Elk Respond to Differential Hunter Access Management and Harvest Regulations in a Mixed Public and Private Landscape

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Wildlife managers across the western U.S. are increasingly tasked with managing elk populations that exceed population goals and strain public and landowner tolerance with problematic distributions. Reducing these populations through hunter harvest and achieving desirable distributions can be challenging on mixed landscapes of public and private lands where hunter access management decisions vary among landowners. We used GPS data from 58 female elk in the Devil's Kitchen elk population in central Montana, USA to evaluate how hunter access management, harvest regulation, and other landscape factors influence elk movements and habitat selection during hunting season. We fit Bayesian multistate models to evaluate factors influencing the daily probability of an elk transitioning between hunter access strategies, then constructed resource selection functions describing female elk habitat selection in relation to hunter access management, harvest regulation, and other landscape factors in four distinct periods during the hunting season. Our results indicate that female elk generally selected for less hunter access and more restrictive harvest regulations. Female elk were almostalways more likely to remain in areas with the same hunter access strategy, but movements between different hunter access strategies were most likely during the general rifle season. During the early shoulder and archery seasons, hunter access management appeared to primarily drive female elk habitat selection and elk were more likely to transition from openaccess lands to less accessible private lands. During the general and late shoulder seasons, harvest regulation appeared to primarily drive female elk habitat selection and movements between hunter access strategies.