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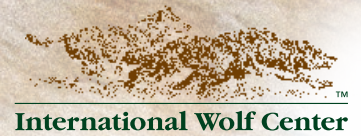


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INTERNATIONAL WOLF



VOLUME 26, NO. 2

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Dean Cluff

Wolf Dens 101: Location, Location, Location

A wolf den may be a set of holes dug in the ground, a rock cave, a space under a tree stump or in a hollow log or even a shallow pit. Pups can endure cold temperatures no matter what type of den they're born in, but more structured dens provide protection from weather and predators. For reasons of territory, food supply and pup survival, wolf denning is all about location.

by H. Dean Cluff



Gretchen Del Rio - artist /
website: GretchenDelRio.com

Native Americans and the Wolf—A Different Story

The wolf looms large in the stories of many Native American tribes, where it appears as a hunter respected for its intelligence, prowess, fierceness and strength. The author provides examples of tales that cast the wolf not as treacherous or immoral, as in many European narratives, but as another hunter—even another tribe or nation—with characteristics and abilities the Native peoples admire.

by Debra Mitts-Smith



International Wolf Center

Watching and Learning

The fact that wolves watch and learn from each other is no surprise to those who study them; social attentiveness in wolves is often observed and documented in captivity. Researchers have proposed that the cooperative partnership displayed by domestic dogs to humans is not the result of selective breeding during domestication, but merely retention of inherent, wolf social behavior.

by Lori Schmidt



On the Cover

Photo by: Tim Fitzharris

These gray wolves were photographed near Missoula, Montana as they splashed through shallow water in a marshy field.

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INTERNATIONAL WOLF

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From the Executive Director



When people think of Yellowstone National Park, iconic images of geysers, breathtaking landscapes and plentiful wildlife often come to mind. That's what most people remember from their family trips to America's first national park.

But for Kirsty Peake of Dartmoor, England, days spent in Yellowstone's northern range each winter involve searching for wolves on a frozen landscape from behind a spotting scope in blowing winds and sub-zero temperatures. Last month several members of our board and



Rob Schultz

I had the privilege of spending a few days in Yellowstone with Kirsty and her husband, Alan. It was fascinating to watch her as she unfailingly found wolves through her scope, even when they were miles away.

Kirsty's enthusiasm is contagious and she is so generous with her knowledge. Park visitors would stop to see what we were doing, and after encouraging them to look through her spotting scope, "Just a bit to the left—see that rock? It's a wolf!", the visitor was lucky enough to get an impromptu wolf biology lesson. I have even seen her flag people down— "Come see! There are seven wolves down there!"

Kirsty is a compelling wolf advocate in the United Kingdom, as well. She is a Specialist Advisor for the UK Wolf Conservation Trust and is a speaker and writer on the topics of wolf education and wolf management. Kirsty has worked to bring the most renowned wolf biologists from all over the world to speak at conferences in the UK.

When we were choosing candidates for the *Who Speaks For Wolves* award from the International Wolf Center this year, of course, Kirsty Peake was one of the first people to come to mind. We were delighted to present her with the award in March in a surprise presentation near the gateway to Yellowstone. Thank you, Kirsty, for the work that you do on behalf of wolves! ■

A handwritten signature in black ink that reads "Rob Schultz".

Rob Schultz
Executive Director



Kirsty Peake searches for wolves in Yellowstone National Park.

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Wolf-litter sizes average six pups, except
in the Arctic where they average four.

Dave Mech

Wolf Dens 101:

Two wolves at a den
on the tundra, Northwest
Territories, Canada

A pit den on the tundra,
Northwest Territories, Canada

This photo and right: Dean Cluff,
Government of the Northwest Territories

Imagine entering this world in a cold, unceremonious event, virtually blind and deaf. Such is reality for newborn wolf pups in late spring. However, nature does give wolf pups, and many other mammals born this way, a fighting chance to survive. A doting mom, an instinct to find her and a pervasive sucking reflex serve a pup well. But challenges abound. Sibling competition for nutrition starts day-one and affects each pup's development long after weaning. Survival of the fittest is only beginning.

A wolf pack usually produces an annual litter of five to six pups, but may yield more than one litter if food is plentiful. In the High Arctic, litter sizes tend to be smaller—around three to four pups. Wolf pups are usually whelped in a den

that offers a modest degree of security. A den may be an elaborate set of holes dug in the ground, a rock cave or crevice, under a tree stump, in a hollow log or even a shallow pit. A water source is usually nearby. Wolf pups can endure the cold ambient temperatures into which they're born no matter what type of den they're in—even an open pit—but more structured dens provide the survival advantage of protection from extreme weather events or exposure to predators.

Preparation of the den may begin in the fall before pups are born, partly because the ground may be still frozen when pups arrive in spring. Pack members of both sexes may participate in den-digging along with the breeding female.

Precisely when wolves breed varies by latitude and typically ranges from February in the south to March in the north. Pups are born 61 to 63 days later—well timed to coincide with the births of many other species, allowing enough vulnerable prey to meet the energy demands of growing pups.

Wolves may localize around a den for up to a month before whelping pups. Indeed, in my study area in the Low Arctic (mainland) tundra where there are no trees, wolves are usually at their den sites by May 1, often two to three weeks ahead of most barren-ground caribou. In this largely one-prey, one-predator system, caribou migrate north from their winter range in the trees to

their tundra calving grounds, presumably navigating a gauntlet of famished wolves eagerly waiting near their dens just past the tree line. It's an image worthy of a Gary Larson cartoon, to be sure, but that old adage, "location, location, location" is true for wolf dens. A den established near a caribou migration route would pay big dividends to wolves raising pups.

Because wolves are territorial, dens of other packs will not be nearby. In the Low Arctic tundra when caribou were reasonably abundant, I found that neighbouring dens were at minimum five to six miles (eight to ten km) apart. The average distance was close to 12 miles (20 km). Researchers in south central Alaska recorded inter-den distances that averaged 28 miles (45 km). A den may be located anywhere within the pack's territory but they are usually more central. Unless natural features in the periphery of a territory offer some huge advantage, locating there creates a greater risk of hostile encounters with neighbouring packs.

Several dens may be available to a pack, and some or all may be used in any given year. Having choices hedges the bet should a disturbance or threat persist at the current den. Fidelity to a given area and a specific den is variable among wolves, but seems relatively high for tundra-denning wolves. Still, den choice is probably the purview of the

Location, Location, Location.

by H. DEAN CLUFF

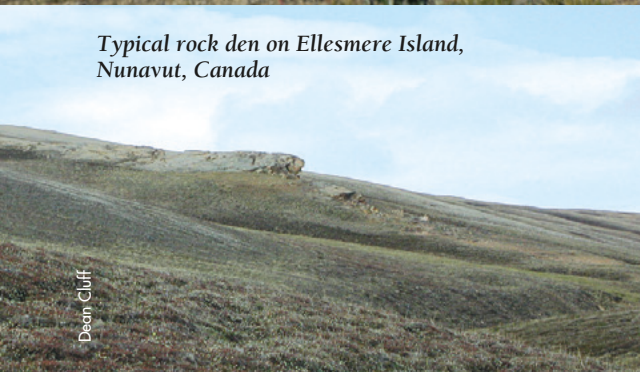
Caribou migrate north . . . presumably navigating a gauntlet of famished wolves eagerly waiting near their dens just past the tree line. It's an image worthy of a Gary Larson cartoon, to be sure, but that old adage, "location, location, location" is true for wolf dens.



Chris Senior



Typical rock den on Ellesmere Island,
Nunavut, Canada



denning female. Although her maternal experience probably influences her choice of den sites, that doesn't appear to determine her success in whelping pups. If a denning female dies prior to breeding season, her den could remain vacant that year as her male partner disperses elsewhere, unless a daughter assumes residency with a new mate.

Wolf pups open their eyes at 12 to 14 days of age—about the same time they become coordinated enough to stand and walk. Once the pups have explored their den, they begin venturing beyond

and perhaps more, as they build their collective courage and begin to satisfy their intense curiosity. Their survival can actually depend on their developing personalities. Boldness is useful in exploring surroundings and perhaps being first to get food. However, shyness can be good too, especially where wolves are exploited; there is a survival advantage in keeping a safe distance from threats.

The mother wolf remains with the pups most of the time during their first three to four weeks of life. After that pups

One can't help but grin when the head of one pup cautiously peers out of the den entrance, then another, and perhaps more, as they build their collective courage and begin to satisfy their intense curiosity.



it, albeit slowly. Often a bold pup leads the way, closely followed by a sibling or two. When startled, pups scramble back to the safety of the den.

Watching the antics of growing wolf pups is amusing. One can't help but grin when the head of one pup cautiously peers out of the den entrance, then another,

may be left alone for varying lengths of time. One might assume that when a pack goes hunting, at least one adult would remain at the den to guard pups, but wolf packs in the High Arctic have been observed leaving pups unattended for extended periods. While the pack may be hunting for most of a day or longer, the lactating mother usually returns within 12 hours to nurse her pups.

Clearly, wolf pups left alone at the den are more vulnerable to predation from the air by eagles or digging out by marauding bears or wolverines than when adult wolves are present. On a couple of occasions, I witnessed a grizzly bear encountering wolves at a den site on the tundra. I arrived via helicopter in the midst of the encounter, so I didn't see the previous events. I did see the wolves aggressively defend their den site. Although I had the helicopter set down immediately upon seeing the interactions, it was too late, as the heli-

copter likely caused the bear to run away both times. I suspect the grizzly had encountered the den opportunistically as it travelled along the esker—the ridges of gravel and sand left behind when glaciers melted. Still, the situation could have been different had I not come along, or if the pups had been alone.

Once pups reach their second month and start eating solid food, their mother may be absent for longer times, if necessary. While both parents hunt and bring food to the pups, the female tends to remain at the den site more. In the system I study—wolves following migratory, barren-ground caribou—den absence, especially for males, can be lengthy. With satellite collars recording a Global Positioning System location every 30 minutes over one summer, I documented extensive, multi-day journeys by denning wolves, which explained why fewer adult wolves were seen at the den site in mid-summer. Although caribou calved about a month earlier, post-calving aggregations formed far north of most denning wolves. Consequently, these wolves regularly left the den on extended hunting trips and would not return for up to five days. The Russian proverb, “A wolf is kept fed by its feet” certainly applies here.

In my study area, I seldom had the luxury of having all the adults at a den collared and therefore routinely monitored. However, I was fortunate to have keen observers watching wolves at their home site (a collective term for a den or rendezvous site) during summer daylight hours. A rendezvous site is simply a “den” above ground. It’s a meeting place where the pups, now much larger, stay together while the rest of the pack goes hunting. The rendezvous site, or






“RZ,” doesn’t have to be far from the natal den, but it can be. On the tundra, if an RZ is used at all, it is typically located near a stream sheltered by heavy willow growth and boulders that provide hiding places for pups.

During one memorable event in 2000, members of the International Wolf Center visited my study area in August on one of their field excursions, and we serendipitously watched an RZ with nine adults and 15 pups. It was the largest number of pups ever recorded at a home site in the Northwest Territories. We assumed that the number of pups represented more than one litter—maybe even three. This was reasonable because in June 1998, at a den site near this RZ, I captured and collared two female wolves, both of whom were lactating. Those females were among the nine adults we observed (and confirmed with their unique radio-collar beacons). As a group, we observed this RZ with spotting scopes from about a half-mile (800 meters) away. Even from that distance, we had a great view of the comings and goings of the pack. It was instructive to observe the arousal and departure of the pack for a hunt in the evening—and amusing to watch an eager pup follow the adults away from the den, only to be led back by one of them.



By three months of age, larger pups with bountiful energy often follow departing adults or explore on their own, leaving the home site temporarily. Sometimes a carcass site is near the home site, and pups may be taken there by adults. In areas where prey is not migratory, home sites may function as activity centers into autumn and even early winter. However, where prey is migratory, the home site is abandoned as autumn approaches and wolves follow their food source. Some pups may not survive to this stage, but those that do advance to the next round in nature’s survival game—keeping up with the pack in winter. ■

Further Reading

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Dean Cluff is a wildlife biologist for the Government of Northwest Territories Department of Environment and Natural Resources in Canada. He has studied wolves since 1996, involving graduate students in wolf ecology in the central Arctic. A Canadian representative on the Canid Specialist Group of the International Union for Conservation of Nature, Cluff has accompanied Dr. David Mech on four occasions to Ellesmere Island (Nunavut) for wolf observations. He is currently developing a technique to index trends in wolf abundance on the tundra.





Native Americans and the Wolf—A Different Story

by DEBRA MITTS-SMITH



Wolves are found across the Northern Hemisphere. They are also found in the traditional stories—the fables, tales, legends and myths—of the various cultures that live there, and the roles to which wolves are assigned in stories are as diverse as the cultures in which the stories exist.

In many traditional European and Euro-American narratives, the wolf is a predator that serves as a metaphor for dangerous human behavior. Defined by his greedy mouth, his voracious hunger, and the threat he poses to humans and domesticated animals, the wolf is a one-dimensional beast seeking to fill his belly. In “Little Red Riding Hood,” “The Three Little Pigs,” “The Wolf and the Seven Kids” and many other tales, the wolf’s desire to eat motivates his actions and shapes his interactions with the other characters. His predatory nature

not only keeps him hungry but also renders him treacherous and immoral. The wolf’s arsenal includes powerful jaws, sharp teeth and the ability to talk. He threatens, flatters, deceives, entices and entraps his intended victims.

But the wolf also plays an important role in the stories and rituals of many Native American tribes. In these stories, which include tales of creation, transformation and helping, the wolf appears as a trickster and also as a hunter. However, instead of a hunter to be feared, the wolf is a hunter respected for its intelligence, prowess, fierceness and strength.

Further, the wolf in these narratives is more than a wolf in human’s clothing, a metaphor for danger, or even an inferior and deadly beast. Many Native Americans perceive wolves as another tribe or nation. In contrast, most European and Euro-American traditional narratives focus on what sets the wolf apart from humans, casting wolves as outsiders and their hunting as a threat to people and property.

Barry Lopez in *Of Wolves and Men* writes that Native Americans often focus on the similarities between themselves and wolf species. Their stories contain a sense that wolves have specific qualities, physical characteristics and abilities that the Native peoples admire. These narratives recognize that both wolves and humans are hunters and that the boundaries between humans and wolves are fluid.

Two examples of creation stories come from the Tonkawa of Texas, Oklahoma and New Mexico and the Nuu-chah-nulth (formerly Nootka) of the Northwest Coast. A Tonkawa tale depicts their people as the being the offspring of wolves. In the Nuu-chah-nulth story four brothers are the last survivors of a tribe destroyed by warfare. To survive and overcome their enemies, Ha-Sass, the youngest brother, seeks and gains the secret power and weapon of the most powerful hunters—the wolves.

This story is part of a sacred ceremony that imparts the bravery, wisdom and endurance of wolves to young Nuuchah-nulth hunters and warriors.

The Pawnee were known as the Wolf People. In one of their tales a young scout separated from other warriors meets an old wolf who shares with him the secret medicine that will bring him speed and endurance, making him an invaluable asset to his tribe. The old wolf, aware that he will die before the next sunrise, instructs the young scout to take his nose, part of his scalp and his paws after he is dead; the scout is to wear these items whenever he goes into battle or needs to travel quickly. The wolf

also instructs the young warrior to sleep near him during his final night, and as the wolf dreams, he transfers his spirit to the young man. In time, by following the old wolf's advice, the young scout becomes his tribe's most valiant warrior.

In several tales, the wolf helps those in trouble, be they young children or an entire nation. In a story of the Ojibwe (Chippewa) people, a young boy's siblings abandon him. When the food runs out, the boy leaves the lodge to search for something to eat. He finds a wolf pack feasting on a kill. He waits and eats what they leave behind. Eventually the wolves and the boy become accustomed to each other, and the wolves begin to bring him food. Over time, the boy becomes more wolf-like and less human. The story ends with the boy singing about his abandonment by those he loved most, his acceptance by the wolves and his transformation into a wolf.

In a tale from the Crow people, "The Sun, The Wolf, and The Buffalo," a wolf knowingly sacrifices himself to rescue the Crow. After the Crow fail to prevent one of their men from abusing the Sun's wife, the Sun punishes the Crow by causing their crops to fail and allowing the buffalo to evade them. White Wolf, one of the Sun's servants, takes pity on the Crow and shows them how to create buffalo out of fire and corn kernels. He warns the Crow that they must kill all the buffalo or the Sun will discover that the wolf has been helping them. When the Sun learns of White Wolf's betrayal, he condemns White Wolf to be an outcast among animals.

One of the most poignant stories is from the Lakota people. In "The Song of the Old Wolf," an old man who is praying on a hill overlooking the Missouri River sees a wolf pack crossing the river. One wolf, an old one, stays behind. When the pack disappears from view, the old wolf sings about the passing of his life and his readiness to pass on. When the wolf finishes, he goes to the top of a hill where he lies down in the sunshine, in the shelter of a rock and waits for his spirit to leave. The wolf shows the old man how to die with dignity.

As these narratives suggest, for certain Native American tribes, the wolf served as teacher, healer, hunter and warrior. These websites, owned and authored by Native Americans, provide even further insight—and a purely Native American perspective:

- www.native-languages.org/legends-wolf.htm
- www.selkywolf.com/SONGOFTHEWOLF.html ■


AUTHOR'S NOTE I thank the Tonwaka Tribe of Oklahoma, the Nuuchulnuth First Nations (Canada), the Pawnee Tribe of Oklahoma, Crow Nation, the Ojibwe (Chippewa) Bands of Michigan, Minnesota, Wisconsin and Canada, and the Lakota Sioux Tribes of North and South Dakota for the use of their stories in this article.

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Debra Mitts-Smith is as an adjunct professor in library and information science at the University of Illinois-Urbana-Champaign and serves on the International Wolf Center's magazine work team.





Aidan observes Denali as he tries to maneuver through a branch. Wolves will observe packmates as they demonstrate problem-solving behavior.

Watching and Learning

by LORI SCHMIDT

Agrowing, worldwide interest in canine psychology has engendered significant research on the relationship and differences between wolves and dogs. Dogs, of course, are domesticated, whereas captive wolves are not considered domesticated—although they can be socialized to accept humans. Specific theories of domestication were explored in the spring 2016 edition of *International Wolf* (O'Connell, p. 8).

For the purpose of this article, I've made the following assumptions:

- There is a genetic connection between wolves and dogs through the domestication process.
- Domestication has taken thousands of years of selective breeding that resulted in physical, metabolic and behavioral responses different from the dog's wild counterpart.

The cooperative partnership displayed by domestic dogs to humans is not the result of selective breeding during domestication, but merely retention of inherent, wolf social behavior.

In this article, I will review some current research on the similarities and differences between wolves and dogs—research that aligns with our wolf-care staff's observations over 26 years of captive-wolf management at the International Wolf Center in Ely, Minnesota.

A 2015 article in *Frontiers in Psychology* magazine, entitled “Tracking the Evolutionary Origins of Dog-Human Cooperation—The Canine Cooperation Hypothesis” (Range, F. and Viranyi, Z., 2015) explores a study showing one perspective on the differing social interactions of wolves and dogs with humans.

To investigate the influences that may underlie the social bond between humans and dogs, the Messerli Research Institute (MRI) at the University of Veterinary Medicine in Vienna teamed up with the Wolf Science Center, a facility that separately maintains captive wolves

and packs of dogs in a socialized-management style for behavioral research. While it is popularly believed that dogs were selectively bred during the domestication process to display cooperative partnership behavior toward humans, behavioral scientists at MRI suggested an alternate hypothesis. They proposed that wolves display social attentiveness among pack mates in the same way that dogs show attentiveness to their human owners, and therefore, the cooperative partnership displayed by domestic dogs to humans is not the result of selective breeding during domestication, but merely retention of inherent, wolf social behavior.

Working with socialized, captive wolves at the Wolf Science Center, they tested their theory of social attentiveness and tolerance in wolves and dogs within their respective packs and toward humans. One test explored how wolves and dogs can find food hidden by a human or a conspecific (an individual of the same species). Both socialized wolves and dogs used cues from humans, with wolves following the humans' gaze to locate the food.

In another test, researchers determined that wolves were better than dogs at mimicking the actions of a trained dog they observed opening a box for rewards. The study compared 14 socialized wolves and 15 dogs, each six months of age and maintained in a respective pack structure. Each individual observed one or two scenarios of a trained dog opening a box with its paw or mouth. All 14 wolves successfully opened the box and were more likely than the dogs to use the method demonstrated by the conspecific. In contrast, only four of the 15 dogs performed the task, and the dogs appeared to use their mouths or paws randomly despite the conspecific demonstration.

Against the possibility that six-month-old dogs are not developmentally ready for this task, researchers retested the individuals at nine months of age and found no improvement in the dogs' performances.



Wolves display social attentiveness traits that we often attribute to domestic dogs.

It could be argued that the wolves' performance was better due to superior sensory abilities, curiosity or problem-solving abilities. Researchers tested this theory by documenting the success of individual wolves and dogs without a conspecific demonstration. Their data showed minimal success for wolves—and that problem-solving behavior seemed to be based on observation of a conspecific performing the task.

The fact that wolves watch and learn from each other is no surprise to those who study them. Social attentiveness in wolves is often observed and documented in captivity where wolves are easy to observe. Ethograms have been developed to document body language of individual pack members and interpret behavioral interactions. Wolves use body language in many circumstances including food-related interactions, territorial defense to external stimuli and in social communication within the pack. Even in wild wolf studies, where wolves may be difficult to observe, the term “strategic cooperation” is often used when describing wolves' hunting techniques. While it may be difficult to quantify behaviors by remote observation compared to detailed observations in captivity, examples of wolf hunting behavior that appear to be coordinated have been documented (Mech, Smith and MacNulty 2015).

International Wolf Center staff members have documented many examples of problem-solving behavior in our ambassador wolves. These skills develop early in pups and often have a “food” or “flight” motivation. Gate management is a critical issue when training new staff or volunteers, as wolves will test latches and weaknesses in the fence—not necessarily to escape, but as a result of their inherent curiosity.



During the summer of 2016, we will once again have the opportunity to socialize two pups as they're integrated into an Exhibit Pack of four adult wolves. It won't be long before we see the influence of the adult wolves as the pups watch, learn from and mimic their adult pack mates. ■



International Wolf Center

Wolves are social carnivores and are keyed into the body language of individual pack members.

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Lori Schmidt is a Natural Resource instructor at Vermilion Community College in Ely, Minn. She has worked with captive wolves since 1986 and began her association with the International Wolf Center in 1989. As the Center's wolf curator, Schmidt is responsible for the socialization, management and care of their ambassador wolves. She also conducts educational programs, interpreting canid behavior to educate the public and ensure safe interactions for wolf-care staff.

One test explored how wolves and dogs find food hidden by a human. Socialized wolves and dogs used cues from humans, with wolves following the humans' gaze to locate the food. In another test, wolves were better than dogs at mimicking the actions of a trained dog they observed opening a box for rewards.

Tracking the Pack

Even Better Wolf Management

Your Support Made it Possible

by Lori Schmidt

To you who supported our wolf-care fundraising efforts in 2015 we want to express our heartfelt gratitude. If you bought a canoe raffle ticket, bid on an online auction item, supported us on Crowd Rise, selected a

wolf-care donation card at the Wolf Den store, added an extra donation to your online shopping cart or sent a card with thoughts of our ambassador pack, your thoughtful gifts have made a difference in the lives of our ambassador wolves.

We are constantly trying to improve the lives of our ambassadors in whatever ways we can, and your generosity has made possible the following enhancements to the Wolf Care Center:

Wolf Lab Expansion

We expanded the wolf lab facility to include a 24-by-12-foot (7.3-by-

3.66-meter), heated space that has direct access to a 1,800 square-foot (549square meters) habitat known as the “pack holding area.” With this design, pups can safely explore the outdoor environment and easily retreat to the warmth of their pup den. This feature will benefit not only the youngest members of our pack, but due to the enclosure design, our retired wolves will have the same access after the pups have matured and moved on to the Exhibit Pack.

One of the biggest challenges in managing aging wolves is the risk related to anesthesia when they are moved to a lab environment for observation or extensive treatment. With an access panel from the pack holding area and some positive conditioning, we can encourage the wolves to enter the Wolf Care Center on their own terms in a low-stress attitude. Less stress equates to better health.



Denali enjoying the comfort of the lab during the 2008 socialization period



During the summer of 2008, Lakota was allowed the freedom to enter the wolf lab through the wolf yard. The new Wolf Care Center expansion will allow for a more secure access.

Photos: International Wolf Center

Member Profile

More Pack Management Improvements

Speaking of stress, another improvement will be additional lab space to augment our on-site research potential. One of our goals is to consistently monitor each wolf and its response to events surrounding the facility. We already use behavioral observations to interpret pack cohesiveness, but with the advantage of chemical analysis, we hope to investigate the influence of cortisol, a hormone produced by the adrenal glands. Cortisol levels increase as the pituitary gland releases the adrenocorticotropic hormone (ACTH) (3). By identifying elevated levels of fecal cortisol, we may be able to adapt management strategies to reduce stress response, creating the healthiest management scenario for our ambassador wolves.

To follow the progress of our ambassadors, find wolf logs and videos at www.wolf.org. Just click "Our Wolves" on the top navigation bar. Or consider an adoption kit to receive quarterly updates from the wolf care staff. You'll find information in the online Wolf Den Store under "featured products." ■



Lakota peering into the window of the wolf lab. With the new Wolf Care Center expansion, the retirees will be able to enter on their own.

Dana Pond—The Traveling Wolf Lady

by David Kline

The ten-hour drive to Ely, Minnesota and back doesn't deter mega-member Dana Pond from visiting the International Wolf Center. Since 2004, Dana has been going to Ely from the Chicago area twice each year to learn about wolves, assist the Center wolf-care staff and eventually, to serve as a pup-care volunteer.

After accepting a work transfer to the Chicago area in 2003, Dana Pond began searching online for an upper-Midwest pastime related to her personal interests. That's when her childhood love of wolves prompted the search term *wolves*, and Google did the rest. In 2004, having scoured the wolf.org website, she planned her first trip to the International Wolf Center where she happily continued to soak up all things wolves.

Dana's love of wildlife stems from her early fishing trips and scenic road trips in California with her dad and two older brothers. Books like the novel *Never Cry Wolf* by Farley Mowat and *Of Wolves and Men* by Barry Lopez fed her fascination with the tragic and joyful chapters of the wolf's story in North America. As an adolescent, instead of focusing on teen drama, Dana learned about America's Endangered Species Act and the near eradication of wolves from the lower 48 states.

A decade-and-a-half later, Dana continues to pursue wolf education, learning from Center Curator Lori Schmidt and other experts. A Center-sponsored trip to Yellowstone National Park to observe wolves that were reintroduced there significantly increased her wolf knowledge and allowed her to polish her photography skills.



Photos: Courtesy of Dana Pond

After serving faithfully and effectively as a member of the 2012 pup-care team for Luna and Boltz, Dana was thrilled to be selected as a pup-care team leader at the International Wolf Center for our new wolf pups, due to arrive in May 2016.

Dana says, "I appreciate the work the Center does to present the facts without the spin and let me make up my own mind. I've come to appreciate how complex the issues around wolves are. Lori and the others do a great job of teaching about wolf biology, behavior and human interactions, so I'm glad I can support their work."

Thank you, Dana, for the work you do on behalf of wolves, for your faithful yearly membership and for your recurring monthly donations. We truly appreciate you! ■

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Wolves of the World



Blood and Beauty in the French Alps

Text and photos by **Troy Bennet**

I have spent nearly half my life in the French Alps, where I work as a shepherd. In this beautiful, remote place, the nearest road and closest neighbours are an hour's walk away. The pace of life is slow. In the nine years that I wandered the mountains with my flock, our biggest challenges were to have enough food to eat and to survive the harsh winters.

But change was coming to those mountains. At first we saw new behaviour among the sheep, as they sometimes stopped and huddled together. The dogs began to hide by our feet or go into guarding mode, circling the sheep with hackles raised. Then we found dead animals with carcasses stripped clean. At first feral dogs were blamed, and we took turns guarding the sheep day and night.

One morning we were drinking coffee when in the distance, we saw a black

tornado swirling above the mountain—a tornado made of crows, eagles, ravens and vultures. We went to investigate and found our flock devastated—trails of blood, and animals dead and scattered into small groups, some alive and scared, some torn open. Then we looked over the nearby cliff, and our initial distress paled in significance.

Half of the flock had been driven over the cliff, some hanging in trees and on ledges, unborn lambs aborted as their mothers hit the ground, or born in the ewes' death throes. We lost almost 300 sheep in this attack. Among the badly injured, I spent hours walking from body to body, slitting throats.

My friends and I are considered hard—toughened by life in the mountains. We were not hard that day. We did not speak or make eye contact. We just walked and killed.



This was my introduction to wolves.

My anger saturated me. We spent many days searching the hills for survivors. One day, as the sun was setting, I abruptly came face-to-face with a wolf, and looking into that predator's eyes changed my life. When you watch a wolf glide silently through the forest, pale and shining in the dappled light, you see a beautiful creation, a stealthy hunter, placed perfectly where it belongs. When a wild wolf looks at you, its pale eyes locking deeply onto yours, you see yourself—not detached from nature, but as part of nature, placed perfectly where you belong.

Living with wolves is an exercise in complexity. The wolf we see on documentaries gives a magical insight into nature's work—raw and beautiful. When you wake to find your sheep torn apart and half eaten, trailing their guts, bleating piteously, the wolf is cast in a different, darker light. Some people say, "You just have to look at the bigger picture!" But when you watch a life ebb away, that picture is big enough to fill your whole world. In Europe many farmers have only a few sheep, and losing one or two is devastating.

Many governments pay compensation. But this is not an easy process to navigate. One must prove that the livestock was killed by a wolf—not a dog. Then one must listen to the experts tell





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you what you must do to protect your flocks. Smiling and sympathetic, they tell you how to do your job, then eat your food and leave. After the next attack, fewer experts turn up, tell you what you did wrong and what you should do next; they eat your food and leave. Finally you are left to fill out a claim form and hope someone sends you a check for your losses.

And so we try methods of non-lethal wolf-depredation control, which are numerous and vary in effectiveness. The first we put in place was having someone guard the sheep at all times. Some of the guards lasted for only a few nights, freaked out by being alone under the Milky Way. Finding affordable replacements wasn't easy.

Electric fences are commonly used to corral sheep at night, although our wolves found that by running up and down outside the fence, they could panic the sheep into stampeding until they crashed through the fence to the outside, where they could be attacked. That first summer they did this seven times. With guard dogs, however, the wolves can't get close enough to cause panic, and we were awakened early enough to run around screaming expletives—which I would like to think the wolves understood.

While we adapted to the wolves, they adapted to us. Ten years ago, most attacks happened at night, but now most occur during the day when the sheep are out grazing, and at the beginning and end of the summer season, when we are setting up or preparing for the autumn descent from the mountains. Last year we had an attack two hours after the sheep left the truck and began their walk to the summer camp. The wolves were waiting, as if they had the date marked on their calendars. This year an attack came three days after the sheep began the walk into the mountains.

Our guarding dogs are a godsend and an expense. While subsidies pay

for our dogs, we pay for and transport their food—and they eat a lot. Also, the dogs aggressively hate tourists. We try to habituate our dogs to new people, but protecting the herd is the dog's job, and sometimes it is people who steal your sheep.

We have tried every method of protection—balloons, radios, perfume, urine and many other strange techniques to keep the wolves at bay. For a little while each one works, until the wolves adapt and we must try something new. Poison is the most efficient. Poison killed five of the first six wolves to come to our mountain. It also killed dogs, foxes, badgers, rats and cats. Who can tell how many other species it killed—boar, ravens, eagles? Poison is indiscriminate and cruel, and it has been quite properly banned.

In France we can shoot problem wolves. Taking out one problem animal sends a message to the others, and they learn not to come near that flock again. It may be years before you are once more targeted, as wolves learn fast,

and they opt for the easiest and least dangerous prey.

People against lethal control argue that it upsets the balance of the pack, but wolves are more pragmatic than we are. Death is a daily reality for them. The pack adjusts and goes on. Overall, the methods we use are working. We lose only a few sheep now, where we lost hundreds in those first years—and the more we learn, the better we become. Still, I worry that with wolves spreading all over Europe, someone else, somewhere, is going through what we did at first.

Living with wolves can be difficult. People seem to hold two views on wolves: you love or hate them. But I see hundreds of perspectives. This beautiful and enigmatic predator makes your heart race when you are lucky enough to see one. You feel fear as you watch your flock panic, or you're consumed with hatred and heartache, stress and despair when you find your slaughtered stock.

It is easy to love this beautiful creature. It is also easy to hate the monster

Continued on page 22



Personal Encounter

“Malberg Mystery” Solved!

by Shannon Barber-Meyer

In spring 2013 *International Wolf* magazine ran my story about a mystery surrounding two wolves in the Superior National Forest Malberg Pack located in Minnesota’s Boundary Waters Canoe Area Wilderness. As part of a U.S. Geological Survey (USGS) long-term wolf study, we captured male wolf 7153 and female wolf 7159, likely brother and sister, as pups during the fall of 2010. But surprisingly, during winter 2011–12, when these wolves were yearlings, their radio collars were both on “mortality mode,” indicating their collars had not moved in more than four hours within two weeks of one another. When we searched their “mortality” sites, all we found were two

heavily-chewed collars. My supervisor, Dave Mech, surmised that packmates may have chewed the collars off, and that 7153 and 7159 just might remain alive.

In fall 2013 we learned that at least one of the wolves was indeed alive when USGS wolf technician volunteers Aaron Morris and his teammate Tom Gable recaptured male 7153 on a fall trapline. Aaron wrote about this adventure in the summer 2014 issue of *International Wolf*.

We haven’t detected 7153’s radio signal since September 2013—did his collar



Shannon Barber-Meyer checks a wolf radio-collaring trapline via canoe with USGS volunteers Chelsea Davis and Jessie Shapiro during the summer of 2015.

Continued from **Wolves of the World**, page 21

it can be. And so, where to stand? With my friends who love the wolf, and want only to protect it, or with an 80-year-old shepherd, head in his hands as he debates whether or not to go on?

I was given a gift the moment I came face-to-face with a wild wolf, and I’m given another each day I am awakened by howling. I live in one of the most beautiful and wild places. And now that we have wolves, it is that much wilder. The presence of a predator makes the hair stand up on my neck—and gives new life to this wild place.

As the wolves adapt, so do we. Now I can subsidize my income, and those of

my fellow herders, with wolf-tracking tours and howling response surveys, taking people into the mountains where we explain that we are a part of nature, and we can live with the wolf and not destroy it to make our lives easier.

The wolf has taken many things from us, but it has given us more. I would not want to go back to that quiet time on the mountain. It was peaceful, but missing something, and I now understand just what that was. It was missing the wolf. ■

Troy Bennett is a French shepherd living and working in the French Alps where wolves from Italy have recolonized the area. This article is excerpted from a longer essay he wrote about his experiences.

fail, or did he disperse? A new mystery concerning wolf 7153 has begun.

Another part of the original “Malberg Mystery” remained, too—was female 7159 also still alive? And if so, where was she? Wolves have a hard life in the wild, so it was anyone’s guess as to what had happened to her. We knew 7159 lived for at least 20 months, although many pups die before adulthood, and most wolves die before reaching five years of age. Of those that survive, many disperse to Canada where they are legally shot or trapped. Others disperse locally and start their own packs. Over three years, five separate, wolf radio-collaring traplines in 7159’s original territory revealed no sign of her. In summer 2015, however, we finally got our answer.

It was mid-August and we were trapping the Farm Lake Pack’s territory for radio-collaring purposes. Our team was just at the end of checking our trapping route when one of our techs excitedly blurted, “There’s a pup!” as a mangy, skinny wolf pup turned and slowly slunk back into the woods. We then saw that there were at least two pups and thought we heard a third in the brush. Not wanting to scare them away, we quickly left, realizing that we had stumbled upon a wolf rendezvous site—a real stroke of luck!

To which pack did these pups belong? Because we didn’t want to catch any of the pups (they were still too small for



Shannon Barber-Meyer

(Above) A wolf print on top of a wolf scratch mark we observed during trapping for radio-collaring purposes during the summer of 2015.

collaring) we set our traps at an appropriate distance, which meant we couldn't set a handful of our traditional sets in an already very limited trapping situation.

Five anxious days later, we caught a wolf in the set closest to the rendezvous site. The animal did not appear to have been trapped for long, and it was caught only by its toes—a rare situation with the modified traps we use. (They have rubber-padded, offset jaws to allow smaller animals to escape and to reduce pressure on the wolf's foot.) In addition, the drag at the end of the chain was free. If this wolf had had a chance to tug at the trap for a bit longer, it probably would have resulted in another frustrating “pullout,” where the trap is sprung but empty following an animal's escape. While drugging the wolf for collaring, technicians spotted bright-green ear tags—but no collar. A recapture! The numbered ear tags revealed the animal's identity. *This was wolf 7159 of the “Malberg Mystery!”*

Wolf 7159's well-used nipples revealed that she was a breeder, and she looked to be in overall good condition. Trail cameras later captured her and at least one pup near the rendezvous site, and aerial telemetry found her



Part of the Boundary Waters Canoe Area Wilderness in northern Minnesota as seen from the air.

Zack Farley, USGS volunteer

near the site as well—25 miles west-southwest of her original capture location some five years earlier as a pup. With 7159's recapture, the original “Malberg Mystery” was over. Nevertheless, 7159's story will continue to unfold, and with great anticipation we are poised to learn more from her and her pack as we radio track her into the coming winter and beyond.

Update

On January 9, 2016, International Wolf Center staff member Cameron Feaster detected 7159's radio collar on mortality mode. I searched for her radio collar's signal from the ground the next day and located it coming from open water near the Garden Lake/Fall Lake bridge—not part of her usual territory. The cause of her apparent mortality (assuming her body is with her collar) remains unknown. Unfortunately, we were not able to get a winter count of her pack before her collar went into mortality mode. ■



USGS

Wolf 7159's ear tags (right ear 7159 and left ear 7160) solved the last piece of the original “Malberg Mystery.”

Dr. Shannon Barber-Meyer is the USGS wildlife biologist implementing the Superior National Forest Wolf and Deer Project with Dr. L. David Mech. This Ely, Minn. resident has studied tigers in Asia, emperor penguins in Antarctica and elk-calf mortality in Yellowstone. She also helped reintroduce Mexican gray wolves into the Southwest. She is a member of the International Union for Conservation of Nature Species Survival Commission Canid Specialist Group.

A Look Beyond

Bionic Sheep

by Emiko Jozuka

For centuries, shepherds have been at loggerheads with the wild wolves that want to eat their sheep. To protect their flocks, they've turned to everything from bullets and big dogs to poison and electric fencing. But what if they could endow their sheep with a predator defense system and avoid harming wolves in the process?

Enter the “bionic” sheep, otherwise known as the “Ultrasonic Flock Protection System” project.

Conceived by Madrid-based artist Fernando García Dory, the idea is to stop wolves from attacking a flock by equipping sheep with a collar that emits an ultrasound frequency inaudible to

sheep and humans but, they hope, highly unpleasant for wolves. Dory recently presented the ‘bionic sheep’ project at an event organized by Arts Catalyst, a science, technology and culture center in London.

“In 2006, I was reading about the non-lethal tools that the police used to deal with demonstrators and calm them,” Dory told me, also citing the sound cannons used against protesters at the G20 summit in Pittsburgh. “That grabbed my attention because we just wanted to push wolves away, but we didn’t want to kill them.”

Dory came up with the idea while conducting research at a shepherd school located in the National Park of Picos de Europa in northern Spain, where he spent his childhood summers. It’s a

work in progress, and Dory states that part of the project’s value is in artistically calling attention to the important role played by shepherds in Spanish cultural traditions.

In this region of northern Spain, shepherds have lived alongside wolves for centuries and used their own methods to control wolf numbers. Dory said that in the past, for example, groups of shepherds went into the woods together and made loud noises to push wolves out of their territories. They also hired professional hunters to keep wolf numbers down without exterminating them.

In a bid to preserve northern Spain’s shepherding culture, Dory turned to technology. He readied his first “bionic” sheep device prototype in 2006 with help from engineers and shepherds in Spain. He intended it to be a solar-powered device that emitted an ultrasound frequency of around 40 kHz—audible and unpleasant for dogs and wolves, but not for humans and sheep. He admitted, however, that back then the system was limited.



A sheep wearing an early version of the collar

Photos this page, and bottom of page 25:
Bionic Sheep project and Shepherd School/
Fernando García Dory



"We tested the 2006 prototype with wolves, but [the ultrasound frequency] had only a half-meter effect, and the volume probably wasn't strong enough to be disgusting for the wolves," said Dory.



Fernando García Dory

A prototype of the ultrasound-emitter regulator component, later to be reduced and assembled in the Bionic Sheep, made by hacker Paolo Cavagnolo, collaborating with Fernando García Dory since 2015.

Without funding to continue the project, Dory had to wait nine years before he could make the second prototype with funding from the National Park of Picos de Europa.

For "Bionic Sheep 2," he is collaborating with Paolo Cavagnolo, an Italian hacker with a background in nuclear engineering.

While testing out Bionic Sheep 1, Dory discovered that the weakest component of the device was the ultrasound emitter. As he wants the new device to be effective to a radius of around 66 feet (20 meters) he is currently working with

Cavagnolo on improving its capabilities. "We wanted to play with the volume and frequency in order to determine which frequency and volume were most disgusting to the wolf," said Dory, who has yet to test the second prototype device on captive wolves.

The construction of the device is challenging. "We have to consider things like how much power this device needs, whether it will be useful for society, and if it will deter wolves," said Cavagnolo. "When you have the answers to all these things you can proceed to designing the collar and shrinking key components like the battery and the speaker."

While Dory said he'd received interest from shepherds and farmers in other EU countries, some remain skeptical. "Wolves are incredibly bright animals and great problems solvers," Sue Hull, director of the UK Wolf Conservation Trust, commented. "I'm keeping an open mind about this device, but what the pair has to do now, once they've sorted out a power source for it, is test it out on some captive wolves to see if they get any adverse responses."

Hull suggested that that in the future, technology such as drones that spot and dive-bomb wolves could be developed. "It's always going to be an ongoing battle," she added.

While the bionic sheep device is in early stages, it's a tenta-

tive departure from the days of using bullets and poison to deter wolves. If all goes as planned, Dory wants the collars to be commercially available and open-source for \$35 to \$45 (30 to 40 Euros). "When people think about a sheep with this technology they laugh; it seems unusual and almost ridiculous," he said. "But when we look back we will be embarrassed by how we felt. It's essential to preserve the important psychological role of the shepherd [in our culture]." ■

TECHNICAL EDITOR'S NOTE: *Although it is always informative to try new methods of reducing wolf depredations, wolves usually habituate to such methods and resume their usual behavior. Only testing can determine results.*

Emi Jozuka is a polyglot, multimedia journalist and columnist at VICE Media's Motherboard. She was formerly a freelance writer, producer and videographer in Turkey where she covered the environment, politics and human rights. She also worked as a script editor and set photographer for the Kurdish indie filmmaking scene. Currently, she covers topics related to the intersection of technology with the arts, environment, development and human rights.



The device would protect goats, too.

Wild Kids



Notes from the Field

Wolf pups open their eyes at 12 to 14 days of age—about the same time they become coordinated enough to stand and walk. Once the pups have explored their den, they slowly begin exploring beyond it. Often the boldest pup leads the way, closely followed by a sibling or two. When startled, pups scramble back to the safety of the den.



Jackie Fallon

Dean Cluff, Government of the Northwest Territories

Play!



Maze

Help the wolf pups find their way back to their den!





The “old man” of our ambassador wolf pack is Grizzer. He is 12 years old, which is old for a wolf, and

he was born on May 5, 2004. Grizzer is a Great Plains subspecies of the gray wolf.

Grizzer is now retired, meaning he doesn't live in the main enclosure with the rest of the ambassador wolves. In a wolf pack, there is always a contest between the wolves to see who can “move up the ladder” to dominant status. Older wolves can't compete for status anymore. If the wolf in the wild loses a dominance contest, it can simply run away. When they are in captivity, though, we separate older wolves for their own safety. The enclosure for retired wolves is next to the ambassador wolves' enclosure, so Grizzer continues to be near the other wolves.

For the last few months, Grizzer has been watching and listening to the construction of our new wolf lab. The crashing, sawing, buzzing and pounding, and the voices of the construction team are all new to him, which makes him a little anxious. Grizzer is ready for the wolf-lab project to be finished so he can get back to his quiet retirement! ■



International Wolf Center

Crossword

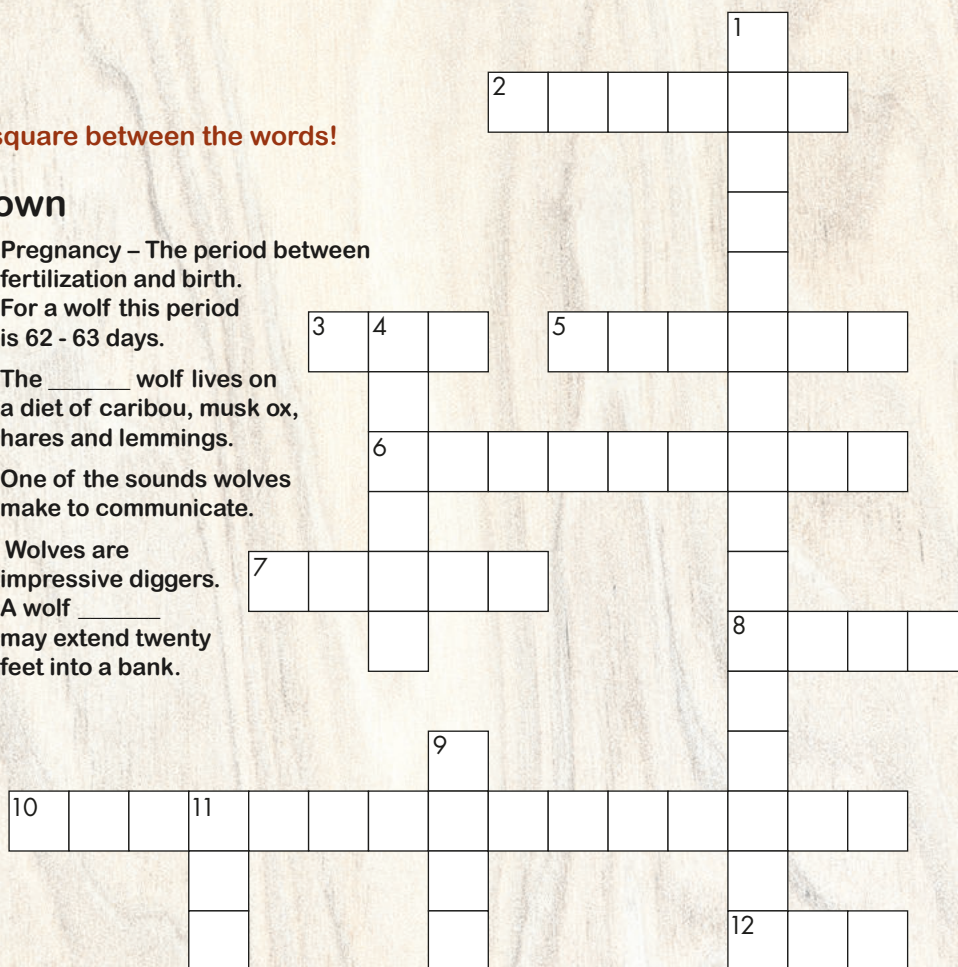
Hint: 2 word answers will have a blank square between the words!

Across

2. Plural of wolf
3. The month of the year that Wolf pups are normally born.
5. All of the pups born during a single birth to an adult female wolf.
6. The wolf is a meat-eater or a _____
7. Camouflage color of the adult Arctic Wolf
8. A family of wolves that lives and works together to hunt for food and take care of the pups. It usually consists of a breeding male and female and their offspring.
10. An above ground area, usually open and near water, where pups are taken when they are old enough to leave the birth den
12. A shelter, often a small cave or hole dug out of the ground, to protect the breeding female and her young pups from weather and other animals.

Down

1. Pregnancy – The period between fertilization and birth. For a wolf this period is 62 - 63 days.
4. The _____ wolf lives on a diet of caribou, musk ox, hares and lemmings.
9. One of the sounds wolves make to communicate.
11. Wolves are impressive diggers. A wolf _____ may extend twenty feet into a bank.



Answers: Across 2. wolves 3. May 5. litter 6. carnivore 7. white 8. pack 10. den 11. howl 12. den Down 1. gestation period 4. arctic 9. howl 11. den

Book Review

The Killing of Wolf Number Ten

A review by Nancy jo Tubbs

The Killing of Wolf Number Ten: The True Story

Author Thomas McNamee grabs the reader in the book's first explosive moment and never lets go.

"A helicopter tips a line of spruce and skims the open snow. A man leans out, a gun at his shoulder, and then is lost from sight in a blur of swirling white and terrible noise."

The date is January 12, 1995, and the animal that came to be known as Wolf Nine is being darted into unconsciousness at the beginning of a perilous journey. She is about to become one of the first wolves to be flown out of Alberta, Canada in a landmark effort to return wolves to Yellowstone.

Next, we meet her soon-to-be Yellowstone mate—Wolf Ten, the ill-fated hero of the book. McNamee writes, "There is about this wolf a calm, a quiet, a confidence, something magisterial" that will gain the respect of the wolves and the affection of humans he is to encounter.

This "very definition of an alpha male" is placed into an enclosure in Yellowstone with Nine. A growling, mutual greeting and a tense day are followed by morning when the two are curled together, asleep. By the time they are released into the Lamar River valley in March they will be a mated pair with pups on the way.

Wolf biologists fly to follow the wolves, worried and losing them at times, as they survive treks in two dangerous directions: into the Absaroka Mountains, pitilessly jagged and frozen,

with no prey, and toward the human dangers of Red Lodge, Montana. On April 24, after the wolves have been spotted from the air on the north slope of Mount Maurice, with Nine about to deliver her pups, Ten is shot and killed.

The book's hapless villain, Chad McKittrick, spots the wolf silhouetted against the sky on a ridgeline and, disregarding the pleas of his friend, Dusty Steinmasel, takes his shot.

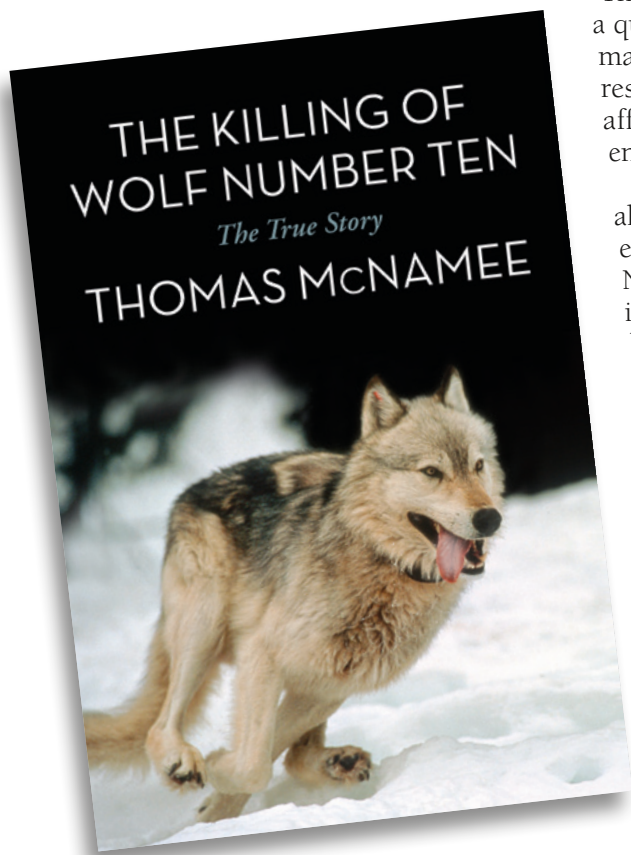
McNamee writes, "Nine sees Ten spin around, bite at the wound high on his back, fall, kick his legs twice and then lie still. She runs to him. He is still breathing. She sees the men far down the hill. She knows what a rifle is. She knows she must run and hide, and she does."

When biologists hear the fast beep of Ten's collar in mortality mode, "all hell breaks loose," and, with bad weather closing in, the search is on for the collar, and then Ten's skinned body and severed head. After those heartbreaking discoveries come the crucial, break-necked rescue of Wolf Nine and her eight newborn pups.

McKittrick's prosecution is cinched with the reluctant testimony of Steinmasel and, after appeals, he finally serves three months in prison in 1999 for the killing of Wolf Ten.

The drama is grounded in many complications and nerve-wracking suspense, with brisk forays into the social and political realities of wolf introduction. Its portrayals of the human characters include "big, blond, rough-handed, tough-talking Carter Niemeyer," Doug Smith with the "stretched, lean boniness of a movie cowboy," the eloquent Mike Phillips, "a practiced spinmeister," and a dozen more, the names and reputations of whom are known throughout the wolf world.

The Killing of Wolf Ten is the story of a historic wolf and a wild restoration ride, factually, humorously, elegantly told. ■

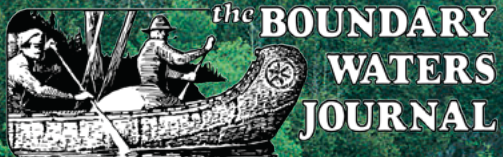


The Killing of Wolf Number Ten: The True Story

2014 Prospecta Press

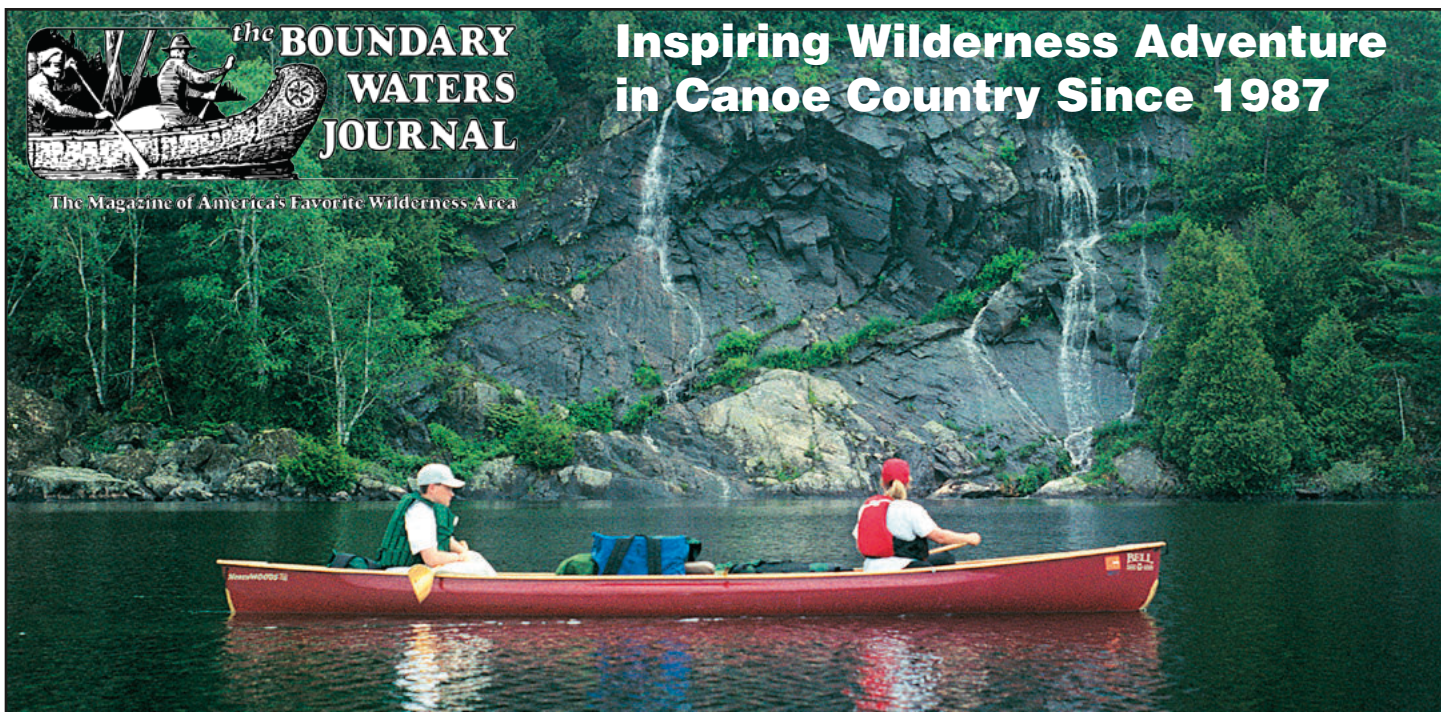
Written by Thomas McNamee

130 pages



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