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Wolf study may help ranchers avoid livestock losses

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LOGAN — New behavioral research exploring the predation patterns of wolves may help ranchers in efforts to protect their livestock.

The findings by a Utah State University wildlife ecologist also dispel the popular cultural belief that wolves are "invincible" predators with kill skills that elevate with the larger the pack.

"Surprisingly few studies have tested whether hunting success actually increases with group size," says Dan MacNulty, assistant professor in USU's Department of Wildland Resources.

MacNulty and colleagues Douglas Smith of the Yellowstone Center for Resources, David Mech of the U.S. Geological Survey's Northern Prairie Wildlife Research Center, John Vucetich of Michigan Technological University and Craig Packer of the University of Minnesota, explored this idea using statistical techniques and by observing wolves hunting elk in Yellowstone National Park. Their findings appear in the September-October 2011 issue of Behavioral Ecology.

"What we discovered is that hunting success increased with groups up to four wolves then leveled off," says MacNulty, who has been involved with the Yellowstone Wolf Project since its 1995 inception. "With groups of more than four, we observed that individual hunting effort decreased."

He said the study showed that wolves are extremely vulnerable when they pursue large animals.

"Hunting large prey is dangerous," says MacNulty, who observed wolves that were kicked, gored and stomped to death by elk and bison. "For that reason, wolves are very cautious hunters. There's a lot of incentive to 'hold back' and let others go in for the kill."

Individual factors such as size, age and hunting ability determine a wolf's willingness to join the hunt, as well as how much the animal has at stake in getting its prey.

"As you might guess, parents generally take the lead because they have offspring to provide for," he says.

But even in groups of able-bodied breeders, hunting efforts decline when more than four join in the venture.

"It makes sense to look out for No. 1," MacNulty said. "Given a choice, wolves will stay out of harm's way until it's safe to enjoy the spoils of the hunt. They're opportunists. And this challenges the popular belief about wolves being highly cooperative hunters."

He says abundant evidence points to similar patterns with many other animals, ranging from such diverse species as spiders to chimpanzees.

"Hunting success also peaks in small groups with other social predators," MacNulty says. "But our study is the first to rigorously test this pattern and demonstrate that it's likely due to individuals switching from cooperation to 'free riding' as group size increases. Our study also suggests that social predators live in large groups for reasons unrelated to group hunting

success.”

The team’s findings, he added, may one day assist efforts to prevent conflicts between wolves and livestock.

“Wolves are risk-averse,” he said. “Management that takes advantage of this behavior may be an effective way to reduce wolf predation on livestock.”

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