

# How do roads affect the spatial behaviour of European wildcats?

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**Project:** Monitoring the effect of a wildcat-proof fence along the new built motorway A 60 in the Eifel (Germany) on behalf of the country administration for road construction in Rheinland-Pfalz (LSV).

**Method:** Close to the road 12 wildcats (*Felis silvestris*) were caught and radio-tracked during the phase of road construction from Feb 2001 to Nov 2002 and during the phase of traffic on the road from Dec 2002 to Dec 2004.

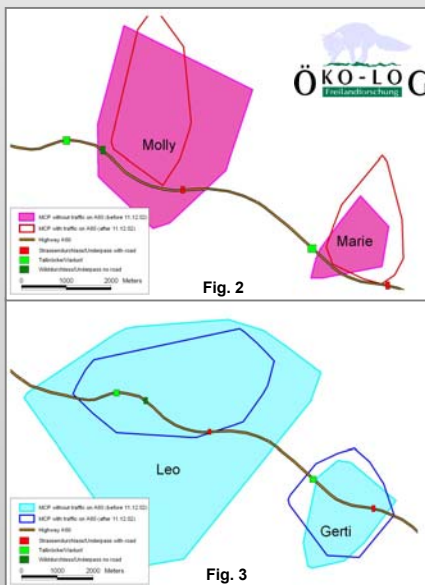
## Questions:

Will the spatial organization of the population change due to the building of a fenced motorway? What kind of passages are used?

Do wildcats use the habitats next to motorways and other roads as frequently as other habitats or do roads repel them?



Fig.1: A 60 with wildcat-proof fence in the construction phase



## Before and after start of traffic on the A 60

6 of the wildcats were monitored during a period including the phase of road building and the phase of traffic. Before start of traffic all 6 cats used both sides of the road alignment (filled polygons, Fig. 2, 3). With the start of traffic and the completion of the fence, two female cats shifted their home ranges to the north and never crossed the road again (unfilled polygons, Fig. 2). The other 4 wildcats (3 f, 1 m) continued crossing the A 60 regularly (Fig. 3).

Crossings during the road construction phase were mainly over the unfinished road pavement or through viaducts of several hundred meters width (Fig. 4). Other underpasses were not used. After the completion of the fence no pavement crossing was possible and wildcats used underpasses as well. Two cats frequently used an underpass with county road (Fig. 5) and have a high risk to become a road kill.



Fig. 4: Viaduct A 60: safe crossing possibility



Fig. 5: Underpass with county road: dangerous crossing possibility

## Distance from roads

**Method:** Distances of radio-locations of each individual to the A 60 and to a county road (K 7, only light traffic) were measured within a corridor of 400 m. The average percentages of locations in four distance classes were calculated (Fig. 6, 7).

**Results:** During the night habitats close to the motorway or the county road are not avoided. Two explanations can be given:

1. Wildcats stay longer time within close-to-road-habitats before finally crossing the road.
2. Wildcats are not influenced by roads in their regular spatial behaviour at night.

In the daytime the corridor of 100 m along the motorway was used less by wildcats. This was the same for the road construction phase and the phase with traffic (Fig. 6, Friedman-test ( $\chi^2_{(4,7)}=10,7$ ;  $p<0,05$ ;  $\chi^2_{(4,6)}=7,25$ ;  $p<0,1$ )). Yet, in individual cases wildcats stayed in only 50 m distance to the construction area. The reason for the avoidance might be that habitats close to the road are not as suitable for daytime hunting behaviour. Noise or other disturbances may affect the wildcats.

Around the county road K 7 there was a corridor of 200 m which was used less by the wildcats at daytime (Fig. 7, Friedman-test ( $\chi^2_{(4,4)}=6,6$ ;  $p<0,1$ )). This wider avoidance-corridor compared to the motorway could be due to cars stopping and people getting off.

More research has to be done to find the explanation.

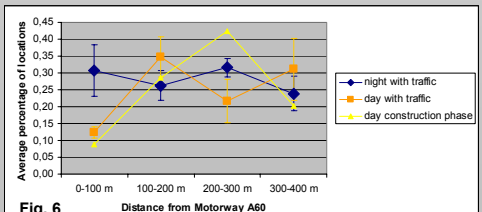


Fig. 6

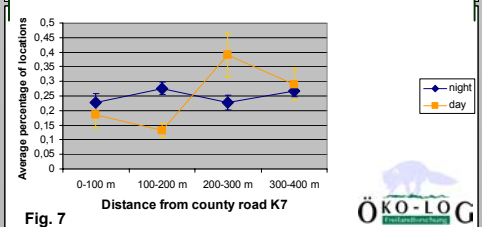


Fig. 7

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