

# **Seasonal variation in wildlife roadkills in plantations and tropical rainforest in the Anamalai Hills, Western Ghats, India**

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## Abstract

Wildlife – vehicle collisions along roads lead to mortality of a range of animal taxa both within and around wildlife reserves. Quantifying and understanding impacts of roads on wildlife mortality are essential for identifying vulnerable taxa and suitable mitigation measures. We studied animal mortality along roads in relation to habitat and season in the Anamalai Tiger Reserve and adjoining Valparai plateau in the Western Ghats, India. Habitats were broadly classified as forest, monoculture plantations (tea, coffee, eucalyptus), and mixed. Eleven road transects of 3 to 12 km length were surveyed between 9 and 12 times each during monsoon (2011) and summer (2012). We recorded 2969 roadkills (mean = 2.01/km) during the 1473.4 km of road surveys carried out. Overall roadkill rate was  $21.2 (\pm 3.87 \text{ SE})$  individual kills/10 km. Amphibians were most frequent in roadkills (overall roadkill rate of  $9.3 \pm 2.17 \text{ SE}$  kills/10 km,  $n=1307$ ), followed by invertebrates and unidentified taxa ( $7.6 \pm 1.81 \text{ SE}$  kills/10 km,  $n=1066$ ). Roadkill rate was 2.4 times higher in monsoon than summer, with amphibians particularly averaging higher roadkill rate during the monsoon. Frequency of roadkill of various animal groups differed between seasons in different habitats. In both seasons, most roadkills were recorded mainly in tea, forest, and forest – tea. Relative to length of roads through forest, a disproportionately high number of roadkills of herpetofauna and mammals were recorded in forest habitat. Higher vehicular movements, including tourist traffic, road widening, removal of native plants along roads and construction of sidewalls without breaks obstruct animal movements and may be responsible for roadkills. Designing roads to be more permeable for safe animal movement, particularly where roads pass through forest, and sensitizing highways authorities are essential to reduce animal mortality and make roads more wildlife-friendly in this region.

*Keywords:* road ecology, wildlife – vehicle collisions, roadkill, Western Ghats, linear infrastructure intrusions