Evaluating and Mapping Pronghorn Responses to Fences

Jesse DeVoe*, Montana Fish, Wildlife and Parks, Bozeman
Kelly Proffitt, Montana Fish, Wildlife and Parks, Bozeman
Joshua Millspaugh, University of Montana, Missoula

*Indicates Presenter

**Indicates Student Presentation

Understanding pronghorn movement responses to fences is essential for improving landscape permeability of pronghorn. Our study used hourly collar locations from adult female pronghorn in 8 Montana herds and identified encounters with fences to: 1) evaluate movement responses as a function of fence and landscape attributes, and 2) map fence permeabilities. We mapped 37,878 km of fences, of which we collected structural attributes for 979 km, and identified fence encounters from movements of 702 collared pronghorn. We evaluated the correlation of pronghorn responses to fence encounters with fence types and landscape variables. We calculated fence permeabilities based on the ratio of altered to total encounters weighted by how many unique individuals encountered each fence. We found that woven wire fences substantially reduced crossings and increased crossing times, while both low (average lowest wire height <41 cm) and high (average lowest wire height ≥41 cm) strand fences were relatively permeable. Crossing probabilities increased through time modestly for strand fences but only negligibly for woven wire fences. Pronghorn knowledge of and fidelity to permeable locations along fences likely allow some woven wire fences and most strand fences, regardless of the average lowest wire height, to be permeable. Improving landscape permeability for pronghorn should primarily focus on removing or replacing woven wire fences and incorporating variation in lowest wire heights. We made available to conservation practitioners interactive HTML maps of fence permeabilities for each herd as a tool for identifying potential movement barriers and prioritizing remediation efforts.