

Changing Migratory Patterns in the Jackson Elk Herd

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ABSTRACT : *Migratory behavior in ungulates has declined globally and understanding the causative factors (environmental change vs. human mediated) is needed to formulate effective management strategies. In the Jackson elk herd of northwest Wyoming, demographic differences between summer elk (*Cervus elaphus*) population segments have led to changes in migratory patterns over a 35-year time period. The proportion of short-distance migrants (SDM) has increased and the proportion of long-distance migrants (LDM) has concurrently declined. The probability of winter-captured elk on the National Elk Refuge being LDM decreased from 0.99 (95% CI 0.97–1.00) to 0.59 (95% CI 0.47–0.70) from 1978 to 2012. We tested 4 hypotheses that could contribute toward the decline in the LDM segment: behavioral switching from LDM to SDM, differential survival, harvest availability, and calf recruitment. Switching rates from LDM to SDM were very low (0.2% each elk-year). Survival rates were similar between LDM and SDM, although harvest availability was relatively low for SDM that tended to use areas close to human development during the hunting season. Average summer calf/cow ratios of LDM declined from 42 to 23 calves per 100 cows from 1978–1984 to 2006–2012. Further, during 2006–2012, LDM summer calf/cow ratios were less than half of SDM (23 vs. 47 calves per 100 cows). Our data suggest recruitment is the driving factor behind the declining proportion of LDM in this region. Effectiveness of altering harvest management strategies to conserve the LDM portion of the Jackson elk herd may be limited. Published 2015. This article is a U.S. Government work and is in the public domain in the USA.*
