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## **ELK NEAR FOSSIL BUTTE NATIONAL MONUMENT IN SOUTHWEST WYOMING MIGRATE EARLY TO ESCAPE HUMAN DISTURBANCE**

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Migration allows individuals to strike a balance between risk and reward, and use resources in the places and at times that maximize fitness. Large ungulates commonly migrate to increase access to quality forage in spring and decrease risks associated with winter weather in the fall in an effort to maintain the body condition necessary for winter survival and successful reproduction. However, foraging exists within a realm of strategies employed to maximize fitness, and so animals must take factors like safety into account when choosing to migrate. Here, we use 5 years of data from 73 female elk (*Cervus canadensis*), most of which are part of a subgroup of elk that utilize a protected area during hunting season, to identify the driving factors behind the initiation of migration from their late summer range. The onset of archery season, remotely sensed vegetation degradation, and having access to lands where hunting was prohibited (Fossil Butte National Monument) initiated autumn migration, with bad weather having a smaller effect. 67% of elk using the Monument initiated migration prior to the onset of archery hunting season (1 September), preemptively avoiding risk, while no elk from the subgroup not using the Monument left prior to archery season,

despite spending summer at higher elevations. Departure from productive summer range nearly two months before vegetation senescence afforded protection on the Monument during hunting season, but decreased access to late summer-fall forage (integrated NDVI) by 21%. Our results illustrate the complexity of managing a wide-ranging ungulate across jurisdictions with multiple missions.