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The prediction of random effects in hurdle models

We will discuss the prediction of random effects and functions of random effects in the context of
fitting hurdle models (also referred to as two-part, zero-altered or separated models) with random effects for modelling clustered count data with excess zeros. We implement empirical best predictors of the random effects and other cluster specific targets. We discuss estimating their prediction mean squared errors using a fast bootstrap approach. The methodology is validated through simulation and demonstrated using real data on critically endangered hammerhead sharks where the prediction of cluster specific targets is essential for informing conservation and management decisions.