

## **Abstract | Projecting road kill risk for Taiwan's reptiles and amphibians**

Reptiles and amphibians have some of the highest recorded levels of road mortality globally and are the most threatened group of terrestrial vertebrate taxa, but road ecology studies are typically lacking for herpetofauna. Due to their spatially-complex lifestyles, diverse life-histories, and urgent need for conservation research, herpetofauna are ideal for studying road zone effects across multiple scales. However, reptiles and amphibians are often understudied in road ecology as they pose little threat to motorists and are often difficult to accurately and safely assess.

As it is unrealistic to monitor all roads to determine which roads are most risky for wildlife mortality, I use species distribution models (SDMs) to analyze road kill observation points and environmental variables to model and project road kill risk for wildlife across a road network. This allows transportation managers to identify key locations of high road kill risk for mitigation. I am working with researchers from the Taiwan Endemic Species Research Institute who manage an extensive citizen science road kill monitoring group, Taiwan Road Observation Network (TaiRON).

The TaiRON database has over 50,000 geospatially referenced road kill observations collected from 2011 – 2016 contributed opportunistically by citizen scientists. Afterwards, the TaiRON expert community and project managers vet the observations before being marked as verified in the database. I used this TaiRON road kill observation data and environmental covariates (road type, traffic volume, land cover, etc.) in SDMs to create projections and maps of road kill risk on the road network in Taiwan.

The risk projections identify areas of high and low road kill risk, as well as the environmental variables that strongly contribute to risk outcomes. I am currently working with researchers at the University of Melbourne to apply road kill risk modelling to Australian wildlife and environments to broaden the applicability and impact of my research.

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**Bio | Kristina Chyn**



Kristina Chyn is an Ecology & Evolutionary Biology PhD candidate in the Wildlife and Fisheries Sciences department at Texas A&M University. She is currently in Australia on an Endeavour Research Fellowship and is working with researchers at the University of Melbourne ARC Centre of Excellence for Biosecurity Risk Analysis and The Quantitative & Applied Ecology Group (QAECO). Her primary interests are applied conservation, spatial ecology, herpetology, and road ecology. She obtained her B.S. in Science of Natural and Environmental Systems with minors in Biology and Natural Resources from Cornell University where she studied the effects of natural gas infrastructural fragmentation on salamanders in northeast US forests.