

Large-scale wildlife responses to human infrastructure

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Habitat loss and deterioration represent the main threats to wildlife species, and are closely linked to the expansion of roads and human settlements. Unfortunately, large-scale effects of these structures remain generally overlooked. In a recent paper published in *PNAS*, we analyzed the European transportation infrastructure network and found that 50% of the continent is within 1.5 km of transportation infrastructure. We present a method for assessing the impacts from infrastructure on wildlife, based on functional response curves describing density reductions in birds and mammals (e.g., road-effect zones), and apply it to Spain as a case study. The imprint of infrastructure extends over most of the country (55.5% in the case of birds and 97.9% for mammals), with moderate declines predicted for birds (22.6% of individuals) and severe declines predicted for mammals (46.6%). Despite certain limitations, we suggest the approach proposed is widely applicable to the evaluation of effects of planned infrastructure developments under multiple scenarios, and propose an internationally coordinated strategy to update and improve it in the future.