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Wolves and Ravens: Defining a unique relationship

By Caterina Erdas

I barely felt the cold, dry Montana air pierce my lungs as I looked through my scope for an iconic animal in our culture: a wolf. While the dramatic thermal features on the south side of Yellowstone National Park attract the most visitors, the north is quiet and rich with life. The Lamar Valley is a stunning stage for Yellowstone's wildlife to interact with one another. As the sun rises and hits the mountain tops, the cold air rushes into the valley and creates a thick fog, a curtain. Backstage, the wooded mountain ranges slowly bleed into the tall grasses and sage bushes blanketing the valley ground. Finally, I saw a black wolf's head peeking above the tall grass. Another five followed, probably from the Junction Butte Pack who currently hold control over the Lamar Valley.

By the 1920s, wolf populations were completely culled at Yellowstone National Park (YNP) by park officials and licensed hunters trying to protect their prime attractions: elk and other big-game animals. Wolves are the number one natural predator of elks, and at the time, there was concern that wolves were a danger to big-game animals. However, after the wolves were removed, park officials and scientists started to notice over-grazing on young trees, rampant erosion, and unstable growth/crash cycles in elk populations. Therefore, in 1995, wolves from Canada were brought into YNP to balance the ecosystem. To what extent wolf re-introduction "saved" the greater Yellowstone ecosystem remains debated, but elk levels stabilized

after re-introduction and by extension, the rest of the ecosystem stabilized. One hundred years later, seven generations of wolves have lived in Yellowstone and the surrounding area. That's seven generations of wolf packs fighting to expand their territory, winning, defending, losing, and dissolving as new packs grow (yes, it's Game of Thrones with wolves). YNP's wolf sanctuary provides a unique opportunity to study wolf behavior and biology, wolf pack dynasties, and their effects on the local ecosystem.

Apart from their own pack, wolves interact with ravens more than any other animal. The ravens are the most obvious beneficiary from the wolf-raven relationship. Studies have found that 100% of wolf kills are visited by ravens and nearly 2/3 of the carcass is consumed by the raven. The official term for their relationship is predator-scavenger interspecific kleptoparasitism, or, in English, a relationship between two different species where the scavenger benefits off the predator by stealing a portion of their food. The ravens stay close, recognize a wolf's hunting cry, and follow the hunt from above. Ravens cannot open a carcass on their own, so without the wolves' help, the eyes are the only edible part of the carcass for a raven. In this instance, the wolf is the predator being taken advantage of by the raven.

However, wolf and raven behavior doesn't perfectly fit the kleptoparasitism model. After a kill, wolves will only eat their preferred cuts of the meat and ignore the ravens and other scavengers pecking at the opened carcass by their side. If this were truly a competitive or parasitic relationship, the wolves

would protect their meal like they often do against bears. Even more counter intuitive, ravens are scared or “shy” of large carcasses and won’t feed on them unless a wolf is nearby. In addition, though wolves were gone from YNP for 70 years, ravens preferentially follow wolves significantly over coyotes or elk. If ravens were solely opportunistic, then a raven would choose a carcass without a wolf and would be equally likely to follow coyotes. These odd behaviors hint at an innate, ancient, and evolved mutualistic, not parasitic, relationship between wolves and ravens.

Wolves obviously don’t mind ravens and have evolved with ravens, so what are they wolves getting out of their relationship? When wolves and ravens are preoccupied with feeding, the ravens remain extremely alert and will call out if danger is near. The ravens act as another set of eyes and ears, not only at a carcass, but in the sky. Ravens have on multiple occasions been observed locating, harassing, and yelling at injured elk to draw the attention of wolves.

Furthermore, there are numerous wolf-raven anecdotes that illustrate their special relationship. For example, a biologist studying wolves wrote about an interaction he saw of a raven pecking at the tail of a wolf and jumping away when the annoyed wolf snapped back in retaliation. A wildlife photographer saw a nearby wolf open up a bear carcass for a yelling raven who found the body. One wolf watcher noticed that ravens hang around wolf dens and play with three-week-old wolf cubs. Both ravens and wolves have the social abilities to form bonds between individual ravens and individual wolves. I have my own anecdote. Soon after spotting the wolves, I saw a raven. At first it was circling close above, but then it swooped down towards a wolf, taunting it. The wolf, in turn, jumped up and snapped its teeth at a safe distance from the raven. They repeated this dance a couple times. What at first looked like an aggressive interaction was actually two friends, playing. Watching the wolf and raven’s unique relationship play out in the Lamar Valley is a moment I will never forget.

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