



Identification of wildlife (Mammalia)-vehicle collision on Ankara-Samsun highway

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Abstract: Adverse impact of motorways on wildlife has been an increasing worldwide. The effects of traffic on motorways are not only limited with wildlife-vehicle collisions (WVC), but also give harm to wildlife in various ways such as habitat fragmentation, traffic noise, pollution, creation of new human settlements. Accidents with human death and injury and financial damage also take place in wildlife-vehicle collisions. Necessary measures should be taken by planners during the construction of motorways in order to reduce the negative effects of traffic on wildlife such as ecological underpasses and overpasses, signalization, warning signs. The number of wild animals that died as a result of accidents on Ankara-Samsun Highway was recorded between 15 March 2016 and 15 March 2017. The records were collected in three days on average. The carcasses were taken to roadsides after record to prevent double count and the coordinates of the spots where the dead of the wild animals were located (UTM) were taken with Garmin GPS, which had 5 m accuracy. Eight photos were taken with 45 degree angle from the point where collision occurred and 1 photo was taken from nearly 50 m distance on the direction the collision occurred. The speed limit, elevation, road width, curve feature of the road were recorded. The biological features of the wild animals couldn't be taken because of smash, squeeze and disintegration. During study time, 44 accidents with casualties, from five species of mammals most of which were foxes and hedgehogs, were recorded. It was seen that most of the casualties were from hedgehogs *Erinaceus concolor* with 21 and from marten *Martes foina* with 12. Additionally, 9 foxes *Vulpes vulpes*, 1 wolf *Canis lupus* and 1 rabbit *Lepus europaeus* died in consequence of wildlife-vehicle collision. The death rate for all of the mammals along the road was 0.83 ind/km/year. For hedgehogs, which were the mostly killed mammal, the death rate all along the road was 0.23 ind/km/year. Ecologists working on highways use statistical models according to the characteristics about the landscape, the effect and density of animal distribution, what kind of habitat distribution is present around the roads, traffic density of these roads, road and road side topography. That information can be used as a guide in building wildlife overpasses, underpasses and barriers and in taking precautions like periodical wildlife signals, decelerator wildlife reflectors, roadside wildlife management and speed bumps.

Keywords: Wildlife, Vehicle, Collision, Ankara-Samsun highway, Hedgehog

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