

Study finds pronghorn population declining due to human development

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Global species diversity is in decline almost everywhere, largely due to human-driven development and resource use. Typically, conservation efforts have targeted the most endangered species, which can lead to

some tough choices on how to balance limited resources.

But there's an argument to be made that it is more effective and economical to focus on long-term preventative conservation rather than short-term crisis management. This would help common species remain just that: common.

A new [paper](#) published in *Global Ecology and Conservation* makes that argument in the case of declining pronghorn productivity—the number of juveniles per 100 females—in Wyoming. The paper, "Declining pronghorn (*Antilocapra americana*) population productivity caused by woody encroachment and oil and gas development," was co-authored by Caleb Roberts.

Roberts is a U.S. Geological Survey research ecologist at the Arkansas Cooperative Fish & Wildlife Research Unit, based in the U of A's Department of Biological Sciences.



Caleb Roberts. Credit: University of Arkansas

The paper looked at 40 years of data collected on 40 pronghorn herds residing in the Wyoming Basin Shrub Steppe. Sometimes referred to as antelope, though they're more closely related to giraffes, pronghorn are the fastest animals in North America and one of its most iconic species. Of primary interest was the productivity of these herds. Needless to say, declining productivity can be an indicator that a population is struggling.

Overall, 80% of the herds saw a decrease in productivity, and nearly 43% saw a significant decrease. After looking at a number of variables

that could potentially contribute to the decline, the researchers identified the two most strongly associated: development of oil and gas resources and woody encroachment.

Oil and gas production has soared in Wyoming over the last several decades. This has led to extensive construction of well pads, which are typically fenced off and are associated with, on average, construction of two kilometers of new roads. In short, migrating pronghorn herds are finding more obstacles to negotiate, leading to habitat fragmentation.

Woody encroachment is characterized by the conversion of rangeland to woodland. Increased pronghorn [productivity](#) is associated with higher shrub cover and herbaceous biomass—that is to say biomass that isn't woody, like trees. When [woody plants](#) and trees encroach on rangeland, this can lead to the reduction of forage for pronghorn.

In terms of preventative conservation, the paper makes the case for preemptive management of woody vegetation to help ensure sufficient forage for pronghorns.

"Although our paper centers on Wyoming, our results and approach are applicable everywhere—including Arkansas," Roberts said. "If we want to keep common species common, like [pronghorn](#) in Wyoming or turkey in Arkansas, we need to constantly look for early signals of declines and link those signals to causes of declines. That way, we can act before the problem becomes insurmountable and we lose critical natural resources and species."

More information: Victoria M. Donovan et al, Declining pronghorn (*Antilocapra americana*) population productivity caused by woody encroachment and oil and gas development, *Global Ecology and*

Conservation (2024). [DOI: 10.1016/j.gecco.2024.e02848](https://doi.org/10.1016/j.gecco.2024.e02848)

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