
JOANNA MILLS FLEMMING, Dalhousie University
Modelling and Prediction for Clustered Count Data with Excess Zeros

Clustered counts with many zeros are typical of data on endangered species, particularly in marine environments, but are difficult to model with available methods. Here we present a general formulation of a mixed effects hurdle model where a novel approach to introducing random effects allows extensions beyond the usual multivariate normality assumption and facilitates inference about dependence between the two parts of the model. We develop empirical best predictors of the random effects and other cluster specific targets and assess their variability via a fast bootstrap. Our research is illustrated using data on critically endangered sharks in the North Atlantic.