

Departments

PREDATOR MANAGEMENT & CONTROL

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GRIZZLIES: Plunderers of Yellowstone

After calving season, grizzlies don't kill many elk in the park. But they eat plenty of elk year-round, courtesy of theft.

As a Yellowstone wolf dines on a freshly killed elk, enjoying the hard-earned spoils of its successful hunt, it's constantly scanning for other predators that might try to rob its feast. This is called kleptoparasitism—when one predator steals food that another predator has procured.

A recent study published in the scientific journal *Ecological Monographs* in 2021 explores the various ways this phenomenon plays out between bears and wolves. The article synthesizes the findings of the second phase of this two-part study. The initial phase looked at the effect of grizzly bears on wolf kill intervals, meaning how frequently a wolf makes a kill.

What the scientists found surprised them. When bears were present, wolves made kills less often. This seemed counterintuitive. If a bear is stealing a carcass from a wolf, it suggests the wolf would need to kill more often to keep itself fed. The researchers also compared wolves in Yellowstone and wolves in Scandinavia to see if studies of different wolf and bear populations yielded a similar result.

And sure enough, they did.

Previous studies had shown that the presence of bears did in fact cause mountain lions to kill more frequently, said Matthew Metz, a research associate for the Yellowstone Wolf Project and a co-author of the study. With wolves, however, researchers discovered that bears had the opposite effect. This unusual result begged for an explanation, and the second phase of the study sought one.

According to Metz, bears are the leading cause of death for elk calves in their first month of life, but outside that window they are not very effective predators on elk and other big game. As omnivores, they can live on both fresh and scavenged meat and fish, as well berries, greens, roots, insects, mushrooms and more—they eat what's easiest to find. And as consummate opportunists, grizzlies have honed their skills at intimidating smaller predators off kills, Metz says.

For wolves, winter is primetime for predation, when their prey are weakened and slowed in deep snow—and when bears are no issue since they're hibernating. In early summer, newborn ungulates are widely available, but they don't offer a lot of meat per kill, so wolves still try to kill adult prey. This is difficult and dangerous. The average adult cow elk is six times larger than the average adult wolf. Well-fed elk on bare ground are strong and agile, ready to pound with their hooves and fight to protect their young. It's a high-risk process for a wolf to go after a calf or an adult, so when they do make a kill (or steal a carcass from a mountain lion) they don't want to give it up!

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This explains why wolves might make fewer kills when grizzlies are present. If their kill gets taken over by a bear, they might find it best to hang around, harassing the bear from multiple flanks and eating what they can rather than leaving it behind to make another kill.

“It’s not an easy task for a wolf to make a kill, so it is worth it for them to stick around and fight for their kill. It is a big risk to just go kill something new,” says Aimee Tallian, a scientist with the Norwegian Institute for Nature Research and co-author of the study.

With more than 1,000 grizzlies circulating around the Greater Yellowstone Ecosystem, chances are good even if wolves do make another kill, a new bear will be nearby to push them off that carcass, too. They stand a better chance waiting until the bear gets its fill, then grabbing what’s left.

But the data shows this dynamic has some complicating factors. In the study, each wolf’s “kill interval” restarts when it kills new prey, but it is very likely that even if a bear takes over a carcass and the wolves move on to make another kill, they may return to their first kill later and continue to eat it.

Another factor is that wolves primarily hunt in packs. Elk make up 90 percent of the diet of Yellowstone wolves, supplemented with deer and an occasional bison. It is usually more than just one wolf that feasts on these large ungulates, which muddies the data. Feeding rates differ whether there is one wolf or eight.

“It takes a whole lot of complexity to piece together the relationships between predators and prey, but this work shows us how these interactions don’t occur in a vacuum, and they are affected by other predators on the landscape,” says Metz.

In a place like Yellowstone where a full suite of large predators still coexist with elk, bison, moose, mule deer, bighorn sheep, pronghorns and mountain goats, the interplay between predators and prey is complex and ever-shifting. Grizzlies, wolves and mountain lions all steal from one another and may all dine on the same kill at different times. Research like this is helping to capture the impacts of predation and paint a fuller picture for biologists managing these animals across the West.

RMEF's take:

Wolves, bears, mountain lions and elk all have the same basic needs: big, wild places with viable corridors connecting them. RMEF has invested more than \$1.2 million to fund over 70 research projects since 1989, helping managers better understand how wolves, lions, black bears and grizzlies shape populations and behavior of elk and other big game—and each other—and will continue to do so to support wildlife managers wherever wild elk roam.