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# INTERNATIONAL



VOLUME 27, NO. 2

THE QUARTERLY PUBLICATION OF THE INTERNATIONAL WOLF CENTER

**SUMMER 2017** 





### Wildlife Research: From Ear Tags to Armchair

PART I

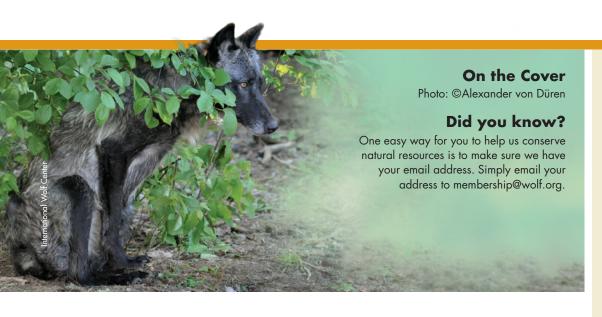
Biologists have been tracking all kinds of wildlife for centuries to learn about animal physiology and behavior. But the ways scientists follow the movements of large animals through their environments has radically changed in the last few decades, as preeminent wolf biologist Dave Mech reveals in this tale of low-tech tracking and high-tech transitions.

By Dr. L. David Mech

# We Wish They All Could Be California Wolves

Since a male wolf called OR-7 entered California from Oregon six years ago, that state's wolf population has been growing, and a statewide conservation and management plan has become necessary. Amaroq Weiss describes the careful process behind the recently introduced plan, and the hopes of conservationists for a thriving wolf population and peaceful coexistence between wolves and humans.

By Amaroq Weiss



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# INTERNATIONAL

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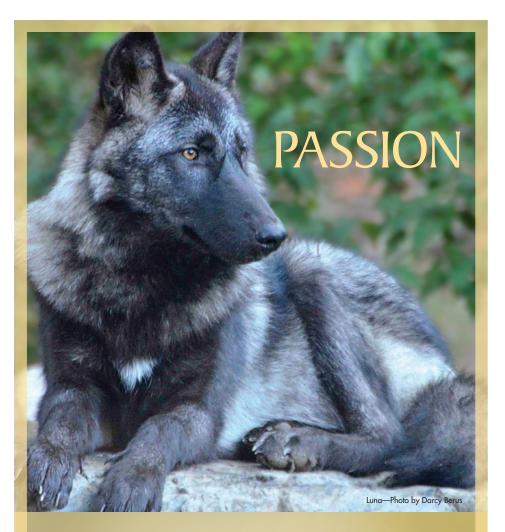
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# From the Executive Director

# How Fast They've Grown!

T's hard to believe it's been a year since Axel and Grayson made their long journey from Canada to become members of the Center's Exhibit Pack!

The day they arrived, they weighed only four pounds each. Tuckered out after a long flight from Toronto to Ely, they seemed quite happy to find a quiet corner where they could fall asleep in the Wolf Care Center. Our volunteers and staff worked eagerly and carefully

Rob Schultz

to tend to their needs and begin the socialization program that all our ambassador wolves have shared. Those first few days were a memorable time for us all.

This summer, visitors to the Center will see the wolf pups all grown up! They're not only adult-sized, but they are an absolute joy to watch, as their individual personalities have emerged and they are more curious and playful than ever.

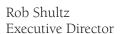
In May we opened our new temporary exhibit featuring an in-depth view into Axel and Grayson's first year at the Center. From the time they

arrived, to the day they were accepted into the main exhibit by the ambassador wolves, photographer Heidi Pinkerton captured a variety of thrilling moments for our visitors to remember. The exhibit includes photos of the pups as they grew, stories of their adventures in becoming ambassador wolves and fascinating facts about arctic wolves living in the wild—including Dr. Mech's historic research on arctic wolves living on Ellesmere Island.

Their story is one of inspiration—these little wolf pups who are becoming two of the most admired and well known arctic wolves on the planet. Axel and Grayson play an important role in helping us understand and appreciate this rare subspecies of wolf that survives and flourishes in some of the harshest conditions on our planet.

We hope that you will join us this summer to see Axel and

Grayson, and experience the new "Arctic Wolves" temporary exhibit featuring their journey to become members of the Exhibit Pack. ■





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The International Wolf Center advances the survival of wolf populations by teaching about wolves, their relationship to wildlands and the human role in their future.

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total comfort, biologist Dan MacNulty watched intently; he moved his computer mouse, and the drama drew closer. However, this was no video MacNulty and his colleagues were watching at the University of Minnesota in St. Paul, but a real-life adventure going on in real time in Yellowstone. The latest webcam/internet technology had made it possible.

Meanwhile, in the Yellowstone Park offices, Dr. Doug Smith was downloading



Wildlife biologists in a Minnesota lab using a remote camera in Yellowstone National Park were able to observe wolves hunting and chasing bison in the park.

Before the development of radiotracking, biologists studied animal movements mainly by ear-tagging individuals and hoping the same animal was reported by someone finding it elsewhere. electronic signals that appeared as dots on a map of the park. Each dot coded the recent location of a wolf with a special high-tech collar, the utility of which relied on two sets of satellites high above the earth. The collar listened to signals from the global-positioning system satellite set, calculated the wolf's location to within a few yards, and soon after sent that coded position to the Argos satellites along with the precise date, time and other data to another station that forwarded it to Smith's computer.

Both Smith's and MacNulty's systems had just become feasible during the previous two years. Tracking wolves wasn't always that easy, and still today, these sophisticated systems are available only to a lucky few. Nevertheless, most wildlife biologists studying animal movements are using some type of Global Positioning System (GPS) collar. Others are monitoring webcams at various types of nests, dens or feeding areas. Few of these folks are old enough to ever have relied on the lower-tech, numbered ear tag used to scour the wilds for tiny bits and pieces of information about animal movements.

For many decades in the good old days, biologists trapped mammals, birds, fish, reptiles and amphibians, marked them with numbered tags and hoped that someday they or someone else would come across the creature elsewhere and faithfully report its location. Then the biologist would have his or her (back then, usually his) little gem of information indicating how far the tagged animal had traveled between two points. Sometimes the second location was revealed when the animals were taken by hunting, fishing or trapping; sometimes they were killed on the road; and sometimes the animals were recaptured by the scientists who tagged them.

Getting the tag on the creature was not always an easy task. I cut my biologist's teeth as a Cornell University undergraduate, trying to manage this process with black bears some six decades ago. At that time the anesthetic drugs were far more primitive than they are today. For many years now, the public has witnessed TV heroes casually darting some dangerous creature and causing it to drop in its tracks. Even today this is not an accurate depiction of what actually happens—but during my undergraduate days, even a reasonable facsimile was impossible. The only anesthetic drug available then for injecting into an animal could never have been delivered by a dart from a distance. No—we had



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to tie the bear up and hand-deliver the drug into its abdomen.

How do you tie up a bear? I have to admit it wasn't easy, but for our team of eager, testosterone-driven undergraduates the technique offered some fine sport. We would catch these bears in the Adirondack Mountains of New York State in steel foot-traps much smaller than real bear traps. These special traps would not hold the biggest bears, much to our relief,





but only those weighing about 200–250 pounds. The only reason they even held these bears was because we did not fasten the traps solidly to something like a tree or large rock. Instead we attached the trap to a long, strong chain with a metal drag hook on the end. When the bear was caught, the creature would try to amble off, dragging the trap, chain and hook with it. Gradually the hook would repeatedly catch in some type of vegetation, and the bear would pull and thrash until the hook came loose. Eventually, however, the bear would tire and remain snagged in one spot.

Meanwhile, we would come along each day to check the traps, and finding one missing, would follow the drag marks from the hook in the soil and vegetation until we found the bear. That's when the fun began. We always worked in pairs or occasionally with a third member. Each of us would approach the bear from a different direction, one with a stout rope in his hand and the other with a special chain noose. This noose was draped from the end of a 3/4-inch pipe some six feet long with a T-shaped handle. The trick was to place the "choker's" noose over the bear's head and neck while the bear, with one foot attached to the trap and the other batting the air, tried to avoid it. Most of the time we prevailed and managed to cinch the noose around the bear's neck. Slowly we would then twist the noose until it was snug, thus giving us some measure of control of the bear's head. Now, with the bear's foot stuck in the trap and the noose pole holding the head, the bear's maneuverability was reduced.

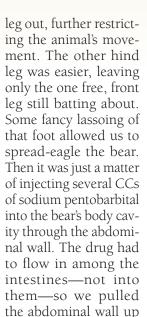
That's when the other worker made his move. With a slipknot loop of rope around his wrist, the second person would approach the bear from behind—always allowing the bear to know where he was so he wouldn't surprise it and cause it to move violently. Then the guy with the rope would grab one of the bear's hind feet, pull the noose over his wrist and hand and over onto the bear's ankle. Looping the other end of the rope around a tree and pulling it, the second person could then stretch that bear's



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before injecting and also pulled up the plunger of the syringe to make sure we did not suck up any intestinal fluids, indicating that the tip of the needle was inside the gut. This laborious technique worked very well—but it was more difficult by lantern in the pitch dark, which was often when we had to do it. We checked long trap lines every day and often finished at midnight.

Once, when a snafu left me alone to check the last traps, I tried to handle a mid-sized bear by myself. That didn't work very well, and I was quickly reminded of the folly of it all. Another time a special trap managed to hold a



Part two of Dr. Mech's "Eartags to Armchair" story will be featured in the fall edition of International Wolf.

Dr. L. David Mech is a senior research

400-pound, determinedly uncooperative bear. When a student technician finally maneuvered the choker noose around the animal's neck, the bear suddenly stood up on its hind legs, pulling the worker toward him, and batted the choker handle, bending the ¾-inch pipe into a U-shape. Luckily the worker dropped the choker at that point and beat a hasty retreat. Only when a spare choker arrived did the crew subdue the bear

Even when the process went smoothly, it wasn't quite like darting the animals and watching them suddenly, peacefully fall asleep.

scientist for the U.S. Geological Survey and founder and vice chair of the International Wolf Center. He has studied wolves for more than 50 years and has published several books and many articles about them.

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After sighting reports from citizens, a CDFW trail camera in Siskiyou County caught these 2015 images of the seven-member Shasta pack. The two adults and five pups comprised California's first wolf family in about a century. Since then, Nevada officials have captured images of a Shasta sub-adult wandering 20 miles east of the California border.

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### By AMAROQ WEISS

n December 28, 2011, a two-and-a-half year old male wolf from Oregon called OR-7 lifted a paw on the Oregon side of the border, set it down in California and became the first confirmed wild wolf in the Golden State in 87 years. Almost exactly five years later, the state issued its Conservation Plan for Gray Wolves in California.

In the interim, the Center for Biological Diversity led three other conservation groups in filing a successful administrative petition with the California Fish and Game Commission to fully protect wolves under the state's endangered species act; California's first wolf family in a century, the Shasta pack, was confirmed in Siskiyou County; a pair of wolves was confirmed in Lassen County (the male is OR-7's offspring); and an additional radio-collared Oregon wolf was making repeated forays into Modoc County.

#### Crafting California's Wolf Plan

Conservation and management methods for California's budding wolf population are described in the recently released wolf plan. For inspiration, California looked to plans in Oregon and Washington, drawing upon their planning processes, as well. The California Department of Fish and Wildlife (DFW) convened a stakeholder group of representatives from the conservation, livestock and sports hunting communities, all of whom contributed to discussions. When the final plan was released, every group got something it needed, but no group got everything it wanted.

#### A Conservation Plan with Parameters and Goals

California's is a conservation plan rather than a recovery plan. Development parameters specified that:

- Since there is potential for additional gray wolves to enter California, the plan would not offer an alternative of no wolves in California.
- Wolves would not be introduced by human intervention.
- There would be no option of wolves being distributed throughout their historical range or in their historical abundance.

The plan's goals are:

- To conserve biologically sustainable populations of wolves in the state, if and when they establish themselves there.
- To manage wolf distribution where there is adequate habitat.
- To manage native ungulate populations to provide abundant prey for wolves and other predators, enjoyment by the public and opportunities for hunters.
- To minimize livestock losses from wolf predation.
- To educate the public on the reasonable expectation that wolves will disperse from the Pacific Northwest to California; facts about gray wolves, their conservation and management needs; and the effects of having wolves in the state.

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#### Topics Addressed by California's Plan

The Wolf Plan is divided into an executive summary of the plan's creation and components, and the plan's substantive analyses and conclusions. Chapters cover wolf life-history and background; diseases; human interactions and perceptions of wolves; wolf and domestic dog interactions; wolf interactions with other wildlife species; wolf interactions with ungulates, effects of wolves on livestock and herding/guarding dogs; coordination with other states and federal agencies; wolf conservation; public information and outreach; funding needs and opportunities; and plan evaluation and reporting.

### Where Could Wolves Live in California, and How Many Could Thrive There?

California's plan, unlike those of Oregon and Washington, does not carve the state into recovery zones with population goals for each zone. The California DFW instead identified suitable habitat and then estimated how many wolves that habitat could support. Public land, abundance of prey and forest cover indicated suitability; human presence, road density and domestic sheep farms suggested unsuitable habitat. The results indicate that much of northern California and the Sierra Nevada mountain range contain suitable wolf habitat.

To estimate the number of wolves the identified habitat in northern California could sustain, planners considered how many wolves the number of

> deer and elk there could support. They reached a conclusion of 497 wolves. An examination of spatial and packsize information on established wolf

pack territories elsewhere yielded an estimate of 371.2 wolves. No calculations were made for the Sierra Nevada. Thus. according to the plan, northern California alone can support 400 to 500 wolves.

#### An Adaptive Management Plan

Like the Oregon and Washington plans, California's plan allows for management actions to change, or adapt, in response to expected growth in wolf numbers, so management actions will be more protective of wolves in the early stages of recovery, and change gradually to become less protective.

Phase I will be in place until there are four breeding pairs of wolves in the state for two consecutive years. Phase II will last until there are eight breeding pairs of wolves in the state for two consecutive years. (At this point, wolf management moves into Phase III.) Oregon and Washington plans require three consecutive years before moving into a next phase. Conservation groups are concerned that California's twoyear threshold is insufficient to know if the wolf population will continue to increase, as hoped.

Because much is still unknown about how wolves will fare in Phase III, management actions are less detailed than in Phases I and II—but conservationists find worrisome a status review to determine if state delisting is warranted after there have been only eight breeding pairs for two years, lack of detail on circumstances under which wolves could be ordered killed for livestock depredation, and reduced protection from kill orders for impact on wild ungulate populations.

Management Actions Under California's Plan—What's Allowed. What's Prohibited, and Why

Among other measures, DFW will conduct public education, collect data



egon Department of Fish & Wildlife

Map Data: Califorina DFW

**Potentially** 

suitable habitat

on wolves and wild ungulates, enhance habitat for deer and elk to ensure healthy prey, provide livestock owners assistance with implementing nonlethal conflict deterrents, create depredation-prevention agreements, and establish a program to compensate livestock operators for wolf presence and confirmed wolfcaused losses.

#### Actions Allowed to Prevent Conflicts Between Livestock and Wolves

Conflict deterrence actions that may be taken by DFW and livestock operators depend on which management phase is in effect. Some may be used in all three phases, including, not limited to: reducing attractants, human presence, barriers such as fladry and fencing, protection dogs and guard animals, alarm and scare devices, livestock management and husbandry techniques, non-injurious harassment and some experimental practices.

### Actions Prohibited While Wolves are Protected as Endangered

Wolves currently are protected as endangered under both the federal Endangered Species Act (ESA) and the California Endangered Species Act (CESA). Some management actions are prohibited in early phases of the plan due to the "take" provisions of the ESA and of CESA.

The federal ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect" or to attempt to engage in any such conduct. "Take" as defined under CESA means to "hunt, pursue, catch, capture, or kill" or attempt to engage in any such conduct.

So long as wolves in California remain endangered under the federal ESA, no take of wolves is allowed except in defense of human life. If federal protections were removed, CESA provisions would still apply.

While CESA does allow limited take for scientific, educational or management purposes and allows permits-for-take incidental to an otherwise lawful activity, CESA also requires that any such take be fully mitigated, and prohibits take permits that would jeopardize the continued existence of the species in California.

With California's wolf population at such tiny numbers, any take could jeopardize the continued existence of the species, and currently is not allowed. This means that during Phase I of the wolf plan, killing wolves for livestock conflicts and injurious harassment of wolves as a conflict deterrent are not allowed, nor is killing wolves for impacts on deer or elk herds, but may become allowable in Phase II and III, depending on the legal status of wolves at that time. As a result, the wolf plan emphasizes the use of nonlethal conflict-prevention measures and making sure livestock owners understand what those measures are and how to use them.

### Conservation Community and Livestock Industry Concerns

While many nonlethal conflict-deterrence measures are allowed by law and the wolf plan, some members of the California Cattlemen's Association and the California Farm Bureau Federation want to be able to kill wolves when wolves kill livestock. In January 2017 these groups, represented by the Pacific Legal Foundation, filed a lawsuit against the state of California seeking to overturn the state listing of wolves under CESA. The Center for Biological Diversity and three other groups who joined in the listing petition filed a legal motion to intervene as defendants so the parties which had successfully petitioned for wolves to be listed under CESA could help the state of California fight this lawsuit. The motion was granted.

The conservation community, pleased by the plan's focus on nonlethal conflict deterrence, has lingering concerns about several provisions and omissions. The plan is not enforceable because no parts of it were enacted as regulations; the plan mentions the possibilities of seeking reduced federal protections and changes in state law to allow for take of wolves; population goals are too low, and timelines for moving from one phase to the next are too short; consideration of delisting from CESA could occur when there are as few as 153-190 wolves in the state; in Phase III (possibly as early as Phase II) wolves could be killed for affecting elk and deer populations; and

no measures are included to protect wolves from being killed by people hunting for coyotes or by USDA/Wildlife Services coyote snares.

#### Conclusion

In recent years, public opinion polls on wolves have been conducted in West Coast states. While all three states demonstrate overwhelming support for wolf recovery, conservation and legal protections, California leads the pack with the highest polling results in favor of wolves. In the past year, conservation groups were worried and agency biologists puzzled by the seeming disappearance of California's first confirmed wolf family, the Shasta pack. But just this spring, agency officials in Nevada confirmed that a sub-adult from the Shasta pack had made its way next door, into Washoe County, Nevada. Center for Biological Diversity members hope that a combination of California's wolf plan, protection by the ESA and CESA, and additional protections our group is seeking to prevent wolves from being mistakenly shot as covotes or incidentally snared will keep California's wolves on the path to recovery. That means a future in which wolves continue to arrive and spread out to occupy suitable habitat in California, raise pups and establish territories here, and then keep this amazing saga going by dispersing to neighboring states. What was an ugly chapter in our national history, the near eradication of wolves, can find redemption in the species' return to places it once called home—places like California. ■

#### Find California's wolf plan here:



www.wildlife.ca.gov/conservation/ mammals/gray-wolf

Amaroq Weiss, a biologist and former attorney, is the West Coast Wolf Advocate with the Center for Biological Diversity. She has worked in the field of wolf recovery and conservation for more than 20 years, was part of the stakeholder groups that advised state wildlife agencies in crafting California's and Oregon's wolf plans, and covers wolf issues for the Center for Biological Diversity in Oregon, Washington and California.

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# Tracking the Pack



# Meeting the Needs of a Social Carnivore

By Lori Schmidt

Then the International Wolf Center's Ambassador Wolf Program began in 1989, pack formation was accomplished by raising and managing even-aged litters to form packs in 1989 and 1993. Since 2000, unrelated pups have been introduced and socialized into the Exhibit pack.

Wolves form social relationships regardless of pack management style. In a litter, bonds form with pup mates; with non-sibling pups, bonds form with the adults who accept them into the social structure. Both management styles lead to a cohesive pack, with social bonds evident for many years among Exhibit Pack members. Those bonds are also important as they transition into retirement. Wolves with social bonds are more tolerant of their packmates' aging and weakness as they approached the end of their lifespan.

After the 2016 pup introduction, the wolf care staff faced a new challenge. For the first time, we had two lone,

adult wolves in retirement that had no social bonds and were being maintained separately—Grizzer, a wolf retired in 2011, and Luna, a female born in 2012 and retired in 2016. Wolves are social carnivores, and it has been our practice to provide social stimuli in the form of pack mates whenever possible, but the wolves must be introduced in a way that supports compatibility. Even in captivity, wolves can be territorial, and rankorder displays can influence the success of introductions. Introductions are best done (1) with two loners, rather than bringing an adult wolf into a socially cohesive pack; or (2) a male and female versus two individuals of the same gender that may have dominance issues.

By the start of November 2016, after some preliminary fence-to-fence greetings, Grizzer and Luna were allowed supervised, face-to-face meetings. Timing was critical, as wolf dominance may increase in winter months. By late November, with 24-hour surveillance cameras augmenting our observations, the integration was complete. We

deemed the introduction safe for both individuals—although there have been management modifications due to Luna's intense possessiveness around food. The pair is provided smaller, more frequent meals and limited access to any carcass larger than a deer leg. Wolves are social carnivores, but in the case of Luna, the obsessive food possession and aggressive lunges toward her companion required us to balance the social relationship and the carnivore possessiveness.

We know that co-habitation does not create an instant bond, but time together is important. Thanks to the surveillance cameras, we know a bond is forming. Both Luna and Grizzer initiate tail wags, play bows (bowing on their front legs and springing away, inviting a pack mate to interact) and excited chases throughout their enclosures —all good indications of compatibility.

If you are interested in learning more about each of our wolves, read more at www.wolf.org/meet-our-wolves/wolf-logs/.

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by Aoife O'Connell, Age 9

he pine trees whipped past as I urged my parents to drive faster up • the highway to the International Wolf Center. It was my ninth birthday and we were in Ely, Minnesota. In my lap was my camera, and I was grasping it so hard my fingers hurt.

We were finally there! Inside was a long hallway with triangular windows at both ends that resembled wolf ears. In a small room called "Little Wolf" I sat at a table to draw, and then put on a wolf mask and pretended to be a wolf pup.

Finally, we walked toward the real wolves. In the auditorium was a huge window and outside was the wolves' enclosure. It looked large, with a shallow pond in the center. (Fun fact: The enclosure is 1.2 acres). Then a large, fluffy wolf slowly walked towards us. I gasped and dug my nails into my mom's arm. The wolf curled up in a ball and rested. A lean, black wolf playfully leapt her way into the clearing. It was amazing! A third wolf stepped out and I grabbed

my camera. The fluffy wolf uncurled and yawned.

I snapped a picture. I adored all of them, but I couldn't take my eyes off the black wolf. She had specks of white all over her and sharp golden eyes. I knew her name: Luna. Luna. Luna. Luna. I felt the wonderful word sink into my body. It was beautiful. I loved the wolves so much!

Member Profiles

All of a sudden we heard footsteps and I saw a man wearing a shirt with the International Wolf Center logo. I was going to meet an employee! I immediately started asking questions and learning about what it was like working there. He answered my questions excitedly, as if he had never talked to a visitor before. Finally, my mom said, "We have to get lunch."

We walked to the Wolf Den Shop. It was full of wolf books, wolf clothes and wolf posters. I finally decided on a notebook, a pen and a bag, each with the International Wolf Center logo on it.

In the parking lot, I ran to our car, laughing and talking to my parents. "Did



Aoife O'Connell is a fourth-grader in Los Angeles, CA. An ardent wolf lover, she also enjoys reading, writing and playing piano and trumpet.

you see Luna?" I exclaimed. "Wasn't she so pretty? And cute? I can't believe I actually met an employee! Let's go again tomorrow!"

When we started driving down the road, all I could think of was Luna and the wolves, and I knew how much I loved those wonderful creatures.

# Baseball, Blizzards and Wolves



by Krista Harrington

orn and raised in Ely, newlywed and International Wolf Center member Paul Ivancich has been serving up ice cream and other treats to Ely area residents and visitors for decades.

Paul's parents bought the Ely Dairy Queen 50 years ago in March 1967 when it was a seasonal, walk-up location. His mom is a former school

teacher who is still involved in running the restaurant. Dad was a foreman at the former Reserve Mining in nearby Babbitt, Minnesota. Teachers from Ely High School used to live in the restaurant's basement during the school year!

Paul, the oldest of three boys in his family, wanted to work in restaurant management, so after graduating from Ely's Vermillion Community College he completed the Dairy Queen company training program and now owns the Ely Dairy Queen.

Paul was raised to contribute to the quality of life in his community. His dad taught him, "When you give, you get it back 10-fold." Today, the Dairy Queen owner works hard to run a top-notch franchise and backs it up with heavy involvement in the chain's regional marketing program. His International Wolf Center membership helps advance environmental education, and he has served as an Ely Little League umpire since 1982.

As an outdoor and wildlife enthusiast, Paul often talks to customers about the International Wolf Center and encourages them to visit and learn more about wolves. And whenever he can, he enjoys a relaxing day on the lake—possibly with ice cream in hand.

Krista Harrington is the manager of the International Wolf Center's interpretive center in Ely, Minnesota.

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# FEATURED PROGRAMS

In addition to our "Arctic Wolves" exhibit, we have a variety of new daily and specialty programs. Here's a sample:

# Ambassadors to the Wild

Join this program to learn about each of our ambassador wolves, their histories and behaviors.

30-minute presentation

# **Canines by Nature**

Canids are mammals in the dog family and share many similarities but during this program you'll learn what makes wolves, coyotes, foxes and dogs different.

30-minute presentation

## **Jurassic Wolves**

Prehistoric wolves?! Join the discussion about extinct species of wolves from across the world. Then, learn about the status and management techniques of wolves today.

30-minute presentation

# **Wolf Explorers**

identify tracks, learn about wolves, play a game or explore outdoors. This hands-on program is designed for kids 4–12 years old. Join the fun! Parents must remain on-site.

30-minute presentation

2017

### **Admission Fees**

Members FREE!
Adults \$ 13.00
Seniors (60+) \$ 11.00
Child* (4 – 12)
Children* (3 and under) Free

<sup>\*</sup> Children must be accompanied by a paid adult.

### Hours

110010	
May 15 - June 11 Sunday - Friday	
June 12 – August 13 Open daily	 .9 - 6
August 14 – October 16 Sunday – Friday	

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# Arctic Wolves





# A Must-See for Wolf Lovers: International Wolf Center Celebrates the Return of Arctic Wolves

An engaging new photo exhibit traces the development of arctic pups Axel and Grayson from their springtime arrival through their socialization period and acceptance by the pack.

The complex social structure of a successful wolf pack requires a series of behaviors in newcomers that includes seeking acceptance, creating bonds, establishing hierarchy and finally, becoming an efficiently functioning member of the pack. The International Wolf Center ambassador wolves are not "family," for the most part; they come from different parts of the world. But they each come with the same wild instinct to form a bonded whole—to create a social hierarchy and play the roles that, in nature, protect the pack and keep its members alive, well and adequately fed.

Our new pups experienced that process this year, with each phase thoroughly chronicled by the wolf care team and captured by photographer Heidi Pinkerton. The new "Arctic Wolves!"

exhibit at the International Wolf Center combines the story of the pups' arrival and adjustment with some of Pinkerton's most beautiful photos, creating for visitors a visual close-up of early life inside the pack for Axel and Grayson.

Until their passing in 2014, arctic brothers Shadow and Malik represented their northern-ranging subspecies of the gray wolf as ambassador wolves. Since then, the Center has been without arctic wolves. But with the arrival of Axel and Grayson in May 2016, the arctic wolves were back!

The 3-week-old pups weighed about a pound at birth; each was barely over four pounds when they arrived in Ely late in May. By the time they were introduced to the other ambassador wolves in August, they had the fur, teeth and behaviors of young, developing wolves—

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Photos from left to right, starting far left:

Axel (right) and Grayson (left) practice a jawspar – Wolf pups practice sparring at a young age, for dominance and food possession rights.

Grayson doing a squash behavior over Axel. Wolves will communicate through passive and active dominance.

Aidan is the pack leader and receives a submissive greeting from Grayson

Camouflage – one look at this photo and you see how wolf pelage can be influenced by geographic surroundings. Arctic wolves live in a geographic area dominated by snow. Grayson (left) and Axel (right).

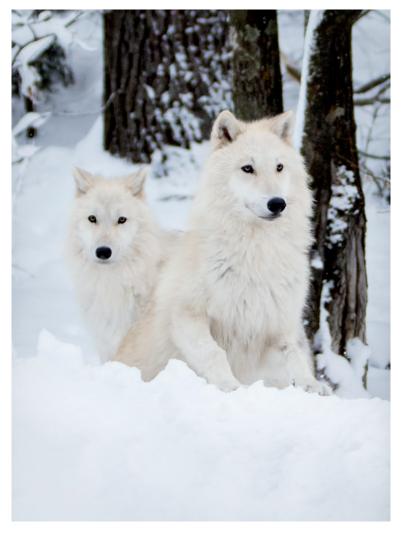
All photos: Heidi Pinkerton

and it was time for the wolf care team to begin the complicated and somewhat delicate process of helping them find their places in the pack.

Take a walk through the new exhibit and follow the progress made by pups and pack members. You'll watch Axel and Grayson grow bigger and stronger, practicing their stalking skills, defending their share of the meal, learning about snow, and establishing relationships with adults and each other through natural care-seeking, testing and playing behaviors.

You'll learn a bit about arctic wolves' habitat and survival skills, too, as you enjoy the section called "Where is Home?" In photos and text, it explains where Axel and Grayson came from, and how their strong and beautiful subspecies survives in a harsh arctic environment.

Make plans to visit the International Wolf Center to see the ambassador wolves, learn about wolves' relationships to wildlands around the world, and enjoy the "Arctic Wolves!" exhibit anytime between now and May 2018. ■



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# Wolves of the World

# Wolf Fans And Foes Sound Off **Around The World**

By Tracy O'Connell

CANADA

The Ministry of Natural Resources and Forestry announced that Ontario has closed the hunting and trapping of all wolves and coyotes in four provincial parks to support recovery of the Algonquin wolf, because of its resemblance to the other canids.

Landowners in these areas still have the right to kill or harm wolves and coyotes if there is imminent risk to human health and safety, or to domestic animals and livestock. Additionally, hunting and trapping coyotes and wolves in parts of the province outside the protected areas are permitted.

The Algonquin wolf is classified as "threatened" by the Committee on the Status of Species at Risk in Ontario, according to the Peterborough Examiner, which notes it was previously called the eastern wolf-which some scientists think is the same species as the red wolf that remains in rural areas of the southeastern U.S. Provincial population estimates range from 150 to 500 animals.

oncerns continue about what appears to be continued bold predation attempts on humans in the Bow Valley area of British Columbia, where a crackdown on littering and illegal camping sought to reduce habituation of wolves. In December a wolf was said to have chased a snowmobiler.



In Thompson, Manitoba, the Spirit LWay organization continues to promote itself and its work in developing tourism around the wolf. Tourism in Manitoba is a \$1.6 billion annual indus-



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try with 23,500 jobs. Every dollar spent by a visitor multiplies four times as the money circulates in the community. The Heritage North Museum, one of three key tourist attractions in Thompson, receives 3,000 to 4,000 signatures in its guestbook each year, most from tourists travelling by train to and from Churchill, where 18,000 visitors come each year to see polar bears, or to Hudson Bay where 12,000 visitors experience beluga whales. This is a captive audience that Thompson has wondered for decades how to access.



**T**n southwestern Alberta the Calgary LHerald reports cattle constitute 45 percent of wolves' diet in the summer while deer and elk contribute a combined 38 percent. In winter, when cattle are better protected on ranches, beef constitutes only 12 percent of the diet of wolves. The newspaper cites a study conducted between 2008 and 2010 in which researchers used GPS radio telemetry to find where wolves congregated for more than three hours—likely kill sites—then analyzed the scats left behind to determine what they had eaten. Here, habituation seems to be a culprit as well: the report found that since 2000, when rendering companies started charging to pick up downed animals, ranchers started leaving an estimated 1,000 livestock carcasses each year in the field.

#### **UNITED STATES**

Tsle Royale in Lake Superior, Imeanwhile, has been the focus of media attention as its population of wolves is believed to have held at two aging and related animals over the past winter. Various courses of action are being considered to replenish wolf numbers (see Spring 2017 IW), which supporters of the effort say is important to achieve ecological balance that will (among other effects) keep the size of the island's moose herd in check. Under discussion are four proposals for release timetables, numbers and methodologies—none which will happen before 2018.

The study of wolves and moose on Isle Royale is said to be the world's longest continuous predator/prey research effort, unique because the island

has been mostly free of outside interference. In the past, one or two wolves migrated across the rare winter ice bridge to the island, diversifying the genetics of the breeding of packs on the island, an influx not likely to happen with warming temperatures affecting ice development. Numbers dipped in recent years as a confluence of factors caused the island packs to die out.

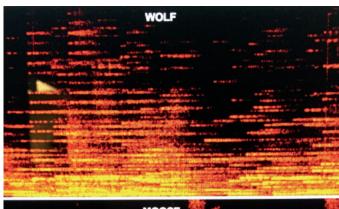
Michigan Technological University students, meanwhile, decided to provide a

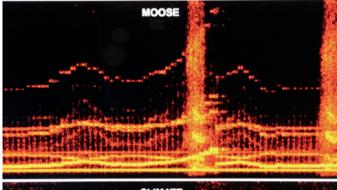
> Spectrograms from the "Sonifying the wolves and moose of Isle Royale: Transforming Data Into Music" webpage.

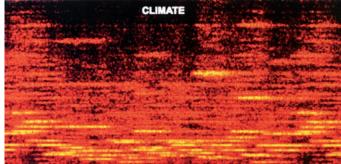
A spectrogram is a mean for visualizing sound, time is metered out across from left to right. different approach to understanding data, and turned it into music following the lead of John Luther Adams, a Pulitzer-Prize-winning artist who created music from nature research. Completed in 2014 and installed in the Michigan Tech campus gallery, the students' project was later transferred to the Web and can be heard here, www.isleroyalewolf. org/sonification, where it is accompanied by an explanation of the process.

John Vucetich, an ecologist at Michigan Technological University and co-leader with Rolf Peterson of the Wolves & Moose of Isle Royale project, said the music is another way to experience science, comparing it to getting lost in the dapples of light in a Monet painting.









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# FII

### FINLAND



Jussi Aro and his dog Minka try out a 'chili vest' prototype

A dog vest designed to fight back in the event of a wolf attack will be tested in 2017 in the eastern town of Nurmes, where there is a great deal of wolf activity reported. If a wolf attacks a dog wearing the vest and punctures the fabric, cartridges sewn into the fabric release chili powder that sprays on the wolf's face and mouth.

Jussi Aro has developed protective vests for a decade. He lives in Mäntyharju, in the eastern part of the country where wolves injured 32 dogs

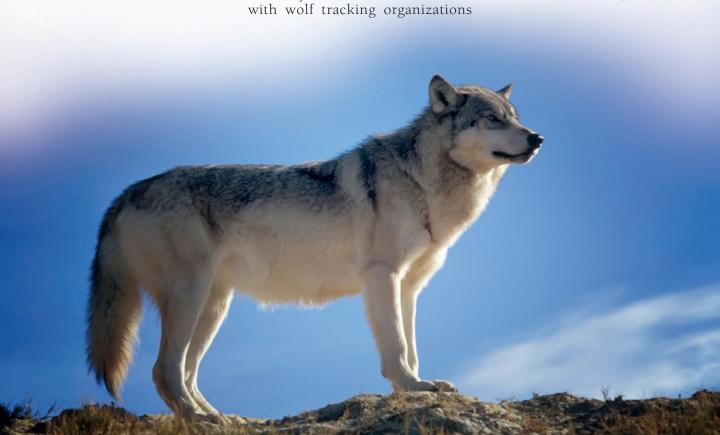
along the Finland-Russia border last year. Residents are frightened to allow pets and children outdoors. Observatoire du Loup and Alliance avec les Loups found two deer carcasses with signs of canid predation in the Rambouillet Forest southwest of Paris along with paw prints and scat. It is believed a pair was roaming across Yvelines and Essonne, while another was in the nearby Seine-et-Marne.

While acknowledging it is only a matter of time until wolves colonize the area, the French wildlife commission insists there is no proof wolves are in the area now—a position others call a lie, saying the claim protects the government from having to pay damages to those affected by wolf attacks. Extinct in France from the 1930s until 1992 when a mated pair crossed the border from Italy, the predator has spread throughout the Alps, across the Rhône valley into the Massif Central and up the eastern border of France to the Jura and Vosges mountains.

As is common wherever wolves appear, wildlife enthusiasts wax excited while farmers and herders fail to share the joy. An estimated 9,000 sheep were killed in 2016 by the estimated 300 wolves in France—triple the number a



Wolves are at the gates of Paris. This was reported throughout Europe, sometimes with more than a hint of hysteria, last winter. Observers with wolf tracking organizations



Javid Mark/Pixabay.com

decade before. When farmers protested vigorously last year, the French government hired hunters to shoot a number of the animals. Talks among stakeholders last winter addressed what wolf management should look like in the decade to come. As for humans, Manoël Atman of the *Alliance avec les Loups* assures the public that these wolves weigh only 25 kilos (55 pounds) compared to the heftier ones from Eastern Europe, and aren't a threat to humans.

ITALY

A government plan for a cull of up to 5 percent of the wolf population here met with the expected cry from environmentalists who, among other things, cited the government's inability to establish an accurate population count, with numbers ranging from 1,070 to 2,472 living in the mountainous regions of the Appenines, and another 150 in the Alps. Equally elusive, wolf supporters claim, is an estimate of the damage wolves cause. Instead of a cull, a 22-point plan is being promoted that includes a new census and non-lethal means of control.

Farmers, however, seem to have a handle on the damages they are experiencing, and 10 times in three years, mutilated wolf corpses have been left in public as a reminder of the hatred for these animals. "There are around 600 wolves in Tuscany and 300 pastoralists have already had to abandon the Maremma," said Tulio Marcelli, the regional president of the Coldiretti farmers association, according to the UK newspaper, The Telegraph. He was referring to an area of southwestern Tuscany bordering the Tyrrhenian Sea. In Tuscany alone, wolves caused 1.2 million euros' (\$1.3 million U.S.) worth of damage to flocks and herds last year, he said.

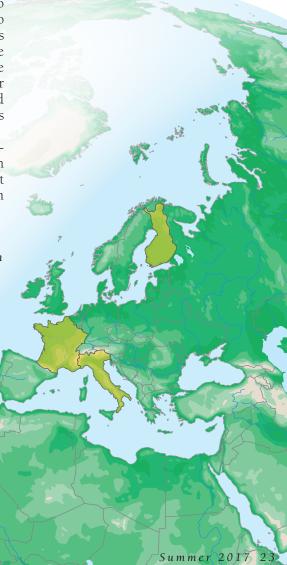
At least one reporter, writing for Yahoo.com news, seems to be a fan of the "noble," "sleek," and "elegant and usually shy" animals, while drawing on the wolf being the emblem of Rome, from the tale of the city's founder, Romulus, said to be one of a pair of twins raised by a wolf.



While farmers want to cull the wolf, a ring in northern Italy was importing the animals illegally from Scandinavia and North America, among other places, to breed with Czechoslovakian wolf dogs, to produce a creature designed to impress judges at dog shows and to overcome common structural weaknesses of the breed. Police wrapping up a four-year investigation found that 230 cross-bred animals were sold for up to 5,000 euros (\$5,400 U.S.) each.

The Czechoslovakian wolf dog originated in the 1950s, when an Alsatian was crossed with a Carpathian wolf; it was recognized as a distinct breed in the 1980s.

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.



# A Bone to Pick: One Pack's Drama Over Feeding an Old Wolf

by Ilona Popper

Te saw the wolves about a mile below us. They had killed an elk at the base of a long drainage and were eating at the carcass: the black breeding female; the gray breeding male, 685M; and several of their pups, only a month away from their first birthday. Soon, their mother would whelp a new litter.

It was a snowy March morning in 2009, and I had joined two crew members of the Yellowstone Wolf Project, Hilary and Josh, who were following the Everts wolf pack for the Wolf Project's winter study. We had hiked into the

Gallatin National Forest and set up our scopes high along a steep ravine that cut sharply down to the Yellowstone River. Across the river was Yellowstone National Park, where flats and hills rose up to Mount Everts.

The wolves tugged and chewed, side by side at the carcass.

"Wow," Hilary exclaimed. "Can you believe that!?"

"Is he taking that to her?" asked Josh. "Yes!"

Lifting my head, I shifted my scope in the direction the two were looking, higher up on Everts. I saw two wolves: one was a graying black, the Old Everts Female (OEF), lying sphinxlike on an overlook above the carcass. I caught

sight of her just after 685M, the breeding male, dropped an elk leg onto her forepaws. 685M had pulled the leg from the carcass, climbed the hill to where the old female lay, and brought her the meat.

"What a mensch!" Josh said.

"I knew he was a prince," said Hilary. 685M stood looking down at the old wolf. The OEF was about 9 years old. When she was about four, her shoulder joint had been so badly injured that, for most of her life, she held that leg straight in front of her when she traveled.

Now the old wolf remained still, perhaps to make sure 685M had truly released the food. Then she grabbed the leg in her jaws, stood and began hopping up the mountain.

But the breeding male raced ahead of her and angled his body to block her way. She paused, faced his flank and stepped past him. Again, 685M ran ahead of her and turned to stand obliquely. What was he up to? He didn't take back the leg, but he kept halting her.



wondered why she was so bent on traveling up the mountain. After a couple of rounds of this mute conversation, the male finally gave up and trotted back to the carcass below.

Wild wolves carry food and regurgitate to pups, but they don't usually carry food to other adult wolves, with these exceptions: all pack members bring food to the nursing mother, who mostly stays in the den for the first week or so of the pups' lives, warming and suckling them. (Usually this is the breeding female, but if there is good hunting, packs may support additional litters.) Rising hormones like oxytocin prime all the members of the pack to focus on raising pups, and this accounts for the other exception: before "denning up," pregnant female wolves may solicit and receive food from their mates, as if to jump-start those nurturing hormones.

So, why was 685M bringing the OEF food? The pups were grown, they weren't

even hers, and she wasn't pregnant. And why didn't she eat alongside the rest of the pack? The carcass was in plain view. What exactly was the OEF's role in this pack?

No one was certain of her bloodlines. The OEF was never fitted with a radio-collar, and after her death her body was too decomposed for the Wolf Project to get a DNA sample. When she was younger, the old wolf had kept company with Leopold pack wolves without being chased off. She might have been born a Leopold; after her injury, perhaps they fed her. She joined the Oxbow pack briefly, which was founded by Leopold females. Then for some years she drifted in and out of sight.

Somehow the OEF survived to join the Everts pack in her old age. The breeding female of the Everts pack had been born an Oxbow pack wolf, so researchers speculated she may have been the great-niece of the OEF.

The old wolf was seen babysitting the young Everts pups. But being a babysitter seldom rates a meal delivery. Often, wolves that have been babysitting at a den must travel back to a carcass to eat, even though the returning pack regurgitates to the pups. If wolves feed a babysitter, most commonly it's a yearling. Wolves burn precious calories ferrying meat over miles to feed pups too young and weak to travel. An adult wolf, even lame, must run for her supper.

Anyway, by now, the near-yearlings had long outgrown the need for baby-sitters. Yet 685M had carried food to the OEF!

Clasping the leg in her jaws, the OEF hobbled ever higher. Finally, nearly three-quarters of the way up the mountain, she lowered the leg and herself to the ground. After looking around, she began chewing. Within seconds, one of the large male pups bounded up to her. He dwarfed the old wolf, standing with his



nose near her prize. She angled away from him, like a person screening her food at a table. He sidled around her, which prompted another skooch away from him. He edged in and lay at her elbow. She stopped gnawing. I wondered if the old female growled, because the pup froze, though he didn't retreat.

As I panned downslope, a black wolf darted through my field of view: the breeding female was storming up the hill to the OEF and the big gray pup. The breeding female "stood over" the OEF, her four paws partly caging her, tail raised and rocking, a classic assertion of dominance. The old wolf remained on the ground, but she did not roll over as some subordinate females might. For a moment nothing happened.

Then something shifted: the pup wriggled under his mother's legs and slid under the old wolf. Suddenly he stood, with the elk leg in his mouth. He ran off, leaving the OEF with nothing to eat.

#### Drop It!

Had I just seen a wolf *make* another wolf drop food? In 14 years of observing Yellowstone wolves, I had never seen one wolf dominate another with food already in its jaws, let alone force it to relinquish food to a third wolf. When subordinate wolves hold food in their mouths, it seems untouchable. I once watched a young wolf refuse food to her father, who followed and stared pointedly at a bone she was carrying. No dice.

The four wolves in this drama had

made choices. It seemed as if each was headingoff, purposefully creating or gambling on outcomes.

If the old wolf was her great-aunt, the Everts breeding female may have decided that between two relatives, her offspring should eat first. This doesn't seem a stretch. In the biological worldview, raising offspring to adulthood is a top priority—above that of keeping a great aunt alive. In a few weeks the breeding female would deliver pups. Perhaps she was simply worried about having enough food for pups and yearlings.

In the wild, pack members usually eat side-by-side at a carcass, whether they participated in the hunt or not, whether they are blood relatives or not. In certain situations, there may be a show of teeth, making a wolf move or wait to eat. (Druid pack's breeder, 832F, was famously tough about this with her mate and his brother until they matured into better hunters.) Yet Josh had mentioned that the Everts breeding female often made the OEF wait until the pack had fed. Breeders, female and male, do kick wolves out of their packs. Perhaps the breeding female was considering an ouster?

The OEF seemed to know that the highest-ranking female might deprive her of food. That might have been why the OEF carried her leg so far away to eat, insisting on climbing even when the breeding male tried to stop her.

The breeding male might also have been aware of what his mate might do if she caught sight of the OEF with a big





# chunk of meat. Did he block the OEF from traveling away with the meat, as if to say, *eat it here*, so he could guard her?

Could the male have been aware of advantages in having this older wolf in his pack? Kira Cassidy, a Wolf Project researcher who studies wolf-on-wolf aggression, has found that, "In conflicts between packs, a pack with even one older wolf, male or female, can have an advantage over a larger pack.<sup>[2]</sup>"

Wolf biologist L. David Mech says, "I have never seen nor heard of a wolf carrying food to an unrelated wolf other than a breeding male feeding his mate." Yet the breeding female, who took food from the OEF, was the wolf that may have been kin. And her mate, 685M, fed the unrelated, lame old wolf. Is there an in-law status in packs? Certainly packs include non-offspring members who are related to the breeders (brothers, sisters). Yet rejection also is common: Lamar Canyon 925M drove off his fatherin-law when they met.

Is it possible a wolf may value a pack member, not out of kinship, but because of what she has or does to contribute—nurturing pups or hunting well? Is it possible that a wolf might feed another wolf out of gratitude?

#### Notes:

- 1 "Regurgitive Food Transfer Among Wild Wolves," Mech, Wolf, Packer, Canadian Journal of Zoology, 1999.
- 2 "Group composition effects on aggressive interpack interactions of gray wolves in Yellowstone National Park," Cassidy, MacNulty, Stahler, Smith, and Mech, Behavioral Ecology, 2015.

Ilona Popper writes poetry, articles and documentary scripts, and teaches writers. She lives with her husband at the edge of Yellowstone National Park. Her website is ilonapopper.wordpress.com. She wishes to acknowledge L. David Mech and the Yellowstone Wolf Project—especially Kira Cassidy, Dan Stahler, Hilary Zaranek Anderson, Josh Irving and Doug Smith.

# In Memory

# Bob Ream—Environmentalist, Teacher, Leader, Friend—Dead at 80

By Nancy jo Tubbs

Bob Ream, whose landmark work for wolves and conservation in Montana took him from wilderness research to university professorship to statehouse, died of prostate cancer on March 22, 2017 at the age of 80.

He left his mark on the International Wolf Center, where he served on the board of directors from 1997 until 2003, and where he will be missed.

Ream wrote for International Wolf magazine in 1997, supporting recolonization of wolves from Canada to Glacier National Park, Montana, but his history with wolf research goes back to his meeting with Dr. L. David Mech, who says, "I met Bob in 1968 when he was a U.S. Forest Service plant ecologist headquartered at the Kawishiwi Field Lab near Ely. The Forest Service assigned him to assist me when I started live-trapping and radio-collaring wolves. He was with me when I collared our first wolf, No. 1051. Just a few days before Bob died, we reminisced about this, and Bob even remembered the wolf's number.

"Bob and I spent two weeks together in the USSR (10 days without our checked luggage). He also joined me on my Ellesmere Island study in 1988 and in 1999 helped guide an International Wolf Center trip to the Northwest Territories."

Ream is survived by his wife, Ann Brodsky, and children Tarn, Rolf and Jake.

Ream's academic and legislative accomplishments are legend. At the University of Montana he taught and mentored students as a wildlife biology professor for 28 years, where he made sure his pupils' experience extended from the classroom to wilderness backpacking.

He chaired the Montana Fish, Wildlife and Parks Commission from 2009 to 2013, where he influenced the management of the state's controversial popula-



tion of wolves and the bison that strayed across the boundary from Yellowstone National Park. He chaired the Montana Democratic Party for nine very successful years.

Ream's legacy includes his founding of the Wilderness Institute, the Wolf Ecology Project and the Wilderness and Civilization program at the university. Elected to the Montana House of Representatives for 14 years, he sponsored Montana's stream access law and focused on legislation including a Superfund law, game and fish legislation and restitution for illegally taken wildlife.

He was eulogized as he is well remembered in the Missoulian newspaper, "It would be difficult to fully convey Bob's impact on Montana's environment, his students, and the people who gravitated towards his warm, infectious, understated wisdom and kindness. Very rarely does a person come along with the strength, optimism, vitality for life, humility, and good nature Bob possessed. His constant and fearless sense of adventure also will be remembered by many—even if it got him in a few bad spots over the years. True to his nature, Bob imparted humor and bad puns to the very end." ■

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# Citizen Science

This young man, watching our ambassador wolves in their enclosure, is demonstrating observation, a first step in practicing citizen science!



All over the world, girls and boys dream of putting on lab coats and becoming scientists. Some kids want to be biologists, some want to study human behavior, some want to be astronomers—but most of them make one

> mistake. They think they can't start being scientists until they enter college or until they get a degree. Not true! Some kids also believe science is boring work that happens in a dark laboratory. So not true! Real science is about curiosity and exploration—and curiosity is not restricted to any one place. Plenty of science is happening all around you, and it's easy to get involved! In

fact, a great way to become a scientist is to start early.

Citizen science is a concept that is spreading across the globe. Ordinary people—kids and adults—help scientists every day by doing things like reporting butterfly sightings, recording temperature data, observing bird migration patterns, marking wildlife tracks and scat, and more. They give scientists eyes and ears in places they may not be able to go. Scientists may have huge amounts of data to analyze, or projects that require hours of observation time. Citizens can help by offering their time and skills. You can be involved in the sciences in ways you never thought possible! Use these website links to learn more about how to participate in citizen science programs.

Happy researching!

nationalgeographic.org/idea/ citizen-science-projects/ pbskids.org/scigirls/

citizen-science www.learner.org/jnorth/ scistarter.com

# Subspecies

Vocabulary The "subspecies" is a second name that follows a species name to more specifically describe an animal. Two species of wolf live in North America—the gray wolf (Canis lupus) and the red wolf (Canis rufus). Often, the subspecies helps identify the geographical region where the animal lives. The Arctic subspecies for example, Canis lupus arctos, lives mostly in the arctic tundra, and usually has a distinctive white coat. You may notice that our newest pups, Axel and Grayson, have a distinct white coat as well. That is because they are the arctic subspecies of gray wolf.

> Also, keep in mind that 'gray wolf' is a species name, not a description. You may hear other names, such as black wolf, white wolf and timber wolf; but these are not a different species or subspecies of wolf. All of those are just nicknames or descriptions for gray wolves.

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# **Journey**

Book Review by Debra Mitts-Smith

JOURNEY

Based on the True Story of OR7, the Most Famous Wolf in the West

Emma Bland Smith Blantes

Email Robin James

Recommended for grades Kindergarten through Fourth.

That happens to a wolf when it leaves its pack? Where does it go? How does it find other wolves?

**V** Emma Bland Smith's new picture book, *Journey*, is based on the life of a real wolf (originally named OR-7 by scientists who radio-

collared him) who left his pack and traveled more than 2,000 miles to find a new home and a mate. It also tells the story of a young girl, Abby, who followed newspaper and TV reports of Journey as he traveled from northeastern Oregon to California before settling down near the Rogue River in southern Oregon.

Journey's story is a tale of firsts. In 2009, he was one of the first wild-born wolf pups in Oregon in more than 60 years. In 2012, when he crossed into California, he became the first wild wolf to enter that state in almost 100 years.

As we read about Journey, Robin James' pictures show us the woods, lakes and mountains where Journey's trek led him. When we read about Abby's growing interest in Journey, James' illustrations show Abby trying to help by reading about wolves and entering a contest to name him.

Smith fills the last pages of her book with facts about the real Journey, including a map showing his route and a timeline of his life. Best of all are photographs of the real Journey with three of his pups—images that allow us to hope this brave traveler's bloodline will live on in Oregon.

Be sure to read the book review Journey: The Amazing Story of OR-7, The Oregon Wolf That Made History, for grades four through eight on page 32.

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# A Look Beyond

# Can Wolves Help Save Japan's Mountain Forests?

Text and photos by Shannon Barber-Meyer

Japan is facing a major problem. The understories of its beautiful mountain forests are being killed by overabundant sika deer and wild boars. Even taller trees are suffering from bark stripping and girdling by deer. Efforts to halt soil erosion on steep mountain slopes consist of concrete lattices and soil "dams" embedded into the mountainside. Fences are erected to keep deer out—but fences must be maintained, deer can jump fences, and fencing simply can't be put everywhere it's needed.

In part because of the complicated requirements to become a legal hunter in Japan, the limited number of hunters can't keep deer and boar populations at acceptable levels—and scientists there indicate that climate change has exacerbated this problem. Recently, reduced

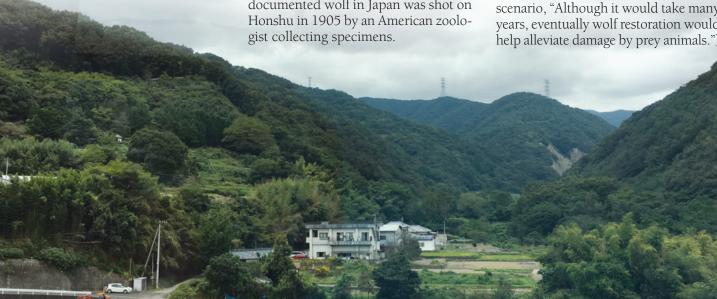
snowfall has allowed deer year-round access to montane (mountain's lower vegetation) areas from which they've always been excluded.

Can wolves help save Japan's dying mountain forests?

Japan's wolves were extinct by 1905 due to human persecution because of livestock conflicts, rabies and other diseases, and bounties on wolves. Two subspecies were originally recognized; the Ezo wolf (Canis lupus hattai) lived on the northernmost island of Hokkaido (this island was associated with the Kamchatka peninsula of Russia), and the Japanese or Honshu wolf (C. l. hodophylax) was found on the main Honshu island and other islands (associated with the Korean peninsula). Although there have been rumors of wolf sightings since extinction (probably feral dogs), the last documented wolf in Japan was shot on Honshu in 1905 by an American zoologist collecting specimens.

Since the early 1990s, the Japan Wolf Association (JWA) has proposed wolf reintroduction to Japan not only to restore rural ecology, but also to return a culturally important animal (wolves figure prominently in myths and folktales, and in the spiritual identity of many Japanese). In October 2016, the JWA invited me and two educators to visit five cities in Japan to participate in the Japan/USA/German 2016 Wolf Forum. I presented on wolf-prey relations, explaining that science has demonstrated that wolves tend to reduce prey to numbers smaller than the prey's food supply would support. This effect occurs especially where wolves are not hunted, where humans harvest ungulates (deer and moose, for example), and where bears are present.

As I listened to presentations on Japanese forestry, traveled around three islands, visited mountains damaged by overabundant deer and boars, and saw the alarming rate of destruction, I became convinced that wolves could help. (A preliminary analysis by Dr. L. David Mech stated that, even in the best-case scenario, "Although it would take many years, eventually wolf restoration would help alleviate damage by prey animals.")



Human-dominated areas, including agricultural areas, fill the limited, low flatlands in Japan while mountains retain vast forests. Frequent earthquakes limit development on steep mountainsides. Although the forests appear lush from above, their understories are heavily over-browsed. Even formerly sturdy trees, now "girdled" by deer stripping their bark, topple down the mountainside in wind storms. Note the erosion on the distant hillside.

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Top: Evidence of wild boars rooting up the forest floor.

Bottom: Bark and understory damage by deer.

Over time, wolf reintroduction would probably reduce prey in some areas, but other areas might respond differently. Furthermore, prey reduction is not the equivalent of forest recovery. In some cases, vegetative damage could be too great by the time wolves are reintroduced and prey declines, and forest recovery may no longer be possible.

The JWA has conducted public opinion surveys since 1993. The JWA faces skepticism and even opposition to wolf reintroduction from those who mistakenly believe that feral dogs would more safely and effectively regulate deer and boar populations, those who hold the wolf is not extinct in Japan (despite lack of evidence), those who argue that introducing a wolf from outside of Japan would be akin to introducing an alien or invasive species, and from those who fear wolves (mainly due to contemporary

bear attacks and also to an historic rabies epidemic). In JWA's first public opinion survey, 12.5 percent of respondents said Japan needed wolves, 44.8 percent said Japan did not need wolves, and 42.7 percent were unsure. By 2012, those numbers had changed to 40.4 percent, 13.9 percent and 45.7 percent respectively. The JWA is now conducting another survey. Its educational outreach continues in the hope that when public opinion of wolf reintroduction is high enough, the government will act to restore wolves and help to save the mountains.

If wolves were to be reintroduced to Japan, where would they come from? Notwithstanding debates regarding the closest living genetic relatives, wolves from nearby China or Mongolia might serve as source populations.

In any case, it is apparent from historic photos and on-site examinations that Japan's mountain forests are rapidly deteriorating and in desperate need of help.

A famous American quote certainly applies to Japan's current situation: "... just as a deer herd lives in mortal fear of its wolves, so does a mountain live in mortal fear of its deer." (Aldo Leopold, 1949, "A Sand County Almanac," Thinking Like A Mountain).

#### Additional reading:



🜬 The topic of wolves in Japan was addressed in International Wolf, Winter 2011 and in the Spring 2012 edition.

Dr. Shannon Barber-Meyer is the U.S. Geological Survey (USGS) wildlife biologist implementing the Superior National Forest (SNF) Wolf and Deer Project with Dr. L. David Mech. Prior to joining the USGS's Northern Prairie Wildlife Research Center, she taught graduate students in Grand Teton National Park and studied tiger populations in Asia, emperor penguins in Antarctica, and elk-calf mortality in Yellowstone National Park. She also helped reintroduce Mexican gray wolves into the Southwest. She is a member of the IUCN SSC Canid Specialist Group and lives in Ely, Minnesota, where she is a wolf-care team member at the International Wolf Center.



International Wolf

# Book Review

# Journey: The Amazing Story Of OR-7, The Oregon Wolf That Made History

Book review by Debra Mitts-Smith

eckie Elgin's book Journey: The Amazing Story of OR-7, the Oregon Wolf that Made History offers young readers an in-depth look at why OR-7 is such an iconic wolf. Published in 2016. the book is an entertaining and educational read recommended for grades four through eight.

Since the day he was born in 2009, OR-7 has been making history. He was one of the first wild-born pups in Oregon

in more than 60 years. In fact his moniker, "OR-7," designates him as the seventh Oregon wolf to be radio-collared by wildlife biologists.

On September 10, 2011, OR-7 dispersed from his pack to begin a trek that lasted more than 2,000 miles and nearly three years—a journey that would take him to northern California and eventually back to Oregon. Within six weeks, OR-7 traveled 250 miles. He

> the place where the last wild wolf in that state had been killed in 1946. He continued heading south through landscapes that had been void of wolves

entered Umpqua National Forest in western Oregon near

> Journey's life also provides information about wolves in general, our past and present treatment of them, and the work of wildlife biologists. Her fictionalized narrative retells Journey's story from his perspective, imbuing him with human emotions and insights. Elgin keeps the two accounts distinct through the use of text boxes white for the factual content; tan for the fictionalized version. Photographs and illustrations of wolves, prey species and biologists enrich both texts.

name of "Journey."

in history.

The author also provides source notes, a glossary and additional resources. She ends her tale with the most recent photo of Journey taken by a trail camera on June 8, 2016. In the photo caption, Elgin remarks that Journey is an old wolf now, but "still going strong." ■

for more than 60 years. As OR-7 neared

California—a state in which wolves had

been exterminated almost 100 years before—wildlife biologists who were tracking him began sharing information

with the media and the public, making him one of the most watched wolves

In January 2012, the staff at Oregon

Wild, a non-profit conservation group,

held a contest for young people to

rename OR-7. The author tells us that

Oregon Wild staff "...believed that if

OR-7 became better known, he was less

likely to be shot." Young people from

around the world submitted entries, and

two girls—one from Idaho and one from

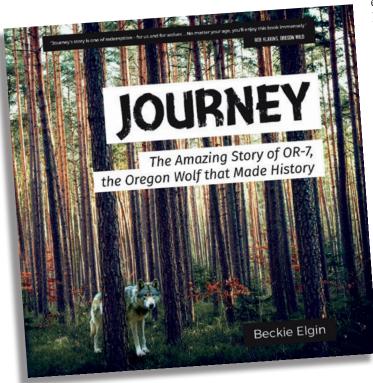
North Dakota—submitted the winning

one informational, the other imagined.

Her factual, yet engaging, account of

Elgin's work contains two narratives,

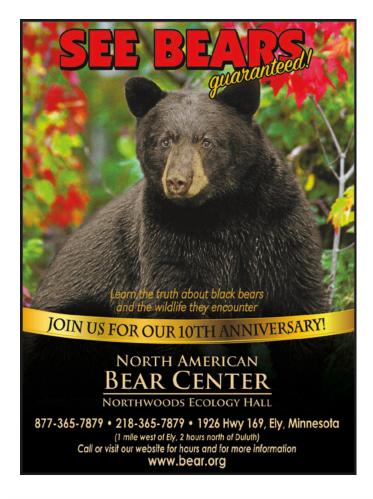
Debra Mitts-Smith is an adjunct professor in library and information science at the University of Illinois-Urbana-Champaign. She serves on the International Wolf Center's magazine committee.



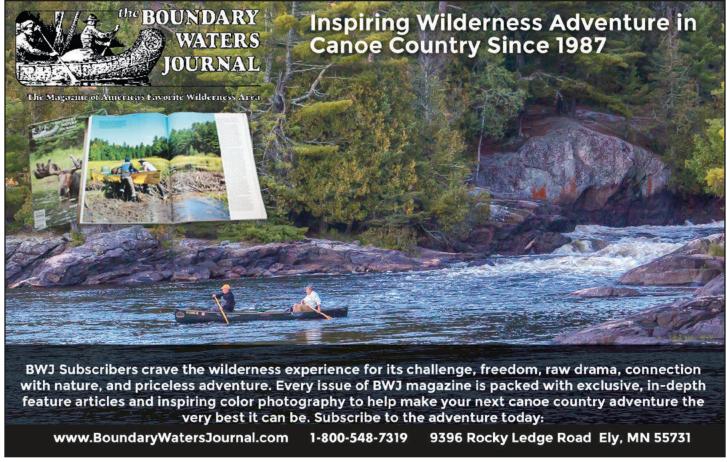
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