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## ELK MOVEMENTS AND BRUCELLOSIS TRANSMISSION RISK IN SOUTHWEST MONTANA

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The presence of *Brucella abortus* within free-ranging elk populations is an important conservation and management issue because of the risk of brucellosis transmission to livestock. Understanding elk distributions is necessary to forecast elk and livestock spatial overlap and the potential for brucellosis transmission. As part of a 5-yr brucellosis surveillance project, 30 adult female elk were captured and fitted with GPS collars in each of the winters of 2010, 2011 and 2012 in three southwest Montana study areas. We used elk location information to assess elk movements, and spatial overlap with livestock and adjacent elk herds. The elk movement results were further augmented with data from Wyoming and Idaho elk herds. The elk movement data shows interchange of females between elk herds during the transmission risk period. Resource selection models predicting elk distribution and spatial overlap with livestock during the transmission risk period were developed and extrapolated across the designated brucellosis surveillance area of Montana. We used the elk location data collected in this study to validate and refine models predicting elk distributions and spatial overlap with livestock during the risk period. Predictive models may be used as a tool for focusing management actions aimed at minimizing elk and livestock spatial overlap during the transmission risk period.