

FEATURE ARTICLES

**SOURCES OF VARIATION IN SURVIVAL OF BREEDING FEMALE WOOD DUCKS**

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*Abstract.* In waterfowl, reproduction is physiologically demanding and females are exposed to varying risks of mortality at different periods of the breeding cycle. Moreover, differences among females may influence survival within breeding periods. We captured and fitted female Wood Ducks (*Aix sponsa*) with radio-transmitters before nest initiation during two breeding seasons to estimate survival and investigate sources of variation in survival. We partitioned the breeding season into three periods (preincubation, incubation, postnesting) according to breeding status of individual females, and used information-theoretic methods to compare models in which daily survival varied among periods, between successful and failed nesting females, and with parameters describing individual heterogeneity. Our analysis suggested that daily survival was best modeled as a function of breeding period, differences between successful and failed nesting females during postnesting, and early incubation body condition of successful females during postnesting. Model-averaged daily survival was 0.9988 (95% CL: 0.9963–0.9996) during preincubation and 1.0 during incubation. Postnesting daily survival was 1.0 for failed nesting females and 0.9948 (0.9773–0.9988) for successful females, suggesting a trade-off between current reproduction and survival. Female age, body condition at capture, nest initiation date, and brood size generally were not useful for explaining variation in survival. Only early incubation body condition was important for modeling survival of successful females during postnesting; however, weight of evidence was limited and the effect on survival was weak. Mortality was greatest for females during preincubation and for females that nested successfully. Results support the hypothesis that brood care is costly for females.

*Key words:* *Aix sponsa*, *breeding status*, *female survival*, *heterogeneity*, *mortality risk*, *reproductive effort*, *Wood Duck*.