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Bayesian causal inference for zero-inflated data

Observational studies determining the impact of environmental drivers of population change, are commonplace in statistical ecology. However we are frequently interested in extending purely correlative studies to determine causal mechanisms. This is particularly important when attempting to ascertain drivers of population change, as correlative mechanisms may be hiding the true important mechanisms. In contrast to other application areas, it is much more complex to use 'gold standard' randomised trials in ecology due to the nature of driving factors of change, such as climate and invasive species. In this talk, I will outline a Bayesian causal paradigm to study the impacts of environmental change using data exhibiting zero-inflation. The methodology will be applied to UK citizen science data to test for impacts of predator abundance on prey abundance.