

Wolves lose their predatory edge in mid-life, study shows

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This undated picture provided by the Montana Fish, Wildlife and Parks (MFWP) shows a Grey Wolf at an undisclosed location in Montana.

Although most wolves in Yellowstone National Park live to be nearly six years old, their ability to kill prey peaks when they are two to three, according to a study led by Dan MacNulty and recently published online by *Ecology Letters*. The study will appear in the journal's December print issue.

The finding challenges a long-held belief that wolves are successful predators for their entire adult lives. It now appears that like human athletes, they are only at the top of their game for about 25 percent of that time. It also shows that physiology can limit predation.

"Wolves are not perfect predators," says MacNulty, a postdoctoral researcher in the College of Biological Sciences' Department of Ecology, Evolution and Behavior. "They lack [physical characteristics](#) to kill [prey](#) swiftly, so they rely on athletic ability and endurance, which diminishes with age. They're like 100-meter sprinters. They need to be in top condition to perform."

By comparison, mountain lions, with their short snouts, powerful muscles and retractable claws, are designed to kill, MacNulty says. Not surprisingly, they live and hunt alone.

In Yellowstone, wolves, who hunt in packs, depend on elk for survival. The finding is timely because the park's elk population is shrinking and wolves are being blamed. Wolves were hunted out of the area in the 1930s and re-introduced in 1995. But the study shows there isn't a strong correlation between the number of wolves in the park and the number of elk killed.

MacNulty says that number fluctuates based on the age structure of the [wolf](#) population at any given time. The higher the proportion of wolves over age three, the lower the rate at which they kill elk. For every 10 percent rise in the proportion of wolves older than three, the kill rate declined 10 to 15 percent. He notes that the drop in the elk population is also attributable to drought and to Grizzly Bears.

"Wolves are not the sole factor limiting Yellowstone's elk population," MacNulty says.

When older wolves can no longer hunt successfully, younger wolves share their kill with them, in what MacNulty describes as a lupine version of Social Security. While a high ratio of old-to-young wolves may benefit elk, it could strain the wolf population because there aren't enough workers to support retirees.

Montana legalized hunting wolves after they were removed from the endangered species list in 2007. Although hunting is prohibited in the park, packs wander beyond its boundaries and radio-marked wolves have been killed. MacNulty says hunting won't put the species at risk, but it actually skews the population towards younger wolves, which could mean more deaths, not fewer, for the elk.

MacNulty became a field biologist at Yellowstone after graduating from the University of Colorado in 1995, the year wolves were reintroduced, and focused his doctoral studies on their predatory behavior. He has continued tracking Yellowstone's wolves as a University of Minnesota postdoctoral researcher for Craig Packer, the world's foremost authority on lions.

MacNulty's next step is to create mathematical models to study the long-term effects of fluctuations in the age structure of Yellowstone's wolf population on the elk population. His collaborators include Douglas Smith (Yellowstone Center for Resources); John Vucetich, Michigan Technological University; David Mech (US Geological Survey); Daniel Stahler (Yellowstone Center for Resources) and Craig Packer (University of Minnesota).

Source: University of Minnesota ([news](#) : [web](#))

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