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Population trends of forest birds in Missouri, USA: Comparison of point count data with predictions from the BBS

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Long-term population size trends of Neotropical migrants and other forest birds are of primary concern for conservation biologists. The Breeding Bird Survey (BBS) has become an important tool for biologists in estimating population trends, but because surveys are conducted only along roads, its utility for forest interior species may be limited. We analyzed a long term (1991-2006) point count data set from the interior of three forested sites in central Missouri and compared our trend estimates to BBS trends for the state of Missouri. Using a mixed model analysis of variance with year as a fixed effect and point as a random effect, we generated trend estimates for thirteen species. Results/Conclusions Five species (38%) exhibited statistically significant negative trends indicating species decline, four species (31%) exhibited positive trends indicating that populations increased, three species (23%) exhibited no significant trend, and data from one species did not adequately fit the model. Of the nine species with significant trends in our point count data, seven (78%) had trends that were qualitatively similar to those generated from BBS data. However, for both of the species with contrasting trends, model predictions were strongly different. Our results suggest that the accuracy of BBS trends for forest interior birds may be species specific. We hope to strengthen our conclusions by incorporating point count data from other field sites and by controlling for observer effects in future analyses.