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Editor-in-Chief: Diversity and Distributions

Dept Geography & Urban Planning

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Dear Professor Franklin,

We are submitting the enclosed manuscript titled "Applying a conceptual framework to determine patterns of wildlife-vehicle collisions on two continents: mule deer in North America and grey kangaroos in Australia" for publication in Diversity & Distributions. Risks to wildlife and other biotic entities from anthropogenic activities are globally significant, and understanding them is critical to achieving effective conservation practice. In this study, we model wildlife-vehicle collision risk across two large geographic areas on two different continents. We extend formerly published theoretical work to generalise across two species that are globally recognised and demonstrate that they share similar responses to road hazards. As our study utilises open access sources of data, it can be easily replicated by scientists, environmental managers, or others to analyse risk, engage in scenario planning through simulation, and determine appropriate mitigation strategies.

David Richardson's editorial (2012) expresses a need for studies that are "innovative applications of SDMs", or demonstrate "how SDMs can be integrated with other data or tools." Our framework uses species distribution modelling and traffic modelling as foundations and we demonstrate the utility of combining distributional information for applied conservation science. This is a novel practice in the discipline of road ecology. Further, our work demonstrates modelling and validating risk with data originating from a wide range of sources; an important practice as we continue to solve conservation problems in the age of information.

Our conceptual framework has utility beyond the case studies in the manuscript (i.e. it can be used for more than just predicting risks associated with wildlife-vehicle collisions). Our interdisciplinary research draws upon methods from multiple fields (transportation modelling, species distribution modelling, ecological risk theory) to address a complex problem. The accessibility of the methods and flexibility in our approach will attract a broader readership, including both researchers and practitioners.

We confirm that this manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the manuscript and agree with its submission to Diversity & Distributions.

Thanks for your consideration and we look forward to your response.

Sincerely,

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