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A Beta Distribution Based Hierarchical Multinomial Model for Age Structure Analysis of Wildlife Animal

Nested with a modified Beta distribution for estimating animal survivorship shape, a hierarchical multinomial model is developed to estimate the underlying yearly age distribution by sole usage of yearly age-specific harvest counts. Evaluation of model performance and robustness, by conducting extensive Monte Carlo simulation studies, indicates the accuracy and coverage of estimation under various simulation scenarios. A further analysis of performance will be provided by the real application on two focal age-at-harvest datasets.