

## ABSTRACT

**RESEARCH PAPER:** CANADA GOOSE (*BRANTA CANADENSIS*) SURVIVAL AND HARVEST RATES IN DEVELOPED AND RURAL LANDSCAPES OF CENTRAL INDIANA & URBAN CANADA GOOSE MANAGEMENT RESEARCH

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This research project has presented research and a proposed methodology aimed at studying the survival and harvest rates of Canada goose (*Branta canadensis*) populations. Additionally, this study proposes methods for comparing these rates between urban and rural populations of Canada geese. This is accomplished by pooling data from both populations relating to banding and direct recovery rates whereby annual survival estimates can be made via the program MARK available in the RMark package with a joint live-dead recovery model. Models were then designed to incorporate predetermined covariates and then fitted to assess for differences in survival between urban and rurally banded individuals. Model estimated rates for annual survival and direct recovery were then used to calculate annual harvest rates for the populations. Models are then able to be evaluated by performing a likelihood ratio test, to determine if two models differ based on the impact of time-varying covariates upon the overall variance within the models. These simulations will then be repeated 1,000 times for each model comparison. Comparisons of rural and urban goose survival and harvest rates may allow for a more informed management approach for the species, especially in urban environments where hunting is often not a feasible management option.