Modelling daily numbers of ringed birds with negative binomial generalized linear models

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Abstract

In this thesis, we extend the mathematical framework of the generalized linear model to encompass the negative binomial distribution. Models based on the negative binomial distribution is needed when data doesn't fit a Poisson distribution due to overdispersion. We put theory into practice by analysing the inuence of weather and time on the daily number of ringed Eurasian Robins (Erithacus rubecula) in Falsterbo, Sweden. We find that increasing wind speed lowers the expected number of Robins, while drops in mean day temperature, increasing share of side wind, increasing yearly total of Robins and proximity to the median migration date all increases the expected number of Robins. These results are partly in accordance with previous studies and the results deviating from previous knowledge especially are discussed. Further improvements of the fitted model are also discussed.

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