

## PRECIPITATION AND REPRODUCTIVE EFFORT ALTER SURVIVAL OF TURKEY HENS IN THE NORTHERN BLACK HILLS, SD

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Tradeoffs between survival and reproduction are predicted by life history theory. Understanding how reproductive tradeoffs act in concert with abiotic elements to impact survival is crucial for effective management and conservation of wildlife populations, particularly for at-risk or harvested species. During 2016 - 2018, we radio-tracked and collected survival data on 140 Merriam's wild turkey (*M. g. merriami*) hens in the northern Black Hills, South Dakota. We evaluated associations between hen survival and nest incubation, brood rearing, and precipitation. Consistent with life-history theory and the moisture-facilitated nest-depredation hypothesis, increased time spent incubating and daily precipitation amount were associated with reduced hen survival, but the magnitude of the precipitation association depended on incubation status. Seasonal survival was lowest during spring and winter, highest during summer, and intermediate during fall. A hen that did not incubate a nest was predicted to have a higher rate of annual survival (0.54, 95% CI = 0.46 - 0.61) than a hen that incubated a single nest (0.44, 95% CI = 0.33- 0.55); this prediction is based on precipitation data collected in 2017 and assumes the hen began incubation on the median date. We estimated that annual survival for both nesting and non-nesting hens was lower in the northern Black Hills compared to previous estimates from the southern Black Hills. Management options to improve hen survival are limited, but we recommend actions that would reduce hunter-induced hen mortality of this important game species in the northern Black Hills.