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Metadata S5

Code for the analysis of American alligator diet data

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File list

`Data_S5_AlligatorCode.R`

Description

`Data_S5_AlligatorCode.R`– Supplementary Data S5 contains R code that performs the Bayesian hierarchical analysis of the American alligator (*Alligator mississippiensis*) data (data S4). The code defines the three models fit to the data: 1) a model with all alligators in the same hierarchical level, 2) a model with alligators nested within site, and 3) a model with alligators nested within sex and site (see Appendix S3 for model details). The code fits each model using the program JAGS and the R package 'rjags' (Plummer 2003; 2016). Each model is initialized with a burn-in period of 100,000 steps using 3 Markov chains. After initialization, 2,000 samples are drawn from the posterior distribution from every 100^{th} iteration of the model for each of the three chains. The output provides a list containing the posterior samples of all of the model parameters, the posterior samples of PS_i for each individual, and the average PS_i across individuals.

The code was developed for R version 3.2.4 and requires the R packages 'rjags' (Plummer 2016), 'tidyr', 'dplyr', 'loo' (Vehtari et al. 2016), and the program JAGS (Plummer 2003) to be downloaded onto the machine being used for the analysis. The code was developed using JAGS version 4.1.0.

References

Plummer, M., 2003. JAGS: A program for the analysis of Bayesian graphical models using Gibbs sampling. URL: http://mcmc-jags.sourceforge.net/.

Plummer, M., 2016. rjags: Bayesian graphical models using MCMC. R package version 4-5. URL: https://cran.r-project.org/package=rjags.

Vehtari, A., A. Gelman, and J. Gabry. 2016. Practical Bayesian model evaluation using leave-one-out cross-validation and WAIC. Statistics and Computing **doi:10.1007/s11222-016-9696-4**.