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WILDLIFE ROADKILLS AND UNDERPASS USE IN NORTHERN SPAIN

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Abstract

Simultaneous monitoring of wild mammal roadkills and underpass use was conducted for two years along two neighboring highways in Navarre (Northern Spain). The A-15 highway runs across a rugged, more natural terrain than the A-10 highway, which runs along a flat, mainly agrarian valley. Tunnels, viaducts and cut rock walls occur exclusively in A-15. Medium and large-sized mammal roadkill data were collected on a weekly basis whilst driving along both directions of the highways at a regular speed of 80 km/h. Infrared sensitive systems were used in 26 selected underpasses during eight 7-day monitoring campaigns evenly distributed along the study period to monitor the use of underpasses by wildlife.

The combined analysis of both sets of data showed that: (1) wire fencing does not prevent animal crossings, (2) virtually all of the monitored species occurring in the area are eventually run over, (3) very narrow underpasses are efficient in permeating the roads, even to the apparently most demanding species, (4) although underpasses have proven permeating structures, they do not totally prevent roadkills nearby them, (5) tunnels and viaducts are the only fully effective structures to completely prevent roadkills locally, (6) if occurring repeatedly, tunnel and viaducts reduce the roadkill rate for the entire road, (7) isolation phenomena may be ruled out for species having been run over, (8) European hedgehog was repeatedly run over, but no underpass crossing was registered for this species, (9) the joint consideration of road kill and use of underpasses data has proved a good approach to analyze permeability.

Key words: barrier effect, landscape connectivity, landscape fragmentation, mammal roadkill, wildlife permeability

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