Dr. Marc Cadotte

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Dear Professor Cadotte,

We are pleased to submit our manuscript "**Predicting wildlife-train collisions across space and time to inform railway operations**" for publication in *Journal of Applied Ecology*.

Wildlife-train collisions give rise to economic, social, and environmental costs. Railway operators and managers seek to minimise damage to trains, delays in scheduled operations, and negative impacts on species persistence resulting from collisions with wildlife. Wildlife-train collisions are a global problem that occur on existing railways and will be exacerbated as operations expand in the future. Yet, universal approaches to predict and manage this problem are scarce in the literature.

We introduce a statistical modelling framework that can be used by railway operation managers to analyse and predict wildlife collision risk. Our methods utilise publicly accessible data and interdisciplinary knowledge to predict risk across a railway network. To demonstrate our framework, we used kangaroos and a large passenger railway network in southeast Australia as a case study. We simulated the effects of shifting schedule times, moderating train speeds, and limiting wildlife access to the railway (e.g. fencing) on collision rate in our modelling framework. Each management scenario reduced collisions from the baseline (i.e. no change to the network) scenario.

As far as we are aware, this is the first spatial and temporal predictive model for wildlife-train collisions that has universal applicability for managers and railway operators, irrespective of locale. In addition, our methodology is flexible and can be adapted to other transport systems such as roads. For these reasons, we anticipate a broad interest from the Journal's readership.

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 *Journal of Applied Ecology*. There are no conflicts of interest to be declared.

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

Sincerely,

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