

FEATURE

A second chance for the Mexican wolf

Psychologists' interventions could help save an endangered species — and transform wildlife management worldwide.

By Sadie F. Dingfelder

November 2010, Vol 41, No. 10

Print version: page 20

In 1980, there were only a handful of Mexican wolves left on earth. Breeding programs have since bolstered their numbers to 300 in captivity and 40 in the wild, but attempts to reintroduce the wolves to their natural habitat don't always go smoothly. That's often because wolves find cows and sheep to be easy prey, and ranchers can request that wildlife officials recapture wolves that have developed a taste for livestock.

For 40 years, psychologists have known about a simple solution to address the problem: conditioned taste aversion, the phenomenon that explains why just one piece of bad sushi forever turns you against the food. That intense repulsion is recorded primarily by the brain stem and has been observed in raccoons, octopuses, sea anemones and many other animals. Scientists have also found that CTA is easier to acquire and longer-lasting than any other known form of learning.

In the 1970s, psychologist Carl Gustavson, PhD, was the first to show CTA's potential applications for wildlife management. He showed that after captive coyotes and wolves eat ground mutton that's been wrapped in sheep hide and sprinkled with an undetectable nausea-causing agent, the animals resist attacking live cattle. Lowell K. Nicolaus, PhD, an emeritus biology professor at Northern Illinois University, teamed with Gustavson to replicate the results with free-ranging predators. Unfortunately, when wildlife authorities tried the procedure, they made many mistakes — for instance, overdosing the meat with a salty-tasting lithium chloride, causing the predators to link salty meat with the illness, rather than the taste and smell of the live prey. As a result, the coyotes continued preying on livestock, and conditioned taste aversion got mistakenly labeled as ineffective, says Nicolaus.

"They simply didn't understand the process, and they treated it like a repellency thing. 'Put hot sauce on the prey, and the more hot sauce, the better,'" says Nicolaus.



Now, conditioned taste aversion is getting a second chance, thanks to Nicolaus and Dan Moriarty, PhD, a psychology professor at the University of San Diego. Last September, Nicolaus and Moriarty conducted an experiment where they mixed tiabendazole, a tasteless, nausea-inducing chemical, into ground mutton wrapped in sheepskin. They then gave the mutton parcels to captive wolves that often dragged the meat around and urinated on it before eating it. Despite the smell contamination, every animal that ate the bait refused to eat sheep meat in following trials, according to findings Moriarty presented in April at the Western Psychological Association annual convention.

In June, Moriarty and Nicolaus described how to use conditioned taste aversion to prevent wolves from attacking livestock in a report to the U.S. Fish and Wildlife Service's Mexican Wolf Recovery Program. It's now being reviewed by the program's scientific committee and state wildlife management agencies. This is a major step because it's the first time in more than three decades that wildlife authorities have considered trying the technique, says Moriarty.

“This could be a really effective tool, so it’s certainly worth considering,” says Maggie Dwire, the program’s assistant recovery coordinator.

If it’s as effective in the field as in captivity, this work could revolutionize wildlife management in the United States and abroad, says Moriarty. Farmers in Africa could, for example, use CTA as a nonlethal alternative to shooting lions that attack livestock, and conservationists might use the procedure to keep nonendangered predators, such as mongooses, from preying upon the eggs of endangered birds.

“It’s a great example of psychology in action,” he says.

Find this article at:

<http://www.apa.org/monitor/2010/11/mexican-wolf.aspx>