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INTERNATIONAL WOLF

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SUMMER 2014

A white wolf is shown in profile, sitting on a dark, textured rock. The wolf's head is tilted back, and its mouth is open in a howl, revealing its teeth and tongue. The background is a soft-focus green forest. The wolf's fur is thick and white, with some darker patches around its eyes and mouth.

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the Deer?**

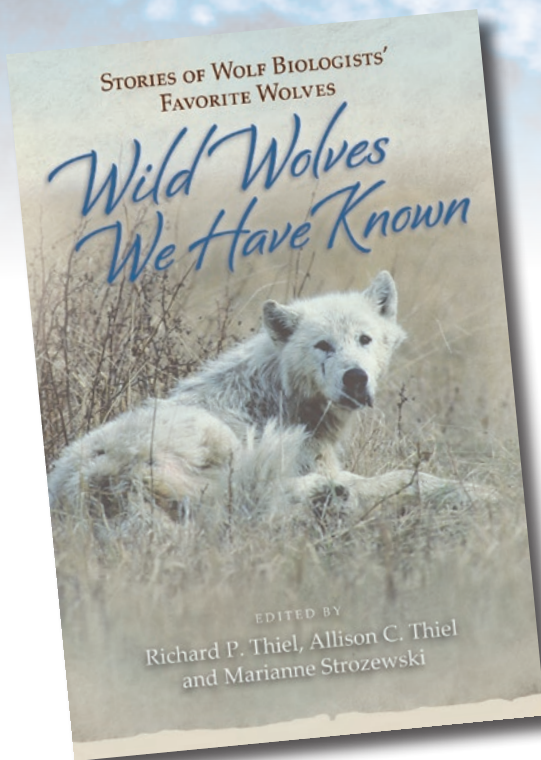
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Every Wolf That Has Ever Lived
Has a Story to Tell...



"I hated to put it down."

— Stephanie Hemphill, Minnesota Public Radio



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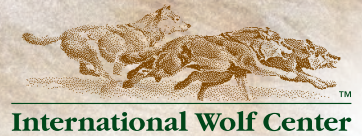
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INTERNATIONAL WOLF



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Denali Wolves Decimated Along Park Boundaries

The news that wolf sightings by visitors to Denali National Park last summer were the lowest on record is disheartening but not surprising. This is what scientists in 2010 warned would happen when the Alaska Board of Game eliminated the small no-take wolf buffer on state lands east of the national park.

By Marybeth Holleman



Austria's Wolf Science Center Makes a Name as a Research Powerhouse

A study conducted by Austria's Wolf Science Center found that friendship among wolves outweighed rank as a predictor of how much a wolf would howl when separated from other wolves. A separate study found that wolves, raised in the right environment, are just as capable as dogs are of learning from humans. These findings are just some of the research results occurring at the center.

By Tracy O'Connell



What's Killing the Deer?

Deer hunter satisfaction in Wisconsin seemed boundless in the first decade of the present century. Deer were so numerous state wildlife managers initiated liberal hunting tactics to curb growth. Statewide harvests soared to unprecedented levels. That is, until the autumn of 2008. Are wolves responsible for the lower deer take?

By Richard P. Thiel



On the Cover

Malik
Photo by Becki Johnston

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SEE PAGES 18–19

From the Executive Director

A Breathtaking Journey Awaits Us All

It's 10:15 p.m., and suddenly my cell phone starts vibrating. I lift it up to see that a push notification has come through—a sunspot has hurled magnetic particles toward the Earth, and forecasters are predicting intense northern lights tonight.

Curious, I walk out of the cabin I am staying in at Camp Van Vac to see a spectacular glow forming over Burntside Lake, just on the outskirts of Ely, Minnesota. This is amazing; the aurora borealis is forming, one of the Seven Natural Wonders of the World!



Rob Schultz

For those who love the outdoors, there's nothing more magical and inspiring than to experience the northern lights. To look up at the sky and see their shimmering colors of light dance through the darkness is breathtaking. They represent the incredible beauty of nature and the grandeur of our solar system.

On a similar evening in March 2011, photographer Heidi Pinkerton went outdoors to try to capture the beauty of the aurora with her camera. Earlier that day, she had read a post on Facebook that Maya—one of her favorite ambassador wolves at the Center—had passed away. She found a perfect location from which to view the northern lights and began setting up her camera. In the distance, a lone wolf began to howl, reminding her of Maya.

Under the brilliant midnight skies, Pinkerton's passion for photographing the aurora was born. She heard the lone wolf howl repeatedly throughout the night. And when she returned home, the images she had captured were breathtaking. She named her first northern lights photo—a stunning band of light ascending high into the sky—Howling from the Heavens in memory of Maya.

Since that memorable evening, Pinkerton has become one of the great northern lights photographers of our time. This summer, her work will be showcased in a new exhibit that will open at the Center, "AURORA! A journey through the midnight sky." Visitors will experience the mystical images she has captured while learning the secrets behind what causes this natural phenomenon. ■



Rob Schultz, executive director

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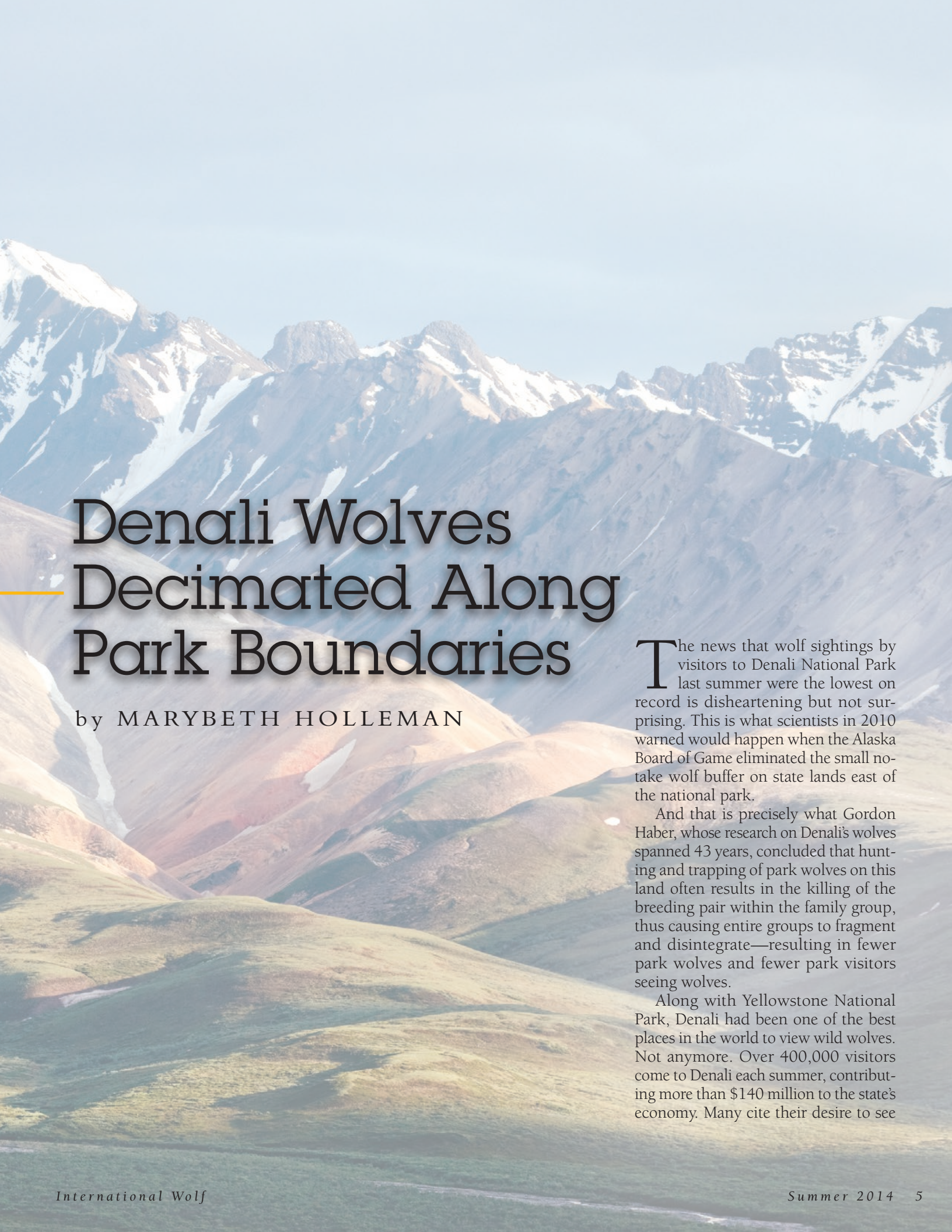
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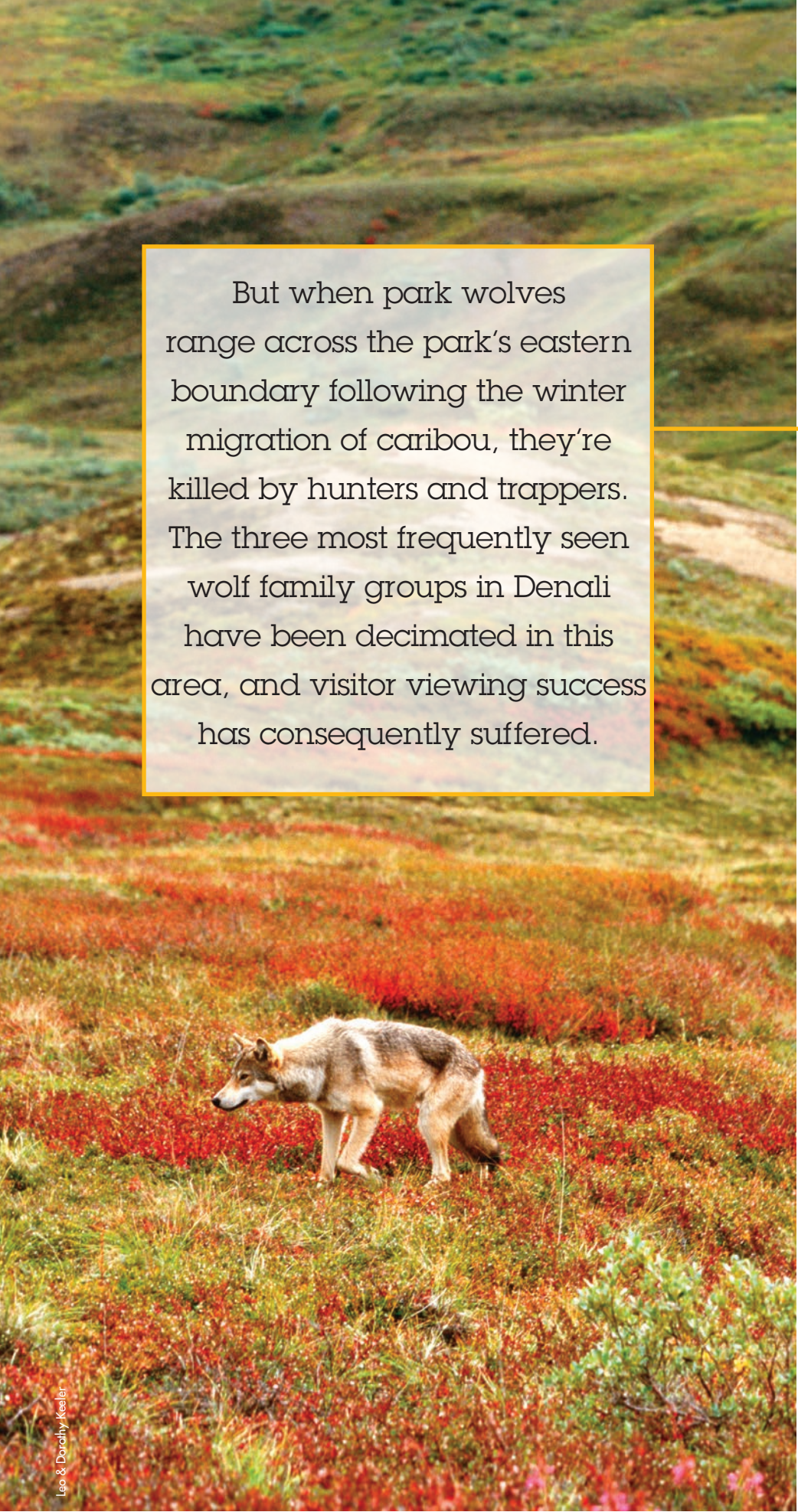
Denali Wolves Decimated Along Park Boundaries

by MARYBETH HOLLEMAN

The news that wolf sightings by visitors to Denali National Park last summer were the lowest on record is disheartening but not surprising. This is what scientists in 2010 warned would happen when the Alaska Board of Game eliminated the small no-take wolf buffer on state lands east of the national park.

And that is precisely what Gordon Haber, whose research on Denali's wolves spanned 43 years, concluded that hunting and trapping of park wolves on this land often results in the killing of the breeding pair within the family group, thus causing entire groups to fragment and disintegrate—resulting in fewer park wolves and fewer park visitors seeing wolves.

Along with Yellowstone National Park, Denali had been one of the best places in the world to view wild wolves. Not anymore. Over 400,000 visitors come to Denali each summer, contributing more than \$140 million to the state's economy. Many cite their desire to see



But when park wolves range across the park's eastern boundary following the winter migration of caribou, they're killed by hunters and trappers. The three most frequently seen wolf family groups in Denali have been decimated in this area, and visitor viewing success has consequently suffered.

wolves as a primary reason for visiting the park. As Denali Superintendent Don Striker said, seeing wolves in the wild is an “amazing, oftentimes transformative, experience” for visitors.

But when park wolves range across the park's eastern boundary following the winter migration of caribou, they're killed by hunters and trappers. The three most frequently seen wolf family groups in Denali have been decimated in this area, and visitor viewing success has consequently suffered.

Recognizing the economic value of wolf viewing in Denali, the state closed some of these lands to wolf take from 2000 to 2010. But as Haber warned, this small buffer wasn't sufficient; in some winters, as many as 19 park wolves were killed east of the buffer—15 percent of the park's total wolf population.

This prompted many organizations, including the National Park Service, to propose at the 2010 meeting of the Alaska Board of Game—just a few months after Haber's untimely death in a research flight crash—that the inadequate buffer be expanded. Instead, the board, comprised entirely of hunters and trappers, eliminated the buffer and passed a moratorium on considering the issue again until 2016.

Many predicted this would accelerate the already precipitous decline in wolf numbers in Denali and viewing success—and it has. Today the number of wolves within the six-million-acre (more than two-million hectare) national park and preserve has declined from 92 in spring 2007 to just 55 in spring 2013—a drop of 40 percent in six years. Since the state removed the buffer in 2010, the population dropped another 8 percent, and wolf-viewing success for park visitors has plummeted: from 44 percent in 2010 to just 4 percent in 2013. This downward spiral in wildlife viewing success could be unprecedented in the history of the entire national park system and could have been partly caused by the state's actions.

The board's decision illustrates its increasingly anti-predator stance. Despite scientific consensus on the importance of predators in stable ecosystems, a board-led predator-control program has esca-



Leo & Dorothy Keeler

lated across Alaska with practices that haven't been legal since before statehood—shooting brown bears from the air, killing bears with cubs and in one case gassing wolf pups in the den in an area where rabies is prevalent.

Removing the buffer also reflects a festering animosity toward both the federal government and wolves. At the 2010 board meeting, Chair Cliff Judkins said he has seen pictures of park wolves, “and it just looks like some mangy dog walking down the dusty road with the bus alongside of them. It’s just not appealing to me at all.”

To board members, fewer wolves in Denali National Park simply isn't their problem; they believe they can kill a fixed percent of an existing wolf population that corresponds to its natural mortality rate and still have a viable region-wide population. Alaska's Board of Game has set that number as high as 40 percent.

But as Haber concluded, it's not how many wolves are killed, but which wolves are killed. Each wolf has a specific role in the functional family unit, and some roles are more vital than others.

In 2012 the last breeding Grant Creek female, from the park's most viewed family group, was trapped in the former buffer zone. The death of this one wolf left the surviving pack members with no pups that spring, and they abandoned their den site and dispersed. The pack declined from 15 to 3 wolves. Rather than visitors witnessing the 15-member family group attending new pups at the den site, they saw nearly none. Viewing success dropped by 50 percent that summer alone—all from the loss of one wolf.

This fall, in a letter to U.S. Secretary of the Interior Sally Jewell and Alaska Gov. Sean Parnell, a coalition of Alaska citizens and national organizations pro-

posed a “win-win” solution: that the state transfer a permanent no-take, wildlife-buffer conservation easement east of the national park in exchange for the federal government transferring a like-valued easement, or purchase value, to the state of Alaska.

This would allow park visitors a better chance of seeing wild wolves and would sustain and grow Denali's valuable wildlife-viewing economy. What's more, it's a potential blueprint for handling similar boundary issues throughout the United States, wherever wild wolves roam across invisible boundaries and into harm's way. ■

Alaska writer Marybeth Holleman is co-author with the late Gordon Haber of Among Wolves: Gordon Haber's Insights into Alaska's Most Misunderstood Animal. She can be reached at www.marybethholleman.com.

Austria's Wolf Science Center Makes a Name as a Research Powerhouse

by TRACY O'CONNELL



Worldwide last fall, media reported the results of a study conducted by Austria's Wolf Science Center, about the nature of wolf howling. When they took individual wolves on walks, researchers at the center measured the reactions of packmates. It was found wolves howl more when they see a wolf with which they have a better relationship leave than when a higher-ranking wolf leaves. That led to the conclusion that the degree of howling reflected the strength of bond between the animal taken away and those that remained. Friendship outweighed rank as a predictor of the extent of howling.

Another center study more recently found that wolves, raised in the right environment, are just as capable as



Walter Vorbeck

dogs are of learning from humans. That means domestication likely channeled or redirected previously existing skills instead of forming entirely new ones. It also seems to mean that dogs' ability to accept humans as social partners is not a unique outcome of domestication, since socialized wolves are capable of doing the same.

These findings are just some of the research results occurring at the center, founded in 2008. It lists on its Web site, www.wolfscience.at, a series of projects in progress, as well as extensive publications and popular articles and presentations given by center members and collaborators. Some studies examine how canids might be similar to primates in their ability to learn and cooperate.

For example, a five-year project launched in March 2013 and funded by the European Research Council will include a series of experiments that focus on "cognitive processes closely linked to the emotional system, such as empathy, inequity aversion and delayed gratification," processes thought to be involved in triggering, maintaining and regulating primate cooperation, according to the online summary. "Using social network theory, we will integrate knowledge of animals' emotional tendencies as well as of their cognitive abilities to model canine cooperation and to test the model's predictions with our own data," the investigators noted.

Dr. Friederike Range, one of the Wolf Science Center's three founders, isn't surprised by the excitement her group's research has generated among mainstream media outlets. "Dogs are important to our society," she said, noting that so many people have them for purposes ranging from companionship and therapy to work of various types and military reasons. "Our health is better if we have dogs," she concluded, so dog research gets attention.

People either love or hate wolves, she continued, adding that "there's nothing in between." Either way, they are inter-

ested in wolf research. Range asserts that the large samples the center works with are unique and allow researchers to control for many different variables.

With a goal of advancing an understanding of the cognitive and cooperative abilities of wolves and dogs and their social relationships with their own kind and humans, the center seeks to also understand the evolutionary beginning of cooperation, its social and psychological mechanisms and the question of who profits when cooperation happens.

Other research questions include the following: whether dogs' wolfish characteristics, domestication or a combination of the two enable them to cooperate with humans; what dogs and wolves have in common; how humans differ in their interactions with wolves and dogs; how the intellectual and the cooperative abilities of wolves and dogs affect their social interactions with their own kind and with humans; and how the relationship between dogs and humans depends on early socialization

and training of the dog as well as on the traits of the human partner.

Range's online profile and that of her co-founders show the winding path that led to the center's creation. While completing undergraduate work in Germany and a doctoral program at the University of Pennsylvania in the United States, she studied learning abilities of ravens and social interactions of sooty mangabeys, a type of West African monkey. Studies also took her to Costa Rica and the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany.

Returning to Europe in 2004, Range worked at the University of Vienna, studying imitation and social learning in dogs and tamarins, a small South American monkey. With her colleague Dr. Zsófia Virányi and their professor, Dr. Ludwig Huber, Range founded the Clever Dogs Lab in 2007, a facility she continues to manage.

And while Range and her colleagues were founding associations, she reports in her understated way that the Wolf



Wolf Science Center

Science Center was started the following year, bringing in her Clever Dogs co-founder Virányi and Dr. Kurt Kotrschal, a seasoned researcher who heads the Konrad Lorenz Institute for Evolution and Cognition Research in Altenburg, Austria, an existing research lab studying social mechanisms of birds. Named for the Austrian zoologist credited with beginning the study of ethology, the lab was the center's first home. The center moved to its own setting in Ernstbrunn, near Vienna, a year later but continues to share work and facilities with the Konrad Lorenz lab.

Today Kotrschal and Range also work at the more recently birthed Messerli Research Institute, which formally opened in 2012 and which studies cognition in a broad range of species. "We need to work at several sites," Range said, because there isn't adequate funding at any one center to fully support the staff.

The Wolf Science Center obtains wolf pups when they are 10 days old from zoos in Europe and North America and mixed-breed, young dogs from European animal shelters, raising each in close association with humans

during infancy, then integrating each at about five months of age into a pack of its own kind so they have similar life experiences. There are five dog packs and five wolf packs of two to three adults at any given time. Because of their early socialization and subsequent work with humans, the wolves are considered tame wild animals, as opposed to domesticated, that "walk on a leash better than my pet dogs," Range said. The goal is to have canids in both groups receiving identical life experiences to control for those ways in which they differ.

The center's work was tracked for a year by a team of videographers from Austria's ORF Universum Documentaries. The three-part result, *Teaming Up With Wolves*, was created in 2010 and can be seen in the United States for free online at hulu.com.

"You have to love this work," Range said. "There are too many hours not to enjoy it." With it comes responsibility across a range of skill sets, from writing grants and managing administrative tasks to overseeing a squadron of volunteers, interns and visiting scientists, which often interfere with the time each

founder is able to focus on the central task of research. With the hard work and long hours comes recognition. Kotrschal, who has taught at the University of Vienna for two decades, was named Austrian Professor of the Year in 2010, and Range most recently received the Distinguished Scientific Award for Early Career Contribution to Psychology in the area of animal learning and behavior from the American Psychological Association in 2012.

The Clever Dogs Lab, which was founded a year before the Wolf Science Center, draws on Austrian dogs volunteered by their owners to study topics including personality, relationships, cooperation, reasoning, physical and social cognition and individual learning abilities. The focus of a November 2012 *Nova Science* magazine article, the lab looks at the predictive ability of early puppy personality tests on dogs bred for working—service animals and herders, for instance—to determine how suited they actually are for these tasks in later life.

Each center in which the researchers operate exists under the auspices of the University of Vienna and its school of veterinary medicine. The Wolf Science Center has received funding from the Austrian Federal Ministry of Science and Research and the Federal Ministry of Agriculture, Forestry, Environment and Water Management, and many other organizations. Extensive corporate sponsorships helped initially fund animal food, construction materials and transportation as the site was prepared. Range credits Minnesota's International Wolf Center and Indiana's Wolf Park as U.S.-based organizations that provided instrumental information on the logistics of wolf management during the start-up phase of operations.

Future plans focus on continued research, with many more articles being prepared for publication in the coming year. ■

Tracy O'Connell is associate professor of marketing communications at the University of Wisconsin–River Falls and a member of the International Wolf Center communications and magazine committees.



From left to the right: Wolf pups Amarok, Chitto, Tala and Una.



James Pintor



Steve Volles

WHAT'S KILLING THE DEER?

by RICHARD P. THIEL

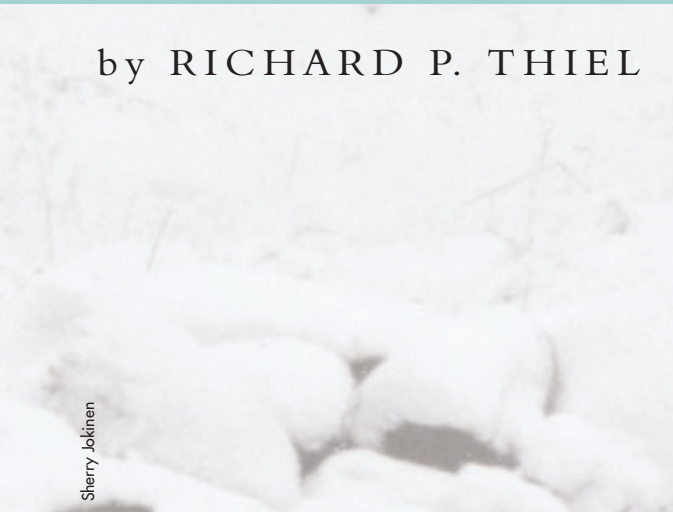
What's killing the deer in Wisconsin? It is a great question. The easy answer, wolves, comes into the conversation with all the subtlety of someone yelling "Fire!" in a crowded theater.

The logic follows something like this: Wolves are more numerous now than ever. Wolves eat deer. I saw fewer or no deer this year in my usual hunting area. Repeat this scenario throughout the deer camps and the conclusion is obvious: Wolves

are to blame. Accusations that wolves caused recent declines in deer harvests and hunter satisfaction certainly stem from such stories. But the conclusion—foregone to many—and the truth of the matter may be two different beasts.

The testament that wolves abound, that deer sign is hard to come by, and that particular deer hunting camps harvested fewer deer than normal could all be true. But is there other evidence, overlooked, that could also be implicated in the very complicated undercurrents in predator-prey relationships?

Americans' acceptance of quick-fix solutions is part of our national psyche. We love food fast, sports team victories that are clear, no ties please, and our problems solved quickly regardless of their complexity. In the realm of wolf-deer matters, the deeply seated reputation of



Sherry Jokinen



Theresa V. Stenersen



Sherry Jokinen

A radio-collared deer found dead from exposure and starvation in Wisconsin's Central Forest.



Dick Thiel

the wolf as a menace, a taker of what is rightly ours, adds weight to the arguments and conclusions gained.

Central to this predator-prey question is competition. It is a fact that deer hunters compete with wolves, and wolves compete with hunters for deer. Hunters and wolves compete against deer that employ a number of defensive behavioral tactics to avoid detection (and killing). Deer compete with each other for survival on that same landscape.

In Wisconsin deer hunter satisfaction knew no bounds in the first decade of the present century. Deer were so numerous that state wildlife managers initiated liberal hunting tactics to curb growth. Statewide harvests soared to unprecedented levels. That is, until the autumn of 2008.

The Wisconsin Department of Natural Resources (WDNR) has 60 years of data based on a mandatory registry of harvested deer. Information about sex, age (fawn or adult), county, date of take and Deer Management Unit (DMU) are gathered on harvested deer, forming the basis of population estimates managers use to prescribe future harvest levels.

As a wildlife biologist for WDNR, I was manning one of those registration stations during the 2008 hunt. By the end of the first day it was obvious the harvest was down. Hunters were complaining of the lack of deer in the woods. The 2009 deer-hunting season was also relatively poor. Hunters blamed wolves.

The WDNR produces a statistically laden report each April following the hunt, entitled *Wisconsin Big Game Hunting Summary*. These reports can be mined for information on nearly everything related to the deer hunt, including the number of bucks harvested within each DMU.

I consulted these statistics between 1997 and 2012, comparing four DMUs inhabited by wolf packs to three DMUs in east-central Wisconsin where wolves

were absent. The number of harvested bucks dropped significantly between the 2007 and 2008 seasons not only in the wolf DMUs but in the wolf-free DMUs as well. The decline occurred again in 2009. Whatever caused the decline surely did not involve the wolves.¹

Wolves certainly eat their fair share of deer, roughly 20 adult-sized deer per wolf per year. This number is but a fraction of the deer that die each year and cannot possibly explain the observed fluctuation in population. So what gives?

Winter weather. Specifically deep snows and unrelenting cold that appreciably reduce a deer's chances of gaining the three to four pounds (about one and one-half to two kilograms) of daily forage their bodies require. Deer rely on stored fat to make up the difference, so these reserves are largely extinguished by late February. When continued March snows deny deer access to necessary ground forage and continued cold temperatures require deer to keep the furnace turned up, they become susceptible to dying of exposure and starvation.²

Deer managers in Upper Great Lakes states have long known severe winter impacts on harvests. In a normal Wisconsin hunt more than 60 percent of adult bucks harvested are yearlings (one-and-a-half-year-olds). These same yearling bucks were last winter's fawns. Fawns are particularly susceptible to loss during stressful winters, and declines in the succeeding autumn harvests of 20 percent following a severe winter are not uncommon.

Since the 1980s climate change has altered weather patterns, and tough winters are less frequent. Deer hunters under roughly 40 years of age have little experience with the ups and downs of deer herds spawned by weather—and so the angst.

Historically, severe winters struck the Upper Great Lakes region about once every four years. But this is merely a statistic. What happens when a number of severe winters strike back-to-back? By coincidence, researchers including Dr. L. David Mech, Pat Karns and others involved in a study on deer-wolf dynamics in the Superior National Forest in northeastern Minnesota witnessed such a catastrophe in the late 1960s and early 1970s. In a seven-year period five severe winters hammered the region, and the impact on both deer and wolves was memorable.

The deer population declined by 60 percent and was systematically eliminated from the core areas of wolf pack territories. Average ages of hunter-killed deer taken at area registration stations increased from about two and one-half years before the severe winters to around five years during the severe winters (the herd grew “older” because very few fawns relative to adults survived each winter).

What about the wolves? Cases of surplus killings (killing more than they can immediately consume, and usually involving multiple deaths of deer in proximity) were recorded. As the severe winters stretched on, wolf kills declined from 40 kills per winter in

Since the 1980s climate change has altered weather patterns, and tough winters are less frequent. Deer hunters under roughly 40 years of age have little experience with the ups and downs of deer herds spawned by weather—and so the angst.

FOOTNOTES Author's note: Unlike anecdotal comments and stories that need no “backing up,” scientists refer to documented evidence that is in most cases peer reviewed so that readers can seek these out and judge for themselves. These footnotes are presented in that spirit.

1. Wisconsin Department of Natural Resources. *Wisconsin big game hunting summary*. 1998 through 2010. WDNR, Madison.

2. An enormous body of literature is available on deer physiology and overwinter losses. I used:

Karns, P. 1980. “Winter—the grim reaper.” P. 47–51 in Hine, R. L. and S. Nehls (Eds.) *White-tailed deer population management in the North Central states*. Symposium proceedings, Midwest Fish and Wildlife Conference. North Central Section, The Wildlife Society.

Marchand, P. J. 1996. *Life in the cold: An Introduction to Winter Ecology*, third edition. University Press of New England: Hanover, NH.



A gaunt buck in early May following a severe winter in Wisconsin's Central Forest.

When continued March snows deny deer access to necessary ground forage and continued cold temperatures require deer to keep the furnace turned up, they become susceptible to dying of exposure and starvation.

one pack to 8, undoubtedly in response to decreased availability of deer. Wolves began excursions into neighboring packs' territories to hunt, and territory sizes increased from 48 square miles (12,431 hectares) to 87 square miles (22,532 hectares) as deer were eliminated from core areas, forcing wolves to search along

boundaries. Finally wolves began starving, and to stave off death wolves' activity bouts declined from roughly 40 percent to 12 percent per day to conserve energy in undernourished bodies.³

Remarkably both the deer and the wolves preying on them persisted and the populations of both rebounded. Fortunately these events, documented 40 years ago, are not representative of year-in, year-out happenings in wolf woods.

Predator-prey dynamics are very complex, and unraveling cause-and-effect is complicated by many variables, including humans themselves. Back in Wisconsin, scientists just released preliminary results of a comprehensive deer study carried out in one area where wolves are present and another where they are absent. Humans (hunting, vehicles and poaching in that order) were responsible for over half of deer deaths. Wolves rank near the bottom.³ While this

study has not yet been peer reviewed, it echoes results of others in both Minnesota and the Upper Peninsula of Michigan that document humans as a primary cause of deer mortality, whether in the presence (Minnesota) or absence (Upper Peninsula of Michigan, early 1990s) of wolves.⁴

To be sure there are places and circumstances where wolves have an impact on deer numbers and hence availability to hunters. Winters have an effect. Certainly hunters have an effect. In regions where these three mortality factors collide—most notably the “lake effect” zones downwind from the Great Lakes—deer, deer hunters and wolves are regularly affected.⁵ A large body of scientific evidence exists suggesting that in most places where white-tailed deer, wolves and hunters exist there remain deer enough to go around.⁶

Anecdotal accounts of the ravages of wolves will continue unabated in some hunter circles. They make for good stories, sell copy and rally the troops around something more tangible than mere snowflakes. ■

Richard “Dick” Thiel is a former wildlife biologist for the Wisconsin Department of Natural Resources and a member of the International Wolf Center board of directors.

FOOTNOTES continued

3. Mech, L. D. 1977. “Population trend and winter deer consumption in a Minnesota wolf pack.” P. 55–83 in R. L. Phillips and C. Jonkel (Eds.) *Proceedings of the 1975 predator symposium*. Bull. Forestry Conservation Exp. Station, University of Montana, Missoula.

Mech, L. D. and P. Karns. 1977. “Role of the wolf in a deer decline in the Superior National Forest.” For. Serv. Res. Paper NC-148., U.S. Dept. of Agriculture, Washington, D.C.

<http://www.jsonline.com/tablet/sports/study-sheds-light-on-top-causes-of-deer-mortality-b99190938z1-241992741.html#ixzz2rYg2dNKL>

4. See for instance:

Delgiudice, G.D., M.R. Riggs, P. Joly, and W. Pan. 2002. “Winter severity, survival, and cause-specific mortality of female white-tailed deer in North-Central Minnesota,” *Journal of Wildlife Management* 66: 698–717.

Van Deelen, T. R., H. Campa III, J. B. Hauffler, and P. D. Thompson. 1997. “Mortality patterns of white-tailed deer in Michigan's Upper Peninsula,” *Journal of Wildlife Management* 61: 903–910.

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Tracking the Pack

Wolf Watch Memories

by Lori Schmidt, Wolf Curator, International Wolf Center

Wolf Watch is a program designed by the International Wolf Center's Wolf Care staff to allow for behavioral observations and data collection that is independent of routine wolf-care checks. As discussed in previous articles, the Center's ambassador wolves are socialized to handlers at a young age. This socialization process results in wolves that are very focused on the presence of their regular handlers, which can distort interactions among the wolves. During a WolfWatch program participants record behavior from the observation windows when there is no human activity in the wolf yard.

On Thursday, February 14, 2014, we offered our first Wolf Watch program since the 2012 pups, Boltz and Luna, were introduced to the pack. We had a small team of observers including two participants who traveled a long distance to be part of the program. Rose and

Robert McKay joined us from Omaha, Nebraska, specifically for this program. Rose learned of the Center's educational mission and ambassador wolf program in January 2014 when the Center conducted a Wolf Link distance-learning program at her school. A few weeks later, a very dedicated father, registered his daughter for the Wolf Watch program and made the nearly 10-hour drive north in subzero temperatures.

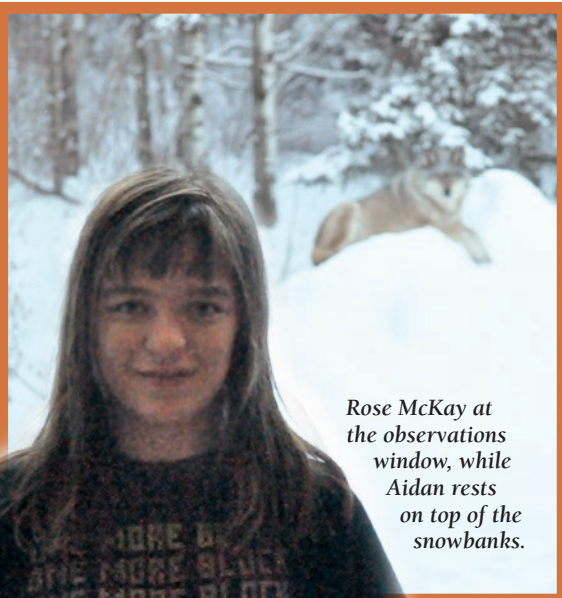
In her first moments after arriving for the program, Rose had a special encounter with Aidan. Possibly due to the height of the snowbanks, Aidan was eye level with Rose and initially followed her along the front of the viewing area for nearly five minutes before settling down to watch from a distance. Welcome to Wolf Watch.

As the evening progressed, Rose provided her assessment of the pack dynamics based on the training she had just received and the wolves' behaviors. She was most impressed by the wolves' social interactions and Luna's continual awareness when another

Above: What starts as a social interaction with Aidan rolling in the snow results in an opportunistic two-year-old interaction, with Aidan demonstrating a threat display as Boltz looks for a way to gain status.

wolf traveled near her cache of deer legs. Pack members tossed hides, postured toward one another, asserted status and provided hours of detailed behavior. When asked which wolf she best related to, Rose selected Boltz, a middle-ranking wolf. Why? Rose is a middle child, and she knows what it's like to have others assert status. While Rose has had an opportunity to visit and observe wolves in Yellowstone, it was the detailed behaviors of each individual wolf that made her first trip to the Center special.

To gain your own Wolf Watch memories, please visit our Web site at www.wolf.org and check out the Events tab for adults. ■



Rose McKay at the observations window, while Aidan rests on top of the snowbanks.



Denali tilts his head in submission, while Aidan and Luna, the dominant pair, demonstrate status during February's Wolf Watch program.

Tracking the Pack

In Memory of Malik

Malik, a resident male arctic wolf at the International Wolf Center, was euthanized on Saturday, March 22, after a rapid decline in health. The nearly 14-year-old wolf joined the Center's resident pack in 2000 with his brother, Shadow, and the two retired from the Exhibit Pack about four years ago. As an ambassador wolf, Malik helped educate thousands of visitors to the Center and through its weekly YouTube videos, wolf logs and webcams. Following are a few remembrances of Malik:

THE MOTH FLUTTERING IN MY GARDEN captured Malik's total attention. His hindquarters slowly folded beneath him, and then he pounced on his prey. Success. The chase was on to keep his catch from Shadow. Bugs were a favorite of Malik's, and his tendencies to explore were notable in the first six weeks he and his littermate lived in our home.

Malik and Shadow were 10 days old and weighed just over 2.5 pounds (1.1 kilograms) when I picked them up. They were instant stars of the International Wolf Center and favorites of the public. The local TV station had a camera hook-up in their cage, so questions and concerns occurred with each noise, interaction and bowel movement. Malik was slightly heavier and lighter colored than Shadow in those first weeks, but we attached a red-and-blue collar to Malik to insure our observations were correct. At 16 days of age, Malik tested his vocal chords with short howls in response to my whining noise. Those whimpers, comfort nursing noises and his growl when feasting on his first deer meat will always bring a smile to my face.

Malik, like other wolves, grew so fast that each day brought new developments and personal delight. Malik seemed more comfortable than Shadow with new situations and people. He was calmer at the vet's office when getting his check-ups. Perhaps it was that slightly compliant behavior that kept him from ever rising to leadership status in the pack. But he never failed to please the public, always gave me exuberant greetings and certainly left his mark in the world of wolves.

— Nancy Gibson,
board member



WHEN THE PUPS WERE BEING WEANED, I was bottle-feeding Malik when he bit the end off the thick rubber nipple and swallowed it. I spent a full 24 hours wringing my hands and cussing, certain he would die of an intestinal obstruction. We consulted Dave Mech and Larry Anderson, the vet in Ely. They said basically, "Even this shall pass away."

It did. It was a Eureka moment for me when I found it in his puppy poop. Nancy Gibson wouldn't let me frame it.

— Neil Hutt, communications team member

MY HUSBAND AND I FIRST MET MALIK AND SHADOW in the auditorium when they were pups at the Center. We've missed only one year of visiting since that initial visit; the wolves and the team at the International Wolf Center have made a huge impact on our lives. My thoughts and prayers are with the entire staff as I understand the passion you have for these fabulous animals.

—Lana Goldsmith, Wisconsin Dells, Wisconsin

SO VERY SORRY FOR THIS LOSS. Bless you all for the wonderful work you do on behalf of wolves and the people who love them.

—S. De la Torre, Stillwater, Minnesota





International Wolf Center



Allen Brown



Nancy Gibson



International Wolf Center



Nancy Gibson



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2014 ADVENTURES AT THE



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CENTER

AURORA!

A JOURNEY THROUGH THE MIDNIGHT SKY

May 16, 2014—May 11, 2015



Don't miss this educational art exhibit featuring the northern lights photography of artist Heidi Pinkerton.

The northern lights were brilliant and expansive on the night ambassador wolf Maya passed away. Awed by the sight, wildlife photographer Heidi Pinkerton decided to try to capture the fire in the sky for the very first time. As she was setting up her camera, the echo of a lone wolf howling mournfully in the distance washed over her. What Heidi captured that evening turned out to be much more than just a series of incredible images. That singular experience captured her heart and ignited her passion for northern lights photography. Please join us for this unique collection of art and science exploring the aurora borealis at the International Wolf Center.



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In honor of the International
Wolf Center and Staff:

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In honor of all those who
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You do great work!

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In honor of those who
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Thank You!

Member Profile

by Darcy Berus,
Development Director, International Wolf Center

Several times a month International Wolf Center board member Judy Hunter spends her time volunteering at the Interpretive Center in Ely, Minnesota—doing a wide variety of jobs. Her numerous volunteer roles have had an extraordinarily positive impact on the Center's work.

Over the past eight years Hunter has been a board member, symposium co-chair, member of the Pup Care team, committee member, advocate, teacher and cheerleader. She is also a donor, an Alpha Legacy member and a sustaining member.

"I knew I wanted to volunteer when I moved to Minnesota from Illinois," said Hunter. "I'm an animal lover. I knew the Center was a nonprofit organization, and the Center's educational mission appealed to me."

Though she eventually would volunteer with the Pup Care team, Hunter said she didn't start volunteering with a vision of ever actually working with a wolf. "I just wanted to help in some way," she said.

Hunter first started volunteering with the Center by supporting the development and membership programs. As a retired executive director of a Girl Scout Council in Illinois, she offered significant fundraising experience.

"Fundraising wasn't my favorite thing to do, but it was something I had experience in, so I knew I could do it. Then I started to help stuff envelopes," Hunter said. "I knew I was interested in eventually joining the board, so I started pursuing more leadership roles."

Last fall Hunter took on the key role of co-chairing the International Wolf Symposium 2013: Wolves and Humans at the Crossroads. In this capacity, she recruited and managed more than 100 volunteers to assist with the four-day conference held in Duluth, Minnesota,

which attracted 500 participants from 18 countries.

As with everything she does for wolves, Hunter led this effort with grace and generosity. "It was a lot of work," Hunter said. "But it was also a lot of fun. I love volunteering for the Center, but I certainly get a lot out of it myself. I volunteer because I believe in the mission, but I also believe very deeply in volunteerism. I don't think people realize how many opportunities there are to help out."

Volunteering as a member of the Pup Care team and helping with the youngest members of the Center's Exhibit Pack has been one of the highlights of her experience with the Center. "I started helping with the pups for myself, but I ended up realizing it wasn't for myself; it was for the wolves. What I learned through this experience was phenomenal," she said. "The training course was outstanding. I really learned a lot."

Hunter is quick to reflect on the many benefits she has received through her time with the Center. "When I think about the International Wolf Center and volunteering, I enjoy everything I do," she said. "I think of all the opportunities it's given me: working with people, with staff, with wolves, with volunteers and to be on the board. I never would have had these opportunities if I hadn't volunteered." Hunter hopes others also recognize the personal benefits of volunteering.



Judy Hunter with Luna, May 2012.

"Judy is a tremendous asset to the Center and one of our most dedicated volunteers," said Rob Schultz, executive director of the International Wolf Center. "She brings a generous spirit, can-do attitude and leadership to all she does to advance our mission—from logging miles to and from our Interpretive Center in Ely to providing gifts of time, talent, funds and supplies and even delivering holiday treats to the staff. She possesses a wealth of talent and experience—and she's a lot of fun. We are grateful to her for all her support. Judy is a superstar." ■

Wolves of the World

Study Sees Negative Relationship Between Legal Hunting and Poaching of Wolves

by Tracy O'Connell

The last issue of *International Wolf* addressed the recent killings of red wolves in the southeastern United States in what looked to be poaching of these endangered animals. Poaching of wolves occurs widely in Europe as well, where European law protects wolves as an endangered species.

For example, *The Connexion*, France's English-language newspaper, reported

in February that the remains of an adult wolf that had been shot were found just over 92 miles (150 kilometers) east of Paris, in the commune of Coole in the Marne region. It was the first time a wolf has been found so far north in France in almost a century.

Farmers' organizations across France have been demanding a suspension of the animals' protected status. Wolves are

blamed for 5,000 sheep deaths a year, double the number five years ago but still 80 percent fewer than the number of deaths attributed to dogs, which doesn't draw equivalent ire.

There are believed to be up to 300 wolves in France in an estimated 20 to 25 packs. Current rules, strengthened in farmers' favor last year, allow up to 24 wolves to be culled annually by government shooters. Shepherd are allowed to defend flocks from an actual wolf attack. A recent poll, however, found that 80 percent of French people wanted wolves defended against attacks from farmers rather than sheep protected from wolves.

Some French wolf supporters point approvingly to the way wolves have been



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accepted elsewhere, for instance, in Italy and Spain. However, London's *Daily Telegraph* reported in January that farmers in Italy have taken the law into their own hands in response to the increased number of wolves roaming the country, shooting and dumping them in towns as an apparent reprisal for the death of livestock.

The wolf population, estimated at 1,000 in Italy, is concentrated in the Alps and along the Apennines, mountains running down the Italian peninsula. The backlash has been most notable in Tuscany, the *Daily Telegraph* reported, where at least eight wolves were illegally shot in the previous two months. Carcasses left in villages or by roadsides seem, according to some, to be an anonymous protest against the presence of the carnivores meant to shock the viewer.

Poaching is believed to account for half the wolf mortality in Scandinavia, where it is believed more than two-thirds of its instances remain undetected, a

situation termed "cryptic poaching" by the research group SKANDULV in a 2011 study titled *Shoot, Shovel and Shut Up*. SKANDULV researchers noted in a separate study, *Illegal killing of wolves in Scandinavia 1998–2011: variation in space and time*, that worldwide there are several potential causes behind illegal killing, but in affluent countries with low commercial incentives to poach, such as Sweden and Norway, its existence "might be an expression of disapproval of the prevailing conservation policy." They asked whether a relaxation of wolves' legal protection would lead to a decrease in illegal killing. Other studies have supported a negative correlation between the extent of legal hunting and illegal killing (Wielgus, et al., 1994; Huber, et al., 2002; Andrén, et al., 2006), but findings vary (Treves 2009).

SKANDULV researchers concluded: "Our simulations suggest that without



poaching during the past decade, the population would have been almost four times as large as it was in 2009. Such a severe impact of poaching on population recovery may be widespread among large carnivores. We believe that conservation strategies for large carnivores considering only observed data may not be adequate and should be revised by including and quantifying cryptic poaching.”

With wolves traveling freely across part of the 1,020-mile (1,630-kilometer) long shared border between Sweden and Norway, the two countries in January 2000 initiated the Scandinavian Wolf Project, or SKANDULV, to coordinate issues of wolf management and conservation in the 323-square-mile (837-square-kilometer) peninsula. Wolves range over 38.6 square miles (100 square kilometers) in the south-central part of the peninsula, 80 percent of which is in Sweden. (Yaffa Epstein, Uppsala University, addressed the issues of cross-border wolf management in a presentation at the October symposium sponsored by the International Wolf Center, in Duluth, Minnesota, that included examples from Finland and Russia, as well as from Sweden and Norway.)

A consortium of several subprojects with separate budgets, SKANDULV currently has researchers from nine different institutions working under its umbrella. Core partners include Norway's Hedmark University College, located near the Swedish border north of Oslo, and the Grimso Research Station in central Sweden, founded in 1974 and now part of the Department of Conservation Biology at the Swedish University of Agricultural Sciences. Another partner, the Norwegian Institute for Nature Research, conducts projects throughout the world, including studies of the interactions between humans and large carnivores such as leopards and tigers in India.

The primary goal of SKANDULV, according to its Web site, is to provide a factual basis for the optimum management of wolves in Norway and Sweden as well as to disseminate information on wolf biology and management to a broad audience. Central themes are population



International Wolf Center

dynamics, geographical expansion and genetics, social behavior and predation. Also studied are human attitudes toward the canids, not only across Scandinavia but also with attention to how national differences affect views toward large predators.

Researchers noted that “the two countries have rather different political and economic situations, which also have formed their management policies for large carnivores,” adding that Sweden is highly industrialized, and farming in large units is strongly justified with “rural society proportionately small and thus of less political influence.” Norway, on the other hand, according to the researchers, has “pursued a policy of preserving and promoting rural communities and culture by subsidies for small-scale agriculture. As a result, a greater proportion of the Norwegian human population inhabits rural areas, and consequently is more politically empowered relative to its Swedish counterpart.”

In addition, they noted that Sweden is a member of the European Union and is bound to the strong protective legislation for large carnivores, whereas Norway is not. Consequently, Norwegian wolf policy is more influenced by rural interests and less by those of nature protectionists as compared to Sweden, leading to different policies. The Swedish wolf management policy states that a preliminary national goal is to reach a minimum of 20 breeding packs. “Wolves shall be allowed to occur all over the country wherever there is suitable habitat,” according to the Predator Act, “but with the restriction that breeding packs should not be allowed within the reindeer summer grazing range (mainly the alpine areas).” Gradually since 2004 the right to defend domestic animals has been loosened, now allowing farmers to kill attacking wolves before any livestock is wounded.

This change saw the number of legally killed wolves triple from 1.3



annually during 1999-2006 to 4 during 2007-2010, according to SKANDULV. Additionally, the first quota hunt occurred in January 2010, when 28 animals were shot; in a hunt in January 2011 another 19 were harvested. Since then requested hunts have been denied each year by the courts. It was reported last January in Sweden's English-language online media *The Local* that while the government had initially approved a licensed hunt for 2014 aimed at harvesting 30 wolves, the decision was again reversed on appeal by environmental groups. Last autumn the government proposed a population of 170 to 270 wolves; today there are an estimated 400 in Sweden.

By contrast, the Norwegian predator policy passed by parliament in 2004 sets a specified "wolf zone" in southeastern Norway, along the Swedish border, where wolves should be tolerated. The goal is three Norwegian breeding packs not including those with territory extending into Sweden. Outside the zone local

governments can kill wolves that are the subject of complaints.







Given these differences in national attitudes and implications, SKANDULV reviewed mortality in general and illegal killing of radio-collared wolves from December 1998 to February 2011. With a dataset of 123 radio-collared animals to track, it was found that 6 died in connection with capture and handling for the study and were thus omitted from the results, 29 died from a variety of causes including legal hunting and car and train traffic, and 5 were illegally killed. Radio contact was lost on 80 animals, 19 of which were assumed to be illegal kills.

Comparing the 1998-2005 period to the 2006-2011 period, both total mortality and illegal killing decreased in Scandinavia. However, the extent of illegal killing in Norway and Sweden showed opposite trends. Whereas Norway had an insignificant change after 2005, Sweden had an almost seven-fold decrease of illegally killed wolves.

The decrease was verified in other studies using different datasets, and SKANDULV researchers stated it was the key reason for an average annual growth rate in wolf numbers that increased from 14 percent in the earlier period to 19 percent in the later one.

If one could extrapolate these findings to other settings where wolf numbers have met at least minimal management goals, it appears a legal hunt can result in reduced poaching and thus provide a release valve for those with less-favorable attitudes toward wolves. ■

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With great surprise I realized what I was looking at; six sets of eyes were staring at me, only 100 feet away. And then, I heard a muffled half-bark followed by a deep, smooth, heavy sound rising into the air. None of the other wolves

Personal Encounter

The Recapture of Wolf 7153: an Update to the Malberg Mystery

by Aaron Morris

A gaping hole has been freshly ripped into the side of the beaver lodge where we are standing. Whitish-gray wolf hairs adorn the edge of the hole, and a shredded beaver carcass is draped just over the side. It appears that the beaver died in the lodge and that a wolf or wolves caught the odor and dug it out. This is the first fresh wolf sign we've seen in nearly a week, an important find since we are in the Boundary Waters Canoe Area Wilderness (BWCAW) to capture and

radio-collar two adult wolves.

On a quiet morning in early September, Tom Gable and I had entered the BWCAW for a 16-day canoe trip to trap wolves for the U.S. Geological Survey's Superior National Forest Wolf and Deer Project led by Dr. L. David Mech and Dr. Shannon Barber-Meyer. Our canoe was loaded with project equipment and supplies for our assignment in the Malberg-Makwa Lakes area of the BWCAW. We needed to move as expeditiously as possible that day,



Photos courtesy of
Shannon Barber-Meyer



International Wolf Center



because our goal was to start setting traps the next morning, and we had many miles to cover. Our permit and food supplies limited us to 16 days in the wilderness, so each day our traps were set would count.

That afternoon as the sun peaked in the sky and its rays beat down on us, we shuttled gear across our longest portage of the day. On most portages we were able to find relief from the bright sun under the forest canopy, but here the Pagami fire of a few years ago left only dead and denuded trees behind. Only partway to our destination, we couldn't slacken our pace. We doubled our loads across the portage, hoping that extra toil might save us time overall.

Trapping crews like ours had been into this part of the wilderness before. In the fall of 2010, wolf technicians like us captured two pups from the Malberg pack, fitting them with radio collars and tagging them with numbered green ear tags, identifying them as wolves

7153 and 7159. During one of her regular telemetry flights to locate collared wolves in the winter of 2011-12, Barber-Meyer discovered that the collars of both 7153 and 7159 were transmitting in mortality mode. The collars were recovered later that winter,

both chewed so extensively that only the heavy wire antennae and transmitter boxes remained. However, no sign of either wolf was found. This evidence led Mech to believe it was possible that both wolves were still alive and members of their pack had chewed off their collars. During the subsequent trapping seasons, no sign of either wolf turned up. (Barber-Meyer's account of these two wolves in "Malberg Mystery" was published in *International Wolf*, Spring 2013.)

While first setting our trapline, Gable and I encountered fresh wolf tracks and scats on some of the portages. But after a few days there ceased to be any new signs. We also conducted howl surveys while traveling the trapline on our daily checks as another way to ascertain if wolves were present in the area. Either Gable or I would howl, and then we would stay quiet and listen for a response. None ever came. On one occasion, though, Gable's howl was convincing enough to cause other canoeists to scan the shoreline with their binoculars looking for the phantom wolf.

Discouragement mounted as we reported to Barber-Meyer daily via satellite phone that there was no fresh sign of wolf activity. She reassured us that she and Mech liked where we had placed our traps and reminded us that this was one of the largest pack territories in the study area. It was possible that the wolves were simply in a different area of their territory.

On Day 13, our hope was buoyed when we found the beaver lodge that had been dug into by wolves, but when we woke two mornings later, we still had no collared wolves to show despite all our work. We left camp and began pulling traps and closing our line down. Midway through our trapline, as I was disengaging a trap, I heard the howl of a wolf. It was nearby. I heard it again. It was coming from the next portage where we had set three traps. In a rush of excitement I found Gable farther down the portage. He'd heard the howling, too.

Once he and I arrived at the portage, we found an adult male wolf in one of

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A Look Beyond

Sounding Out a New Idea

by Gus Fenton

As wolf populations have increased in the Upper Midwest and Northern Rockies, the issue of how best to protect livestock from wolf packs generates heated controversy. Some people maintain that lethal control is the only effective option. Others argue that non-lethal strategies, combined with responsible husbandry, allow humans, livestock and predators to coexist.

Which strategies work and which are ineffective? Can “thinking outside the box” be key to new and practical ideas? Who would have suspected that hanging cloth from fence wires (known as fladry) would, at least for a while, keep wolves away from enclosed livestock? Where do new thoughts like these come from? New solutions to a problem are likely to result from combining current concepts. For instance, if you are trying to tighten a screw in a tight location, you might combine a screwdriver bit with a right-angle flexible joint. Both are common tools, but together they suggest a new idea.

This melding of concepts occurred to me while watching a YouTube video sent to me by a friend whose nephew, Mark Hinders, a professor at the College of William and Mary in Virginia, described a method he was using to discourage birds from eating crops and endangering aircraft. Before I reveal the direction we’re headed, we’ll first take a detour through the issue of wolf depredation.

Depredation is a significant issue to livestock producers. In Minnesota, between 2 and 5 percent of Minnesota livestock producers are affected by depredation annually. In 2012 data showed the following:

- About 200 wolf-predation complaints were received.

- 116 were verified wolf depredations.
- 107 of the 116 dealt with livestock or poultry (16 cows, 71 calves, 11 sheep).
- 296 wolves were removed or killed.
- About \$120,000 was paid in compensation.

While opinions vary, many people agree that nonlethal deterrence of wolf depredation is worth trying. Many methods have been tried:

- Electric fences are effective but require maintenance and a source of electricity, are not inexpensive and cover a limited area.
- Guard dogs are effective, but wolves regard dogs as competitors and often kill them. Additionally, it is costly to train both dog and farmer.

- Obnoxious odors can discourage wolves from entering an area but habituation to the odors can occur.
- Use of cracker or bean-bag shells requires extensive, continuous human intervention.
- Wolf relocation is generally unsuccessful.
- Aversive therapy, like lacing prey food with lithium chloride, causes temporary illness, hence aversion, but requires a period of captivity.
- Fladry, pennants hung on ropes, is effective but only temporarily.
- Human presence discourages wolf attacks but is difficult to maintain long term.
- Prompt removal of dead livestock reduces future depredation risk since predators return to kill sites to eat carrion, but such removal doesn’t solve the basic problem.

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Awn Brien

Wild Kids



Have you ever gone for a hike and found signs that an animal had been there? Animal signs are little clues that show us that animals live in the area. These signs can be as diverse as holes, scaly skin, bones and nests. Wolves leave behind unique signs within their territories. When wolves move from place to place, they leave prints on the ground called tracks. Wolves are very protective of their territory and mark

it with scats, urine and scrapes to warn others to stay out. In spring wolves shed their soft, fluffy undercoats. After consuming a meal, wolves bury their leftovers in a hole in the ground called a cache. Next time you are out exploring, put on your detective goggles and look for some new animal signs.



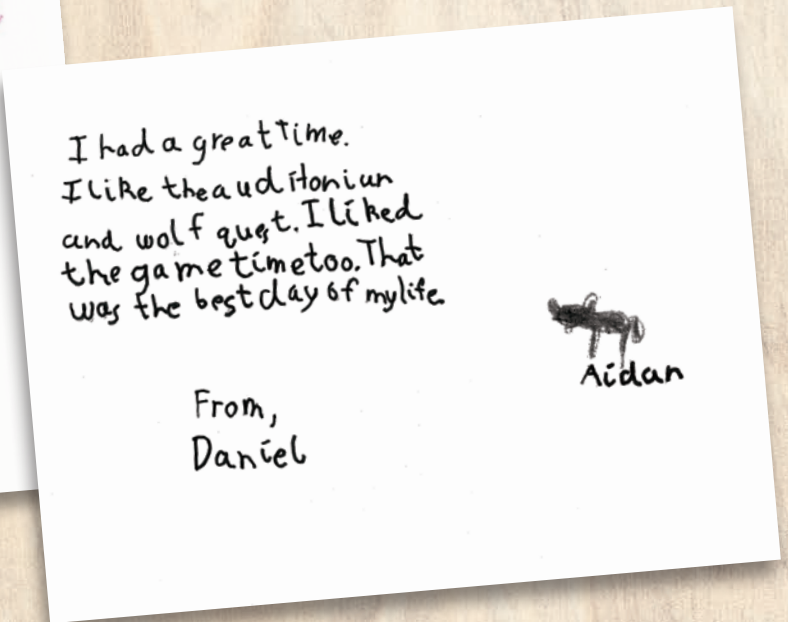
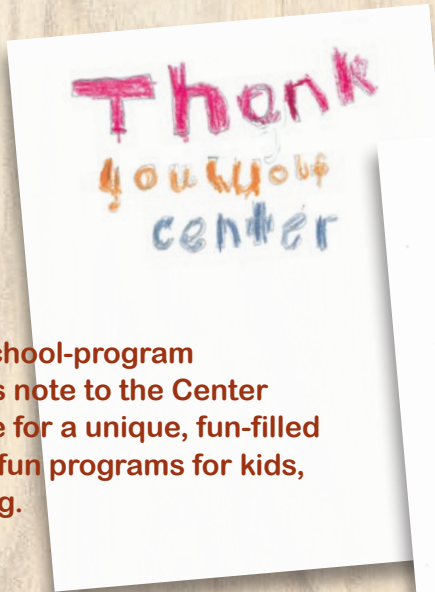
Aidan

International Wolf Center



Aidan was born on April 27, 2008, and since then has been part of the International Wolf Center's Exhibit Pack with his littermate Denali. Aidan is an Irish Gaelic name that usually means "little fiery one" when translated into English. It is a very appropriate name for Aidan. As a pup, Aidan showed his hunting skills earlier than Denali did, and Aidan was always very focused on any movement in the enclosure. As an adult, Aidan is quick to guard things and will chase Denali throughout the exhibit. ■

Daniel, a young school-program attendee, sent this note to the Center thanking everyone for a unique, fun-filled day. To check out fun programs for kids, go to www.wolf.org.



Word Find

Find the words in the word bank (below) hidden in the puzzle. Words can go forward, backward, up, down or diagonally.

S	U	M	M	E	R	T	R	E	R	N	H
R	U	R	K	G	P	A	K	C	A	R	T
O	E	L	E	A	O	O	S	K	P	W	L
T	E	H	Z	N	Z	C	O	R	O	B	E
A	F	I	C	Z	D	K	N	L	E	R	T
D	I	A	I	A	U	E	F	O	O	I	P
E	E	W	Z	D	C	T	Z	V	W	R	A
R	P	D	V	F	X	J	I	V	E	J	C
P	A	H	O	W	L	N	A	E	O	A	K
X	W	I	P	C	R	M	D	Q	M	U	W
J	Z	U	G	A	V	O	P	Z	H	L	S
R	P	E	C	N	A	N	I	M	O	D	Z

cache	paw	carnivore
predator	pack	deer
pup	elk	summer
coat	track	rendezvous
howl	wolf	dominance

Vocabulary

Cache: A hiding place used for storing food if there is an abundance of meat from a kill.

Scat: Poop, or feces.

Track: A footprint left by an animal.

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page 28

my traps. The animal had a green ear tag in one ear but no collar around his neck. Could this be one of the wolves from the Malberg pack that had its collar chewed off? The number on the wolf's ear tag would be the key to identifying the wolf; we hoped the numbers weren't too faded or worn.

After we had anesthetized the wolf, we read the ear tag—7158. We found out later from Barber-Meyer that this wolf was, in fact, 7153 of “Malberg Mystery” fame. During his original capture, each of his two ear tags had a different number: 7153 and 7158. With the exciting recapture of 7153, Mech's suspicion that the wolf was still alive was confirmed. After we finished processing 7153, which included taking measurements as well as attaching a new radio collar and ear tags, Gable and I continued toward our base camp on Malberg, closing traps along the way.

On our last portage of the day, we rounded a bend and looked up to see a second adult wolf in one of our last traps. This one didn't have ear tags. Within a matter of hours on the last day our traps were open, our unsuccessful expedition had completely turned around. I couldn't wait for our daily check-in via satellite phone with Barber-Meyer. Today we had something to share.

With part of the “Malberg Mystery” solved, it seems appropriate that a new question has again surfaced. In late September 2013, Barber-Meyer picked up a radio signal from 7153, the first time since we had fitted him with the new collar. He was roughly a few miles north of where we had captured him. Since then, Barber-Meyer has unsuccessfully searched for his signal. In January 2014, she moved 7153 onto a list of wolves whose signals have been lost. Where could 7153 be this time? A new chapter in the “Malberg Mystery” has begun. ■

Aaron Morris, a graduate student at Hamline University, is studying natural science and environmental education. He lives in the Twin Cities with his wife, K.C., and their two Alaskan huskies, Tessie and Scout.

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page 29

- Disruptive stimuli such as strobe lights, sirens and pyrotechnics discourage wolves but habituation to them can occur. The disruptive stimuli can also spook livestock.

A wolf depredation study conducted in Minnesota comparing practices between 41 farms with chronic depredation and 41 without showed that farms with chronic depredations were larger, had more cattle and their herds were located farther from human dwellings.

Returning to the new wolf deterrence idea, Hinders' YouTube video explained how he was using controlled ultrasound to discourage birds from eating crops and to keep them away from aircraft. Ultrasound is a high-pitched sound that humans can't hear, but most other animals can. Developed by Hinders and John Swaddle, also a professor at the College of William and Mary, this system is a “sonic net” and uses an array of ultrasound transmitters to create a zone of high-volume sound. The unique aspect of this sound zone is that it is localized to a specific area. A few feet from this area, no sound can be detected. The sound is of a particular frequency that disrupts communication among birds. They leave the area rather than risk being unaware of predators.

Wolves, too, would likely be deterred by high-decibel ultrasound noise and unlikely to habituate to it, and the technique is benign. In addition, the

localized nature of the sound wouldn't spook livestock if aimed correctly. Motion sensors could actually guide the system to continuously direct the sound at a moving predator until it left the area.

Background material is now being collected to better understand what's been accomplished using ultrasound aversion in the past. Various experts are being consulted as to the potential feasibility of such an endeavor. A document is under development that describes the test procedure, equipment and evaluation techniques needed to demonstrate preliminary feasibility. A timeline and a budget will be put together while testing sites are lined up. Funding sources still need to be secured. All of this is in progress, and it all takes time.

At this point the preliminary testing looks like it will consist of enticing captive wolves with a food treat to an area blanketed with the “sonic net,” while a critter cam records the events. Should the “sonic net” prove preliminarily effective, testing would likely advance to using deer carcasses in areas with known wolf packs.

Outside of developing a potentially valuable idea, the best part is we don't know where this effort will lead us. And that's scientific enquiry. ■

Gus Fenton, a semi-retired biomedical engineering consultant, has worked at various medical device companies and has become intrigued by wolves' physiologic capabilities. Fenton also volunteers time to the International Wolf Center.



John Hart



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