

Evaluating at-grade fauna passages with wildlife detection and warning systems

A target-oriented approach

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Overall Goal

The Swedish Transport Administration has formulated an overall goal for at-grade fauna passages with wildlife detection and warning systems: ***An at grade fauna passage with wildlife detection system should be a safe fauna passage. Safe for animals and safe for drivers.*** The targets formulated is addressed to meet this goal.

Background

In recent years, several different studies of at grade fauna passages with wildlife warning systems have been carried out, both in Sweden and internationally. There is now a great need to define different types of functional requirements and goal formulations that future studies can relate to and use for study designs. In this document we present a first approach, after input from the workshop at IENE 2022 and together with The Swedish Transport Administration. The aim is to create a common template for future studies and environmental monitoring programs to be able to follow, so that a direct comparison between sites, systems and countries may be possible.

The targets apply to an infrastructure equipped with wildlife fence (and additional fence equipment as jump-outs, cattle guards etc) that leads the animals to the at grade fauna crossings. The animals are detected as they enter the fauna passage and drivers are warned by active warning signs.

Not all these targets may be possible to monitor in all programs. These targets do not imply for broader ecological research related to at grade fauna passages. Thus, the targets apply for safety and performance of the wildlife crossing structure. To be able to produce facts about the functional requirements (targets) that are formulated below, the technical equipment available for research must cover movements of animals in the entire fauna passage, both in the side areas of the infrastructure and across the infrastructure.

An at-grade fauna passage shall be safe for animals.

Targets:

- >80 % reduction of wildlife-vehicle accidents at the mitigated sections covered by fence and at grade fauna passage¹.
- <0,3 % of the animals that visit at grade fauna passages are involved in traffic accidents.
- >70 % of visiting animals cross through the fauna passage².
- <2 % of the animals that visit an at grade fauna passage enters the fenced infrastructure.
- >90 % of the animal road crossings in at grade fauna passages occur without direct interaction³ with traffic.

An at-grade fauna passage shall be safe for drivers.

Targets:

- >80 % reduction of wildlife-vehicle accidents at the mitigated sections.
- No (0) human killed or severely injured in wildlife-vehicle accidents in direct vicinity to the fauna passages.
- <1 % of the animals that visit at grade fauna passages are involved in traffic safety incidents⁴.

¹ Fence-end-effects must be considered in the analyses.

² A high proportion of animals that cross through the fauna passage indicates that the barrier impact from traffic is low.

³ Direct interaction means that there are vehicles and wildlife at the road within the fauna passage at the same time.

⁴ Traffic safety incident occur when animals enter the road as vehicles speed by without any notable reaction to the animal. Close to an accident in full speed.