

Public Abstract

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Title:Initial Movements and Disturbance Response of a Newly Reintroduced Elk Herd in the Missouri Ozarks

Initial movements of reintroduced wildlife can contribute to restoration success, as low site fidelity is associated with increased mortality and failure to breed. We studied initial movements of elk (*Cervus elaphus*) reintroduced to the Missouri Ozarks in 2011-2013 for the initial 6 months post-release. We assessed maximum displacement from the release site, range shifts, movement rates, and range size across 4 sequential time frames. We fit repeated measures mixed models to assess the effects of sex, age, calf-rearing status, release site, and release year on movement responses. Elk acclimated in phases, including immediate departure from the release site and elevated movement rates followed by establishment and expansion of a home range. High site fidelity and small home ranges in Missouri's reintroduced elk may be attributed to soft release, suitable habitat, and minimal human disturbance.

We also studied the effect of human disturbance on reintroduced elk, as disturbance may cause habitat abandonment. We measured speeds, range shifts, and range sizes of elk during managed deer hunts in 2011-2013. We fit repeated measures mixed models to determine the impact of hunter numbers, hunt type, hunt duration, hunt year, number of hunts an individual experienced, sex, age, release site, and release year on disturbance response. We tracked deer hunter movements to assess spatiotemporal elk-hunter interactions. During hunts, speeds increased and ranges contracted, indicating that elk identified refugia and made directed movements. However, there was no spatiotemporal response. This study provides evidence that animal reintroductions do not preclude heterospecific hunts in wildlife restoration areas.