camera emits sound (filter switching, relays);

- Some components of the camera have a mild but unfamiliar smell in the given habitat.

Examined species:

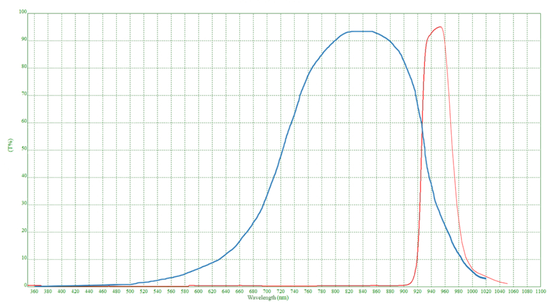
Bank vole (*Myodes glareolus*)
Barn owl (*Tyto alba*)
Black stork (*Ciconia nigra*)
Eurasian beaver (*Castor fiber*)
Eurasian jay (*Garrulus glandarius*)
Eurasian magpie (*Pica pica*)
Eurasian pine marten (*Martes martes*)
Eurasian red deer (*Cervus elaphus*)
Eurasian red squirrel (*Sciurus vulgaris*)
European badger (*Meles meles*)
European badger (*Meles meles*)
European gray wolf (*Canis lupus*)
European hare (*Lepus europaeus*)
European mouflon (*Ovis orientalis musion*)
European rabbit (*oryctolagus cuniculus*)
European robin (*Erithacus rubecula*)
European roe deer (*Capreolus capreolus*)
European wildcat (*Felis silvestris silvestris*)
Forest finch (*Fringilla coelebs*)
Golden jackal (*Canis aureus*)
Hawfinch (*Coccothraustes coccothraustes*)
Otter (*Lutra lutra*)
Pheasant (*Phasianus colchicus*)
Red fox (*Vulpes vulpes*)
Stoat (*Mustela erminea*)
Stone marten (*Martes foina*)
Ural owl (*Strix uralensis*)
Wild boar (*Sus scrofa*)

• Results and discussions

To study the natural behavior of animals and for disturbance-free research and filmmaking, we have developed a series of wildlife cameras that are undetectable by the mentioned species according to the listed criteria. They do not emit

- noise,
- visible wavelengths,
- disturbing odors,

and minimize electromagnetic pollution.



The electromagnetic spectrum range of the IS camera's LEDs (red) and classic wildlife camera leds (blue).

European gray wolf spots a traditional wildlife camera (left) and an image by unnoticed IS CAM (right)

• Conclusions

Mammals and birds can detect wildlife cameras available in online stores and shops. In order to observe the natural behavior of animals, we have developed a camera trap that cannot be seen or heard by animals, thus it does not disturb them and does not influence the behavior of the observed groups.

Currently, we are working on a software that identifies potentially incorrectly recorded footage (for example, when strong wind moves the trees) and accurately identifies mammal species appearing in the recordings within a small margin of error.