

Long-term study finds energy development has lasting impact on deer populations

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A new study involving UW researchers shows that mule deer have not habituated to energy development in Wyoming's Upper Green River Basin. Credit: Tom Koerner/U.S. Fish and Wildlife Service Photo

A new long-term study finds that energy development has longer-lasting impacts on mule deer populations than previously thought.

The study, "Mule Deer and Energy Development—Long-term Trends of Habituation and Abundance," appears in the journal *Global Change Biology* and has implications for [energy development](#) planning on federal lands.

"There is a common perception that deer and other big game quickly habituate to disturbances like [energy](#) development, but our research

clearly shows that is not the case with [mule deer](#)," says the paper's lead author, Hall Sawyer.

Sawyer, a biologist for Western Ecosystems Technology (WEST) Inc., led the study along with two others from WEST—Ryan Nielson and Dale Strickland. Nicole Korfanta and Kevin Monteith of the University of Wyoming Haub School of Environment and Natural Resources were collaborators on the paper.

The researchers used telemetry data from 187 deer across a 17-year period, including two years during predevelopment and 15 years during development, to determine whether deer habituated to energy development in the Upper Green River Basin of western Wyoming. The study found that mule deer did not habituate to [gas development](#), and the population declined by 36 percent despite aggressive on-site mitigation efforts and a 45 percent reduction in deer harvest.

"Our study reveals some of the trade-offs associated with developing energy resources in critical wildlife habitat, and serves as a reminder that mitigation efforts can reduce but not eliminate impacts," Sawyer says. "Long-term avoidance reduces the amount of winter range available for animals which, in turn, reduces the number of animals that can be supported on the landscape."

The findings could alter how federal land-use plans consider the [impact](#) of oil and gas [development](#) on mule deer and other big-game species.

"Environmental assessments typically consider mule deer avoidance of oil and gas infrastructure as a short-term impact. But these results suggest avoidance behavior is a long-term impact that can affect populations for decades," Korfanta says.

With 17 years of data, this is the longest-running study of oil and gas

effects on mule deer.

"The value of a long-term, population-level study is in moving beyond anecdotal evidence. While some individual mule [deer](#) continue to use habitat close to oil and gas wells, this study shows that's the exception and not the rule," Korfanta says.

More information: Hall Sawyer et al. Mule deer and energy development-Long-term trends of habituation and abundance, *Global Change Biology* (2017). [DOI: 10.1111/gcb.13711](https://doi.org/10.1111/gcb.13711)

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