Testing the Effectivenessof Wildlife WarningReflectors to Mitigate Wildlife Vehicle Collisions

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Wildlife vehicle collisions are an increasing problem in Germany. Between 2003-2014 official statistics reported 200.000 collisions per year with a peak of 258.000 in 2012, and an economic impact of 575 mio € in 2014.
The wildlife species most involved in traffic collisions are: Roe deer (*Capreolus capreolus*) (65,74%), Wild boar (*Sus scrofa*) (16,70%) and Red fox (*Vulpes vulpes*) (5,54%).
We present a study design to test:

- the effectiveness of blue wildlife warning reflectors (2014-2016);
- the effectiveness of multi-colored Wildlife Warning Reflectors (2015-2017);
- habituation of animals towards Wildlife warning Reflectors.

We will apply the B.A.C.I. approach in 150 testing sites in central Germany, 50 sites for each type of optic reflectors. We will also consider additional factors such as: road parameters (e.g. width, speed limit), anthropogenic disturbances (hunting and farming), landscape effects (crops, open country vs forest, slope gradient) and seasonal variations (road verge mowing, weather and vegetation).

In order to measure the reaction of animals to wildlife warning reflectors we will have 12 study sites for 12 months with 2 thermal cameras (Axis Q1931-E) in which recordings will be made from 30 min before dusk–30 after dawn.
The preliminary results of behavioral analysis of 1 week with 1 camera have been 329 sightings (52.3±21.6per night), of which were 37,5% Roe deer, and 23,5% red foxes. Average time spent near the roads ranged from around 30 second for mice and rabbits to 160 seconds for red foxes.
We think that our study will give important management indications in order to mitigate the phenomenon of wildlife traffic collisions.