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VOLUME 29, NO. 2 THE QUARTERLY PUBLICATION OF THE INTERNATIONAL WOLF CENTER **SUMMER 2019**

From Red Wolves, Lessons in Resilience

They looked and acted like red wolves—but red wolves had long ago disappeared from Galveston Island. The quest to identify these "mystery" canines revealed a surprise: red wolf genes persisted nearly 40 years after the species was thought to be extinct in that region. The author explains the process—and the importance—of this discovery.

By Kelley Christensen

Softer Skills Can Help Mediate Harsh Conservation Disagreements

Francine Madden knows how to reach a collaborative solution, and her approach is bringing civility to discussions between pro and con forces about the future of wolves. Respect, trust-building and listening are her tools, conservation issues her specialty, and focusing on future challenges part of her success. When she steps in, win-win becomes possible.

By Tracy O'Connell

Wolf Watching in Yellowstone: Viewing Versus Habituation

Yellowstone may be the best place in the world to view free-ranging wolves, but that accessibility has several downsides for humans *and* for wolves. Problems like overcrowding and habituated wolves are complicated. Doug Smith explains how solutions will require behavior changes by the Park Service, the park visitors and the resident wolves.

By Douglas W. Smith

On the Cover

Photo by Christian Houre

Christian Houge is a fine art photographer from Oslo, Norway. The cover image is from his photo exhibit, Shadow Within.

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Thank You, Members and Donors; You Helped Save Michipicoten Wolves

For several years, we have watched in anticipation as significant changes occurred in the wolf population on Isle Royale. Last fall, the National Park Service (NPS) began a three-year project to introduce 20 to 30 wolves to the island. It succeeded with the first wolves that were translocated from northern Minnesota.

Rob Schultz

Over winter, the NPS plan to translocate wolves from Michipicoten Island—in eastern Lake Superior—hit roadblocks during the U.S. federal government shutdown. The International Wolf Center was asked for funding assistance by NPS staff and the National Parks of Lake Superior Foundation. As you can imagine, we were very pleased to oblige.

Our International Wolf Center founder, Dr. L. David Mech, and former board member, Dr. Rolf Peterson, have been very involved in studying the relationship between wolves and moose on Isle Royale over the past 60 years.

In March, the Center made a significant financial contribution and sought donors to help us close the financial gap and make the capture and transport of Michipicoten wolves possible.

On Michipicoten, the wolves' winter food source was gone, and had the wolves been left on the island they might well have starved by spring. The project had a lot of positive media coverage, and the seven remaining wolves from Michipicoten had soon been successfully translocated to Isle Royale.

We are proud to have been invited to contribute to this historic effort to maintain a viable wolf population on Isle Royale, and we look forward to being involved in the next steps of the Isle Royale Wolf Reintroduction Project that will likely occur this fall.

Our sincere thanks go out to our board members and supporters who helped make this possible! Since the reintroduction of wolves to Yellowstone National Park, we've seen first-hand the complex, positive effects wolves can have on an ecosystem. We expect that a thriving wolf population on Isle Royale will make a similar impact there, teaching us even more about predator-prey relationships. ■

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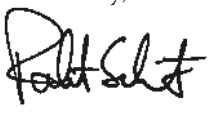

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Red wolves, once nearly extinct, again teeter on the abyss—but new genetic research finds red wolf ancestry on Galveston Island, providing opportunities for additional conservation action and creating policy challenges.

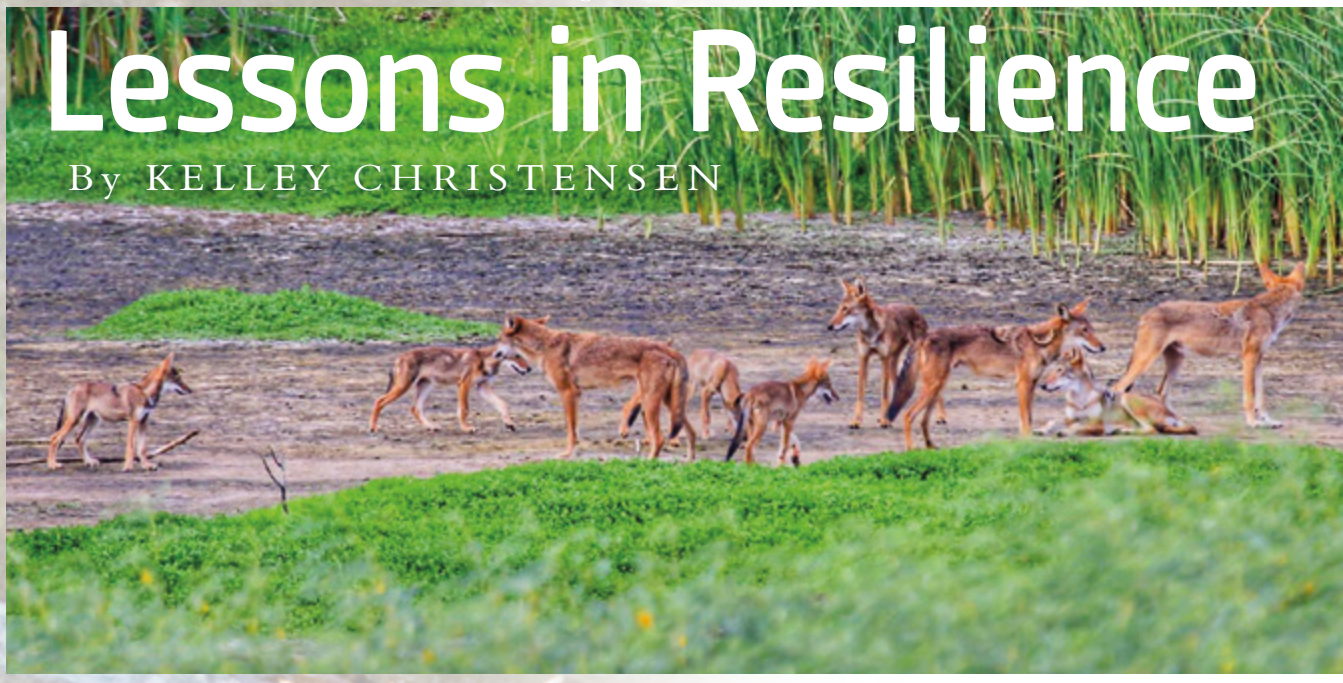
From Red Wolves, Lessons in Resilience

By KELLEY CHRISTENSEN

When Hurricane Ike stormed ashore on Galveston Island, a barrier island off the south coast of Texas in the Gulf of Mexico, the massive flooding and vegetation damage impacted more than humans. Ron Wooten, a biologist who lives on the island, lost his dog to a hungry pack of what he thought were coyotes shortly after the hurricane.

Rather than try to ruthlessly hunt down the animals for their crime, Wooten instead sought to study them to understand what would drive them to kill a dog. Also a photographer, Wooten was able to capture images of some pack members. It was then he realized that the animals were not coyotes.

"Seeing that they were unique and did not look like coyotes at all, I searched



Ron Wooten Photography

Valerie Abbott

for almost two years to find someone who could help me identify those animals," Wooten said. "I started thinking that they must have bred with a big dog somewhere down the line, because these animals did not look like coyotes. Much longer legs, much bigger, broader heads, longer ears, longer snouts, and their behavior..."

But other area wildlife managers didn't seem to share Wooten's conviction that animals that looked very much like red wolves *(Canis rufus)* could still exist on Galveston Island. Despite the negative reactions, Wooten continued his study, watching the animals hunt small game and play together as a pack.

Bolstered by Steve Parker, a Galveston attorney who shared an interest in the mystery, Wooten was able to recover tissue samples from pack members that had been struck by cars and left by the side of the road—items he kept in a freezer alongside rattlesnakes, deer hides and a flying fish. Wooten sent the samples to Bridgett vonHoldt, an assistant professor of ecology and evolutionary biology at Princeton University.

"After comparing the samples to images of coyotes, reviewing a few papers on wolf and coyote behavior, and remembering my genetics lessons on island biology, it occurred to me that perhaps this was a specific group of wolves that had become genetically isolated on the island by the physical barrier of surrounding water," Wooten said.

Having contributed the samples, Parker paints his own experience to solve the mystery of the Galveston Island residents that so clearly were *not* coyotes.

"In 2000, a friend confirmed there was a pocket of very 'wolfish' animals near a container port under construction. One afternoon, we went down the road where one such animal was always seen, and sure enough, there he was, maybe 30 yards away—about 60 pounds, maybe 28 inches at the shoulder, with a big, wide bowling-ball head. He tried to lie down behind a levee but he was so big he just stood out like a sore thumb. Then he looked over his shoulder, turned, jumped 10 feet and was gone.

"I have spent a lot of time outdoors in this area and never had seen anything like him before. I called every U.S. Fish & Wildlife Service and every Texas Parks & Wildlife Department person I could find, thinking the world would spring into action to confirm the presence of these animals. You would've thought I'd reported seeing a T-rex!"

And now, before the story of the Galveston Island canids continues, we must travel 1,400 miles away to North Carolina, where a different tale of the red wolf has unfolded…

A Story of Recovery and Decline

The red wolf is one of United States' greatest wildlife conservation stories. Red wolves were on the brink of extinction along the American Gulf Coast during the late 1970s when the U.S. Fish and Wildlife Service (USFWS) made a bold decision to purposely remove all remaining red wolves from the wild.

The USFWS attempted to trap all wild wolves remaining along the Gulf Coast of Texas and Louisiana to initiate a captive breeding program and recover the species. After several years of successful captive breeding, red wolves were released back onto the landscape in North Carolina in 1987, well before the famous wolf-reintroduction effort in Yellowstone National Park.

"The Red Wolf Recovery Program has accomplished much with very little public recognition," says Cornelia Hutt, Red Wolf Coalition board chair. "The red wolf is the first predator ever to be restored to the wild after becoming officially extinct in the wild."

Hutt notes that the technique of pup fostering (placing pups from captive wolves into dens of wild wolf pups) was developed by Red Wolf Coalition program managers and was then used with the Mexican wolf reintroduction.

The reintroduced population in North Carolina grew for 25 years, even while experiencing complex management issues such as red wolves hybridizing with coyotes.

But the wild population is once again dwindling (from a peak of about 150 individuals in 2005 to a mere 25) amidst political controversy, pressure from landowners for the right to shoot wolves on their land, and poaching. In addition to the wild population, there are approximately 200 red wolves in captivity. The entire red wolf population in the United States descends from 14 individuals, of which only 12 are genetically represented.

The challenges the red wolf faced in the 1970s are essentially the same that threaten the species today: persecution by humans, habitat loss, hybridization and disease.

Ghosts of the Past, Wolves of the Future

During the ongoing debate on how to recover the red wolf, a team of researchers including scientist Kristin Brzeski,

assistant professor in the Michigan Technological University School of Forest Resources and Environmental Science, who worked with vonHoldt as a post-doctoral researcher, discovered high amounts of red wolf ancestry in canids living on Galveston Island.

"Our discovery that red wolf genes persisted in Texas after being declared extinct in the wild was very surprising," Brzeski said. "It introduced positive opportunities for additional conservation action—and also some difficult policy challenges."

Brzeski and her coauthors published their findings, "Rediscovery of Red Wolf Ghost Alleles in a Canid Population Along the American Gulf Coast" in December 2018 in the journal *Genes*. This report tended to support the 2010 publication in the *Southeastern Naturalist* by Mech and Nowak of possible red wolf genetic representation in north-central Texas.

Canis rufus Persists

There are just two recognized species of wolf in the United States: the gray and the red. Red wolves, native to the southeastern U.S., are smaller and more slender than their northern cousins. The red wolf population has also been under threat from hybridization with coyotes.

"Red wolf research is exciting, frustrating, sad and uplifting at the same time," Brzeski said. "They neared total extinction, were saved through captive breeding, and have been demonized by opponents, all the while continuing to be a successful, reproductively viable species that keeps on ticking—with the help of incredibly dedicated biologists, managers, captive facilities and dedicated volunteers, of course."

The red wolf *alleles*—variant forms of a given gene—appear to have persisted in a population of canids on Galveston Island because of their isolation from coyotes, and the resultant improbability of interbreeding and hybridization.

The research group Brzeski was part of obtained tissue samples from two roadkill canids (not the same animals Wooten took pictures of) on Galveston Island and conducted analyses with genome-wide, single nucleotide polymorphism and mitochondrial DNA from 60 animals that represented all potential sources of ancestry for the Galveston Island canids: coyotes, red wolves and gray wolves. Brzeski and others found that the Galveston Island canids have both red wolf and coyote alleles, likely related to species interbreeding during the 1970s as coyote populations expanded across North America.

"I had the privilege to work with wild red wolves in North Carolina for my PhD dissertation and hear them howl in the wild. Their reintroduction has shaped wolf reintroductions since. What scientists learned changed how they did Yellowstone and influenced what they're doing on Isle Royale," Brzeski said. "Finding them (red wolves) in Galveston and Louisiana is so exciting because that's where they came from. There is some sort of reproductive isolation occurring with zero human management."

The Galveston Island animals—known to wildlife biologists as admixed canids—do not share all variant genes with contemporary red wolves, but they are genetically closer to red wolves than they are to coyotes.

This is significant; it means that red wolf genetics persist in the American south nearly 40 years after the species was thought to be extinct in that region. The canids on Galveston Island, and possibly elsewhere, may represent a "reservoir" of red wolf genes that could be used to bolster other red wolf populations.

"This research shows hybrids can have conservation value through harboring extinct genes from endangered parent species," Brzeski said.

Next Steps

In the past decade, red wolves have been under attack by opponents of the conservation program who claim

Robert Wilcox

Valerie Abbott

this animal is not genetically distinct from coyotes and therefore not eligible for protection under the Endangered Species Act.

Research reveals the need for further genetic sampling of coyote populations in Louisiana and Texas to survey for red-wolf ghost alleles. Additionally, researchers note a need for assessments of morphological differences in canids with red wolf ancestry. The discovery of the Galveston Island canids could also create an opportunity for future reintroduction efforts outside of North Carolina.

Brzeski says, "Our discovery opens up a new chapter in their story: red wolf ancestry has persisted independently without focused management action. How will this impact recovery efforts? Can we recover extinct genes through selective breeding with newly identified admixed canids? These are difficult but exciting questions, broadly important beyond red wolves, that will influence wildlife conservation in an era of major climate and landscape change."

In March 2019, the National Academies of Sciences, Engineering and Medicine released the "Consensus Study Report Evaluating the Taxonomic Status of the Mexican Gray Wolf and the Red Wolf," sponsored by the U.S. Fish and Wildlife Service. The conclusions of the report are that historic red wolves were a taxonomically valid species, that extant red wolves are distinct from gray wolves and coyotes, and that extant red wolves trace some of their ancestry to the historic red wolves. Based on these conclusions, the report asserts that the extant members of the species in North Carolina, Galveston Island and in small pockets in the American South, are indeed *Canis rufus*.

It is Wooten's hope that red wolves will continue to exist successfully on Galveston Island alongside humans. Brzeski and Hutt, too, close their eyes and hear the wolves howling in the North Carolina dark. These people hope that red wolves thrive despite the challenges, so that future generations might hear their song in darkened forests and witness their crab hunts on the beach. ■

Kelley Christensen is a science writer at Michigan Technological University, where she is also pursuing her doctorate in environmental policy. Prior to her current position, she worked in newspaper journalism in Montana and Nebraska, and as science editor for IEEE Earthzine.

A shorter version of this article was originally published at mtu.edu/news under the headline "A Future for Red Wolves May Be Found on Galveston Island."

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Softer Skills Can Help Mediate Harsh Conservation Disagreements

By TRACY O'CONNELL

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Francine Madden wraps up project as wolf-conflict manager in Washington

Achieving agreement among people of opposing views is seldom easy. Examples on the national stage are rampant and often revisited in battles that rage year after year. In conservation arguments, people may be labeled uncharitably by opponents as "tree-huggers," "gun nuts" or left- or right-wingers. At this depth of resistance, efforts to reach agreement may involve acknowledging underlying, unnamed issues well beyond those that appear on the table.

Enter Francine Madden, executive director of the Center for Conservation Peacebuilding (formerly Human Wildlife Conflict Collaboration) who has spent more than 20 years as what she terms "a third-party neutral" in conflict management around the world. Madden recently completed her most substantial assignment—a three-and-a-half year stint in the state of Washington, where she oversaw the development of an agreement on the future of wolves between pro and con forces that included environmentalists, ranchers and hunters.

Washington state had become a hotbed of conflicting views common in other locales, as well, where the presence of wolves is typically lauded by conservationists and general lovers of wildlife, and cursed by ranchers and others who fear for their safety and livelihoods. The Washington situation began to heat up in the 1990s after an experimental reintroduction of wolves there caused wolf populations to rebound. By 2015 conflict had become so heated that Washington's Department of Fish and Wildlife hired Madden to intervene and help cool hostilities within the state's Wolf Advisory Group.

Madden's work in this arena has been written up in the *Washington Post* magazine and the *Capital Press,* a weekly that, according to its motto, "empowers growers of food and fiber." The Post article reports, "Madden spent 350 hours interviewing 80 people about wolves before she led advisory group meetings. She found anomalies in the 'us-vs.-them' narrative: a hunter who described seeing a wolf as a 'religious experience'; environmentalists who supported, or at least were neutral about, the idea of a wolf hunt. Wolves, she found, were a proxy for other fears, such as fading traditions and a loss of control to Seattle progressives."

> ... there are several levels of conflict, from mere disagreement to deep levels of mistrust that add layers of complexity—issues that must be dealt with before finding a solution to the surface problem.

The *Capital Press* covered her work in several articles, questioning the "hefty $1.2 million price tag" and other expenses the contract entailed, and citing the lack of transparency in closed meetings. The writer agreed, however, with the need for an outside mediator, saying "The state's wolf plan was unrealistic, agency leaders seemed caught in the crossfire between pro- and anti-wolf groups, and legislators and the governor were feeling the heat from all sides." The series concluded that Madden brought civility to the state's contentious Wolf Advisory Group, noting that progress was made.

There will always be conflict, Madden says, so she sees her role as helping people work together effectively even as future challenges loom, rather than achieving a solution to an immediate problem, leaving underlying issues to foment and arise later.

In the Washington state experience, participants went on to discuss other topics, from handling issues around other carnivores, such as bears and cougars, to gender equity issues in the workplace. After her success in Washington state, Madden says, she has been approached by a variety of interests in other states concerned with their role in managing wolves—people who want to know, "How can we scale this up?"

Madden calls her unique approach to achieving agreements *conservation conflict transformation,* or CCT. It's a formula she has honed since seeing the need for a new approach while she was a Peace Corp volunteer in Africa. It gives her a role not unlike a group therapist, drawing out the unspoken and underlying needs of various participants to gain trust and establish a long-term solution. Her work since then has taken her to multiple places in Africa, to Asia and Latin America, and around the United States.

Photos courtesy of the Center for Conservation Peacebuilding

Fancine Madden (left) addressed peacebuilding as part of a panel last year.

Using a Conservation Conflict Transformation (CCT) approach, relationships are built, trust is repaired, and people begin to work together toward solutions that allow coexistence with each other and wildlife.

She sees her role as helping people work together even as future challenges loom, rather than leaving underlying issues to foment and arise later.

Madden, based in Washington, D.C., draws upon models of conservation conflict resolution put forward by Christopher Moore (1986), and Gregg Walker and Steven Daniels (1997), which identify several levels of conflict, from mere disagreement to deep levels of mistrust that add layers of complexity—issues that must be dealt with before finding a solution to the surface problem. She draws from a toolkit of techniques to handle disputes, noting that the basic settlement is often the easiest to reach. The more difficult process is working through the underlying, unspoken issues and forming the relationships necessary for a lasting solution.

The need for Madden's work can be seen in conservation-related agreements brokered in the past without attention to these more time-consuming, "softer" aspects of relationship-building that creates understanding of others beyond simplistic slogans and stereotypes. Accords reached that way can become mired in memories of past missteps by each opposing group. Research by Naughton-Treves, et. al. (in 2003, on tolerance to wolves in Wisconsin) and others pointed to failures in past agreements that were based on traditional tools such as compensation for predation, if those agreements didn't also include a path toward reconciliation of past hurts among the parties involved.

Madden cites listening as a core component of her method to uncover the resentments each side holds, and to understand the complexities within each group. Individuals who have a common interest, such as those who identify as hunters, may hold differing perspectives. Some may favor a robust presence of predator species while others do not. Some may favor government-based solutions as opposed to those with a more libertarian view. People don't want to fight, she says; they want dignity and respect, so the process must be all about building trust. All sides need to be respected and valued and have their identity legitimized, Madden insists, and when that happens, "they will guide you" to what needs to happen in the process.

She believes time must be set aside to address these needs before a solution is reached *every time* a new group faces conflict, rather than assuming the interpersonal issues uncovered in one circumstance can be applied to another. Efforts where the trust-building stage is short-changed will not succeed in the long term; Madden calls that approach "go fast to fail." While the Washington state experience spanned years, each encounter operates on its own timeline, she says. Her briefest interaction, in the Galapagos where parties addressed invasive species, required only two weeks on the ground.

Part of the listening, trust-building work can include measures many

would see as quite apart from a typical conservation-related agreement. In Africa, working with groups to seek an end to the poaching of elephants, stakeholders coached villagers in construction skills and helped them to build a mosque—efforts that addressed the human needs for connectedness, spiritual security and meaningful engagement, all of which are parts of an agreement that will be successful in the long term.

Madden emphasizes backgrounding in preparation for the diverse cultural and personal issues she encounters in her work—seeking information that comes from the participants themselves, as she asks them to come forward with topics they associate with the subject at hand. "We all have baggage," she says, when coming into a group. Hers, in any given interaction, might include being an urban resident, or being white, or American or female. "I have to earn my neutrality by proving it," she says. It comes with showing humility, a sense of humor, and a willingness to listen that can be equally effective whether the person in her role is a man or woman, she notes.

Madden has trained 500 professionals and conservation stakeholders in the past decade in "capacity-building" workshops that run for several days, in which participants gain or improve the knowledge and skills to improve professional competence. She apprenticed early on with Brian McQuinn, an Oxford-trained researcher in armed conflict who, while not working in conservation efforts himself, took her capacity-building ability to the next level, she notes.

She has recently taken on her first apprentice, who will work with her for 18 months to gain "journeyperson" status. She likens the process to the traditional role of workers learning from a more experienced person.

She doesn't see herself as a master, but as someone with "a ton left to learn," as she clicks off the skill sets upon which she draws—neurology, behavioral science, sociology, political science and several others. Still, she says, "It's not rocket science." It often involves operating from the gut and remaining behind the scenes. She sees her organization as "the mother ship" from which she hopes to launch clients who can continue to manage future issues according to the process they have learned—even those individuals she finds initially resistant. Many, she says, turn out to be "really good."

With Madden's success, the old-style approach of listening to and honoring each other might be making a comeback in a world where more technology and more laws have too long been seen as solutions—and have too often failed. ■

Tracy O'Connell is professor emeritus at the University of Wisconsin-River Falls in marketing communications, and serves on the Center's magazine and communications committees.

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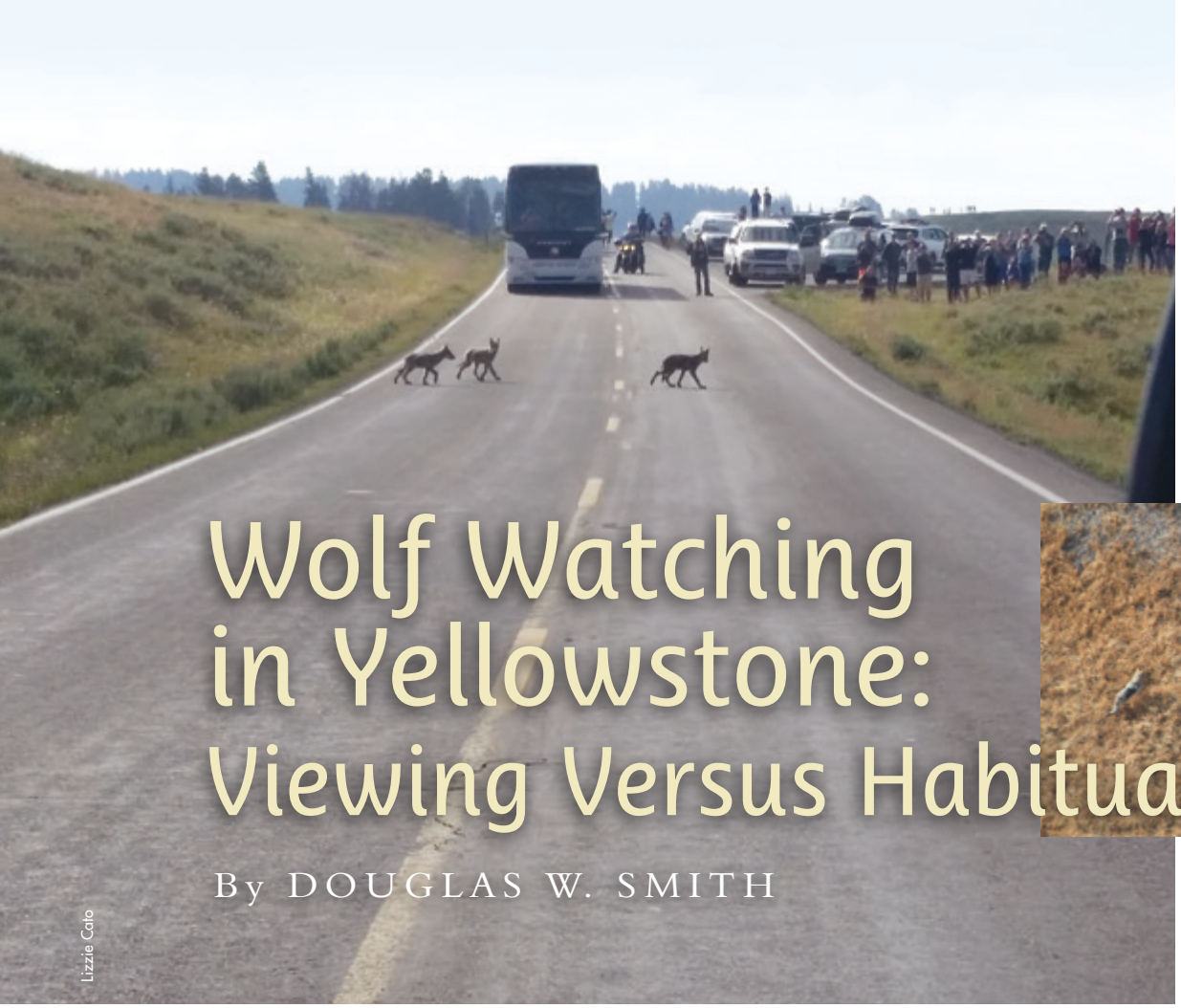


Lizzie Cato

Wolf Watching in Yellowstone: Viewing Versus Habituation

By DOUGLAS W. SMITH

Yellowstone National Park may be the best place in the world to view free-ranging wolves. There are other places, but nowhere else offers the same consistency, ease of access and exciting behavior. Even park visitors with no familiarity with the park or the wolves stand a pretty good chance, on a two- or three-day visit, of seeing a wolf.

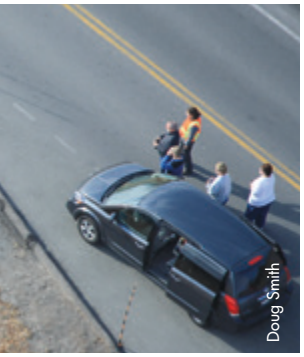
This accessibility has its downsides: roadside crowds, human proximity to wolves, blocked road-crossings for animals, and humans pursuing wolves for photographs—or even strategically waiting for a wolf to pass on a known travel route. Rarely, but sometimes, these situations can lead to habituation, that is, becoming used to or accustomed to something such that they no longer fear it.

As a result, park administrators have responded with regulations and education. Most "wolf" rules are consistent with other park policies about preserving nature and visitor experiences, but wolves pose unique challenges. For example, instead of keeping a distance of 25 yards, as requested for other wildlife, watching wolves (and bears) requires a distance of 100 yards—and the visitor must *maintain* that distance. (In other words, if the wolf moves closer, the visitor must move away!) These rules have been hard to enforce; some people willingly disregard them because proximity to a wolf can be the wildlife experience of a lifetime. But there are serious downsides to that behavior.

Too-frequent close approaches and daily proximity to people can cause wolves to become unafraid of humans. Most wolves in Yellowstone are *not* entirely unafraid, but many are tolerant of people. They have to be, with 4 million people per year visiting the park. This does not mean they are habituated, however.

A *tolerant* wolf wants to avoid people, but still tries to get where it is going by employing route alterations and bend-

ing around human activity, but always keeping a distance and moving along. A *habituated* wolf displays fearlessness, approaches people closely, or stands close to people and vehicles with little concern. Crossing a road carelessly, stopping in the middle—maybe even 'hooking' onto a car and walking up to it, are some examples. Behavior like this usually happens when wolves have been fed; however, it can happen without food involved (McNay, 2002). Another behavioral reaction is flight. Some wolves flee when they know people see them. Most wolves in Yellowstone see people; it's hard for them to avoid all interactions.


Doug Smith


Tom Murphy

Understanding these reactions is important because it provides insight into how wolves have adapted in Yellowstone. There have been no injuries or close calls, possibly because our understanding has led to preventative action.

There were once predictions that a park environment would produce fearless wolves that would attack people. While some described the process by which a wolf becomes habituated (Geist 2014), this step-by-step process has not been observed in Yellowstone. We have not seen wolves moving close to people and targeting them because of "prey evacuating home ranges *en masse,* leading to virtual absence of prey," nor "waterfowl vacating wintering grounds," or wolves approaching human habitations and making playful or clumsy attacks on people (Geist 2014).

We have documented wolves in developed areas, but they go there to find elk, typically at night, even occasionally killing them—on one occasion, in someone's backyard. Yet they are wary of people and leave when a human arrives on the scene. We have proactively killed two wolves (after hazing them did not work) because of fearless behavior. We believed they were threats, but their behavior did not fit the step-by-step pattern Geist described. Generally, if there has been no food reward, hazing works; we have many successful examples of this. If done appropriately, during what we call "teachable moments," and not just general hazing, it is almost always successful.

The fundamental principle is this: *Keep people and wolves apart from each other, and of course, do not feed them.* If these two things are accomplished, wolves do not become habituated, and we do not have to kill them.

So how do things go wrong? With millions of people visiting the park each year, it's very hard to get everyone on board. And some people just can't stay away from the wolves.

What are our options? Should we haze the wolves more or enforce regulations on humans more stringently? If we cannot achieve human compliance, we'll need to look elsewhere for solutions. One possibility is making wolves more avoidant of the people and of the road.

Not taking action has repercussions other than habituated wolves.

Wolves that live their lives outside of parks are wary. Wolves accustomed to people inside the park won't be wary of people outside—including hunters. This happened in December 2018 when a wolf from the Lamar Canyon pack was legally shot in an area just beyond the park boundary in Cooke City, Montana. It was well-known that the Lamar pack was accustomed to people, making this an atypical hunting situation. Shootings like this have led to the National Park Service examining management practices toward fearless wolves and possibly revising (once again!) our viewing and hazing regulations.

Yellowstone National Park, known for its wolves and wolf-viewing opportunities, has passionate advocates—a special circumstance that creates special problems. Solving them will need to be a joint effort by the National Park Service, the wolf watchers and the wolves. ■

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Douglas Smith is a senior wildlife biologist in Yellowstone National Park. He has studied wolves for 40 years, working at Wolf Park, on Isle Royale, in NE Minnesota and in Yellowstone, beginning with the 1995 wolf reintroduction there.


Tom Murphy

International Wolf Center Helps Fund Flights of Six Hungry Wolves to Isle Royale

By Chad Richardson
Unless noted otherwise, photos by Ashley McLaren OMNRF

An urgent effort to translocate seven gray wolves from Michipicoten Island and the Canadian mainland to Isle Royale in March was a major success. On March 22 and 23, the Ontario Ministry of Natural Resources and Forestry, along with the National Park Service, successfully moved six gray wolves from Michipicoten that were at risk of starving because of insufficient prey.

Funding for the project was provided by a partnership between the International Wolf Center ($55,000) and the National Parks of Lake Superior Foundation ($45,000).

"We were honored to have played a role in this important operation," said Rob Schultz, the executive director of the International Wolf Center. "And we're grateful to our members for their financial support over the years; their donations made it possible for us to help save these wolves and support the Isle Royale reintroduction project."

Isle Royale National Park Superintendent Phyllis Green said the project to fund emergency flights to move the wolves from Michipicoten would have been impossible without generous donors.

"I thank everyone who donated," she said. "We were worried about the money aspect of this, but we were pretty much right on the mark in terms of our estimate and what came in from donors. We couldn't have done it without them."

Three wolves were captured and flown to Isle Royale on Friday by teams of professionals. On Saturday, another four were moved, including three from Michipicoten and one from the Canadian mainland. Of the seven, three are female.

"They were long days—we were coordinating five aircraft and seven wolves, arriving independently. It was very intense, but we had a really wonderful result," Green said.

It is believed that a 2-year-old female that was moved from Michipicoten to Isle Royale may be pregnant. If she were to give birth on Isle Royale this spring, those would be the first pups born on the island since 2014, according to Rolf Peterson, the lead researcher studying wolves and moose on Isle Royale.

"Any reproduction on the island this year would be pretty remarkable," said Peterson, who followed the translocation process closely. "I was just glad it was successfully concluded. There are so many ways it can go wrong. You're nervous until it's over."

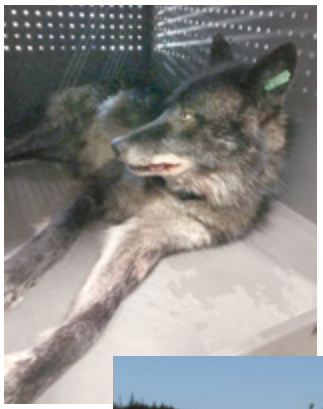
Peterson and other researchers are anxious to see how the island's new inhabitants form their packs. "We have to wait now until the wolves organize their personal lives and get on with things," he said. "It's been seven years since wolf predation had any impact on moose out there. It will be good to see that going again."

The males captured on Michipicoten were close to healthy weights, but the females weighed between 50 and 60 pounds—far below what is considered healthy. The low female weights are due to the fact that wolves on Michipicoten had run out of prey. Meanwhile, Isle Royale is populated by more than 1,600 moose, which is far more than biologists consider viable for the island to sustain. Too many moose on Isle Royale will lead to overconsumption of vegetation, eventually causing severe damage to the island's ecosystem and raising concerns that the moose population may collapse.

With wolves once again on the island, the moose will have a natural predator to keep their population at sustainable levels. Scientists expect the two populations to manage themselves just as they had done for decades on Isle Royale. These seven new wolves join eight that were already on the island, including six that have been reintroduced since September through other efforts.

"Now our focus will turn to following researchers who study the impact of these new wolves on Isle Royale, and sharing the fascinating stories that come out of the project," Schultz said. "As we move into the summer months, the International Wolf Center looks forward to working with the National Park Service and the Lake Superior National

Loading Twin Otter with three wolves



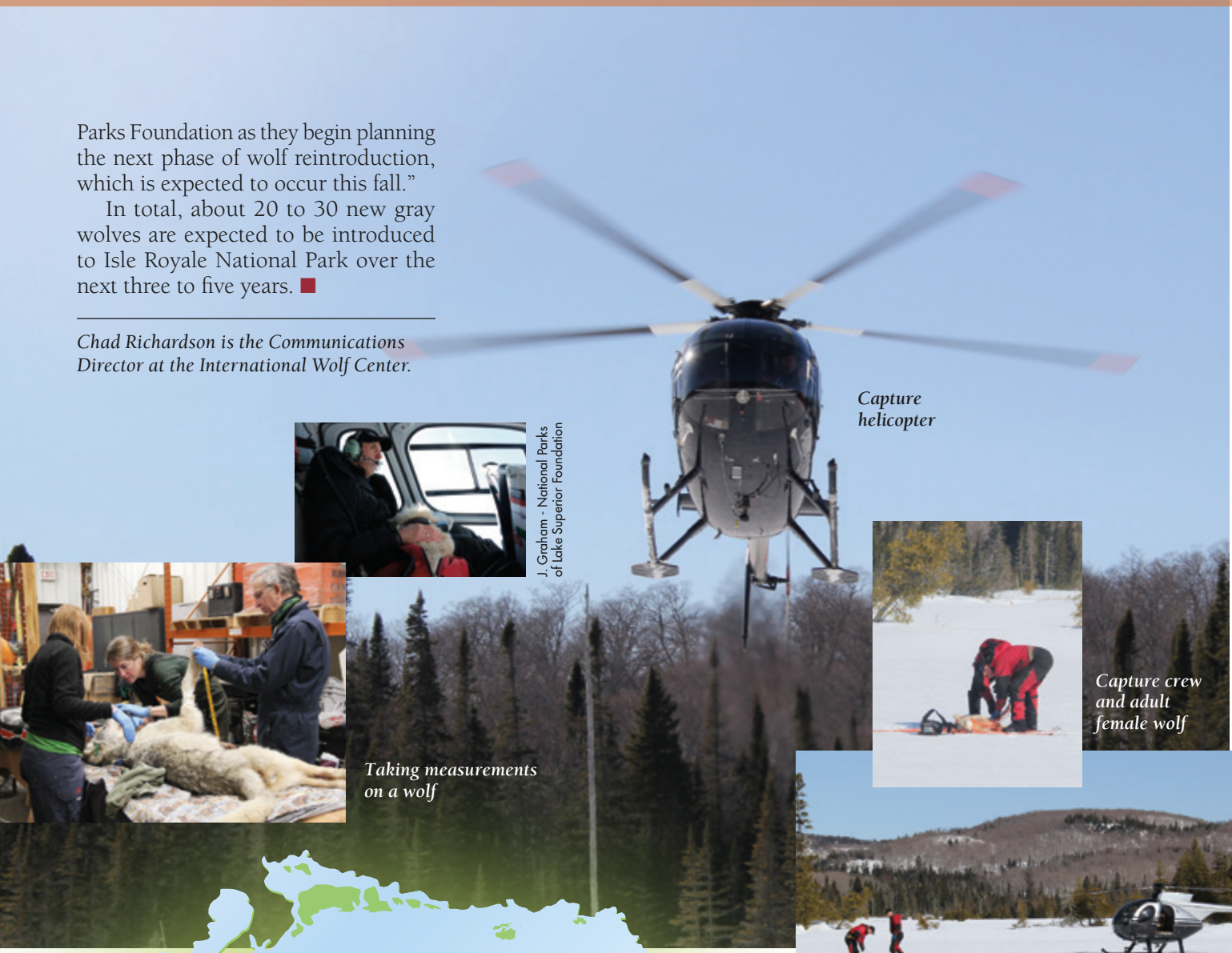
Adult male wolf waking up in crate

Wolf tracks on lake

Parks Foundation as they begin planning the next phase of wolf reintroduction, which is expected to occur this fall."

In total, about 20 to 30 new gray wolves are expected to be introduced to Isle Royale National Park over the next three to five years. ■

Chad Richardson is the Communications Director at the International Wolf Center.

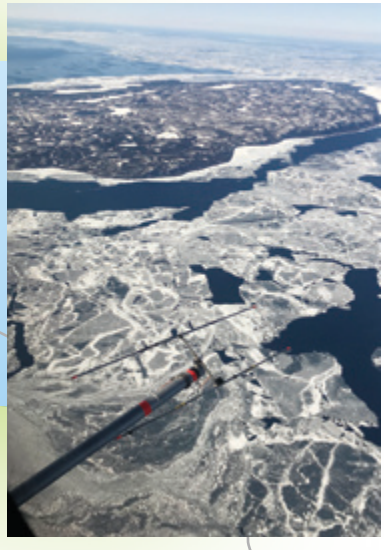


Capture helicopter

J. Graham - National Parks of Lake Superior Foundation

Taking measurements on a wolf

Capture crew and adult female wolf



Radio telemetry antenna for tracking collared wolves on Michipicoten Island (in background)

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AT THE INTERNATIONAL WOLF CENTER

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Admission is valid for three consecutive days.

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Want to know more about the Center's exhibit pack? Join this program to learn about our ambassador wolves, their histories and their behaviors. Then step into the world of wolf biology and gain a better understanding of wolf interactions and pack dynamics.

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THE WOLVES & MOOSE OF ISLE ROYALE

The declining wolf population, combined with an increasing number of moose on Isle Royale, led to a decision to move wolves to the island. Learn more about the history, population dynamics and recent wolf translocations to this isolated ecosystem.

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What role do wolves play in this environment? Join this program to learn how history shaped northern Minnesota and how the past still determines, in part, what currently survives in this unique part of the state.

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Learn about the fascinating feeding behavior of wolves as you watch our Exhibit Pack dine, cache, hide or defend a variety of prey.

HOWLING SAFARI

August: Wednesdays and Fridays, 8 p.m.
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Child (6-12) Non-member $6, Member $5
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Prior registration is required.

Did you hear that?! Learn about wolf vocalizations before practicing your own howl and venturing into the nearby forest to try calling to a local wolf pack. Don't be surprised if they howl back!

BEHIND THE SCENES (MEMBERS ONLY)

June 15 - August 10: Fridays, 9 a.m.
Adult Member $10, Child (6-12) $5
— Not suitable for children under six

This behind-the-scenes experience gives members exclusive access to areas off-limits to the general public! Get up close and learn about the socialization, care and feeding of our ambassador wolves. Participants will view the wolves from benches near the fence.

VISIT WOLF.ORG TO LEARN MORE!

New *Discover Wolves!* Exhibit Opened in May

By Chad Richardson

By the time this magazine arrives in your mailbox, an extraordinary new exhibit will be waiting for you at the International Wolf Center in Ely.

This stunning, immersive experience—*Discover Wolves!*—was installed in April and opened in May.

"Visitors are loving it!" said Interpretive Center Manager Krista Harrington. Scientific knowledge of wolves has continued to advance, enhanced by the emergence of new technology, and the Center wanted to provide a fun, state-of-the-art learning opportunity for visitors to Ely—a lively experience that reveals the wolf in the pack, as a cousin to your dog, and in relationship to you.

"*Discover Wolves!* does all of that," said Executive Director Rob Schultz. "Visitors take part in the action." The new exhibit takes a dynamic hands-on approach to studying wolves. Visitors find microscopes to examine wolf-scat slides, a place to experience the simulated flight of an airplane as researchers track wolves—even a howling room where guests are surrounded by the chorus of a pack under the northern lights.

"Behind the scenes, we've been working on this project for 16 months. To watch the installation as the wolf's story came to life, piece by piece, was thrilling," Harrington said. "We are so grateful that the exhibit was funded by a $1 million grant from the Minnesota Environment and Natural Resources Trust Fund."

"This new exhibit is another way—the latest, most engaging way—for us to continue educating the world about wolves," Schultz said. "We hope you'll come and enjoy it."

A grand opening for the new exhibit is set for June 28 in Ely. ■

Chad Richardson is the Communications Director of the International Wolf Center.

Taking the Lead—Pack Life After Aidan

by Lori J. Schmidt

In July 2018, after a winter of testing and confrontations from younger pack members that reduced his confidence, we moved Aidan, the Exhibit Pack leader, to the retirement enclosure. This is a summary of what we know about how pack dynamics may develop in his absence.

The International Wolf Center is fortunate to have the Vermilion Community College 2019 Wolf Ethology class (part of the college's Wildlife Ecology curriculum) trained and ready to conduct behavioral observations with the goal of determining which wolf is now more likely to take the lead in pack dynamics. The students' preliminary data, collected during a 10-hour data trial in February 2019, offers a glimpse into pack life very different from the interactions we witness as wolf care staff.

Our presence during wolf care can often lead to individual wolves posturing for attention from staff, whereas the students witness the wolves' social interactions independent of humans. While students observed individual events of high-ranking dominance, they saw no consistent leader emerge. We believe the pack dynamics will be fluid until after the introduction of new pups in 2020.

The pack has been without a female's influence since Luna's retirement in 2016. The 2020 pup-management plan recommends that at least one of the two pups selected be a female. Even in a non-breeding pack, a pair-bond exists between the dominant wolves, and having a female enter the pack will likely stimulate one of the males to take on a consistent leadership role.

These are some results of the students' preliminary observations of pack dynamics:

"... our data shows that although Boltz has been observed asserting himself as a dominant pack member, he is more likely to show his leadership through social interactions than overt dominance. When in conflict, he displays appeasement behavior by licking the other pack member's face.

Denali's behavior is indicative of the senior wolf in a pack with no clear pack leader. He exhibits food obsession, evidenced through aggressive displays of lip curling, snarling, lunging, snapping, biting, full hackle displays, caching (burying food) and face-offs. He is involved in nearly every pack activity and behavior, but rarely as an instigator.

Axel and Denali have developed an affinity for each other, shown through parallel walking and frequently resting in close proximity. Denali welcomes Axel's appeasing behavior, allowing him preferential treatment in relation to food and tolerating Axel's extensive following, resting and sleeping in close contact with him. Axel displays some dominance behavior until another wolf choses to engage; then his tail is tucked.

Grayson still exhibits a majority of submissive behaviors during pack rallies, but when other pack members show ritualized dominance, Grayson will gain some confidence, and this stimulates his

International Wolf Center

International Wolf Center

Arctic wolf Axel and Boltz face-off in a boisterous display of social behavior.

Christina Rizzo—Loving the Pack and Participation at the International Wolf Center

by Susan Ricci

Photo courtesy of Christina Rizzo

Having loved animals since she was a child, Christina Rizzo pursued a pre-veterinary program in college—but after graduation, she decided to serve her country and enlisted in the United States Air Force. Prior to leaving for basic training, she married her high school sweetheart, Vincent, who also enlisted in the military. They soon found themselves stationed in England without their beloved pets.

"It was rough at first, because dogs were not allowed," Christina said. "I had to leave them behind in the care of my parents. Not having our pets was almost like missing a family member." Christina and her husband began volunteering at the Wildlife Trust and the Cats Protection League on weekends. "It was really fulfilling for us. We did everything, from cleaning cages to feeding and helping with medical care."

After several more moves—to California, Nevada and back to England—Christina and Vince would relocate in Watertown, South Dakota when he retired from the military. "Once we knew Vince was retiring and we were going to Watertown, I wondered what I would do. Having worked in medical facilities for 16 years, I wasn't sure I would find many opportunities there."

Christina emailed the Bramble Zoo in Watertown about volunteering, and they offered her a part-time job as a zoo keeper. "I remember my very first day. I got to work with the coyotes and the wolves. I had always loved wolves. They were my favorite animal, but I felt I didn't know enough about them. Everyone has that one, special animal connection, and that is mine. As soon as I saw them…" her voice fills with emotion. "It's so hard to describe."

Another wolf encounter would happen soon afterward. Christina had a friend at the zoo who grew up in Minnesota, and she mentioned the Wolf Center in Ely. "'You really need to go there,' she told me. 'You will love it!'"

Christina had never heard of the International Wolf Center, but when she looked it up online, she was hooked. "I watched the wolf logs and the YouTube videos; I read everything on the website. Four years ago in March I went up there with my sister for the *Wine, Women and Wolves* event."

Christina said it was a powerful moment that very first time she saw the Wolf Center. "Luna was still part of the pack. It was winter, and it was snowing. Seeing the exhibit pack in a beautiful setting that looked so natural… it was magical!"

The depth of Christina's admiration for the Wolf Center is evident when she talks about wolves. "I really feel connected with the Center because it's so educational and science-based. They don't force their opinions on others. We changed so many of our practices at Bramble due to things I learned from Lori, the IWC wolf curator, by listening to her webinars or asking her questions on wolf-care and pack management. Our wolves at Bramble are not socialized. Lori understands how their management is different. She invited me into a safety meeting for wolf-care handlers to learn about emergency procedures and wolf-on-wolf conflict. My curator let me present information on wolf care and safety protocols I tailored to the Bramble Park Zoo. Our curator liked it so much I presented it at small-zoo conferences across the Dakotas, Nebraska and Minnesota."

Christina's current "pack" includes her husband of 20 years, Vince, and their pups, Max and Millie. She says she's truly thankful for the friendship opportunities her membership and participation in the Center has provided. This year she is signed up for our *Working for Wolves* and *Tracking the Pack* events, while Vince will be taking the *Pup Care* course this summer with a friend they met through the Center. ■

Susan Ricci is the development director for the International Wolf Center in Ely, Minnesota.

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strong predatory drive. Grayson seems to be far more aware of outside stimuli than the other pack members, often bark-howling in response to a perceived threat. Instances of him investigating, staring through windows, and even deliberate patrolling were frequently recorded when other wolves were distracted, asleep or absent. These behaviors displayed by Grayson exhibit (albeit anecdotal) qualities of potential leadership."

To learn more about the Exhibit Pack dynamics, consider joining a wolf care webinar at www.wolf.org/programs/webinars. ■

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Rebecca Latham
Chillon Leach
Deb Lewis
Mary Logan
LaVerne Logan
Betty Magnuson
Dorothy Molter Museum
Mary Anne Ohme
Virginia Parent
Heidi Pinkerton
Judith Preckshop
Nancy Preckshop
Ben Ramirez
Vincent Rizzo
Jerry Sanders
Rob Schultz
Joan Silaco
Robert Sole
Joel Sullivan
Kimberly Wheeler
Carissa Winter

Matching Gifts

Adobe Systems Inc. on behalf of:
Craig Marble

Boston Scientific on behalf of:
Susan Thompson

Cigna on behalf of:
Kyle Kinkade

Deutsche Bank on behalf of:
Jennifer M. Buechele

Faegre Baker Daniels LLP on behalf of:
Richard A. Duncan

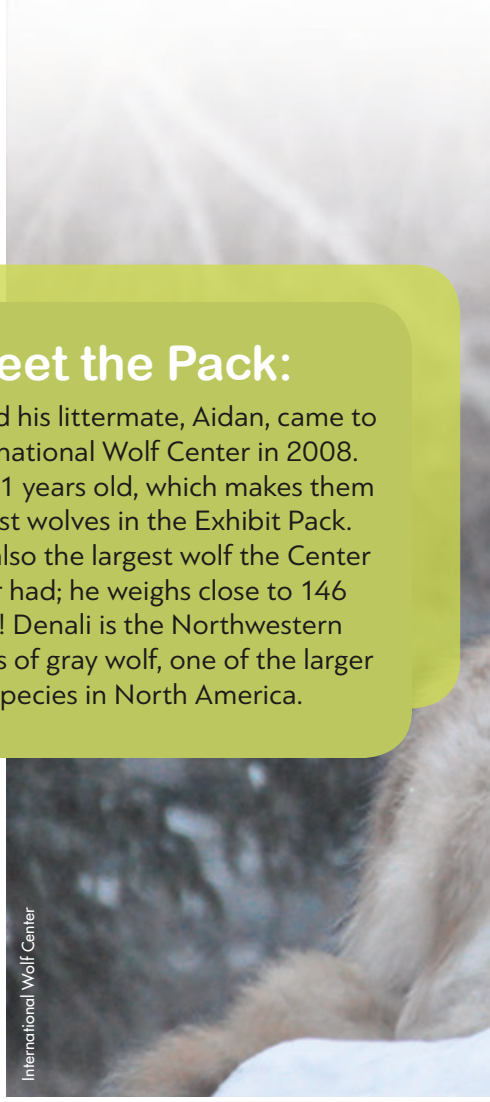
General Electric on behalf of:
Roger Feirstine

U.S. Bancorp on behalf of:
Diann M. Evans

Thank You!

Meet the Pack:

Denali and his littermate, Aidan, came to the International Wolf Center in 2008. They are 11 years old, which makes them the oldest wolves in the Exhibit Pack. Denali is also the largest wolf the Center has ever had; he weighs close to 146 pounds! Denali is the Northwestern subspecies of gray wolf, one of the larger subspecies in North America.

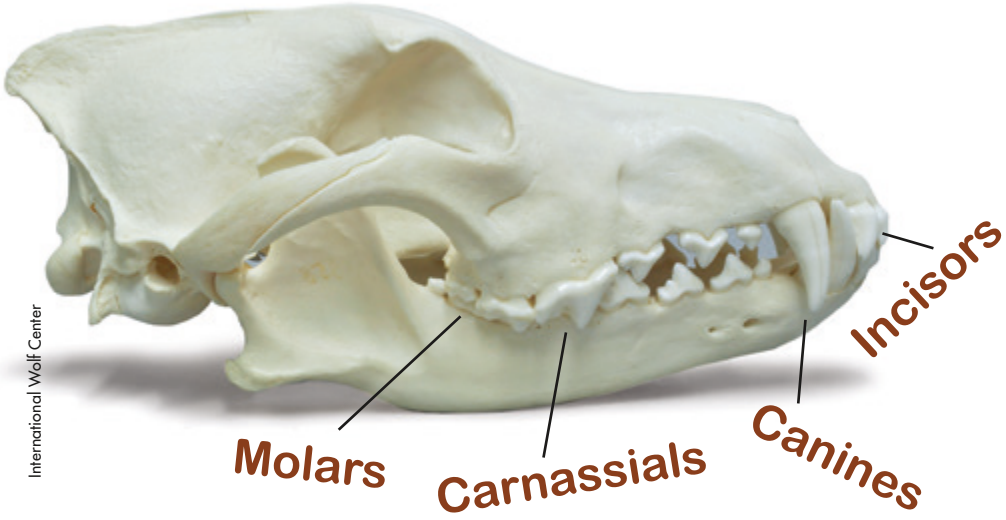


International Wolf Center

What big teeth you have!

The teeth and jaws of adult gray wolves are well suited to their diet and hunting methods. Over 90 percent of gray wolves' diet is meat, so they must hunt live prey or eat from a carcass. Adult gray wolves have 42 teeth. Adult humans have only 32. Wolves have several types of teeth that serve different purposes while hunting or eating. These teeth include incisors, canines, carnassial and molars.

Incisors are in the front of the mouth. They are mostly used for biting off small pieces of meat. Canine teeth can be 2.5 inches long, with half the tooth rooted in the jawbone. They are used to puncture and grip their prey. Carnassial teeth are further back in the mouth. The top carnassial teeth hang slightly over the bottom carnassials. This allows them to glide past the bottom teeth in a scissor-like motion. They are extremely sharp so they can sheer meat away from bones. Molars are used for grinding and crushing meat.



International Wolf Center

Adult gray wolves have an impressive set of teeth, and their jaws are incredibly strong. A human's bite force is only about 120 pounds per square inch, and a large domestic dog's is about 320 pounds per square inch—but the bite force of a wolf is almost 400 pounds of pressure per square inch! This allows them to bite through a bone to get to the marrow.

Vocabulary

Climate The weather conditions in a specific area, or over a long period of time

Carnivore An animal that eats mostly meat

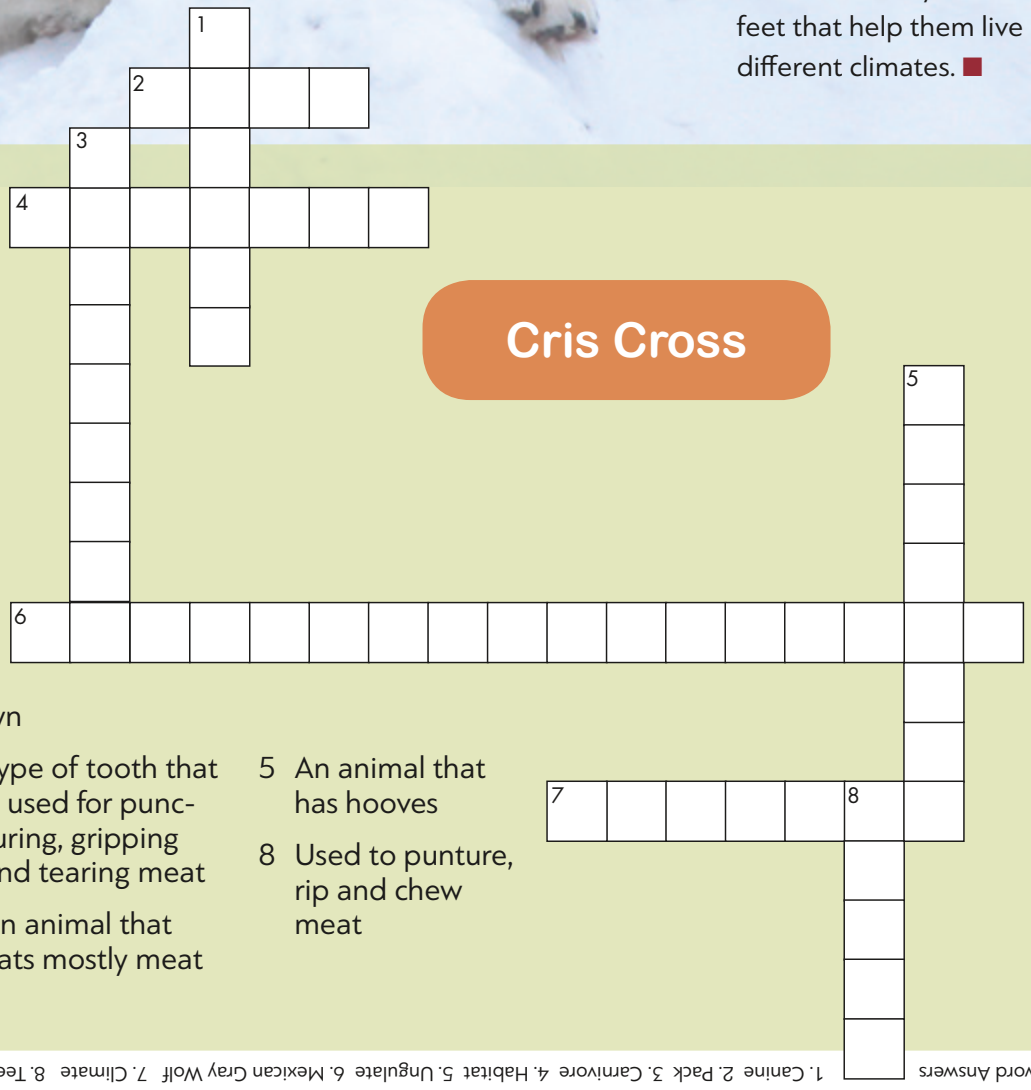
Canine Tooth A type of tooth that is used for puncturing, gripping and tearing meat

Ungulate An animal that has hooves

Notes from the Field

The climate of northeastern Minnesota can bring extremely cold temperatures and snow, but, like their wild counterparts, the wolves at the International Wolf Center have no problem dealing with it. Gray wolves have double-layered fur coats and large feet that help them live in many different climates. ■

Cris Cross



Across

2 A group of wolves that live and hunt together

4 The natural home or environment of an animal, plant, or other organism

6 A wolf that lives in Arizona, New Mexico and Northern Mexico (leave spaces between the three words)

7 The weather conditions in a specific area or over a long period of time

Down

1 Type of tooth that is used for puncturing, gripping and tearing meat

3 An animal that eats mostly meat

5 An animal that has hooves

8 Used to punture, rip and chew meat

Crossword Answers 1. Canine 2. Pack 3. Carnivore 4. Habitat 5. Ungulate 6. Mexican Gray Wolf 7. Climate 8. Teeth

Wolves Claimed, Named, Admired, Tolerated, Relocated

By Tracy O'Connell

ESTONIA

The wolf has been named the national animal of this country tucked between Finland and the Baltic Sea. According to estonianworld.com, the canid beat competition that included the beaver, badger, fox, hedgehog and roe deer in a contest to earn the title. Several organizations such as the Estonian Nature Society, the Estonian Natural History Museum and the Tallinn Zoo participated in the vote.

"The wolf leaves no one indifferent," folklorist Marju Kõivupuu is quoted as saying. "There are over 500 names and stories written down about this animal." Decision makers agreed, saying, "Our bogs and forest massifs are sometimes also pointedly called 'wolf lands.' There is probably no other animal in this region that has influenced the local language and culture as much as the wolf."

Currently, about 200 wolves live all across Estonia in as many as 25 packs. They haven't always been considered a national treasure—in 2011, a researcher found texts from the 16th century that said winter travelers in Estonia carried lances and crossbows for protection against wolves. Behind the sleigh, a long rope dragged a bouncing metal bludgeon to keep them away. Other means included fire, the smell of gunpowder, and noises like clanging chains, blowing horns and beating drums. The Lutheran church chronicles 11 lethal attacks by wolves (which were probably rabid) on humans there from 1804 to 1853, with most of the victims being children.

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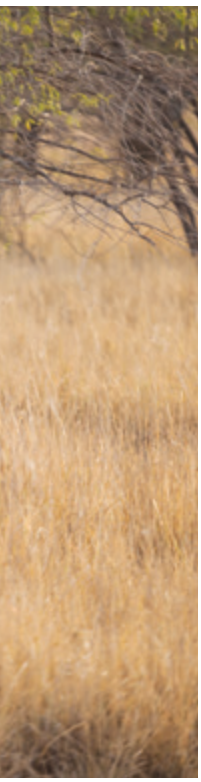
INDIA

Wolves exist in 86 percent of the district of Koppal, located in southwest India, in the state of Karnataka. Here shepherds show a high tolerance for the predator. According to an article in the online news source thehindu.com, "The wolves of Koppal are intertwined in cultural lore."

"This tolerance may be linked to the traditional shepherd community," the article continues, referring to the Kurubas, one of the oldest groups of people in the country. A shepherd was quoted as saying, "One third of our flock is for God (lost due to illness); one third is for the wolves, and one third is for us."

The shepherds "believe that wolves keep their flock fit by preying on the weak and diseased," according to Vinay Shankar, project manager at the Deccan Conservation Foundation, which, along with the Wildlife Conservation Society, conducted a two-year study of carnivores in the region. "Even if villagers lose a few sheep to a wolf pack, they just shrug it off. They truly believe the presence of wolves keeps their sheep vigilant and active. And therefore they are much fitter."



What helps maintain the cultural tolerance, which does not exist in other areas, is the large number of livestock and the sprawling territory each wolf pack claims, thehindu.com continues. The study, completed in December 2018, notes that if one wolf pack exists in a typically-sized territory of 200 sq. km (77 sq. miles), even if it feeds on one head of livestock every three days, each shepherd within that region may lose just one sheep every three years, on average.

The joint study involved trap cameras and other means to identify the presence of various carnivores, as well as interviews with 600 shepherds in an attempt to verify the findings. Rare striped hyenas were found to exist in 23 percent of the territory, and leopards and sloth bears covered 15 percent of the region; other carnivores include jackals, rusty striped cats and foxes.

The results of the study are seen as important, since the Koppal district has neither protected areas such as sanctuaries or reserves, nor a forest or wildlife management plan. An estimated 25 wolves live in the district—a number that has held steady for over a decade. Wild animals that wolves would typically hunt, such as the chinkara, a type of gazelle, and the nilgai, a type of wild cow, have nearly disappeared in the region due to poaching and habitat loss. Wild pigs are found in just over half the district, while blackbucks, a type of antelope, are in less than 20 percent of the area.

The researchers fear the mood of the shepherds will change in the future, and suggest interventions to provide protected habitat for wolves and their prey, as well as more suitable recompense than exists now for sheep lost to predation.

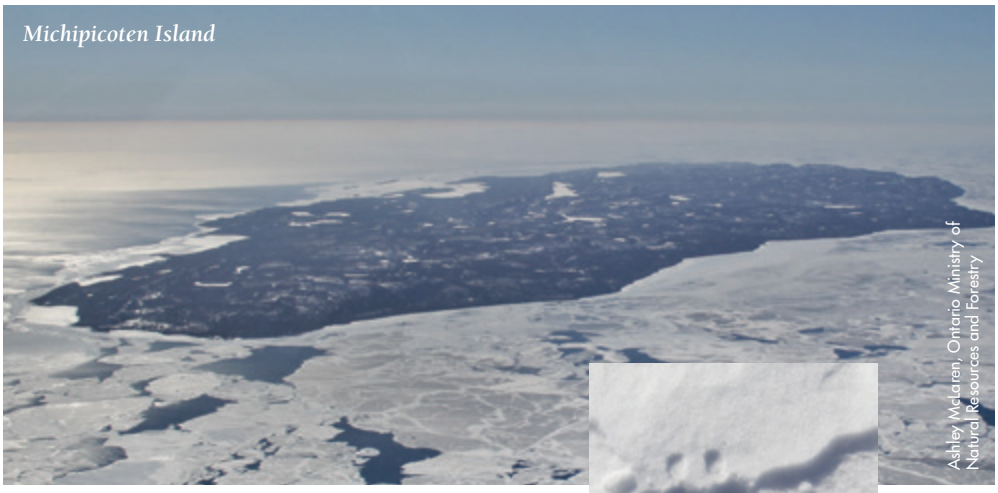
ISLE ROYALE

By March, 15 wolves had been moved to Isle Royale, a U.S. National Park located in Michigan's Lake Superior waters. Included in those 15 were six wolves urgently translocated this spring from Michipicoten, another Lake Superior island, where they may have starved after their chief prey, caribou, were translocated last year to two other islands to preserve dwindling numbers. The other wolves came from public lands in Canada and Minnesota.

The rescue of the wolves on Michipicoten, including a young female which may be pregnant, was made possible by a $55,000 grant from the International Wolf Center, and $45,000 from the National Parks of Lake Superior Foundation, of which more than $12,000 was made up of individual, online donations.

The move is part of a National Park Service effort to boost wolf numbers on Isle Royale by up to 30 over three to five years and thereby control an overpopulation of moose. One reintroduced wolf died after arriving on Isle Royale. Another, during an especially cold spell, left the island on an ice bridge that connected Isle Royale to the mainland. That leaves the population on the island at 15, with 13 of the reintroduced wolves joining the two previous island inhabitants.

Other efforts in ensuing months were held off by weather and initially threatened by a partial shutdown of the U.S. government for more than a month. The shutdown could have delayed the 60th annual winter survey of wolves and moose on Isle Royale, but the $45,000 from the National Parks of Lake Superior Foundation allowed American and Canadian wildlife agencies to move ahead on wolf translocation and follow-up monitoring, while the $55,000 from the International Wolf Center helped fund completion of the winter aerial survey.



Michipicoten Island

Ashley McLaren, Ontario Ministry of Natural Resources and Forestry

OMNRF / Ashley McLaren

OMNRF / Ashley McLaren

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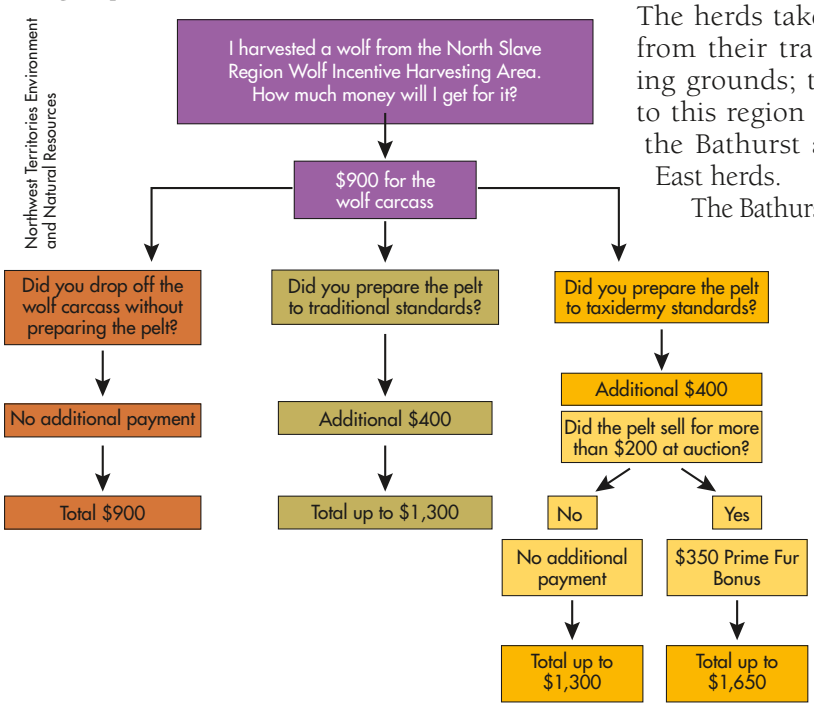
CANADIAN NORTHWEST TERRITORIES

The bounty paid by the territorial government for wolf pelts in a designated area doubled last winter under a pilot project called the Enhanced North Slave Wolf Harvest, which encouraged wolf hunting to protect the barren-ground caribou herds. Last summer the Committee on the Status of Endangered Wildlife in Canada, a group of about 50 Canadian scientists, declared these caribou threatened. The pilot program affects hunting around Wekweeti; rewards may exceed $1,600 per kill. Prices vary depending on the quality and preservation of the pelt.

Barren-ground caribou *(Rangifer tarandus groenlandicus)* is a subspecies found mainly in the Canadian territory of Nunavut, as well as the Northwest Territories and in Kitaa, Greenland. The herds take their names from their traditional calving grounds; the ones local to this region are known as the Bathurst and Bluenose East herds.

The Bathurst and Bluenose East caribou herds in that area have shrunk to half their size in the past three years, attributed only in part to higher levels of predation by wolves, as wolf harvests have not been high in that period. Members of local First Nation communities reported the high cost of transportation to grazing areas was a barrier to more extensive hunting—one the higher bounty was intended to offset.



NORWAY

Wolf opponents faced off against wolf supporters in a series of actions here that have been called "tragicomic," "unreasonably bitter" and "blown out of proportion," according to the online NewsinEnglish.com. Thousands turned out for late January events around the country to support the nation's 60 surviving wolves after a demonstration held days earlier brought together farmers afraid for their flocks, rural residents fearful for their safety, and landowners who want to sell hunting rights to those who would hunt wolves. Both sides are angry at the government, which is authorizing the killing of too many or too few wolves—depending on whom you ask.

Wolf advocates cite advantages of wildlife tourism, a fear of international backlash—citing the bad press the nation's past whale hunts have drawn—and the actual number of wolves the government has already allowed to be killed. Those who study statistics say that the vast majority of free-grazing sheep are killed by what amounts to their owners' neglect, and many sheep and lambs injure themselves in the wild, go astray or become ill. They point to statistics that say other predators like lynx, wolverines and eagles kill more sheep than wolves do. ■

Tracy O'Connell is professor emeritus at the University of Wisconsin-River Falls in marketing communications, and serves on the Center's magazine and communication committees.

Wolf 7271 and the "Wink of the Wild"

Text and photos by Shannon Barber-Meyer

It is early October, and I have just returned from helping with Isle Royale wolf translocations, eager to find out how "my" wolves are doing back home in northeastern Minnesota…

October 4, 2018—The plane lifts off the choppy, slate-colored waters as a thick carpet of autumn rolls out before me. Static scolds my ears as I begin tuning the receiver for my weekly radio-telemetry flight. I look over at the pilot and remark, "I really hope they're all alive. I don't have time for any necropsies this week, with the International Wolf Center symposium coming up."

Soon, all our radio-collared deer and most of the wolves are accounted for and "active." I am on my last wolf—my mind already drifting back to my pre-symposium to-do list—when I hear the tell-tale rapid pulse indicating this wolf's radio collar hasn't moved in at least four hours. My head falls to my chest as I sigh into the microphone, "Ugh. This one's on mortality mode."

As the plane approaches the signal, the pulse of male wolf 7271's radio collar switches back into active mode. We circle the signal's source, and an eagle takes flight from a cluster of trees bursting with red and yellow. (A similar thing happened during my last wolf field necropsy—the wolf's collar switched back into active mode as I approached by car, and a vulture circled overhead. Presumably, scavengers reactivated the collar; I later discovered the wolf's trachea had been dislodged.)

October 5, 2018—Overnight three inches of snow have fallen across the undulating landscape. Precipitation continues, alternating between slick rain and thick, wet snow, as I drive carefully in the direction of the mortality site. About an hour from my destination, I see a wolf with a plush grey, brown and black coat run down the hoary road ahead of me and bound off into the woods. Taking advantage of the fresh snow, I hop out to look at the tracks. They are so small that I decide to take a picture with my hand in the frame for scale to help teach my new volunteer technicians arriving this winter. The tracks are tiny enough to be confused with coyote.

Around the next bend, two more wolves are trotting on the road; both rapidly scatter and vanish into roadside vegetation. I rarely see wolves in the wild, excluding those we capture for radio-collaring in the summer and those I locate by telemetry from the air during winter, so this is a real treat. Grateful for the gift, I smile and continue on my way. Later, as the trail narrows, a nimble grey fox swiftly crosses up ahead. It seems all sorts of creatures are out exploring in this first autumn snow, and I am the lone, lucky witness.

Top: Small wolf tracks made less than one minute prior by a fleeing wolf, next to the author's hand for scale

Right: Fresh, wet snow weighs heavy on autumn leaves on October 5, 2018.

After driving three hours and checking signal bearings, I park the car and prepare my necropsy gear. The signal is on "active" mode, but because it still seems to be coming from where I located it on yesterday's flight, and because scavengers have activated radio collars of deceased study animals that I've hiked in to necropsy before—I head into the woods. What would normally be a fairly trivial hike is a slow, slippery trek over partially hidden logs and ankle-breaking cracks between slick rocks. My glasses completely fog over, and I start to feel my clothes being soaked as I follow the telemetry signal through thick, wet vegetation. The falling rain and thudding snow mute all but the most persistent sounds. After hiking for a half-hour, I hear a raven croaking in the distance. I continue, carefully picking my way through a narrow valley between two gentle hills.

Then the scent of death reaches me on the wind; the carcass must be nearby. I pause to sniff out the direction. It seems to be coming from the general direction of the collar's signal. Numerous wolf tracks litter the snow, and I wonder—was M7271 killed by other wolves during a rival-pack confrontation? I stare at wolf tracks coming and going, trying to read their story, visualizing what happened here, until the cold dampness along my core reminds me to get moving.

As I continue slowly in the direction of the strongest signal, the low boughs of a conifer 20 feet ahead spring to life as two surprised wolves burst from their dry hideaway. For a brief moment they pause just outside their shelter, looking at me, apparently unsure what to do. I don't want to break the spell, but I feel for them, so I move my right arm to help them decide—reminding them that it is best to flee whenever they see a human. One of the two wolves turns and darts uphill away from me, disappearing into the autumn brush. The other wolf, ears pinned back, waits—and a third wolf emerges from under the protective arms of the conifer. This wolf quickly follows the trail of the first one that wound its way uphill. Still the other wolf stands, looking first at me, then toward the tree—back and forth—until finally, the branches move again, cascading snow as a fourth wolf comes out of hiding. Together, the two quickly follow uphill to join the others.

I can't be sure, because I don't get a good look at all their faces and necks—but I don't see any collars or ear tags on these wolves. When I check the radio signal, it isn't coming from the direction the wolves fled. It still seems to be coming from the direction of the raven's call—the same direction as the smell of death. Was this family gathered here, mourning a fallen father or mate?

I once again head in the signal's direction, and the wolf tracks increase again. The raven continues to call. Then the carcass smell floods my nostrils as my eyes fall upon a decaying bull moose stretched out below me. I have never seen one this intact up-close. The project I work with does not radio-collar moose, so most of the wolf-killed ungulates I see up-close are radioed deer. The wet, orange/brown antlers rest boldly against the brilliant snow. There is no snow under the animal, and a lot of its tissue has already been consumed. I think it must have been killed before yesterday. I get out my hatchet to check the femur marrow—solid pink—the bull was not completely fat-depleted. I take a picture of the teeth in case that can help my moose-biologist colleagues age it. I get a few pics of the overall scene. The signal is still coming from over the next hill, just beyond the carcass, and I wonder—was this wolf fatally injured while hunting this moose, providing for his family?

The signal leads me on, but soon it begins to fade. Hmm. I was walking

Right: The moose's solid, pink femur marrow indicates it was not starving to death.

Far right: The wear of the moose's teeth indicates it is not a juvenile.

downhill, so that could be due to the change in topography. I hike back, past the carcass, up the hill I had come down and even a bit higher, toward where the wolves ran off earlier. The signal now seems to be coming from *that* direction.

Well, well. Is the radioed wolf alive after all and now reunited with his pack that burst from the conifer boughs? Because of the area's varying topography, it's hard to know whether I'm hearing a wolf that is moving, or if the signal bounce and change in strength is because *I* am moving.

I decide on a quick (and fun) test: I howl—face-up into the heavy precipitation—and the signal fades to a soft, rhythmic beep, down the hill and away from me. The wolf IS alive! Maybe it was so full after feasting on the moose that it (not unlike humans after Thanksgiving!) just plopped down in one place to digest long enough to set off the collar's mortality mode. I laugh aloud to the woods and the croaking raven, loving the "wink of the wild" sprinkled throughout this adventure. Then I start the tedious trek back to my starting spot, over rocks and logs and through the wet vegetation, my no-longer "20-something" knees and ankles reminding me not to go too quickly.

The trip gives me time to reflect on the fact that in all the wolf, white-tailed deer and elk calf necropsies I had done, I'd never surprised a wolf pack like that. Finally I reach the two-track where my car is parked. Climbing in, I am thoroughly soaked and intensely grateful to be back in a dry, sheltered place—and I hope that by now the wolves are also back in theirs.

Afterward, I reach the conclusion that while this wolf was feasting on the moose carcass and then resting nearby, the collar went into mortality mode. This particular collar had "reset" at least once in the past following an unusual beeping pattern (different than mortality mode). Even so, traditional VHF (Very High Frequency) collar malfunctions are very rare (unlike newer Global Positioning Systems, or GPS, collars). For the first time in my career, I had left the field feeling thankful for an apparent collar malfunction!

October 16, 2018—Eleven days later, after returning from the first-rate International Wolf Center symposium, I am able to check 7271's collar on my telemetry flight. The snow from early October has melted; remnants line the roadside edges. Yellow, orange and brown leaves peek through a thick blanket of fog that stretches from the sky to the ground, obscuring much of my view. We have to divert around the fog patch, picking our way around the back side, to locate 7271's signal.

Then, a smile and a satisfied nod. The collar is emitting an "active" pulse about five miles northeast from where I last picked it up on mortality mode.

7271's journey continues, and I will be here to gratefully follow it!

Update—On December 18, 2018 I counted six wolves in 7271's pack from the air during our winter wolf-count. That means there was probably another wolf hiding in the woods the day I came upon the partially consumed moose in the field—one I never saw. ■

Shannon Barber-Meyer holds a PhD in wildlife conservation. She has studied tigers in Asia, emperor penguins in Antarctica and elk calves in Yellowstone National Park. She helped reintroduce Mexican gray wolves into the southwestern United States and gray wolves into Isle Royale National Park. Barber-Meyer is currently a research wildlife biologist with the U.S. Geological Survey, studying wolves and white-tailed deer with Dave Mech in the Superior National Forest. She is a member of the IUCN SSC Canid Specialist Group and lives in Ely, Minnesota, where she also helps with wolf care at the International Wolf Center.

Left and above: The partially eaten moose, about 200 feet (50 meters) from where the four wolves were resting under dense conifer boughs.

Thick fog prevents a direct flight path to check on 7271's collar on October 16, 2018.

California ready to "embrace the challenges that lie ahead" with the return of wolves

By Charlton H. Bonham

Charlton H. Bonham is the director of the California Department of Fish and Wildlife (CDFW). The CDFW manages California's diverse natural resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public.

The return of gray wolves to California after nearly 100 years is an ecological success.

At its core, this success is about the resiliency of nature and an animal returning to its historic habitat in the northern reaches of the Golden State. It was a matter of when, not if, wolves would return and roam the land. But figuring out and preparing for that "when" was a challenging task, because the most successful efforts always prepare for how people and communities will respond to nature's changes.

Some History on Reintroduction

Wolf reintroduction to Yellowstone National Park and Central Idaho in the mid-1990s enhanced the already occurring, natural recolonization of wolves from Canada to northwest Montana in the 1980s. Offspring of those wolves dispersed and continued to recolonize vacant habitats throughout Montana, Idaho and Wyoming. Eventually dispersing wolves, capable of traveling thousands of miles, began to reach South Dakota, Colorado and Utah. By 2008, packs began to colonize eastern Washington and northeastern Oregon.

During that period, federal, state and tribal wolf biologists were monitoring the expansion and working to help the new population "fit" on the landscape by reducing conflict where wolves overlapped with people and their livestock.

US Forest Service

California Department of Fish and Wildlife

These stories are now well-known in regions where wolves have reestablished. Knowledge of the way each of these intersections of wolves with people were managed would help guide California's practices related to wolf conservation.

Beginning in the fall of 2011, Californians began carefully tracking the movements of a collared wolf that had dispersed from his natal pack in northeastern Oregon. We were watching and waiting to see if OR-7 would cross the state line—and he did. In December of 2011, he became the first documented gray wolf in the state since 1924. His story caught the attention of the whole country. We had already been planning for the eventual arrival of wolves, and we anticipated it would be met with mixed emotions. Questions immediately arose about what that would mean for California and its citizens.

The California Department of Fish and Wildlife (CDFW) took those questions seriously and responded immediately by assembling a group of stakeholders who represented a spectrum of values. They volunteered their time over a two-year period (2012-2014) to help guide the development of the state's *Conservation Plan for Gray Wolves in California*.

In 2015, CDFW documented the first reproducing wolves in California in nearly a hundred years—the Shasta pack. Two years later, the Lassen pack produced its first litter. While evidence suggests the Shasta pack no longer exists, the Lassen pack birthed a second litter in 2018 and is currently believed to have five members. Since OR-7, four additional radio-collared wolves have dispersed into California from Oregon, three of those visiting within the last year. Since 2017, we've verified 13 photographs and videos of other wolves throughout northern California. It's unclear whether those represent 13 different individuals, but detections of both radio-collared and uncollared wolves have increased in the last two years, suggesting that additional packs will be forming soon.

It will be far from easy managing wolves on working landscapes in our great state. Northern California's wolf habitat is beautiful, wild country, but it has fewer large, sparsely populated places of refuge like the wilderness tracts and national parks in Wyoming, Montana and Idaho. In California, we know wolves will settle in important livestock-producing areas, and conflicts are bound to continue. We also know wolves will prey upon native wildlife species such as deer and elk. The good news is that all of us benefit from the experiences and lessons of those other states where wolves have already recolonized, and that puts Californians in a better position to effectively manage those conflicts in a way that minimizes the effects on livestock producers, other species and wolves.

Over the past two years, CDFW has worked hard to develop strong relationships with livestock producers, community leaders and conservationists throughout northern California wolf habitat. Each region has its own unique blend of communities, prey composition and agriculture, and whenever possible we hope to partner with locals to develop creative, site-specific solutions to minimize conflict.

Though we still have a fledgling wolf population, our experience thus far, and that of other states, suggests that California's population will continue to grow. We will embrace the challenges that lie ahead, and we look forward to working with people on the ground to conserve wolves while deterring and managing conflicts. We are optimistic about California's new future with wolves. I did not know when I became CDFW director that these events would play out during my tenure. It has been a remarkable experience to be part of this ecological success as wolves reestablish themselves in the Golden State, and I know they will one day represent another piece of California's conservation legacy. ■

The Wisdom of Wolves: Lessons from the Sawtooth Pack

Book Review by Nancy jo Tubbs

Jim and Jamie Dutcher's 2018 book offers an introduction to an adventure unique to nearly all of us. For six years the couple intimately documented their experience living in an evolving "wolf camp" with a socialized pack of captive wolves. The authors' "little patch of tents, platforms and fencing" gave the duo, working as Dutcher Film Productions, a unique way to film and sound-record the wolves they raised and dubbed the Sawtooth Pack.

Wolf enthusiasts will understand their desire to know the animal better than one can from watching wolves in the field with a telephoto lens. That desire drove Jim to make 17 forays into the mountain ranges of the Idaho wilderness in search of U.S. Forest Service land that could be permitted, accessed and fenced—land with photogenic topography, and water, shelter and forest habitat fit for a pack of wolves.

Readers follow Jim and Jamie on a long learning curve as Jim figures out early on that, to gain their trust, he would need to raise pack members from the first days of puppyhood. Jamie and Jim wrote alternating chapters for this book, with Jamie describing, for example, a momentous day when she crawled into a mother wolf's den to get a first glimpse of three newborn pups.

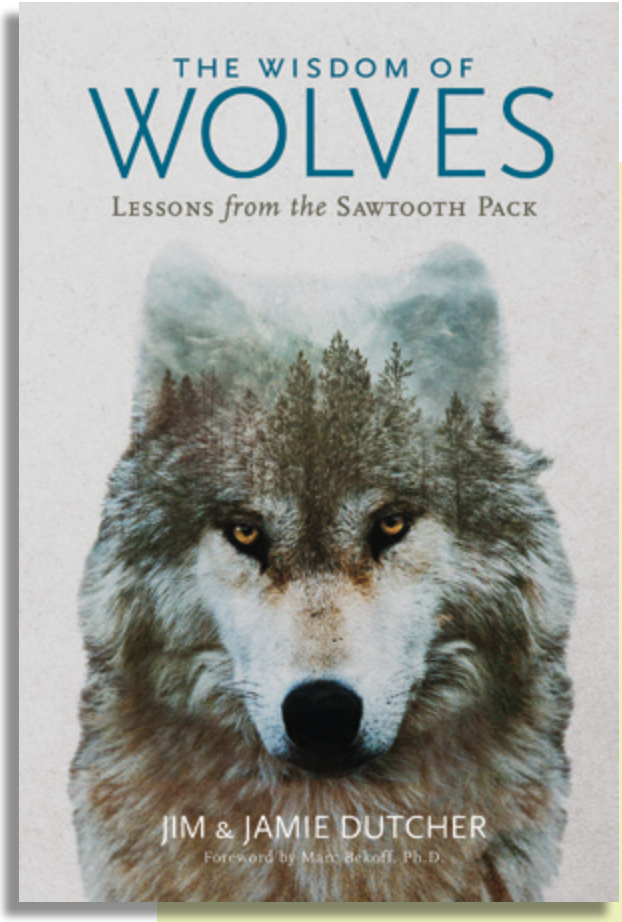
The authors teach us about the individual wolves, their personalities and roles in the pack. Chemukh, that mother wolf, bore three black pups—Ayet, Piyip and Motaki, the fourth and last litter to be born in the project. Characters all, the other key players in the pack were Kamots, Lakot, Matsi, Motomo, Amani, Wyakin and Wahots. Readers come to know them by their behaviors and interactions and, in some degree of anthropomorphism, their imagined conversations and feelings such as kindness and compassion.

As the Dutcher's land-use permits expired, the wolves were taken to the non-profit Wolf Education and Research Center in northern Idaho with the support of the Nez Perce Tribe. The Sawtooth Pack became well known in the Dutchers' films and books, including the wildlife documentary *Wolves at our Door*, which won a Primetime Emmy Award in 1998. Among other recognitions, *Wolf: Return of Legend* won a News and Documentation Emmy Award for informational or cultural programming.

The Sawtooth Pack's legacy and the Dutcher's message is firmly embedded in the narrative of America's advocacy for the restoration, preservation and survival of wolf populations—all of which rely on human tolerance.

The wolves have told their story, the Dutchers conclude. "It's up to us now." ■

Nancy jo Tubbs chairs the International Wolf Center board of directors and owns Camp Van Vac, a summer resort near Ely, Minnesota.



The Wisdom of Wolves: Lessons from the Sawtooth Pack

Author: Jim and Jamie Dutcher

Publisher: National Geographic Society

219 pages

MAKE A DIFFERENCE FOR WOLVES WITH YOUR IRA ROLLOVER

If you are 70 1/2 or older and are looking for a way to make a big difference at the International Wolf Center, a tax-free IRA Charitable Rollover may be a great option for you. Rollovers like these help you lower your income and taxes from your IRA withdrawals. This option allows you to support our mission and earn some tax benefits this year.

Contact your IRA plan administrator to discuss an IRA Charitable Rollover. Please request that your name be included with the transfer information so we are able to thank you for your gift.

Please contact our Development Director, Susan Ricci, at 763-560-7374, Ext. 230, or susan@wolf.org if you have any questions.

International Wolf Center
7100 Northland Circle N, Ste. 205,
Minneapolis, MN 55428

KID-FRIENDLY SUMMER VACATIONS

Wolf Family Rendezvous

June 15-16 • October 19-20
Saturday 8:30 a.m. – Sunday 10 a.m. CDT
Program Rates:
Adult Non-member (13 years old+) $75
Adult Member (13 years old+) $67.50
Child Non-member (6-12 years old) $50
Child Member (6-12 years old) $45

A full weekend of family fun showcases the best of what the International Wolf Center and Ely has to offer. Program includes three days of free admission to the International Wolf Center, private lessons about wolves, private wolf viewing time before the Center opens and after it closes to the public, a hike in the Superior National Forest, a pizza dinner and admission to the popular Saturday night 'What's for Dinner?' program at the Center.

Jr. Wolf Biologist Mini Camps

June 10-11 • July 15-16 • August 5-6
Monday & Tuesday, 8:15 a.m. – 3:30 p.m. CDT
Program Rates: Non-member $60, Member $54

It is time to unplug your kids from the virtual world and reconnect them with the real one by joining us at our two-day Jr. Wolf Biologist Mini-Camp. Participants will learn about wolves and other animals through hands-on outdoor activities during this summertime program!

For more information, and to register, visit WOLF.ORG

International Wolf Center