

Railway mortality, more than a minor matter? – 20 % of the hare traffic mortality in the municipality 'Engelbrechtsche Wildnis' is railkill

Tiermortalität an der Eisenbahn, mehr als nur eine Nebensache? – 20 % der Verkehrsmortalität von Feldhasen in der Gemeinde 'Engelbrechtsche Wildnis' wird vom Schienenverkehr verursacht

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Zusammenfassung

Ein 2-Jahres-Zensus der Feldhasenmortalität in der ländlichen Gemeinde 'Engelbrechtsche Wildnis' in der Schleswig-Holsteinischen Elbmarsch ergab, dass 20 % der Verkehrsmortalität von Feldhasen vom Schienenverkehr verursacht wurde. Der Straßen- und Schienenverkehr zusammen war für 30 % der bekannt gewordenen Todesursachen (inkl. Jagdstrecke) verantwortlich.

Abstract

A 2 year census of hare mortality in a rural marshland community in Schleswig-Holstein (Germany) indicated that 20 % of the traffic mortality was caused by trains and that traffic mortality in total was 30 % of all known mortality including hunters' bag. Railway mortality is a relevant cause of death.

1. Introduction

While we know that railways can cause major losses of scavenger birds such as the white-tailed eagle (Krone 2005)¹, the losses of medium and small mammals (which are the food of the birds of prey) are rarely quantified in Central Europe. That is because railkill of the smaller fauna is difficult to observe and therefore hardly accounted as a threat for wildlife populations. Against this background, and as a result of the TFK Citizen Science Project Campaign, a cooperation with a hunter has been established for a two-year census of traffic victims in his hunting ground 'Engelbrechtsche Wildnis'.

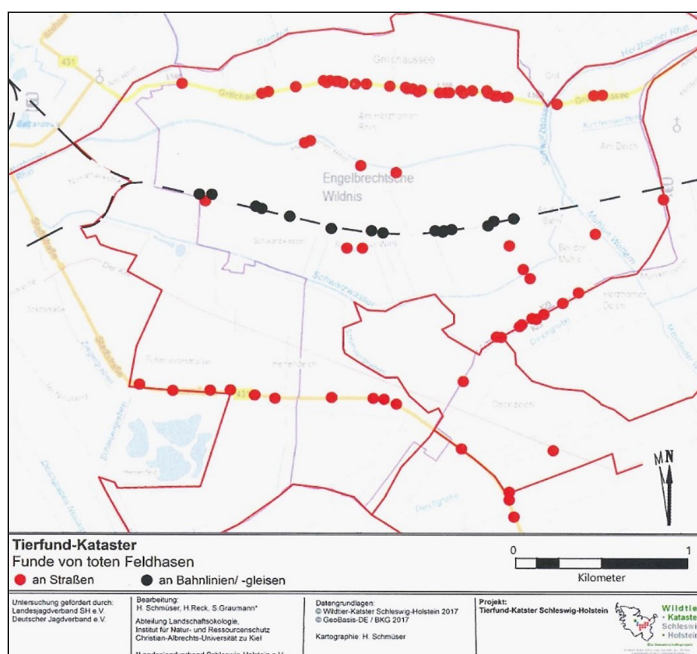
2. Methods

The Citizen Science Project 'Animal Inventory' (TFK, Totfundkataster bzw. ab 2016: Tierfundkataster) within the State Wildlife Survey (WTK, Wildtierkataster) of Kiel University in cooperation with and funded by the state hunters society began in 2011, mostly with records of roadkill of larger mammals in the state Schleswig-Holstein (Schmüser et al. 2014). Since 2016, the project has expanded across all of Germany and a large variety of causes of death for a number of species are monitored (Reck et al. 2017). The number of individuals of larger mammals that were recognized as traffic victims and located exactly within the borders of the 13,000 km² Schleswig-Holstein, meanwhile, is about 5,000 individuals/year (Schmüser et al. 2016). In

1 43 (17%) of 259 examined dead white-tailed eagles in Germany between 1998 and 2004 were railkill. Railkill was the second most important cause of death behind lead poisoning.

Tab. 1: Traffic kill of European hare along different roads and rails in 2011 and 2012.

Traffic carrier	Length	Carcasses	Carcasses / km	Traffic load / day
Federal road B431-212	1,560 m	10	6.4	5,818 cars
Country road L168-10-1	2,520 m	30	11.9	2,768 cars
Country road L168-10-1	590 m	3	5.1	2,768 cars
County road K23-10	1,000 m	9	9.0	?
Railroad KBS 130	2,580 m	15	5.8	ca. 25 trains

**Fig. 1:** European hare as traffic kill in a hunting ground near the Elbe river in the years 2011 and 2012 © Wildtierkataster Schleswig-Holstein*, GeoBasis-DE/BKG 2017.¹

Red dots: hare carcasses at roads.
Black dots: hare carcasses at railways.

this context, railways are a special problem. Any access to railways is difficult and it is forbidden to enter the railroad bed. Considering this, in 2011 and 2012, the responsible game keeper counted all traffic victims along the roads and railways in his hunting grounds (fig.1) every third day.

3. Results

Within two years, 79 hare were found to have been killed in traffic. Of these, 15 were victims on 2.5 km railroad, 52 on 5.6 km supralocal roads (Tab. 1) and 12

on local roads. Altogether, 262 hare were hunters' bag, traffic kill or other carrion, so 30 % of the known mortality was traffic kill. While traffic kill apparently appeared mainly in the open fields outside of settlements we did not recognize striking differences in the landscape features around the railway in comparison to the roads.

4. Discussion

The two-year census of rail and road mortality of hares revealed an unexpected amount of railkill with a rate (accidents/km) nearly as high as on roads. Although we

¹ Funded by Landesjagdverband Schleswig-Holstein e.V. and Deutscher Jagdverband.

have to consider that road density in Germany is about 1,800 m/km² and rail density 106m/km², railkill should be investigated more closely (cp. Popp & Boyle 2017). Whereas the role of roadkill for smaller fauna is poorly understood (Ascensao et al. 2015, Andrews et al. 2015, Reck & Ree 2015, Stretz et al. 2015), the role of railkill is nearly unknown (Budzik & Budzik 2014, Dorsey et al. 2015, Santos et al. 2017).

5. Outlook

The TFK calls for active support from all nature watchers in order to obtain better data on wildlife accidents and in this way to detect causes of accidents and black spots as well. After a simple registration, data on wildlife accidents can be reported via the website www.tierfund-kataster.de. In addition, it is possible to look at all recorded finds on a map. A free smartphone app called ‚TFK‘ (Android and iOS) makes participation even easier. The current location and time are automatically recorded. We are most interested in species-specific causes of death and exact localisation. Uploading a photo enables the WTK to subsequently ascertain difficult species determinations in a reliable way. In total, there are already more than 46,000 datasets nationwide, of which more than 36,000 are for wildlife accidents.

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