

Review of range-wide vital rates quantifies Eastern Wild Turkey population trajectory

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Abstract

Recent declines in eastern wild turkeys (*Meleagris gallopavo silvestris*) has prompted increased interest in management and research of this important game species. However, the mechanisms underlying these declines are unclear, leaving uncertainty in how best to manage this species. Foundational to effective management of wildlife species is understanding the biotic and abiotic factors that influence demographic parameters and the contribution of vital rates to population growth. Our objectives for this study were to: 1) conduct a literature review to collect all published vital rates for eastern wild turkey over the last 50 years, 2) perform a scoping review of the biotic and abiotic factors that have been studied relative to wild turkey vital rates and highlight areas that require additional research, and 3) use the published vital rates to populate a life-stage simulation analysis (LSA) and identify the vital rates that make the greatest contribution to population growth. Based on published vital rates for eastern wild turkey, we estimated a mean asymptotic population growth rate (λ) of 0.91 (95% CI = 0.71, 1.12). Vital rates associated with after second year (ASY) females were most influential in determining population growth. Survival of ASY females had the greatest elasticity (0.53), while reproduction of ASY females had lower elasticity (0.21), but high process variance, causing it to explain a greater proportion of variance in λ . Our scoping review found that most research has focused on the effects of habitat characteristics at nest sites and the direct effects of harvest on adult survival, while research on topics such as disease, weather, predators, or anthropogenic activity on vital rates have received less attention. We recommend that future research take a more mechanistic approach to understanding variation in wild turkey vital rates as this will assist managers in determining the most appropriate management approach.

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