INTEGRATED CARNIVORE-UNGULATE MANAGEMENT - A CASE STUDY IN WEST-CENTRAL MONTANA

Kelly M. Proffitt, Wildlife Division, Montana Fish, Wildlife & Parks, Bozeman
J. Terrill Paterson, Department of Ecology, Montana State University, Bozeman
Robert Garrott, Department of Ecology, Montana State University, Bozeman
Jay Rotella, Department of Ecology, Montana State University, Bozeman
Benjamin Jimenez, Wildlife Division, Montana Fish, Wildlife & Parks, Missoula
Mark Hebblewhite, Wildlife Biology Program, University of Montana, Missoula
Justin Gude, Wildlife Division, Montana Fish, Wildlife & Parks, Helena
Mike Thompson, Wildlife Division, Montana Fish, Wildlife & Parks, Missoula
Rebecca Mowry, Wildlife Division, Montana Fish, Wildlife & Parks, Hamilton
Craig Jourdonnais, (retired), Montana Fish, Wildlife & Parks, Missoula

*Indicates Presenter
**Indicates Student Presentation

In response to poor recruitment and declining ungulate population trends in west-central Montana, wildlife managers implemented an integrated carnivore-ungulate management program designed to reduce carnivore densities via harvest prescriptions in efforts to increase elk recruitment and abundance. However, the ability of wildlife managers to use carnivore harvest management regulations as a tool to reduce carnivore population densities and increase ungulate recruitment is unknown. The management objective in this case was a moderate reduction in carnivore densities that sustained carnivore populations and associated recreational opportunities, while also reducing predation pressure on ungulate populations. We assessed the efficacy of this integrated carnivore-ungulate management program by evaluating: 1) the effects of a harvest management prescription on mountain lion population density using a before-after-control-treatment study design, and 2) patterns in elk juvenile recruitment before and after implementation of the mountain lion harvest treatment. We found that 4-years after the management program was implemented, mountain lion population abundance declined by 26% (90% CI = [0.60, -0.05]) within the harvest treatment area and remained stable within the control area. The per-capita recruitment rate of elk was low and stable in the treatment area prior to the mountain lion harvest prescription (e.g., mean = 0.18, [0.14, 0.22]), increased substantially in the year following the implementation of the harvest prescription (mean = 0.32, [0.24, 0.41]) prior to declining to 0.23 ([0.16, 0.29]) at present, which contrasted with a moderate increase in per capita recruitment rates in the control area. Together these results suggest that the mountain lion harvest treatment moderately reduced mountain lion abundances within the treatment area, as intended, although the effect on elk population dynamics was short-lived. Broadly, this integrated management program achieved carnivore and ungulate population objectives. We recommend wildlife managers applying integrated carnivore-ungulate management programs develop carnivore and ungulate monitoring programs that assess the efficacy of management programs and provide information regarding future management prescriptions designed to achieve carnivore and ungulate population objectives.