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# INTERNATIONAL WOLF

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SPRING 2016

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Caribou: Are Wolves  
Truly the Culprits?** PAGE 4

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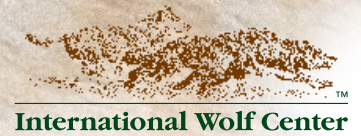
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# INTERNATIONAL WOLF



VOLUME 26, NO. 1

THE QUARTERLY PUBLICATION OF THE INTERNATIONAL WOLF CENTER

SPRING 2016



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Philip Wiebe

## Ontario's Vanishing Caribou: Are Wolves Truly the Culprits?

The gray ghost, it's called—the caribou of northern Ontario's boreal forest. Its habitat spans the province from northwest to southeast, and wolves are among the threats caribou face. But scientists have found that their decline traces back not to the wolf, but to us.

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## Wolves to Dogs— It's Been a Long Journey, According to Science

How did that cuddly pup, the loving pooch napping by the fire, break away from the apex predator that once roamed much of the world's landmass? It's a two-part question involving genetics and domestication, and the author explores the history and science behind them both.

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## Wolves Welcome!? Lessons Learned from 15 Years of Wolf Recovery in Germany

Nearly a century ago, the last wolf in Germany was shot. Now, several factors are contributing to its comeback. Positive conditions and a supportive public are allowing successful reproduction and growing numbers of packs—and the wolf's expansion is expected to continue.

*by Eick von Ruschkowski*



## On the Cover

Photo by: Dean Cluff

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Luna—Photo by Darcy Berus

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## From the Executive Director

### The Pups Are Coming!

**T**hose of you who became members of the International Wolf Center since 2013 may have heard by now that every four years, we welcome two little additions to our ambassador wolf pack at the Interpretive Center in Ely, Minnesota. In April 2012, wolf pups Luna and Boltz arrived and began an intense socialization program before “graduating” into the exhibit pack in August.

As the new executive director at the time, I was amazed to see how fast Luna and Boltz grew and the thousands of people who flocked to the Center to enjoy our live pup programs.



Rob Schultz

I was especially impressed with the remarkable work and dedication of our curator, Lori Schmidt, and the entire Pup Care team.

And it's about to happen all over again!

As the countdown continues to the arrival of our new pups in May of this year, preparations are in high gear to ready our staff, volunteers and facilities. Training began last year for the many volunteers who will serve on the Pup Care socialization teams. They are the caretakers who live with the pups 24 hours a day during their first four months at the Center.

The most important preparation currently underway is an expansion of our Wolf Care facility. Many people contributed last year to the construction fund drive, for which we are very grateful. Now our Wolf Care team will have the necessary space designed for safe and proper care, not only for pups, but for all our ambassador wolves.

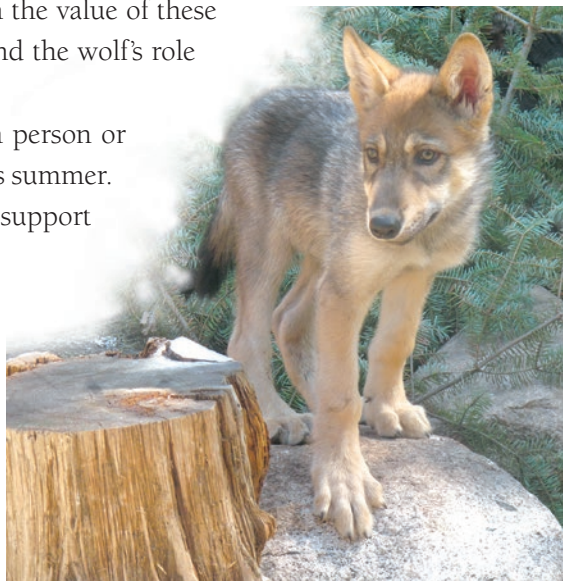
How do our wolf pups and ambassador wolves help us teach about wild wolves? The Exhibit Pack offers our Interpretive Center visitors, webinar participants and WolfLink school video-conferencing students a first-hand opportunity to watch wolf behavior. Their wide eyes, big smiles and camera clicks confirm the value of these ambassadors in helping humans understand the wolf's role in ecosystems around the world.

We hope you'll plan to see the pups in person or through our live wolf cams on [wolf.org](http://wolf.org) this summer. Thanks to our members and donors who support all of our wolf education work! ■

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

Rob Schultz  
Executive Director

*Two-month-old Boltz explores his environment, May 2012*



Ann Raspberry

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# Ontario's Vanishing Caribou: Are Wolves Truly the Culprits?

by CHERYL LYN DYBAS

**T**he summer sun slides behind a fir-tipped ridge in the deep, dark boreal forest in Ontario, Canada. It's 10 p.m.—twilight in June in the far north.

Biologists John Fryxell of Ontario's University of Guelph and Jim Baker of the Ontario Ministry of Natural Resources and Forestry (MNRF) are in a car heading five hours north of Thunder Bay on Ontario Route 11. They skirt cliffs that resemble the sheer rock faces of Yosemite, then bank left onto Route 584 toward the railroad hamlet of Nakina, end of the line. Nakina is a First Nations word meaning "land covered with moss"—a clue to the researchers' quarry.

And so continues the search for a mysterious creature of the north woods. The gray ghost, it's called, this pale being that passes almost without a trace through the black spruce and jack pines of the boreal forest, as this northern spruce-fir forest is known. Scientists have dedicated their professional lives to it, yet many have never glimpsed it.

Caribou is its name.



## In search of caribou

As part of the hunt for a forest wraith, Fryxell and others at the University of Guelph, Trent University, the Canadian Forest Service and Ontario MNR set out on a four-year study (2010–14) of woodland caribou (*Rangifer tarandus caribou*), a species listed as threatened under Ontario's Endangered Species Act and Canada's Species at Risk Act.

An important step toward protection came in December 2014. Fryxell and his colleagues published research results in the Ontario document *State of the Woodland Caribou Resource Report*. It lists 14 caribou ranges across Ontario, from the Swan Range in the northwest to the Kesagami Range in the southeast.

Threats to woodland caribou are primarily habitat loss, degradation and fragmentation due to forestry and mining. The reasons for the caribou's decline, the scientists found, trace back to us.

A recent Canadian Parks and Wilderness Society report, *2015 Update: Boreal Woodland Caribou Conservation in Canada*, states, "There is sufficient knowledge now about the high-risk situations facing caribou in at least six ranges in Ontario that there should be no expansion of the industrial footprint here until... peer-reviewed science demonstrates positive trends in population... and improved range conditions."

In particular, "...the elevated levels of human-caused disturbance in the Missisa Range [location of the 'Ring of Fire' mining development] start to tell a story of the cumulative impact that mineral exploration alone can have on one range even before a single mine is built."

Human-caused climate change may be another factor. Black spruce, jack pine and other coniferous trees—hallmarks of the boreal forest—are beginning to move north, with caribou following.

Aspens and birches are filling in behind the conifers. Moose prefer such deciduous or mixed-deciduous/coniferous forests; they're in turn trailing the birches north. As moose hoof it poleward, wolves are right behind.

Wolves may also be hot on the heels of caribou, but, according to International Wolf Center founder Dave Mech of the U.S. Geological Survey, co-author of

the 2015 book *Wolves on the Hunt: The Behavior of Wolves Hunting Wild Prey*, "Woodland caribou tend to 'space away' from wolves. Even in winter, caribou locations averaged 9.3 miles (15 kilometers) from wolves in Ontario." When wolves are closer, it's often because roads cut through the forest have allowed them to get there.

"The stage is set for a 'perfect storm' of factors to collide, changing the relationship among habitat, predator and prey," says wolf biologist Brent Patterson of the Ontario MNR and Trent University. "Caribou, moose and wolves are in a complex dance in the northern forest."

Where will they be when the music stops?

## Where are all the caribou?

Woodland caribou are medium-sized members of the deer family. In Ontario, two caribou ecotypes roam the woods. The forest-tundra woodland caribou is found on the tundra during spring and summer, and moves into the boreal forest for the remainder of the year. The non-migratory, forest-dwelling woodland caribou lives year-round in the boreal forest—including some Lake Superior islands. Only the non-migratory woodland caribou is listed as an Ontario species at risk.

The Ontario MNR estimates the province's non-migratory woodland caribou population at 5,000 animals. As caribou are difficult to find, no one knows exactly how many there were in the past—or is sure how many there are today.

Since the late 1800s, more than 40 percent of Ontario caribou range has been lost; scientists have found it's retreating northward by about 21 miles per decade. If that rate continues, woodland caribou may be extinct in Ontario by 2100.

*The lichen Cladonia stellaris is a favorite food of the woodland caribou.*



Philip Wiebe

## Lake Superior's coast: last rites, or final refuge for caribou?

Of the 14 woodland caribou ranges identified in Ontario's 2014 report, only one—the Coastal Range along Lake Superior—shows what scientists call a discontinuous distribution: few to no caribou.

It wasn't always so, according to biologists Peter Gogan of the U.S. Geological Survey's Northern Rocky Mountain Science Center, and Jean Fitts Cochrane, now retired from the U.S. Fish and Wildlife Service. Gogan and Cochrane first wrote of the caribou's decline along Lake Superior in 1994.

Woodland caribou gradually retreated northward from Lake Superior, vanishing from the western shore between 1905 and 1912. Farther east, as recently



Philip Wiebe



In the boreal forest of northern Ontario, the stage is set for a 'perfect storm' of factors to collide, changing the relationship among habitat, predator and prey. Caribou, moose and wolves are in a complex dance in the northern forest. Where will they be when the music stops?

as the 1960s, woodland caribou range was continuous south to Lake Superior, extending to what is now Pukaskwa National Park.

"With several small populations of woodland caribou persisting, it might appear that these populations are viable," offered Gogan and Cochrane in their 1994 report. But "...the prognosis for most of the existing Lake Superior herds is actually bleak." The researchers predicted extinction for the Pukaskwa National Park herd within 25 years.

### Going, going...gone?

That estimate is very close to correct, according to Pukaskwa National Park biologist Christine Drake. In the late 1970s, 40 caribou roamed within the park boundary, says Drake. By 2009, that number was down to five, and in 2011, to three. They're probably Pukaskwa's last caribou.

There is better news elsewhere. On the Slate Islands (along Lake Superior's north-central shore), says Ontario MNR biologist Steve Kingston, today there are some 100 caribou. That number may once have been as high as 650.

The islands offer good caribou habitat with plenty of vegetation, including lichen, a caribou favorite. Another boost may be the lack of predators such as wolves. "Then an ice bridge formed in the winter of 1994," Kingston says, "and again in 2014 and 2015, opening a wolf passage each time." To date, however, caribou apparently aren't enticing wolves to stay on the Slates. When wolves venture out to the islands, it's for relatively short visits.

On 71-square-mile (84-square-kilometer) Michipicoten Island, five times the size of the Slates, a new story may be developing.

Wolves probably made their way to Michipicoten across 2014's ice bridge. A

camper spotted two wolves on the island in mid-summer 2014, says Patterson. Then a naturalist photographed the tracks of three wolves on a Michipicoten beach in October 2014.

Patterson and other scientists mounted an expedition to the island in February, 2015. They located and radio-collared a pack of three wolves—one male and two females. "We're currently genetically profiling all three wolves to find out if there are any parent-offspring relationships," says Patterson. "For now, we don't know exactly where the wolves came from."

The researchers also found some 250 to 300 woodland caribou, perhaps the most of any location along Lake Superior—despite the wolves' presence. "Michipicoten has an abundant beaver population," says Patterson, "which provides another food source for wolves."



Why are caribou seemingly flourishing, in relative terms, on Michipicoten and not in other places?

Scientists are in the early months of figuring that out, but the presence of beavers may mean that wolf-caribou dynamics will play out very differently there than in places without beavers.

### Into the boreal forest

To know caribou, one must first learn to know the boreal forest, scientists like Patterson have found. The best place for that may lie due north of Lake Superior.

Over the past 80 years, human activities have changed the character of Ontario's boreal forest. Timber harvesting has altered the mix of tree species, and fire suppression has made the forest older in some places than would naturally be the case.

In response, researchers have been comparing variables, including forest



fire frequency, in three Ontario boreal forest regions: the Pickle Lake area, the environs around Cochrane, and Auden, near which Nakina lies.

### Balance may lie in human landscape use

It's 6 a.m. in mid-June, broad daylight in this northern locale. The researchers are about to arrive at the Auden site.

A few hundred yards into the forest, a thick carpet of what looks like pine needles covers an area the size of a suburban yard. But it's not pine needles. It's hair from a small, probably young, moose long-gone: a wolf kill. Across their study area, the scientists would find wolves most often taking moose rather than caribou.

Research in Alberta's oil sands region by Samuel Wasser of the University of Washington and other scientists reveals that 10 percent of wolves' diet there is caribou. The rest is deer and moose.

To halt the drop in caribou numbers, some groups have proposed culling wolves. But scientists say that wildlife managers would end up trading one problem for another. Without wolves, deer would soon overtake the landscape. "Modifying landscape-level human-use patterns," Wasser believes, "may be more effective at managing the ecosystem for caribou than intentional removal of wolves." In other words, humans need to clear out of many sections of the forest.

### Crossings of the ways

Lucy Lake near Auden is lands' end for a caribou-wolf research day in the field. Not a caribou is stirring, however, and early the next morning, the scientists return to Thunder Bay.

Their drive takes them through the boreal forest and then they head south on Route 11 into stands of mixed coniferous and deciduous trees. Suddenly, something darts across Route 11. It stops ever-so-briefly to glance at the researchers' car before vanishing into a birch forest.

Here, where fir trees are few, it's not a caribou that's come to send off the biologists. Far south of mainland caribou range, loping among the moose—it's a wolf. ■



Philip Wiebe



Brent Patterson

Award-winning science journalist Cheryl Lyn Dybas, an ecologist and Fellow of the International League of Conservation Writers, also writes for National Geographic, National Wildlife, BioScience, The Washington Post and many other publications.

A previous version of this article appeared in Lake Superior magazine.





Wolf: international Wolf Center  
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# Wolves to Dogs— It's Been a Long Journey, According to Science

by TRACY O'CONNELL

It's a question long considered by everyone from pet owners to scientists—how did the cuddly pup, the loving pooch napping by the fire, come to be? When and how did the ancestor of the 100-plus dog breeds strutting in the show ring at Westminster each February break away from the apex predator that once ranged across much of the world's landmass?

It's even the subject of an Internet meme showing a large, snoozing dog sprawled on a sofa, under the words "We were wolves once, wild and free...then we noticed you had couches."

That's a variation on the common story—that wolves either learned to seek comfort from the caves and fires of early humans, gnawing on cast-off bones at mealtime, or were captured as pups and raised by hunter-gatherers to partner in the acquisition of prey. Either way, it was long believed that their paths became intertwined within the past 15,000-or-so years. The real story, however, is older and more complex, as research in recent years has revealed.

There are actually two questions: when, where and how dogs split from

wolves genetically; and when, where and how they became domesticated. The genetic time frame was generally considered to be the past 15,000 years, more or less, based primarily on fossil material. However, recent DNA studies of living dog and wolf genomes and analysis of the shapes of canid skulls found near early human camps from 35,000 years ago suggested a much earlier date for domestication, which presumably would have led to variations in skull shape.

An example of the sometimes unexpected ways in which taming affects an animal's genetic material can be seen in a Russian study of silver foxes published in 2009, where over a period of 50 years, one group of animals was bred for gentleness and another for aggressiveness. Physical differentiations inexplicably occurred during this short time frame. Those foxes becoming tamer and more comfortable with humans over several generations underwent changes in vocalizations and developed floppy ears and piebald colorings; the increasingly aggressive ones did not.

Information new last May helped align this conflict of DNA and domes-



Math Kroth

tication dates in the wolf-dog question. That's when Love Dalén from the Swedish Museum of Natural History in Stockholm and his colleagues announced they had used carbon dating of a bone fragment and sequenced the genome of a now-extinct wolf that lived 35,000 years ago in Taimyr, northern Russia. They found that dogs and wolves split into two separate lineages 27,000 to 40,000 years ago. While this brings the genetic



200,000 YBP  
(years before  
present)

110,000 YBP

Neanderthals live in Europe

Start of last Ice Age

It was long believed that the paths of wolves and humans became intertwined within the past 15,000-or-so years. The real story, however, is older and more complex.

There are actually two questions: when, where and how dogs split from wolves genetically; and when, where and how they became domesticated.

and domestication dates into rough alignment, the location and relationship between the two events remains unclear.

Perhaps humans didn't domesticate dogs once the creatures had split away from wolves. *New Scientist* magazine suggests the alternate possibility that there was an early split between two types of wolves, and that dogs emerged much later from one of these lineages. Laurent Frantz, a postdoctoral research assistant studying evolutionary biology at the University of Oxford, said it isn't yet known whether the Dalén study implies an early divergence between two wolf populations, or between wolves and dogs.

Anthropologist Pat Shipman's book, *The Invaders: How Humans and Their Dogs Drove Neanderthals to Extinction*, released last year, weighs in on the importance of domesticated, early dogs to our survival. According to *The Guardian* newspaper, Shipman believes partnering with dogs played a critical role in our history. Modern humans reached Europe 45,000 years ago after emigrating from Africa 25,000 years before that. At that time,

Europe was dominated by Neanderthals, who had already lived there for more than 200,000 years. However, within a few thousand years of modern humans' arrival, they disappeared.

"At that time, we modern humans, Neanderthals and wolves were all top predators and competed to kill mammoths and other huge herbivores," Shipman says. "But then we formed an alliance with the wolf," something there is no evidence of Neanderthals having done.

The compilation of evidence seems to favor the older, vs. the more recent, date for domestication. If we assume that dogs split from wolves and became domesticated 30,000 or more years ago, the question remains: Where did this first take place? Many claims put the beginnings of dogs and their domestication in Asia. In 1934, a Chinese paleontologist indicated that the ancestor of the dog lineage may have been an extinct canid found in China. More recently, a spate of studies have supported or disputed that claim.

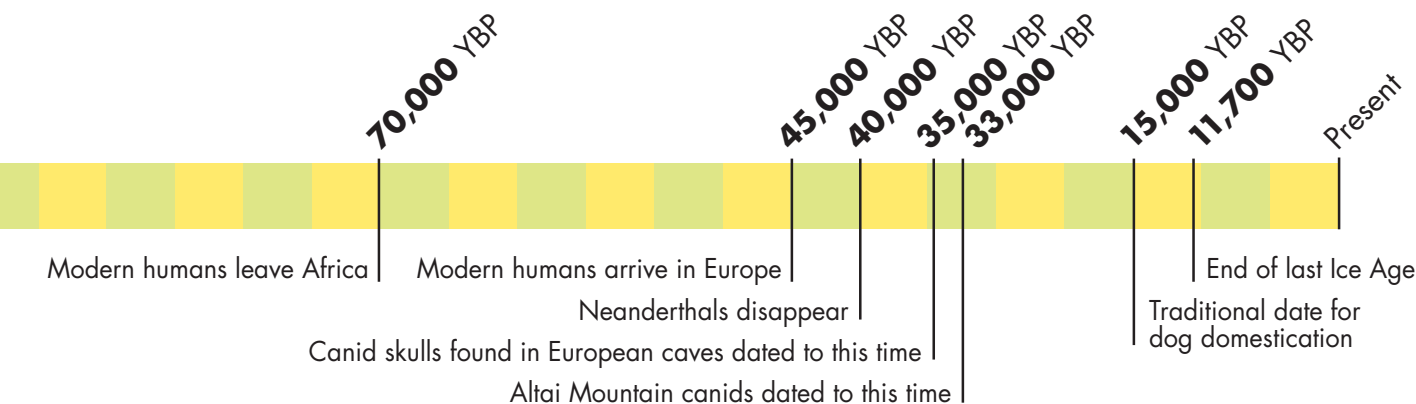
A 2002 study led by Peter Savolainen and his colleagues cited East Asia as the



Emmanuel Keller

Paul B/flickr.com/photos/eastbeach/





cradle of dog evolution—a theory disputed by 2009 research on DNA markers in African village dogs, which found dogs to be too widely distributed to have sprung from a single event.

Research by Robert Wayne, a geneticist at the University of California, Los Angeles concluded in 2010 that dogs arose in the Middle East, dismissing the Asian claim by saying the dogs sampled there had interbred with wolves, which artificially inflated their wolf genetic content. In 2011, a study found that half of the dog gene pool is shared universally, but that dogs originated in Southeast Asia. Data from a 2013 study indicates a European origin of dogs dating to 20,000 or more years ago, which supports the hypothesis that dog domestication took place before humans settled into an agrarian life, while they were hunting massive prey during the last Ice Age, which didn't reach East Asia.

While the Taimyr wolf study also supports the Eurasian, as opposed to the East Asian beginning, other research has focused on different extinct canids that might have been the shared ancestor of both the modern wolf and the dog. Examination of 10 canid skulls found in Belgian caves dating 26,000 to 36,000 years ago found them to be widely variant, rather than representing similar types, as researchers had suspected.

Some of these early specimens had no surviving relatives—a common phenomenon. An early canid in the Altai Mountains of Central Asia, 33,000 years old, appears to be an incipient dog, researchers found, with no living descendants, and probably represents wolf domestication disrupted by the climatic and cultural changes associated with the last Ice Age.

Whereas a range of differences were found in close proximity in the Belgian

caves, some other early genetic samples were found to be related to widely dispersed modern dog breeds. Another Altai specimen was found to be “likely an ancient dog with shallow divergence from ancient wolves. These results suggest a more ancient history of the dog outside of the Middle East or East Asia,” a 2011 study reported. Closest to this Altai dog were such diverse breeds as the Tibetan mastiff, Newfoundland, Chinese crested, cocker spaniel and Siberian husky.

Claims of inadequate or geographically biased sampling have been used to dismiss previous studies in the face of new findings, while new research methods have been added to scientists' arsenals. A 2013 *New York Times* article stated that, over the past two decades, scientists have developed increasingly powerful tools to gather DNA from fossils. The journal *Science* in 2013 reported that Dr. Wayne and his colleagues completed the first large-scale comparison of mitochondrial DNA (a type of DNA that comes only from the mother) from both living and fossilized dogs and wolves found in Europe, Russia and the New World.

The Wayne team estimates that dogs split off from European wolves sometime between 18,000 and 30,000 years ago, when Northern Europe was covered with glaciers and the southern portion was a grassland steppe where humans hunted mammoths, horses and other big game. Dog evolution experts praised the scientists for gathering so much new data, but Dr. Savolainen is holding strong to his belief that dogs began in Asia, calling the Wayne study flawed because it lacked ancient DNA from fossils found in East Asia or the Middle East.

Now, new data supports Dr. Savolainen, who was part of a team headed by Guo-Dong Wang, which reported in the Dec. 15, 2015 issue of *Cell Research* evidence for the East Asian origin, based on DNA from 58 wolves, village dogs and pure bred dogs from throughout the world. The group rejected the hypothesis of multiple origins, claiming the split between southern Chinese indigenous dogs and all other dogs happened 15,000 years ago. Possibly following humans, this East Asia lineage spread to the Middle East, Africa and Europe.

Researchers acknowledge archaeological evidence supporting an East Asian origin is missing but suggest the 33,000-year-long divergence between dogs and wolves might result from an “ecological niche unique in southern East Asia” that provided “an optimal refuge for humans and the ancestors of dogs.” ■



Tracy O'Connell is professor emerita at the University of Wisconsin—River Falls marketing communications department. She serves on the International Wolf Center magazine and communications committees.



# Wolves Welcome!?

## Lessons Learned from 15 Years of Wolf Recovery in Germany

The surprising comeback of an extirpated species

by EICK VON RUSCHKOWSKI

**I**t was considered a sensation and one of nature conservation's greatest success stories when the first European wolves had permanently settled in south-eastern Germany's Lausitz region next to the Polish border in 1998. Almost a hundred years ago, in 1904, the last wolf was shot in the same region, turning Germany into a country without large carnivores. The last European lynx and European brown bear had already been killed in 1818 and 1835, respectively.

Several factors presumably contributed to the wolf's unforeseen comeback. With the end of the Cold War, wolves found perfect habitat conditions in an area that contains a number of former military training sites and open coal mining pits—places hardly disturbed by humans in a scarcely populated area. Traditionally high roe and red deer populations provided abundant food. In addition, European legislation known as the Berne Convention and later the Habitat Directive had put wolves under strict protection. In addition, public opinion was generally supportive.

The first successful reproduction occurred in 2000, and then the wolves were reestablished without the direct help of conservationists. (Although proven incorrect, an urban myth prevails that the first wolves were delivered via obscure vans driven by activists.) Fostered by the positive conditions, wolf reproduction rates in Germany indicate a trend typical in mammal recolonization. Slow growth rates in the first few years have become almost exponential. By

2005, only two packs were established. In 2010, the number had grown to nine. In 2011 there were 15, and 35 packs are confirmed as of 2015. Individuals have been seen in all other German federal states as well, so the expansion trend will probably continue for years to come.

As long as suitable habitat remains available, combined with the wolves' high adaptability, food supply could eventually be a limiting factor. But due to centuries of traditional German game management for hunting purposes, food supply is unlikely to disappear soon. Hence, the success of long-term human-wolf coexistence in Germany does not require habitat rehabilitation; it simply relies on public support. Factors that influence the speed of recovery are mainly vehicle traffic and illegal killings. Between 2000 and 2015, 42 wolves were found dead in the Lausitz region, 27 of which were traffic victims. Seven were illegally killed (Wolfsregion Lausitz 2016); it is estimated that the number of unreported cases is higher. The motives for illegal killing are mainly that parts of the hunting community regard wolves as unwanted competitors for game and a historical, deep-rooted hatred of the species.

### Emotions and attitudes toward wolves in Germany

The general attitude toward wolves currently remains positive. In August 2015, the Nature and Biodiversity Conservation Union (NABU) conducted a representative survey in cooperation

*Male of Daubitzer wolf pack on the Truppenübungsplatz Oberlausitz in the Saxon part of the Lausitz.*



with Forsa Research Institute with a sample of 2,012 German citizens. Fifty-four percent of the respondents had a very positive or positive attitude toward wolves, 33 percent were neutral and 12 percent had a negative or very negative attitude. Eighty percent of respondents stated that wolves are part of our ecosystems and belong there; 78 percent said they belong there even if problems occur.

With this kind of data as back-up, everything should be perfect, shouldn't it? But attitudes can be volatile, and public opinion may change. Hence, efforts to promote co-existence between wolves and humans must be a permanent endeavor with flexibility in changing environments.

### NABU activities in support of wolves

From the very beginning, NABU has been a constant supporter of the wolves' return, as this occurrence is a landmark not only ecologically, but also culturally.

Traditionally, wolves had been considered mostly dangerous and evil—after all, Germany is home to Little Red Riding Hood. In 2005, NABU launched its “Wolves Welcome!” campaign to inform the public about wolf biology and its critical role in ecosystems, and to help create a change in public attitudes. If large carnivores are being considered a nuisance, now is the time to change something about the human-wolf relationship in Central Europe.

NABU started to train volunteers—so-called “wolf stewards” or “wolf ambassadors” in 2010 in order to develop outreach capacity across the country. Candidates receive two days of training about wolf ecology, management challenges and interpretive methods. Wolf stewards are not active in wolf management; they focus exclusively on outreach and interpretive programs for groups of

all ages. By the end of 2015, the nationwide network had grown to 500 highly motivated wolf stewards to contribute to wolf conservation. By means of a survey, NABU is currently identifying volunteers who are top-of-the-class in terms of activities and reputation. These candidates will receive advanced training to enhance their knowledge and to put additional focus on emerging challenges such as increased risk of livestock depredation. From the beginning, NABU has been very open about the potential risks associated with wolf presence.

### Current wolf conservation challenges in Germany

While the general public learned quite quickly that wolves do not usually pose a serious threat to humans (Linnell et al. 2002), the perspective of livestock owners has become a focus—especially as the wolves' geographical expansion has increased the number of affected farmers. Given the current westward expansion of the wolves' territory—probably closing in on the gap between the Central European lowland population and the French Vogese population—conflicts are likely to increase, as newly claimed territories are much more densely populated.

The state of Lower Saxony in northern Germany is the current “hot spot” where wolf opponents and proponents clash. Livestock herding has long been a tradition in this region, with an extremely high percentage of small flocks of sheep kept by private owners as a pastime, rather than to generate income. Naturally, the level of protection against wolf depredations is low to non-existent, providing optimal opportunity for wolves to become habituated to sheep. At present, it is very likely that one female wolf has adopted this behavior, as more than 40 killed sheep have been genetically linked with this individual.

While NABU has always stated that there will be cases where individual wolves should be removed, until now,

most state governments in Germany (conservation and animal protection laws are implemented and enforced at the state level) have failed to present detailed guidelines regarding management alert levels and actual management procedures for both non-lethal and lethal methods of removal. Together with livestock owners and the hunting community, NABU is now working to close these gaps.

In summary, the big challenge remaining in Germany is that people must relearn to live with, and adapt behaviors to, the presence of large carnivores—knowledge that was mostly lost during that century without the presence of wolves. ■

### References

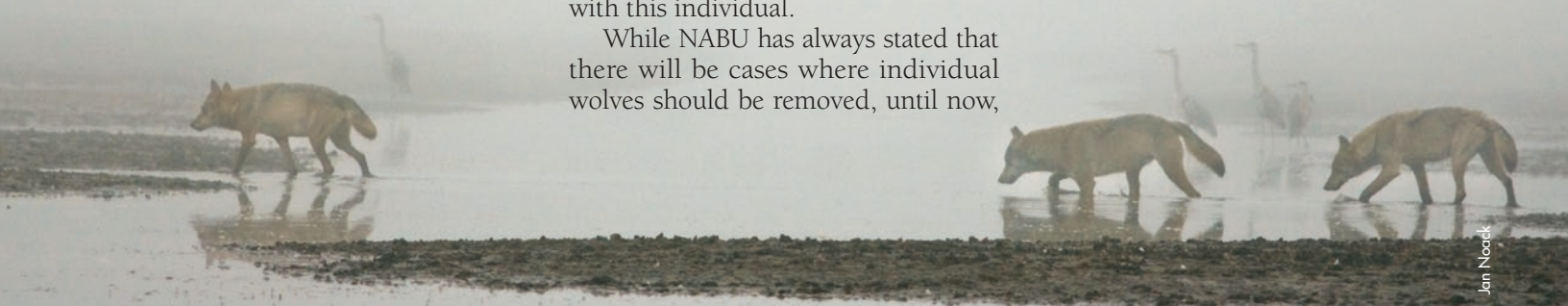
-  Chapron, G., and 75 other authors. (2014): Recovery of large carnivores in Europe's modern human-dominated landscapes. *Science* 346 (6216): 1517-1519
-  Linnell, J.; and 13 other authors. (2002): The Fear of Wolves. A Review of Wolf Attacks on Humans. NINA Report 731, Norsk institutt for naturforskning: Trondheim.
-  Wolfsregion Lausitz (2016): Totfunde in Sachsen. <http://www.wolfsregion-lausitz.de/index.php/chronologie-wolfsvorkommen/totfunde-von-woelfent>

### Further reading (in German)

-  <http://www.nabu.de/wolf>

Eick von Ruschkowski, Ph.D.; *Nature and Biodiversity Conservation Union (NABU), Head of the Department for Nature Conservation and Environmental Policy, Charitéstrasse 3, 10117 Berlin, Germany. Eick.vonRuschkowski@NABU.de*

*Wolves roam the pond area in Lower Spree, south of Muskauer Heide in Saxony Lausitz.*





# Tracking the Pack

## How Young Pups Sense the World

by Lori Schmidt

As we move into 2016, we are once again planning to integrate two wolf pups into our exhibit pack. Due to the unique nature of our wolf exhibit, which features various subspecies of the gray wolf, we adopt pups from other facilities and socialize them during the critical bonding period prior to 21 days of age. Our pack management plan includes in-depth, on-site training for pup-care participants and core wolf-care staff.

Why the extensive training? Contrary to popular perception, placing a wolf in captivity does not domesticate the animal. Wolves in captivity can be socialized to accept

human handlers, but they retain their wild instincts and process their environment very differently than domesticated dog pups. Without properly trained handlers, pups can be negatively conditioned and show fear or avoidance behavior toward the sights and sounds of a captive exhibit.

Research results published in *Ethology* (Lord, 2013) offer insight into behavior differences between wolves and dogs based on their earliest sensory experiences that develop during the critical bonding period. Lord studied seven wolf pups and 43 dog pups, assessing

their responses to familiar experiences—smells, sounds and visual stimuli—as well as new ones, during their very early social development. Data suggests that wolves and dogs develop sensory abilities at the same age, but wolf pups begin the socialization process prior to full sensory development. Wolf pups will explore their environment and pup mates using their sense of smell before their hearing and eyesight are well developed. Dog pups don't explore their surroundings as much as wolf pups do until all their sensory abilities are more functional.

Lord states, “When wolf pups do start to hear (at 14 to 21 days of age) and their vision improves (at four weeks of age) they become cognitive of the unfamiliar sights, sounds and objects that stimulate the fear/flight response.”

Pup-care participants and core wolf-care staff must be trained in the ability to identify stressful situations that may result in a flight response. Behavioral cues identifying stress can be increased respiration, excessive yawning, averted eyes, tucked tail and flat ear posture. That situational awareness in handlers is key to successfully raising wolf pups in a captive environment. ■

### Further Reading



Kathryn Lord. A Comparison of the Sensory Development of Wolves (*Canis lupus lupus*) and Dogs (*Canis lupus familiaris*). *Ethology*, 2013; 119 (2): 110 DOI: 10.1111/eth.12044



Above: Pups' ears start to rise between 14 and 21 days of age, which correlates with an increase in auditory senses.

Right: By a month of age, wolves will show intimidation and fear avoidance towards unfamiliar stimuli.





## Member Profile

### Betty Magnuson and Jen Ell

By David Kline

Although they discovered the International Wolf Center separately, mother and daughter Betty Magnuson and Jennifer Ell are inseparable in their support of the Center today. Serving together as the Center's official volunteer coordinators for the past decade, Betty and Jen have recruited, trained and encouraged dozens of regular volunteers for the rewarding work of wolf education.

Betty grew up on a farm surrounded by animals and turned her sights on a college degree in outdoor education because of her appreciation for nature. She made sure her children became familiar with nature centers and the family farm during those formative years, and that passion for nature and animals shines in both women's faces.

Betty and Jen have spent countless hours organizing and staffing educational booths at the Minnesota State Fair, community centers, outdoor events, festivals and expos. Their love of wolf education shows as they engage families and kids



Jen (left) is holding Grizzer, and Betty (right) has Nyssa.

with the help of wolf artifacts like skulls, pelts, teeth—and yes, scat!

When asked why they lead and participate in all of these volunteer activities, Betty said, "I like that warm, fuzzy feeling when I'm doing something I love." Jen agreed and added, "Interacting with the other volunteers has become a fulfilling, social work-time when I feel like I'm surrounded by a big family who all like to help wolves in some way."

By far, their most memorable volunteer experience has been their selec-

tion and training to become part of the pup-care team in 2004. Betty and Jen have been involved with the pups every four years since ambassadors Nyssa, Maya and Grizzer arrived, and they'll be "team leaders" this spring when two more pups join the pack.

Thank you, Betty and Jen, for your leadership, wisdom and enthusiasm for wolf education work at the Center. We'll be proud and happy to keep you for another decade! ■

### We've Moved!

By Owen Platt, executive assistant

In November the International Wolf Center's Twin Cities administration and outreach office packed up and relocated to a more functional and efficient space. The new, suburban Minneapolis office is within view of the Minneapolis Northwest Marriott Hotel, where the October 2018 International Wolf Symposium will be held. (Watch for future details.) The space is well equipped to meet our future needs, including access to a large training room where public webinars, classes and small events can be held with wolf experts. There is even a small selection of Wolf Den store items. So next time you're in the area, stop in and say hello! Our office hours are 8:30 a.m. to 5 p.m., Monday through Friday.

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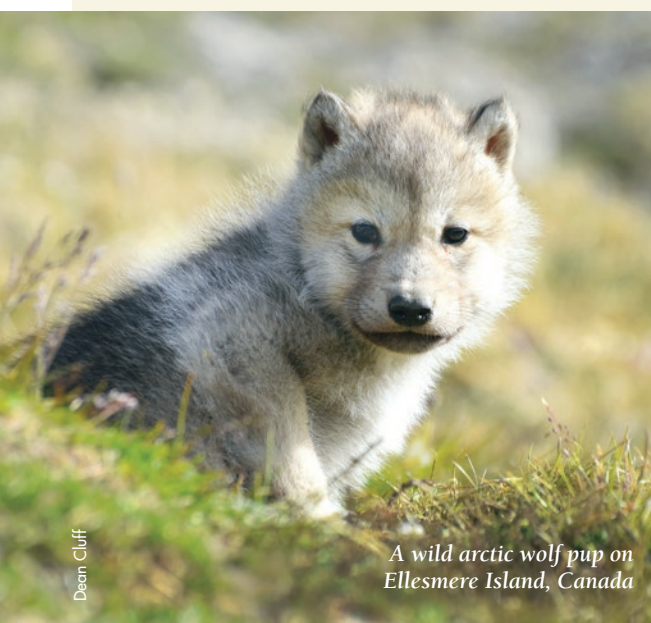
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Susan Myers

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Andi Nelsen

In Memory of Darwin & Remy  
Lisa Nivens

In Memory of Blanca  
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In Memory of Roo  
Glaeva Picard



*A wild arctic wolf pup on  
Ellesmere Island, Canada*

Dean Cluff



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In Memory of Jenna Chinook  
Tater, Frosty & Rover  
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# Thank You!



# Wolves of the World



## Wolves Are Loved, Hated, Studied and Hunted Around the World

by Tracy O'Connell



### CANADA

**T**HE CHANCE TO HEAR THE HOWLS of wild, eastern wolves draws tourists from around the world to Algonquin Provincial Park, located between Georgian Bay and the Ottawa River in central Ontario.

Rick Stronks, the chief park naturalist who organizes the public "Wolf Howl" outings, says they may be the biggest, naturalist-led interpretive programs in the world. Each one can draw more than 2,000 people. But for the past two years, the events have been cancelled because no suitable pack could be found.

Typically, Stronks told CBC News, five packs live along Highway 60, the main route through the nearly 3,000-square-mile park (7,600 square km). There are about 35 packs in the park, each roaming a territory of 48 or more square miles (more than 124 square km). Prior to wolf-howl events, naturalists do test howling along the highway.

Brent Patterson, a government biologist and adjunct professor at Trent University, studies eastern wolves—a species of concern in Ontario and across Canada. He says there's no reason to think the cancellations indicate declin-

ing populations. Some years, he posits, all the wolves may be in a part of their territory far from the highway where the event must be held due to the hundreds of cars that turn out.

**O**FFICIALS CONFIRMED FOUR DOGS killed and partially consumed by wolves over two weeks in a lake community north of Winnipeg, Manitoba. Some experts consider the attacks evidence that, after moving into residential areas to take advantage of healthy deer herds as populations declined elsewhere, wolves may have seen dogs as an easier food source. But wildlife biologist Daniel Dupont, quoted in the *Winnipeg Free Press*, believes the attacks may be the result of wolves establishing new territory and seeing the dogs as rivals. Officials estimate there are more than 4,000 wolves in the province.







Thomas Krumenacker



Elizabeth Murny



Foundation for the Protection of the Arabian Leopard in Yemen



Andre DeCarie

ELSEWHERE IN MANITOBA, an organization called Spirit Way is on its way to putting the town of Thompson on the map as a wolf-friendly center. The community, 435 miles (700 km) north of Winnipeg, is establishing itself as a center of wolf research, information and eco-friendly, wolf-based tourism. An

article in the online Motherboard news outlet suggests the reason acceptance of wolves is so strong here may be northern Manitoba's location deep in the boreal forest, where wolves are not in conflict with livestock owners. Additionally, local indigenous traditions promote respect for the wolf, which is regarded as an equal or brother.

Founded a decade ago as part of a three-year project to "give the community some bragging rights," according to the project manager, Spirit Way commissioned a 10-story-high mural of a wolf, based on a painting by Canadian wildlife artist Robert Bateman. The largest lighted mural in the world, it evoked positive public response.

In 2012, Spirit Way presented Manitoba Conservation with its plans for a "wolf economy." It is working on a four-year study to determine what

a "wolf center of excellence" should be, and the group has raised nearly \$1 million for its projects. Work is underway on the Boreal Discovery Center, which will focus on local flora and fauna.

The International Wolf Center has been advising Spirit Way on this project.

THE RAINCOAST CONSERVATION FOUNDATION bought advertising on ferries sailing between the British Columbia communities of Swartz Bay, Vancouver and Tsawassen, Victoria, which opposes that province's wolf cull. Billed as an effort to help caribou populations recover, wolf culling to enhance caribou numbers is controversial.

The ads, showing a wolf in a field of daisies, were submitted for approval to the ferry corporation before being posted. Initially accepted, they were removed after a three-month run in response to a single citizen complaint. Raincoast Executive Director Chris Genovali told CBC News that the ads' image and wording were designed to avoid offense.

*In Manitoba, an organization called Spirit Way is on its way to putting the town of Thompson on the map as a wolf-friendly center. The community is establishing itself as a center of wolf research, information and eco-friendly, wolf-based tourism. The International Wolf Center has been advising Spirit Way on this project.*



Rob Schultz



Rob Schultz





## CZECH REPUBLIC

The Czech Sumava National Park in November opened a new visitor center focused on wolves. The park is in the South Bohemian Region of the Czech Republic, along the border with Germany's Bavarian region and Austria.

The center, which may attract tens of thousands of people each month, is the third of its kind in Sumava, where others have proven popular. One devoted to owls draws 70,000 visitors annually, while the center focused on deer—opened just a few months before the “wolf” center—has already hosted thousands of visitors.

Unique in Europe, and largely funded by the European Union, the wolf-focused visitor center features an energy-saving building with a 7.5-acre wolf enclosure and access for people with disabilities. The initial pack consists of two wolves from different zoos and their four pups, born in May. Once common in the Sumava Mountains, wolves are now seen there only occasionally.







## DENMARK

Last fall, a trail camera in a central Jutland forest took a striking, daylight photo of a slender, adult wolf with a summer coat—a unique event, since prior photos, taken at night, were dark and murky. Motion-activated cameras were installed collaboratively by the University of Aarhus, the Natural History Museum, the government agency Naturstyrelsen and the wolf-spotting group Projekt Dansk Ulv since the first wolf was seen in Denmark.

The presence of wolves might be more warmly received after invasive, Asian deer called *Muntjac*, or barking deer, were also found in the region. Although news sources don't say how the deer arrived there, several were seen (and some shot) in the past year around the Rørbæk Lake near Nørre Snede. Quick to spread and good at hiding, the deer are seen by naturalists as a threat to the area.

Meanwhile, DNA samples confirm that an animal killed by a vehicle in Jutland last summer was a European jackal, a species normally found in the Balkans and southern Europe, Austria and Germany. This male did not have testicles, which led some to suspect he escaped from captivity; other researchers believe he arrived, like the wolf, through corridors of wild or semi-wild land.



## FINLAND

Artists launched an exhibition of paintings called *100 Wolf Songs* in the northwestern town of Oulu last year—a show they hoped would counter bad press about wolves.

Wolves have been controversial in Finland, as elsewhere, for many years. In 2012 the country was found in violation of a European Union law that allows wolf hunting only in extreme circumstances—but hunting was allowed to continue in a trade-off for other conservation efforts in Finland. In addition to farmers' accusations of wolves attacking livestock, there were expressions of fear for pets and children.

The art exhibit attempts to reframe wolves as peaceful creatures that kill only to eat, and to illustrate humans' misguided attempts to control nature.



## FRANCE

In response to increasingly restless shepherds, French authorities defied restrictions established by the European Union and hired marksmen armed with specialized, night-vision rifles to hunt wolves. The action came after a group of sheep farmers briefly kidnapped the head of a national park to protest wolf attacks on their flocks. In 2014, an estimated 8,500 domestic animals were killed by wolves—a number expected to have increased in 2015. The wolf hunt centered in the French Alps, where five wolf hunters identified a pack of three adult wolves with pups, but after a week had failed to shoot any.



## RUSSIA

Since the Chernobyl nuclear disaster almost 30 years ago, some scientists have pointed to the rebounding numbers of certain animals and claimed that human behavior did more harm to wildlife there than did radiation. A population study of wolves in the Chernobyl exclusion zone compared to those in uncontaminated national parks in Belarus found Chernobyl's population density seven times larger. Populations of other large mammals studied—wild boar, roe, red deer and elk—were at least as dense as that of wolves.

"Hunting, fishing, chopping down trees, agriculture, does much more harm to an ecosystem than even a very serious nuclear accident," said Jim Smith, a professor at the University of Portsmouth in the United Kingdom, who worked on the study.

But the nuclear disaster has cost the animals as well, says biologist Timothy Mousseau at the University of South Carolina. Mousseau studied the effects of radiation on animals, noting decreased biodiversity, and increased numbers of mutations and tumors. He says the population explosions Smith documents are happening to animals whose numbers were formerly reduced by human hunting—not across all species.



G. Lombardi/PNW

*The Gorges du Cians in the French Alps*



## SPAIN

Researchers discovered that practices in place to prevent the spread of mad cow disease have caused wolves to switch their diets. Iberian wolves in the northwestern part of the country, denied for 15 years the opportunity to live off the abandoned bodies of dead livestock as they had before, have instead been hunting deer, boar and wild ponies, and attacking domestic cattle. Scientists who studied wolf diets before and after the ban on leaving livestock corpses to rot found that, as carrion consumption fell by up to 67 percent, wild ponies (and to a lesser extent, roe deer) comprised the majority of the wolves' diet.



## SWEDEN

Sweden's Environmental Protection Agency wants to analyze the DNA of wolves in Finland and Russia in hopes of maintaining the genetic diversity of Sweden's 400 wolves, which some believe are in danger of inbreeding without new entrants to the gene pool. The study will determine if animals crossing the border from neighboring countries will adequately supply the necessary genetic variation. ■

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



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

# Personal Encounter

## 870F—The Final Chapter on a Wolf with True Grit

by Kirsty Peake

Previously, in the Fall 2014 issue of *International Wolf*:

In February 2013, Doug Smith's Yellowstone Wolf Project team radio-collared 870F, a female wolf in the newly formed Junction Butte pack. 870F and the breeding male (BM) were mating when the rest of the pack jumped on the pair. 870F sustained a catastrophic

neck injury. Disabled and unable to keep up with the pack, she lost status as the breeding female. She fought to survive through the winter of 2013-14 and eventually regained her status with a new mate, 890M, as her BM. They had five pups; three disappeared after inter-pack skirmishes, and one was shot outside the park by hunters.

To continue...

As winter 2014-15 approached, the pack appeared fit. This season was to be another emotional roller coaster for those of us who watch wolves in Yellowstone, and in particular for those who had taken 870F to their hearts after hearing her story of survival.

In the history of the pack, when 870F became breeding female, she and her mate were particularly hard on her sister, 970F, continually pinning her and finally forcing her to leave the pack, after which the sister joined with 911M, a transient wolf.

970F reappeared in the Junction Butte area with her mate, and in early December, 870F was attacked—probably by her sister. 870F left the pack badly injured. The winter study crew assigned to the pack finally found her.

Brenna Cassidy, the crew leader, told me, "We saw her curled up and thought for sure that we were watching her die. We thought that when we came out the next morning we would have a mortality signal."

After a warm night and no signal, the observers were relieved. By the second day they could see the wolf's wounds through the scope—cuts and dried blood on the left side of her head and back legs covered in dried blood. She painfully roused and moved a short distance. In the afternoon a raven flew near and pulled tufts of fur from her tail. She snapped at it, but was unable to rise.

By my face while, ground left, the first but her head lifted off. Our tears turned with her drive to stand to her feet and too





*870F was attacked—probably by her sister. The crew leader told me, “We saw her curled up and thought for sure that we were watching her die. We thought that when we came out the next morning we would have a mortality signal.”*

“We were prepared for a mortality signal the next day, and we tried not to get our hopes up too much,” Cassidy said. “On the third morning we found her and then heard howling over the Specimen Ridge trailhead from the rest of the pack. 870F got up and travelled toward them, crossing the road. She still looked stiff, but she was moving and trotting up and over the ridge. That day Dan Stahler was in the Wolf Project plane and saw her trailing the rest of the pack. She had gone out of sight for us.”

I found 870F a few days later, and with the scope I was able to study her carefully. The new attack had aggravated the neck injury. Her head hung low, and she was scent trailing 890M. For all that, she looked good as she lay down, looking straight at me—such a striking wolf. The others started to howl, all greeting in a snowfield. 870F took part, her tail high.

The next time we saw them 911M and 970F led the pack on Slough Flats with the yearlings and very confused pups. 890M howled off to the east, and the pups were torn between staying with

the new leaders and the yearlings, and joining their father.

890M was allowed back into the pack and became the second ranking male. 870F was, once again, on her own.

I next saw her about two miles from Slough Flats, in the Little America area of the park, and hardly recognized her—a wolf travelling confidently through heavy snow and in good condition. When she climbed up on a rock, lay down and rested her head on her forepaws, I knew it was her.

In Lamar Canyon she scavenged on a carcass, disappeared for a few days and then came out of the trees to check on the carcass. On her own she was vulnerable and limited in her hunting ability. She crossed the road and moved up the hill through the trees and rocks. I did not realise then that this would be the last time I would see her alive.

As we followed her signal, 870F travelled up through Slough meadows to her final resting place. A crew led by Ky Koitzsch, with Gracie Glynn and Nels Christensen from the Wolf Project, hiked in to retrieve

her. I was very touched when they asked me to hike in and meet them. No hesitation. It was the proudest and saddest time to be part of the crew that brought 870F home.

Here was a wolf living life in the wild, and we saw just how tough and torturous it could be. A wolf's drive is to survive and to reproduce. 870F achieved that, and one of her pups, now a yearling, will carry on her genes. ■

*Kirsty Peake is a qualified animal behaviorist working in the field of companion animals. She specializes in working with reactive dogs. Her fascination with wolves and their behavior stemmed from a lifetime of living and working with dogs. She is a Specialist Advisor with the UK Wolf Conservation Trust.*



Steve Clevidence

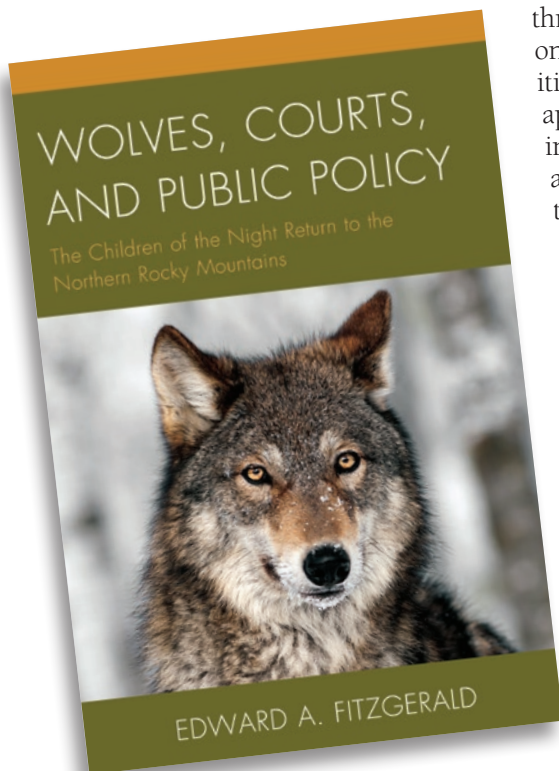


# Book Review

## America's Wolves— Through the Eyes of the Court

A review by Richard Duncan

Law professor Edward Fitzgerald sets the tale of wolf reintroduction in the northern Rocky Mountains within a broad policy debate over whether federal courts should defer to decisions of administrative agencies, or more actively police what judges perceive as the intent of Congress in a statute, specifically the Endangered Species Act.



Edward A. Fitzgerald,  
*Wolves, Courts and Public  
Policy: The Children of the  
Night Return to the Northern  
Rocky Mountains.*

Lexington Books. 2015.

*Wolves, Courts and Public Policy: The Children of the Night Return to the Northern Rocky Mountains* traces federal predator-control policy from elimination proponents to conservationists. It follows policy debates and lawsuits surrounding the successful 1990s reintroduction of wolves into Yellowstone and central Idaho; the repeated federal court decisions striking down the Fish and Wildlife Service's delisting of the wolf throughout the northern Rockies based on this limited success; and the dispiriting action of Congress in passing an appropriations rider delisting the wolf in the northern Rocky Mountains to appease politicians of both parties in the region.

Fitzgerald underscores the political balancing act involved in wolf reintroduction during the Clinton era, quoting then-Secretary of the Interior Bruce Babbitt testifying in 1995 that, "Our aim is to speed the recolonization of wolves so that they can be removed from the endangered species list and federal protection by the year 2002."

Premising delisting based on the hoped-for success of a limited reintroduction program both generates political backlash among opponents (as it did in the northern Rockies) and judicial reprimand (as happened repeatedly to the Fish and Wildlife Service in its subsequent wolf down-listing and delisting rules).

The book's review of the politics and litigation of wolf reintroduction and recovery does reveal some overarching perspectives on both the past and the future.

First, politics matters. While Republican President Richard Nixon signed the modern Endangered Species Act in 1973, every administration that has actively supported wolf reintroduction and recovery has been Democratic, while Republican administrations have leveraged the issue to build electoral support in the Intermountain West.

Secondly, this reviewer believes that the Fish and Wildlife Service will ultimately prevail in Endangered Species Act litigation, notwithstanding the agency's losses on the wolf down-listing and delisting rules. Wolf reintroduction has been judicially upheld as lawful and appropriate, and both proponents and opponents of wolf recovery need to deal with the agency as the recognized federal expert on managing the species in a developed world.

Fitzgerald quotes professor Holly Doremus on the subject of species "recovery" and delisting: "Delisting is an aspirational goal, the achievement of which will require substantial regulatory and societal changes, rather than a short-term expectation. The primary purpose of the ESA is not delisting; rather it is the protection of species against ill-considered human activity while society works toward the type of fundamental mechanisms to regulate economic development that might support widespread delisting."

Fitzgerald's rich, complex narrative tells us that wolves will be "in recovery" as long as wolves and modern, industrialized human beings inhabit the same space. ■

*Attorney Rick Duncan is a board member of the International Wolf Center and represented Defenders of Wildlife in both the Yellowstone wolf reintroduction case and the wolf "down-listing" case discussed in the book.*



# A Look Beyond

## The Wolves of Oregon — A Promising, if Uncertain, Future

By Rob Klavins

Conjure up a vision of the American West—a place of rugged mountains, untamed rivers, towering pines and iconic main streets. Some are populated by rugged cowboys driving dually trucks and others dominated by bearded hipsters, Subarus and brewpubs. In many places, they coexist.

Change is constant in the West; cultures come and go. Native Americans killed and enslaved one another. Cowboys attempted to sanitize the landscape, putting bounties on wildlife and Indians alike. Now, birdwatchers buy homes in idyllic settings as the culture and custom of the American cowboy fade away.

Caught up in 21st-century battles over public lands, politics, culture and control is the wolf, an animal often victimized by simplified perceptions. Wolves have been demonized by ranchers, deified by urbanites and dubbed an annoyance by wildlife managers. The

first wolves to return to Oregon were greeted by darts, poacher's bullets and car grills.

In 2005, Oregon convened stakeholders to craft a wolf plan. Rather than a science-based strategy, the result was a political and social compromise—a fact evidenced by its paltry recovery goal of four breeding pairs present for three consecutive years. The Oregon Department of Fish and Wildlife (ODFW) set out with good intentions but over time succumbed to pressure to issue kill permits whenever a cow went missing in wolf country.

In 2011, a legal injunction prohibited ODFW from killing wolves on behalf of the livestock industry. Stakeholders returned to the table and spent 17 months negotiating a settlement that left the initial compromise largely intact, but created clear expectations, defensible definitions and transparency requirements.

Since then, by any meaningful measure, Oregon has outperformed other states at balancing science-based management, 21st-century conservation values and valid agricultural concerns against misinformation, fear and politics. It's the only state with a significant wolf population (at least 81 wolves in late 2014) not to kill wolves despite having the authority to do so. Wolf numbers have grown and conflict has not increased.

That's tough for some people to accept. In a cowboy culture where identity depends on self-reliance and solving your own problems as you see fit, being prohibited from killing an animal you believe to be a threat is a personal affront. For others, killing any wildlife is an atrocity. Even so, for all but the most intransigent voices, the plan is working.

The future, however, is uncertain. Having recently achieved the goal of four breeding pairs, Oregon stripped wolves of state endangered-species status, ignoring conflicts of interest, tens of thousands of citizen objections, dozens of independent scientists and arguably, legal requirements. Meanwhile, ambiguity in the state's wolf plan (which is now overdue for review and possible revision) that defined the years preceding the 2013 settlement has returned.

*continued on page 28*

*Baker County's rich agricultural heritage is easily visible along Oregon's Hells Canyon Scenic Byway between the towns of Baker City and Halfway.*





## Learn With Wild Kids

by Amy Hubbert

**M**y name is Amy Hubbert. Last year, when I was in sixth grade, I did a project on the International Wolf Center for my Talented and Gifted (TAG) class.

I have loved animals for as long as I can remember. I didn't only love the animals that everyone else loved, but also the ones most people found scary or annoying, such as snakes, lizards and rodents. Lately, the animal I have been focusing on is the gray wolf.

Since a vacation to Yellowstone National Park in 2014, I had been extremely interested in wolves. I read books and articles about the reintroduc-

tion of gray wolves to Yellowstone in 1995, and I wrote a research paper—a persuasive essay about why wolves are good for the park—and gave a speech about it in school.

Our TAG assignment was to choose a charity or a non-profit organization and then make a brochure and a stop-motion video to support it. A stop-motion video is a video made out of a bunch of pictures put together to look like they are moving. After a lot of web surfing, I figured the International Wolf Center was the best choice for me. I already knew a little about it before the project, because my family had been planning a vacation

to Ely (where the Center is located) this summer. When I was ready to get started, I did a bunch of research and put it all together on my brochure. It didn't turn out the greatest, but my video turned out *much* better. It took me a while to put together my stop motion. I tried several approaches, including drawing on a whiteboard, which is what most other TAG students did. When that didn't work out, I tried printing pictures off the internet, cutting them out and putting them together. That looked great! When my video was finally done, my TAG teacher posted it on YouTube with all the other student videos. I thought I was finished, but I was wrong.

A few days later I stopped by the TAG room to drop off some papers. The TAG teacher, Mrs. Kurth, smiled and said she was just about to call for me over the intercom. She told me she had gotten an email from someone at the International Wolf Center, and that they had seen my video on YouTube. The email said they would like to interview me and see about putting my stop-motion video on their website! I was really excited. After a lot more emails between Mrs. Kurth, the International Wolf Center and my mom, it was settled that since I was coming to Ely this summer, I would talk to the International Wolf Center Program Director, Kelly Godfrey, in person then.

When the time finally came for us to visit the Center, I had an awesome time! Seeing the ambassador wolves in real life was amazing. (I had seen them before on the International Wolf Center's web cam.) I spent hours just watching them! I talked to Kelly and we arranged for me to write this article for the 2015 winter edition of *International Wolf* magazine about my project and my experience at the Center. I would definitely revisit the Center, too, if I had a chance, so I could see the wolves again.

To see my video, search "Amy - International Wolf Center" on YouTube. The video is posted by Suzanne Kurth.



The author, Amy Hubbert, visited the International Wolf Center last summer.





## Meet the Pack



Boltz came to the International Wolf Center in 2012 when he and Luna were very young pups. It is hard to believe that this spring Boltz will turn four years old! Boltz continues to be the lowest-ranking male in the pack, and he watches for chances to challenge the higher-ranking males. He takes any opportunity to do a stand over or a chin rest on Denali—and especially Aidan, the male pack leader—trying to show them he is confident and wants a more dominant rank in the pack. At this point, however, he has not been able to change his lower-ranking status. ■



## Notes from the Field

With spring just around the corner, wolf pups will be born into the packs. The breeding female in the pack will have her pups in a den. Dens can be dug below large rocks or among tree roots. Pups will stay with their mother in the den until 8-to-10 weeks of age, when they are moved to a rendezvous site—an area within the pack's territory. By autumn, the six-month-old pups should be able to travel with the adults as they move through their territory finding food.



## Vocabulary

**Den** 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.

**Rendezvous site** An above-ground area, usually open and near water, where pups are taken when they are old enough to leave the birth den. The wolves gather there to sleep, play and eat. Wolves may move from one rendezvous site to the next until the pups are old enough to accompany the adults on their hunts and travels.

**Breeding pair** The male and the female in the pack who mate and produce offspring.

**Dominant** Having power, control and privilege over others within a social hierarchy.

**Rank** The relative social positions of animals in a pack. The more dominant animals are higher in rank. In a free-ranging wolf pack, the highest-ranking members are usually the parents. The older siblings are higher in rank than the pups of the current year. In a captive group of wolves, rank may be determined through competition and sometimes conflict.

**Submission** The act of acknowledging another animal's dominance or higher rank. Wolves do this in several ways including lying on their backs and exposing their bellies, lowering their tails (or tucking the tail between the legs), flattening their ears against their heads and assuming a lower body-position. Another submissive behavior is food begging.



Continued from **A Look Beyond**,  
page 25

Policy disagreements are to be expected, but if we can't agree on facts, it's hard to move forward. Concerns about living with wolves are often overblown. Example: Oregon is home to more than 1.3 million cows. In 2010, the most recent year for which statistics exist, more than 55,000 were killed by things like weather, disease and dogs. Recently, more cows have been lost in single truck accidents than killed by wolves in the last decade. In 2015, wolves killed four cows.

In Wallowa County—the heart of Oregon's wolf country—livestock-industry income has actually increased every year since wolves returned.

Here, as elsewhere, debates on wolf policy focus on conflict while benefits are rarely discussed. Wolves, along with beavers and fire, might help restore landscapes more efficiently than expensive human efforts. (See also Fall 2014 *International Wolf*.) My family's small, tourism-based business is dependent on visitors seeking wild places, solitude and wildlife. Oregon's quality of life entices coveted employees to important sectors of the state's economy.

But the issue is greater than economics.

Wildlife is what makes our wilderness more than scenery. The purposeful elimination of wolves was an environmental

tragedy, and their return rights a historic wrong. Prominent conservationist Andy Kerr remarked that "Conservationists can be hell to live with, but they make great ancestors." I agree. A world with abundant wildlife—even wildlife that challenges us—is the world future generations deserve.

Aldo Leopold counseled that "...to keep every cog and wheel is the first precaution of intelligent tinkering." A few years ago, the simple presence of a wolf was cause for celebration. For a new generation, a token, persecuted population is insufficient; like all native wildlife, wolves are essential cogs in the ecosystem.

Talk of wolves and trophic cascades makes many wildlife managers and policymakers nervous. They rely on the illusion of a certainty that can never exist because nature, in its complexity, defies

complete understanding. But nature has a longer, stronger track record than any wildlife agency.

The benefits of wolves may be harder to quantify than the detriments, but they are real, and they go beyond ecosystems, economies and quality of life. As former U.S. Fish and Wildlife Service director Mollie Beattie said, "What a country chooses to save is what a country chooses to say about itself."

Oregon is set to make a profound statement about itself in coming years. ■

*Rob Klavins is the Northeast Oregon field coordinator for Oregon Wild. He and his wife own and operate Barking Mad Farm, a bed and breakfast and working farm in Wallowa County, Oregon. He traces his interest in wolves to meeting Kiana, an ambassador wolf at the International Wolf Center, in 1995.*







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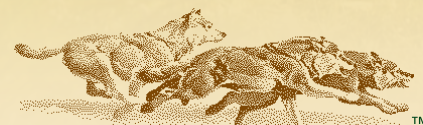
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