

DFO-funded Research Project Explores Cattle-Raptor Connection on NE Colorado Shortgrass Prairie

By Patrick O'Driscoll

Eighty years ago this year, the U.S. Department of Agriculture established the [Central Plains Experimental Range \(CPER\)](#) in northeastern Colorado to study range management strategies and long-term effects of livestock on grassland wildlife and ecosystems. With help from a Denver Field Ornithologists science grant, two Colorado researchers are now exploring what effect cattle grazing may have on the nesting success of four raptor species in the area.

In *Assessing Relationships between the Presence of Cattle and the Abundance and Productivity of Northeastern Colorado Raptors*, researchers James F. Dwyer of EDM International and Angela M. Dwyer of Bird Conservancy of the Rockies may be finding evidence that grazing of cattle on the shortgrass prairie improves conditions for three of Colorado's "Tier-1 species of greatest conservation need" – Ferruginous Hawk, Golden Eagle, and Swainson's Hawk – if cattle density is carefully controlled.

They base this preliminary finding on monitoring, from 2015 through 2018, of 38 nests of those three species plus Great Horned Owls. Although the sample sizes have been small, the research data suggest that birds of prey produce more offspring per nest on the experimental range when they nest in pastures occupied by cattle. The researchers theorize that if longer-term study bears similar results, it may be a sign that pastures with grazing cattle are home to more insects and other small-mammal prey than pastures without livestock, perhaps because of nutrient cycling via manure left as cattle graze.

The Dwyers' research aims to further our understanding of how birds of prey in non-urban Colorado cope with human activity such as ranching. Such insight is important to managing and conserving these raptors and the ecosystems they inhabit. This work was funded in part by a 2018 grant from DFO's Research, Education and Conservation Fund.



Great Horned Owl young

The Dwyers searched for and found the nests at sites across the experimental range, a 15,500-acre expanse of more than 70 fenced pastures on the western edge of [Pawnee National Grassland](#). Although research on this range historically has focused mainly on adaptive grazing, CPER has also yielded important data on connections between grazing and native wildlife. Mountain Plovers, in particular, have been the focus of substantial study there over the past decade.

Although raptor nest numbers have varied between 11 and seven in the study years, the proportion of nests that produced young was relatively consistent – 12 out of 18 nests successful where cattle were present, vs. nine out of 17 successful in pastures without cattle. Productivity was higher, too: Nests in occupied pastures fledged 22 young, while nests in those with no cattle fledged just 10.

The researchers plan another year of on-the-ground study, after which more in-depth analysis will compare nesting success and productivity to the presence of cattle, including the number of livestock in an area. Having seen some nest failures after hailstorms and other inclement late spring weather, the Dwyers also plan to include factors of climate in their comparisons and analyses.

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Ultimately, their longer-term work aims to serve two key purposes:

- To build on CPER’s overall program with applicable “lessons learned” for grazing practices beyond the experimental range, and
- To contribute basic knowledge of raptor populations, especially the abundance, productivity, richness and survival of those throughout eastern Colorado, where CPER lessons are most widely applied.

Recently fledged and banded Golden Eagles

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