

INTERNATIONAL WOLF



A PUBLICATION OF THE INTERNATIONAL WOLF CENTER
SUMMER 2018

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Aggression between
Wolf Packs **PAGE 4**

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Upcoming Adventure Vacations

at the International Wolf Center

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INTERNATIONAL WOLF



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SUMMER 2018



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Kira Cassidy

The Annual Cycle of Aggression between Wolf Packs

There's a stark contrast between the gentle respect wolves show their pack mates and the aggressive way they react to other packs. The author describes the effects of seasonal hormones on pack aggression—including a few surprises about gender differences, pack size, coat colors and the "old wolf" advantage.

By Kira A. Cassidy



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Adobe Stock / 222222222

Sharing the Landscape: Wolves and Humans in Abruzzo

Dr. Paolo Ciucci of the University of Rome travelled with students to study wolves in Italy's Abruzzo National Park, where Dr. David Mech began field work in the 1970s. His research into the wolves' progress revealed several packs thriving and adapting to a dramatically changed habitat there.

*By Paolo Ciucci and
Sara Mancinelli*



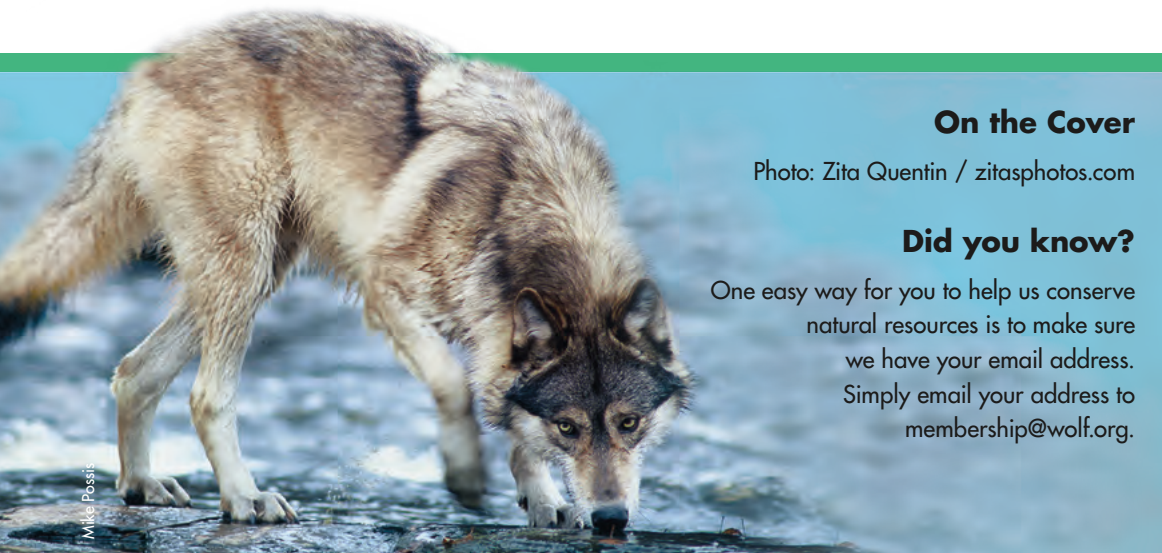
11

Felicity Robinson

Wolf and Dog Cognition: The Human Factor

Scientists can learn much from the domestic dog's closest genetic relatives; by studying wolves and dogs, they discover some effects of domestication on "man's best friend." This Austrian study looked at the way human-socialized animals of both species use information to solve problems, and the results are not what you might expect.

by Debra Mitts-Smith



Mike Posit

On the Cover

Photo: Zita Quentin / zitasphotos.com

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Tax Law Changes Bring Some New Opportunities

Dear International Wolf Center Donors:

This year's new tax law and its potential impact on my favorite charity, The International Wolf Center, concerns me. With the changes come some challenges—but possibly, many opportunities. To find out, I enrolled in a course called, "New Tax Law—what it means for your nonprofit and your donors".

What is clear is that most donors, like me, fund their passion based on how to help wolves, not for the tax incentives. As a co-founder and head of the Center's Development Committee, I strive to learn the best methods to reach those who want to align the fate of wolves and the Center far into the future. I tried to align my biology background with the accountants teaching the course, and I found parallel goals with long-term, planned giving that will sustain our wolves and wildlands.

However, it would be naïve for The International Wolf Center to ignore the consequences of the tax law changes, especially in high-tax states. I decided to take advantage of some new strategies to ensure The International Wolf Center will be the premier wolf-education facility for my grandkids and beyond.

While each donor is unique, there are a variety of giving options that are beneficial to donors. Should I donate my minimum required distribution from my IRA account and reduce my adjusted gross income? Does bunching gifts in a single tax year or a donor-advised fund make sense? Should I donate highly appreciated stock and not pay capital gains tax? Should I designate the International Wolf Center as a beneficiary of my retirement account or leave a bequest in my will? These options can be overwhelming to contemplate, but try to keep the end goal in mind. Support what you love and keep wolves running in our woods and fields for future generations.

The Center is training our team to help donors understand these new strategies and can assist with some of these critical decisions.

With low interest rates, high stock prices and other good economic news, this could be the perfect time to shape the future for wolves. The need for science-based information is on the increase while habitat for wolves and wildlands are being compromised.

I co-founded the Center more than 30 years ago and I have witnessed many economic peaks and valleys, but the fortune of wolves lies in the benevolence of humans, and I plan to do my part. I hope you will join me.

Regards,


Nancy Gibson

Celebrating the Success—and Expansion—of *Wolves at Our Door*

It's been nearly four years since the International Wolf Center introduced *Wolves at Our Door* to provide wolf education programs to school children in Minnesota. In that time, an impressive 1,729 in-classroom presentations have been made to 42,746 school children. To understand the program's impact on kids, our staff took before-and-after surveys to gauge how much children knew about wolves and what they learned in the classes. We also measured the attitudes that young people had about wolves before and after the program, and the results have been nothing short of impressive.



Rob Schultz

Take, for example, what we learned about students in grades 2-4 in Minnesota: The number of students who think that most wolves are not dangerous to humans increased by 27 percent from pre-program to post-program.

To put that into context, consider this: We presented programs to almost 15,000 students in the past year alone. That means more than 4,000 students changed their minds about wolves being a danger to humans in just the past year!

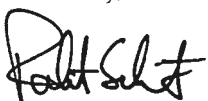
A lot has changed while we've been offering this classroom experience. Wolves have been returned to a protected status in many parts of the U.S., wolf hunting in the Great Lakes region has subsequently been halted, and wolves have been slowly expanding into areas they have not inhabited for decades, such as Oregon and California.

The success we've had with *Wolves At Our Door* in Minnesota has laid the groundwork for expanding it to western states, where wolf education is desperately needed amidst the advances wolves are making in returning to their historic range. We believe that education is critical in teaching the next generation of citizens how to co-exist with wolves.

In February, we hired long-time Wisconsin wildlife biologist Dick Thiel to lead the charge on this important effort. He is in the process of identifying prominent environmental education organizations in eight western states, with the goal of establishing partnership agreements to deliver the *Wolves at Our Door* program to schools in their service areas. In September, representatives from our partner organizations will be trained to administer the program, with classroom presentations expected to start by late fall.

Expanding the *Wolves at Our Door* program is a critical part of solidifying public support for the return of wolves to their historic habitat. By spreading our world-class wolf education westward, we're ensuring students there grow up knowing facts about wolves—not myths. We're certain that informing a new generation will help wolf populations advance, which is the very core of our mission. ■

Sincerely,



Rob Schultz
Executive Director



Dick Thiel

INTERNATIONAL WOLF CENTER

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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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The Annual Cycle of Aggression between Wolf

Text and photos by
KIRA A. CASSIDY



It's mid-February and minus 20 degrees in northern Yellowstone National Park. Most of the park's wildlife is in energy-saving mode; elk and bison browse for hours and then find sunny places to rest, their chewing jaws the only moving parts of their bodies, eyes mostly closed against the frigid wind. Waterfowl dip in and out of a river that measures below freezing, yet is still liquid because of the friction caused by the rushing downstream flow.

In stark contrast, wolves are at their most





Packs

active. It's breeding season, and many wolves over the age of one-and-a-half are feeling that ancient, evolutionary urge to find a partner and pass on their genes. This impulse comes with risks, as it results in more encounters between strangers—and encounters between strange wolves can be deadly.

For 10 years I've collected data on Yellowstone wolves—everything from prey selection to pack composition to behavioral interactions—adding to a wealth of information amassed by biologists since the first wolves were reintroduced to the park in 1995 and 1996. The aspect of wolf life most fascinating to me is the contrast between the gentle, affectionate way wolves treat their pack

mates and the often intense aggression they show toward non-related wolves in neighboring packs. Especially in a protected area like Yellowstone, where human-caused mortality is low, the most dangerous thing a wolf can do is run into another pack. These conflicts account for more than half the mortalities of collared wolves (71 of 137 deaths), and nearly two-thirds of all natural mortalities (71 of 109 deaths).



Like being thrown into the climax of an action movie, we begin with the chaotic, mid-winter push-and-pull as wolves alternate searching for an unrelated wolf as a potential mate with fighting unrelated wolves in rival packs. Hormones are at an annual peak, intensifying the contrast between potential-mate wooing behavior and competitive confrontations.

When a wolf pack encounters a lone wolf (that has usually left its own natal pack to find a breeding partner), males are most aggressive overall; females are mostly aggressive toward intruding females. Being a lone wolf in another pack's territory is a dangerous situation, but wolves must weigh the rewards of finding a mate and producing offspring against the risk of injury or death. Many of them take the gamble—and sometimes it works.



By mid-March the sun reaches higher in the sky. Even though it is still solidly winter in the high valleys of Yellowstone, the lowest elevations are losing snow. Bits of new grass attract ungulates, and some of the larger, cold-resilient raptors begin choosing nesting sites. In the lull after the wolf breeding season, aggressive encounters between packs drop off sharply. This dip coincides with a decrease in howling between packs—probably an attempt by heavily pregnant females to keep secret the locations of their dens, and eventually, the pack's newborn pups.

Most wolf pups are born in mid-April, when low gullies turn bright green and bison calves dot the landscape—one orange speck following each shaggy, brown mother. At this point, the pregnant wolf's choice of a den site can make the difference between successfully raising pups and losing an entire year of reproductive effort.

In Yellowstone we have recorded pack attacks on other packs' den sites seven times in 23 years. Often these encounters occur when one pack has pups earlier than neighboring packs, tying them to one place and putting them at a disadvantage if the rival pack happens to travel nearby. Sometimes the denning pack is able to fight off the attackers, but in each of five cases, one adult wolf was killed while protecting the den. In four cases, an entire litter of pups was killed. Even though these fights are rare, the vulnerability of pups and the increased risks adults will take to protect them leads to fights that are more likely to be deadly than in any other season.

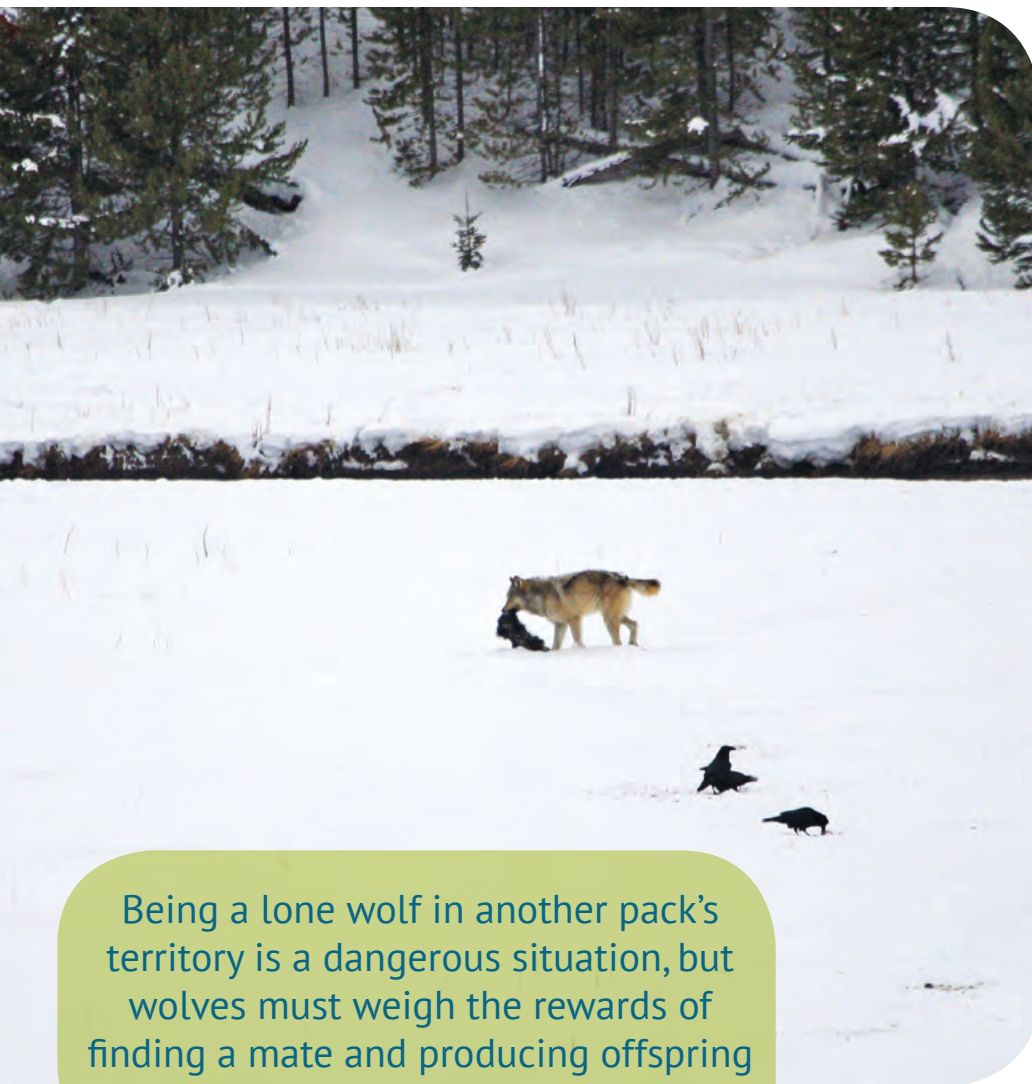
Pups that live through their first few months and transition from milk to solid foods go exploring farther and farther from the den area. For most pups, every adult wolf they know is a doting family member, carrying or regurgitating food, sometimes even bringing a bone or antler as a toy. Not until fall arrives and pups start to follow adults to nearby kills or carcasses do they increase their chances of encountering the scent of other wolves—strange wolves.

Wolf pups grow quickly, and by six months of age they travel with adults full-time. October snows start with a few inches of heavy, wet flakes that melt within days below the highest elevations. Later the snow turns powdery and cold as the snowline creeps down from 10,000-foot peaks, over the hills and then into valleys closer to 7,000 feet. Elk follow ancient migration routes to wintering grounds where the forage is easiest to reach.

After six months of relative isolation from other wolves, packs are now mobile—a united force with their newest, mostly-grown pack members. If two packs run into each other now, when



The old wolves are past their physical prime, but their experience and years of accumulated knowledge can help guide their pack through the chaos of a fight's first few moments.



Being a lone wolf in another pack's territory is a dangerous situation, but wolves must weigh the rewards of finding a mate and producing offspring against the risk of injury or death.

there is territory to protect and resources to claim, the fights can be deadly. In Yellowstone we've recorded nearly 300 of these conflicts and measured each wolf's behavior to see if different sexes or ages have different responsibilities; or at least different levels of risk they are willing to take during a fight. Male wolves are more likely than females to chase a rival pack; that aggression increases with age, probably because males need to defeat opponents in order to remove the breeding competition. Females still participate in fights, but not as often; their behavior appears to be more about self-preservation into the next breeding season.

In a surprising discovery, gray-colored wolves are more aggressive than black wolves, probably because the gene that codes for coat color also affects hor-

mones like cortisol. Group dynamics shape behavior, too. During their first encounter with a rival pack the pups are often scared and confused, but they quickly pick up the mindset of the adults. Statistics prove that their behavior is influenced by confidence in numbers—the more their own pack outnumber the opponents', the more likely they are to participate in chasing rivals.

Battle outcomes are heavily reliant on relative pack-size differences. The larger pack is normally at an advantage, and this is where the pups really shine. As they lend their voices to big group-hows that tell other packs to keep out, they appear from a distance to be the same size as the adults, and their behavioral default—even when frightened—is to stick close to other pack members.

Smaller numbers of wolves can sometimes defeat larger packs if they have more adult males (the biggest, strongest wolves in the pack) or even an old wolf—a male or female over the age of six. The old wolves are past their physical prime, but their experience and years of accumulated knowledge can help guide their pack through the chaos of a fight's first few moments. If their pack can stick together and keep their more numerous opponents broken up into small groups, they often win the day. The "old wolf" is so valuable, in fact, it appears more beneficial for a pack of five encountering another pack of five to have one older member than it would be to have a sixth wolf.

On the winter solstice in Yellowstone the sun hangs low, grazing mountain ridges and peaks before falling below a jagged horizon. Ravens find their nightly roosts in a blue hour that, after solstice, will inch backward each day for the next half-year. The wolf pups, now lanky and sporting thick winter coats, follow the adults in single file through the snow—at least until they can goad some of the adults to play. It isn't often, but when they can convince their mother to join the games, they seem giddy as she whirls and spins and weaves around them, their clumsy moves no match for her physical prowess.

I can't help but compare this affectionate family scene to the intensely aggressive fights I've observed, in which rival wolves are killed without hesitation. That dichotomy is what draws me to this beautiful aspect of wolf behavior and ecology—two behaviors that have evolved together. Raise the family. Protect the family. Repeat for millennia. ■

Kira Cassidy is a research associate with the Yellowstone Wolf Project, where she started as a volunteer in 2007 and today specializes in wolf aggression and behavior. She completed her master's degree at the University of Minnesota, studying wolf territoriality under Dr. L. David Mech.

Sharing the Landscape:

Wolves and Humans in Abruzzo

By
PAOLO CIUCCI
and SARA
MANCINELLI

P. Ciucci



Den site of female wolf F23 in the very core of the National Park of Abruzzo, Lazio and Molise. The den was excavated beneath large boulders in a dense, mature beech forest at high altitudes, not easily accessible by humans.

As we crawled into the den of GPS-collared wolf F23 after the pack had left the site, we knew we were entering a secret world of ancient traditions. Pair-bonded in fall 2009, wolves F23 and M26 carved out their territory in Abruzzo National Park in Italy, and whelped their first litter in spring 2010. Through thousands of generations, these wolves had learned, at a genetic level, how to survive in human-modified landscapes. Atavistic wisdom urged F23 to place her natal den in a remote area of the park, so we hiked for three hours through steep, mountainous terrain to find it—and only then with the aid of the GPS collar.

Located in central Italy two hours from Rome, Abruzzo National Park encompasses 540 square miles including the external buffer area. Abruzzo was established in 1923 to save the last remaining Apennine brown bears and chamois; it is the oldest national park in Italy, and its importance to wolf conservation cannot be overstated.

This is where the fieldwork project started in the early 1970s, with young researchers Dave Mech, Luigi Boitani and Eric Zimen putting the first-ever

radio collars on wolves in Italy. Their data were critical to shape and launch the first educational campaigns and conservation strategies nationwide, and largely facilitated the legal protection of Italian wolves since 1976. That is why we were thrilled when, more than 30 years later, a private U.S. donor granted funds to conduct wolf and bear research in the same place, offering us a truly unique opportunity.

Ecological and cultural conditions had changed dramatically beginning in

the earlier research—most notably the presence of diverse, wild ungulates that today live in the park. Since reintroduction conducted in the 1970s, numerous wild boar, red deer and roe deer now thrive and constitute the main prey of wolves. Through a natural, ongoing recolonization process, wolf populations long protected throughout Italy's central and southern Apennines have facilitated the gradual but consistent recovery of wolves on a national scale.

On the verge of extinction in the early 1970s (about 100 wolves survived across remote mountain ranges in central and southern Italy), Italian wolves currently number more than 1,000 across the whole Apennines, plus about 100 in rapid expansion through the Alpine range. From the Apennines, wolves have recolonized the Alps since 1992—and then France, Switzerland and Germany, where they had been extirpated more than 100 years ago. Over decades, wolves in Abruzzo were—and still are—an important source of dispersers that facilitated species recovery.

Unfortunately, following the early 1970s, no additional research had been conducted locally, despite the importance of acquiring new information on this critical wolf population. How would wolves live under ecological conditions so different from the 1970s? And how would their movements, activity and behavior be affected by a significant human presence? Wolves in a country with an average of 523 people per square mile must



Pioneer wolf researchers Erik Zimen (standing) and L. D. Mech initiated live-trapping wolves for research and conservation purposes in the Abruzzo National Park in 1973.

adapt to close quarters with humans; we hoped to learn something from the wolves living in this historical, protected area.

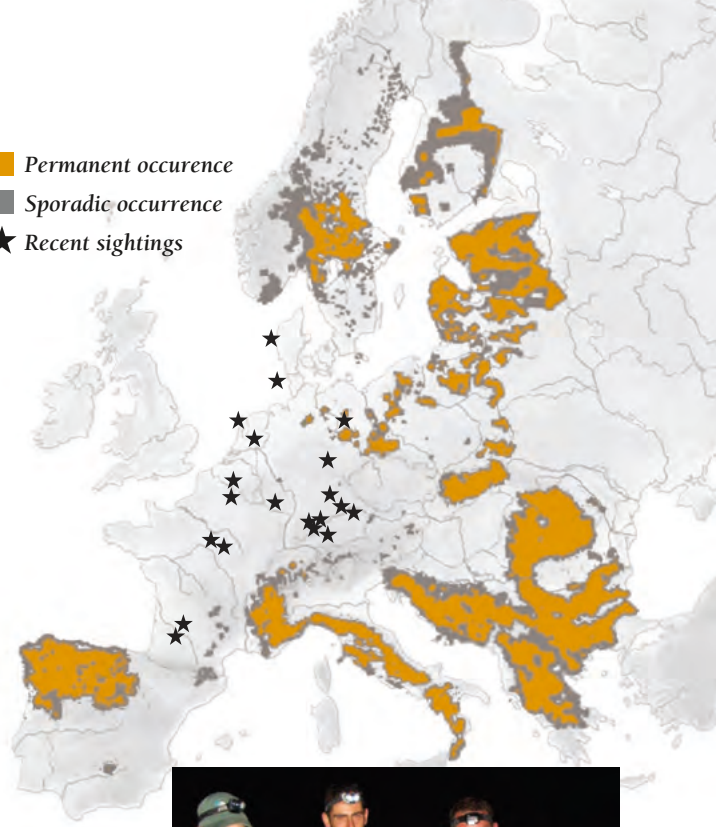
We were also interested in understanding the dynamics of wolf-human coexistence in the area. Different from reserves in less densely populated countries and more pristine ecosystems, Italy's national parks aim to maintain sustainable land-use practices and economic development of local populations—not easy where dense populations of large carnivores live. How can live-stock production survive amid wolves and bears?

In addition to large-scale surveys we conducted in and around the park by snow tracking and (in summer) wolf howling, we GPS-collared 11 wolves in six packs over 5 years, and studied their spatial patterns, activity, habitat selection, feeding habits, relationships with prey and impact on livestock. We found a wolf population at relatively high density (5-6 wolves per 38 square miles) and a saturated wolf-territorial mosaic extending well beyond the park, with practically no interstices among territories.

Based on 7 to 8 packs each year, minimum pack size ranged from 2 to 9 in winter. All monitored packs successfully reproduced annually, reflecting good ecological conditions and an adequate food supply. Each pack's territory was about 38 square miles, but smaller in summer and during daylight, when human presence was highest. In this season the areas most frequently used by wolves were at higher elevations, heavily forested and devoid of roads and settlements. Those with more roads and settlements had territories on average 35 percent larger compared to more remote packs, probably compensating for more fragmented, poorer habitat.

These patterns reveal that wolves co-adapt to human presence through a habitat-mediated tendency to spatially

■ Permanent occurrence
■ Sporadic occurrence
★ Recent sightings



L. Grottolli

A happy field crew that in October 2009 GPS-collared Wolf F25, an adult, non-reproducing female of the Villa pack in the Abruzzo, Lazio and Molise National Park.

segregate from humans, and that local environmental conditions allow land and resource sharing between wolves and humans. Wolves avoided roads during summer, but during winter they clustered near main roads, often attracted by large prey killed by vehicles.

Segregation from humans is most apparent when wolves chose their natal dens and rendezvous sites—a critical period when pups and the entire pack are most vulnerable to disturbance by humans. Wolves locate these sites far from settlements and linear features such as roads and trails, in densely forested areas at high elevations surrounded by rough terrain.

Food habits of Abruzzo National Park wolves varied by pack, but to our surprise, wild prey rarely outnumbered livestock. Wild boar and, to a lesser extent,

roe and red deer were primary prey in 2 of 4 intensively studied packs. Especially in one pack, juvenile cattle and horses (free-ranging most of the year) strongly prevailed over wild prey. This inter-pack variation illustrates the opportunistic behavior of wolves even at the local level, as well as how poor livestock management may negatively affect wolf ecology and the potential role of wolves within the ecosystem. For example, imagine how any trophic cascade wolves initiate in Yellowstone might be diminished by availability of cattle and horses.

Although wolves easily prey on unattended calves and foals, they rarely attacked adult cattle and horses; in the park area, discarded cattle and horse carcasses were most often scavenged by wolves. Despite a large, diverse community of wild prey, the substantial availability of cattle and horses significantly altered wolves' ecological role and exacerbated conflict with livestock owners.

The park area encompasses 870 farms with cattle, horses, sheep and goats; on average, each wolf territory hosted about 67 active farms, similar to Italy's other national parks and reserves. However, with wolves and other predators around, livestock owners and administrators should better protect livestock—at least within protected areas. During our study, about 34 percent of livestock farms in the park area suffered losses to wolves each year, and on average, 390 depredation events were verified. Consequently, the park paid an average of 130,496 euros annually to compensate for losses to wolves. These costs increased from 2005 (91,082 €) to 2008 (194,385 €). We did not detect any corresponding wolf population increase, so the increased costs may reflect persistently poor husbandry and protection.



L. Boltoni

This may seem contrary to traditional coexistence between wolves and shepherds in Abruzzo. However, old husbandry traditions are increasingly being replaced. Today, fewer shepherds with guard dogs attend sheep flocks in mountain pastures. Instead, large herds of free ranging, uncontrolled cattle and horses are becoming common, and preventing the impact of predators under these conditions is difficult, requiring coordination among authorities and agencies not accustomed to cooperating.

Conflict with humans in the park does not seem to be sufficiently mitigated, which can result in retaliatory killing of wolves. We retrieved 37 dead wolves (a minimum), most accidentally or illegally killed by humans. At least 14 were poisoned. Including the undocumented mortality, this may conservatively exceed 15 to 20 percent of the park's wolf population. This mortality could be easily tolerated by a wolf population with good productivity, such as ours. However, this situation seems egregious inside a national park. Law enforcement is an issue; especially for wolf packs whose territories extend beyond the park, it is difficult to prevent or prosecute poaching.

In the early 1970s, traditional husbandry in Abruzzo involved a small flock of sheep (200-300 maximum) continuously surveilled by a shepherd accompanied by trained livestock-guarding dogs.

Paradoxically, in our study area, most people share positive attitudes toward wolves, and poachers are few. To address emerging challenges, the park has intensified anti-poaching efforts, incentivized effective husbandry and prevention measures, and limited compensation to farms adopting measures such as guard dogs and electric fences. Much remains to be done, but monitoring the situation will help us understand how better management can reduce conflict and enhance the ecological and cultural value of Italian wolves. To this aim, we hope that research on large carnivores will improve their conservation and ecological value to people and ecosystems. ■

Paolo Ciucci is a research scientist at the Dept. of Biology and Biotechnologies of the University of Rome La Sapienza, Italy, where he also teaches zoology and wildlife ecology. He earned a master's in Wildlife Ecology and Conservation at the University of Minnesota in 1990 with Dr. L. David Mech, and a Ph.D. in Animal Ecology at the University of Rome in 1994. He has conducted research on large carnivores in Italy and abroad (U.S., Central African Republic, Jordan, Israel), and authored several academic and popular articles on ecology and conservation of wolves and brown bears.

Sara Mancinelli just finished her Ph.D. in Animal Ecology at the University of Rome La Sapienza, studying wolves in the central Apennines of Italy. Her interest and expertise focuses on spatial and movement ecology of large mammals in human-altered landscapes.



Wolf and Dog Cognition: The Human Factor

By DEBRA MITTS-SMITH

Comparisons between wolves and dogs, ranging from physical characteristics to behavioral traits, are common in popular books about each species. In books about wolves, the comparisons help render a wild, unfamiliar animal more understandable—and perhaps more sympathetic. In books about dogs, the comparison to wolves raises the stature of the dog, lending it a kind of wild nobility while helping to explain some of a dog's behaviors. And similarities are, of course, understandable, since the wolf is the dog's closest genetic relative.

But popular works are not the only place in which differences between wolves and dogs are considered. Evolutionary biologists, anthropologists, veterinary scientists and cognitive scientists are just some of the researchers who study these canines to better understand the effects of domestication on dogs. One recent study is “The effects of domestication and ontogeny on cognition in dogs and wolves” by Michelle Lampe, Julianne Brauer, Julianne Kaminski and Zsófia Virányi, an international group of researchers from a range of disciplines.

The investigators conducted their research at the Wolf Science Center (WSC) in Austria (see Summer 2014 *International Wolf* magazine). The WSC offers researchers the unique opportunity to study wolves and dogs raised in near-identical ways; each species lives in packs (of their own kind) in a large, fenced enclosure. In addition to being socialized with others of their own kind,

the wolves and dogs are socialized with humans. Human handlers bottle-feed the pups, and continue providing regular physical contact and social interaction throughout their adulthood.

The near-identical living conditions and upbringing help ensure that wolves and dogs have similar backgrounds, which in turn helps researchers distinguish between traits rooted in evolutionary changes and traits due to differences in life experience. Researchers included pet dogs in trials, as well. Pet dogs volunteered by their human families were included to help researchers learn if dif-

ferent kinds of experiences from living with human families might have an effect on the dogs' social learning and problem-solving abilities when compared to the dogs living in packs. As Dr. Virányi explained, a range of test subjects, from human-socialized wolves to pack dogs and pet dogs, helped researchers “tease apart the influence of domestication from raising and living conditions.”

The test consisted of six trials. The participants included 12 of WSC wolves, 14 WSC pack dogs and 14 volunteered pet dogs from human families. Each animal was tested individually.



Asali pack: Pack dogs Asali, Banzai and Bora together with trainer Christina.

Cynthia de Jong

For each trial, canine participants were placed behind a fence facing the human test administrator who sat behind a table pushed against the fence. Two containers were placed on the table. One contained food; one was empty.

Four of the trials tested the canines' social cognition (their ability to pay attention to and use information provided by the researcher to choose the container with food).

Two trials tested the canines' ability to correctly interpret human-provided communicative cues. Cues included attracting the animal's attention by mak-

ing eye contact, nodding, looking at and pointing at the food-filled container. The wolf or dog indicated its choice by touching one of the two containers.

The researchers also tested each canine's ability to understand and follow behavioral cues. In one trial, the human researcher glanced at the empty container and then "desperately" reached out for the one containing the food. In another, the researcher picked up and sniffed the empty container, replaced it, picked up the full one, sniffed it "excitedly" and tried to open it before placing it back on the table. After the human provided

the cue, the animal indicated its choice by touching one of two containers.

The trials included tests to compare the wolves' and dogs' physical cognition—their ability to identify the food-filled container based on causal cues (sounds and shape). For these trials the human researcher hid under the table, invisible to the canine participants. With the aid of a fishing line attached to each of the two containers, the researcher, from under the table, shook each of the containers. The one containing food made noise while the empty one remained silent, leaving the



Above: Researcher Michelle Lampe performs the reach cue (behavioral cue) in front of wolf Chitto.



Lampe performs the look cue (communicative cue) for pet dog Tuukka.



While Lampe is hiding underneath the testing table, she shakes a food-filled and an empty container to give wolf Chitto an audible clue (causal cue) about the location of the hidden food.

animals to investigate and select the one that had food in it. The second test required the dogs and wolves to choose between differently shaped containers; the empty one was flat while the one containing food protruded outward.

Trial results held a few surprises. Prior to the tests, Lampe and her team had expected communicative cues (nodding, looking, pointing) to benefit pet dogs more than pack dogs or wolves. They reasoned that since pet dogs live in human families, they would be more used to, and therefore more responsive to, human communication in a variety of situations.

The results showed something different. The WSC human-socialized wolves and pack dogs were just as capable as the pet dogs in following such human prompts as nodding, looking or pointing at the food-filled container. Further, although other studies have demonstrated that adult wolves can follow a human “point” to find food, this is the first study to show that they can also follow a human’s gaze to find food.

Since earlier studies showed that wolves were more attentive than dogs to the behavior of their pack mates and human partners, the researchers antici-

The Wolf Science Center offers researchers the unique opportunity to study wolves and dogs raised in near-identical ways.

pated that the wolves would be better at observing and acting upon such gestures as reaching for, sniffing or trying to open the correct container. However, neither wolves nor dogs did well in these tests. Lampe, the principle investigator, suggests that perhaps the cues were too human-oriented or human-specific for the animal participants to take note of or understand.

In the cause-and-effect trials where the human researcher was not visible, the wolves outshone both the pet and pack dogs in identifying and selecting the food-filled container by either noise or shape. Further, there was no difference between the performance of pet and pack dogs. Lacking human help, both failed to make the necessary infer-

ences—noise equals food and bulging shape equals food—to find the food. Their failure to solve the task revealed several things:

- Dogs, whether human-socialized but living in packs or living with humans as pets, benefit from cues provided by humans.
- Even though the WSC pack dogs had similar life experiences and upbringing as the WSC wolves, the dogs failed to complete the task of finding the food without human help.
- Although pet dogs and pack dogs had different life experiences, they both fared poorly, implying that domestication may impair a dog’s physical cognition or ability to make causal inferences.

So what are we to make of these results? According to Lampe and her researchers, the wolves’ ability to make use of information provided by humans confirms “...that wolves can adapt their social cognitive abilities to their social environment, in this case to humans and human communication.”

Since all human-socialized canines (dogs and wolves) were able to follow the researcher’s prompts, tests suggest that domestication has had no effect on how dogs use human-provided cues. Instead, as Dr. Brauer noted, “The wolves’ ability to understand human communicative cues after being socialized with humans may have made it possible to become domesticated.”


However, the success of the wolves in solving the cause-and-effect tasks, and the failure of the dogs to do so, suggests that domestication may have diminished the dog’s problem solving skills. The authors state that more research is necessary to determine whether the wolves succeeded in finding the food because their wild heritage has rendered them more curious and persistent in searching for food, or whether domestication may have left the dogs more dependent on humans for help in obtaining food.


Lampe interacts with pack dog Bora during a pack visit.


Lampe concludes by proposing the “social canine, causal wolf” hypothesis, which argues that “socialized canines are sensitive to human communicative cues, and that the skills underlying this comprehension likely facilitated domestication.”

In addition, domestication may have diminished the dog’s ability to understand and solve cause-and-effect type problems. ■

Additional Reading and Resources

 For more information on Austria’s Wolf Science Center, see the 2014 summer issue of *International Wolf*.

 Lampe, Michelle, J. Brauer, J. Kaminski and Zsafia Viranyi. “The effects of domestication and ontogeny in dogs and wolves.” *Scientific Reports* 7:11690 (15 September 2017): 1-6.

 “Wolves understand cause and effect better than dogs.” *Biology/Plants & Animals* (September 15, 2017). <https://phys.org/news/2017-09-wolves-effect-dogs.html>

Debra Mitts-Smith is a School of Information Sciences faculty member at the University of Illinois. Her research and teaching focus is on visual culture, children’s literature, history of the book and storytelling. Her book, Picturing the Wolf in Children’s Literature, was published by Routledge in 2010.



Cynthia de Jong



SUMMER
2018

at the
International
Wolf Center

MOOSE of the BOLD NORTH

Moose is a word from the Algonquin that means “twig eater.” These big ungulates are one of Minnesota’s iconic species, and their declining population has put them in the news, increasing public awareness of their plight. The complexities of moose biology and the moose-wolf relationship have made it a challenging not only to determine the cause of this decline, but also to find a solution.

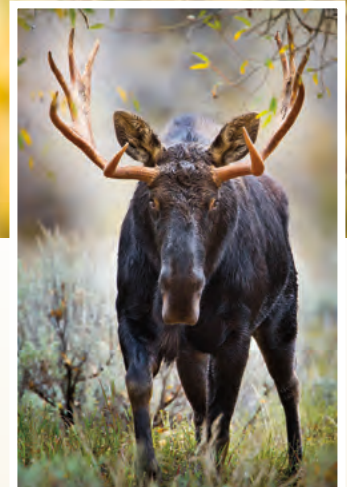
Moose are the largest wild animals in Minnesota and the focus of the International Wolf Center’s 2018 temporary exhibit. The display will provide visitors an opportunity to stand next to an impressive, full-grown moose mount—nearly 6 feet high at the shoulder and close to 10 feet long—the sheer mass of which makes sense of the fact that these animals graze on vegetation for nearly eight hours every day.

“Moose of the Bold North” will provide visitors with insight into research occurring on Michigan’s Isle Royale and in Minnesota.

As prey and predators in coexistence, moose and wolves on Isle Royale in Lake Superior are the subjects of one of the most fascinating, longest-running research projects in the world. Moose arrived on Isle Royale in the early 1900s; wolves arrived almost a half-century later in 1949. For nearly 60 years, researchers have studied their population fluctuations and other aspects of their coexistence, seeking a better understanding of the ecology of predation. The new exhibit highlights this research and hints at what might happen next in the ongoing Isle Royale story.

Research on likely causes of moose population decline in Minnesota began in 2012, with data collection focused on environmental factors, calf mortality and winter survival. The results have surprised some people, as brain worms, ticks and predation have each played a role in moose population fluctuations.

Between now and May 2019, plan to visit the International Wolf Center to experience the “Moose of the Bold North” exhibit—and the stunning photography by Heidi Pinkerton that accompanies it. You’ll come to understand a long-running drama that continues as biologists search for answers to long-standing questions.



Moose photos: Heidi Pinkerton



2018 DAILY PROGRAMS

Wolves in Wildlands

What role do wolves play in their ecosystem? How do they interact and impact the other organisms where they live? Join us for a look at these relationships and discover the importance of wildlands.

Ambassadors to the Wild

Want to know more about our Exhibit Pack? Join this program to learn about each of our ambassador wolves, their histories and behaviors. Then step into the world of wolf biology and gain a better understanding of wolf behavior and pack dynamics!

Arctic Wolves

As arctic wolves, Axel and Grayson are unique. Find out what characteristics arctic wolves have that help them survive in such a harsh climate and learn how they differ from other wolves in North America.

Wolf Enrichment

Looking for the wolves? Wolves typically try to conserve energy and avoid the heat of the day. During this special program, our wolf care staff will encourage our ambassador wolves to actively investigate their enclosure.

The Canidae Family

It's more than their looks that make wolves, coyotes, foxes and dogs different. Behaviors, diets and even vocalizations vary between members of the dog family. Come find out what makes each one unique!

Moose!

How can a moose tower in size and still be so difficult to see in the wild? Learn about this iconic Minnesota animal during this program about moose biology, current research and Minnesota's changing population.

SPECIALTY PROGRAMS

Additional
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Wolf Explorers

Learn about wolves through interactive games and fun activities. This hands-on program is designed for kids 4-12 years old. Parents must remain on-site and with their child.

Howling Safari

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

August: Wednesday and Friday at 8:00 pm;
September and October: Saturday at 8:30 pm

What's for Dinner?

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

Saturdays at 7:00 pm

2018

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* Children must be accompanied by a paid adult.

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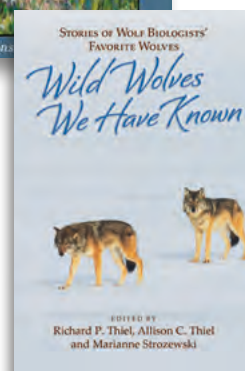
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Tracking the Pack

Coming of Age — A Story of Transition

By Lori Schmidt

During the winter of 2017-18, arctic pups Grayson and Axel, International Wolf Center ambassador wolves, were in transition from yearlings to adults. The pair engaged in wrestling, scruff bites and tail-pulling behaviors as young as three weeks of age. A casual observer might think the pups were displaying play behavior, but from an ethologist who studies wolf behavior, you'll hear a different interpretation.

The difference starts with the meaning of “play”, which the Oxford Dictionary defines as “...activity for enjoyment and recreation rather than a serious or practical purpose.” And though the pups’ wrestling, scruff bites and tail pulls look like fun, the same behaviors can be effective strategies applied to the practical purpose of catching prey or establishing rank order within a wolf pack. In fact, establishment of rank order was the topic of many International Wolf Center YouTube videos last winter.

In the Center’s Exhibit Pack, staff members documented an increase in frequency and intensity of rank-order behaviors as Axel and Grayson transitioned from pups to yearlings to full-fledged adults. One common behavior during this transition was Axel’s tendency to pull the tails of fellow pack members. Staff members have fond memories of three-week-old Axel pulling Grayson’s tail— but not-so-fond memories of one-and-a-half-year-old Axel pulling the tail of our dominant pack member, Aidan.

Axel began testing Aidan for rank in September 2017. Initially, the juvenile behavior merely warranted a threat display from the pack leader. It didn’t take long, however, before the pack leader’s confidence began to wane. Once the pack saw that Aidan’s leadership status was diminishing, Axel steadily gained support from the rest of the pack until, at

last, Aidan was wary about leaving the secure confines of the lower enclosure.

At the time of this publication, Aidan is still a member of the Exhibit Pack, but the likelihood of him regaining his leadership role is uncertain. Staff members continue to observe interactions by day and scan the nighttime surveillance video to document Aidan’s likely transition from Exhibit Pack leader to Retired Pack member.

Wolf Center exhibit packs have played out this scenario in the past with other social groups responding to the same tenacity from yearlings as they come of age. Stay tuned to the Center’s YouTube channel and Wolf Logs posted at www.wolf.org to keep current on the situation. ■



Member Profile

Loup, Lupo, Lobo, Ōkami—Wolf

by Madison McHugh

From Paris to Tokyo, from the Rocky Mountains to the Kremlin, Isabelle Dee knows how to travel the world—and everywhere she goes, her excitement for wolves travels with her.

Born in France, Isabelle grew up in the French countryside, where she learned to love animals. Even as an 11-year-old, she had a wide variety of interests—a fact reflected clearly in her answer to the classic question, “What do you want to be when you grow up?” Her reply at that time was, “A fashion model or an undersea explorer.”

Isabelle never outgrew her desire for adventure. To prepare, she studied linguistics and philosophy at Sorbonne University in Paris. Her mastery of five languages allowed her to travel comfortably around the world, interact with various cultures and finally, to live in the United States and in Japan.

When she moved to the United States in the late 1980s, her fascination for wolves ignited into a passion. She learned about the cultural significance of the wolf from the Nez Perce tribe during a trip to Winchester, Idaho. During this visit, she was mesmerized by the green-golden eyes of one member of the Sawtooth pack, and that’s the moment she marks as the beginning of her “wolf journey.”

Isabelle connected with the International Wolf Center in the 1990s when she learned that two wolves from Italy had journeyed through the Alps and into France, and she wanted to stay informed on how wolves were faring around the world.

Isabelle traveled to the western United States with a Japanese film crew in 2000 to document the effects of the reintroduction of wolves to Yellowstone National Park. The same crew later traveled with her to Mongolia in order to record the lives of a female wolf and her pups in the wild. They also interviewed wolf biologist and famed conservationist Tunggalagtuya Khuukhenduu there.

Isabelle now lives in Japan, where wolves were eradicated more than 100 years ago, but discussions on reintroduction continue. While she believes there would be many obstacles to reintroduction in Japan, she explains that the story of Yellowstone, with its strong correlation between of

the decline of wolves and changes in ecosystems, has resonated with Japanese audiences.

Isabelle loves wolves for “their beauty, strength and resilience,” and just like the International Wolf Center, she has devoted a lot of time to teaching the world about wolves.

International members like Isabelle remind us that wolves have friends all over the world! ■



Isabelle Dee with
Dr. David Mech



Isabelle Dee

Photos courtesy of Isabelle Dee

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Estate of John H. Tyler

Matching Gifts

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on behalf of:
Craig Marble

Ameriprise Financial
on behalf of:
Toni Domino
Erik Johnson
Melissa Kotek
Paul Trevizo

Apple Inc. on behalf of:
Fred Yost

Best Buy Company Inc.
on behalf of:
Andrew Kluis

Cigna on behalf of:
Kyle Kinkade

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on behalf of:
Tucker Creger

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Angelique Sirois

Faegre Baker Daniels LLP
on behalf of:
Rick Duncan

General Electric
on behalf of:
Roger Feirstine

Google Inc. on behalf of:
Volodymyr Puzanov

Medtronic on behalf of:
Jonathan Eisenberg
Susan Kennedy

Microsoft on behalf of:
Anonymous
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State Farm Insurance
on behalf of:
Brian Dietz

The Wonderful Company
on behalf of:
Christy Velasquez

Thrivent Financial for
Lutherans on behalf of:
David Spangler

UnitedHealth Group
on behalf of:
Lorianne Churn
Marie Doering
Tasia Hooper

U.S. Bancorp on behalf of:
Cindy Carvelli-Yu

Thank You!



An ethogram is a catalog of animal behaviors. Here at the International Wolf Center we use an ethogram as we observe our wolves because it helps us understand the reason for each behavior, and tells us what the animals are communicating. We see play behaviors, dominance behaviors and confidence behaviors in our wolves.

On this page we are looking at play behaviors: the play bow, the chase, and wrestling. You may have noted on page 18 that “play behaviors also serve as practice for catching prey or establishing rank order within a wolf pack. Each word has an abbreviation—a shorter way of writing the word. For example, CS is an abbreviation for the word “chase.” These abbreviations make it easier for observers to write down what the wolves are doing. It would be very hard to write down every single behavior using the full words, because sometimes wolves move very quickly or do more than one behavior at a time. Wolves play even when they are adults, so visitors and staff members very often see play behaviors at the International Wolf Center. ■

Play Bow (BW)

In a play bow, the wolf lowers the front part of its torso while keeping the hind part upright. This behavior is used to invite chase and play from another wolf. In this photo Grayson is demonstrating a play bow behavior.



Morgan Roppe



Morgan Roppe



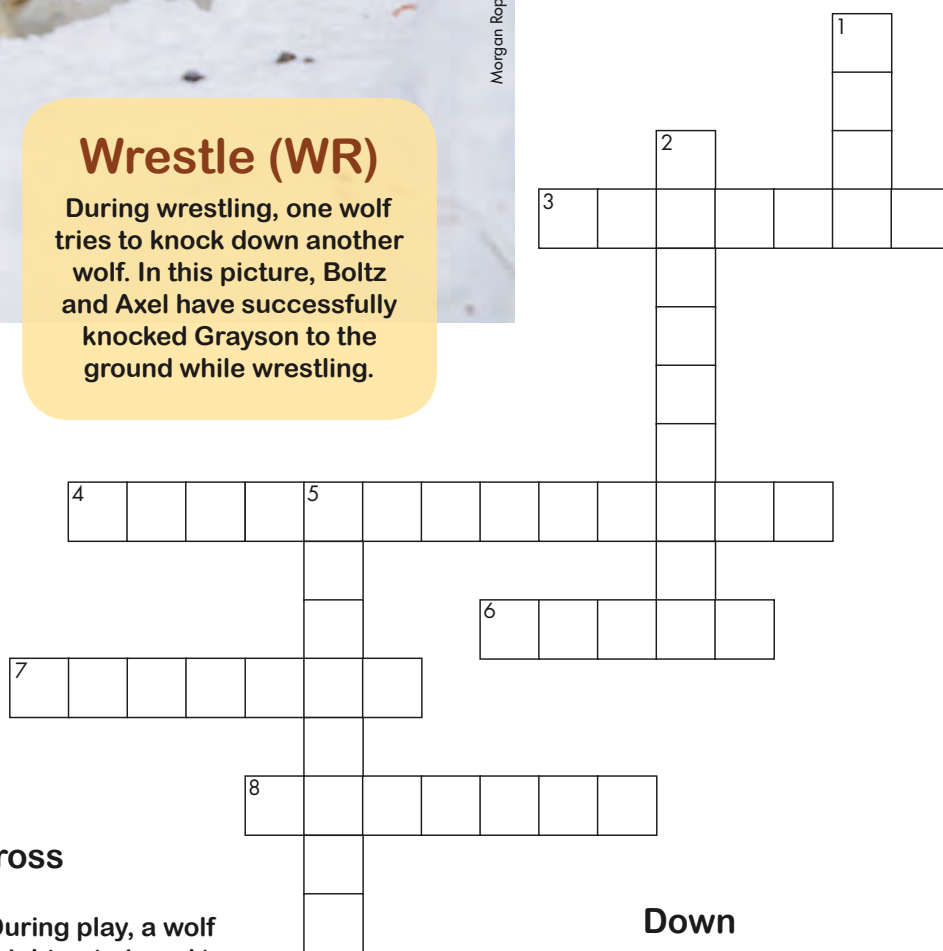
Morgan Roppe

Wrestle (WR)

During wrestling, one wolf tries to knock down another wolf. In this picture, Boltz and Axel have successfully knocked Grayson to the ground while wrestling.

Chase (CS)

In a chase, the wolf tries to catch another wolf. Wolves may also chase ravens, leaves, or squirrels. Here, Axel and Denali chase Grayson.



Across

- 3 During play, a wolf might get pinned to the ground while doing this
- 4 Writing down all of a wolf's behavior would be difficult without these
- 6 If a chipmunk gets into the enclosure the wolves will _____ it

- 7 When Luna wants to play with Grizzer she approaches him in this posture
- 8 This wolf is play bowing on the opposite page

Down

- 1 This wolf has joined Denali in chasing Grayson
- 2 There are many types of play _____ that wolves can demonstrate
- 5 A catalog of behaviors observed in an animal

Wolves of the World

Across Europe, Environmentalists Defend Wolves, Farmers Blame Them

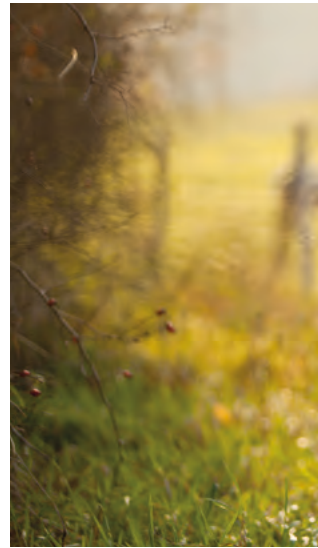
By Tracy O'Connell

Environmentalists across Europe are speaking up for the wolf, which is increasingly caught in the policy crosshairs of enraged farmers and shepherds. The European Alliance for Wolf Conservation, a group of non-governmental organizations from Spain, France, Portugal and Belgium, met in December to attempt to convince the European Commission of the need to protect this predator, which members believe is too often blamed—and killed—unjustly.

Every year in the United Kingdom, where the wolf has been long extinct, 20,000 sheep and lambs fall prey to stray dogs—something environmentalists claim could be happening in other countries where fingers point at wolves, according to the pan-European media Euractiv.com.

In Spain, where culling is authorized if attacks are recurrent, the environmental police in 2016 found livestock herders falsely claimed—with the complicity of foresters—200,000 euros (about \$250,000) in compensation for wolf attacks. This was one of many examples of wolves being falsely blamed for predation.

Environmentalists stand up for the wolf, but its presence continues to roil the waters across Europe.



GERMANY

The British *Telegraph* reports a wolf is believed to have gone on a killing spree, after several sheep and a goat were found dead in the Odenwald forest. The forest extends over parts of Hesse, Baden-Württemberg and Bavaria—places where wolves were thought to be extinct. Amid calls for hunting the animal, the Hessian State Office for Nature Conservation, Environment and Geology, along with other environmental groups, has called for calm, saying there is no evidence of a single “problem wolf” scouring the forest, while noting that the livestock paddocks involved were not properly secured.

The *Telegraph* notes that environmentalists cite electric fences and livestock guarding dogs as solutions to protect farms from wolves, while maintaining the canids are not a danger to people. But elsewhere in Germany, the use of fences and dogs isn't always enough to hold back the wolves or the anger. The eastern state of Brandenburg has the highest wolf density in Germany and is home to an estimated 200 wolves in 23 packs, a number growing at 33 percent a year, according to inews.co.uk, the online version of a British newspaper which says it offers “the essential daily briefing.”

In 2016 an estimated 244 sheep and calves in the state were attacked—an increase of more than 200 percent over the year before. In one example last year,





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the predators jumped over a meter-high (three-foot tall) electric fence meant to protect sheep at a farm near the village of Klein Wasserburg, killing 18 but eating only a couple of the animals. State funding pays for electrified anti-wolf fencing, and some farmers have invested the 2,000 euros (\$2,500 U.S.) to purchase guard dogs, but some say that is not enough. One farmer claims that, "Once a wolf develops a taste for lamb or veal, it stops going after game such as wild boar or deer. Farm animals become like fast food for them." Killing off the pack that has been so affected, they say, is the only answer.

Wolves started to appear in eastern Germany some 15 years ago, most of them coming from neighboring Poland. Foresters and game conservancy experts welcomed their return to keep down the large populations of deer and wild

boar. Last fall, new data from the Federal Agency for Nature Conservation (BfN) said 60 packs now live across the country, 13 more than a year ago. Now the federal government is preparing to approach the European Union with a demand to end wolf protection. "We have to regulate the numbers through culling to ensure that there is no danger to humans or livestock," argued Christian Schmidt, Germany's agriculture minister.



ITALY

A national wolf management plan was rejected here last December after being sidelined for two years. In addition to predation-prevention measures such as herding dogs, electric fencing and night shelters for sheep, there was a proposal to cull 5 percent

of wolves, creating the controversy that led to dumping the plan, according to Euractiv.com. There are an estimated 2,000 wolves in Italy, and the country spends about 1.5 million euros (\$1.8 million U.S.) in compensation every year.



FRANCE

A wolf management plan has earmarked 40 wolves for culling in 2018 as the farmer-predator controversy continues there. The plan proposed to compensate 80 percent of the cost of preventive measures used by farmers, such as guarding dogs, fencing and additional shepherds. The government spent 3.2 million euros (\$3.9 million U.S.) in compensation here last year

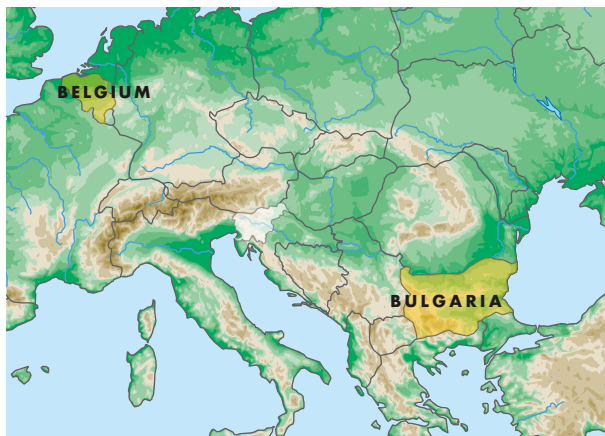
after 360 wolves killed 10,000 sheep, according to the national wildlife agency.

In countries such as Romania and Poland, where there have always been wolves, people adapt, treating an attack on sheep “like an accident, like a flock that falls into a ravine,” Farid Benhammou, a predator specialist at France’s National School of Rural Water and Forest Engineering, told Fin24.com, a news outlet based in South Africa. “But in the new zones of [wolf] colonization—in France, and in some regions of Italy and Spain—there are major tensions.”



BELGIUM

Belgium recorded its first wolf in 100 years—“Naya,” collared in eastern Germany as a six-month-



old pup by staff from the Technical University of Dresden. In January 2018, at 18 months of age, she completed a three-month walk-about that took her hundreds of miles west, across the Netherlands and into Belgium. The *Guardian* newspaper reports that data from Naya’s transmitter suggests she has been covering between 30km and 70km (18 to 44 miles) a night, “with reports in the Netherlands of dead sheep neatly tallying with her movements.”

Hugh Jansman, a researcher from the Wageningen University and research center, told the *Guardian*, “Some wolves just stay in their area; about 20 percent go on a trek and walk hundreds of kilometers and settle down,” adding that Naya passed through four or five parks in the Netherlands but left each one after one or two days, indicating she was looking for something else.

“She has seemingly settled in a large military area near the town of Leopoldsburg, about 15 miles from the Dutch border, in Flemish Belgium,” he said, referring to an area in the northern part of the country, adding, “This is the first place where she found a big military area. It could be the smell of humans is much



less in a military area. It’s a prime reason to settle down.” Jansman added, “We found leftover roe deer and hares, so she has been eating wild animals as well, as expected. And one thing we can tell is that she has totally avoided humans and anything to do with humans.”



BULGARIA

The media site *Sophia.globe.com* reports there are 1,000 to 1,200 wolves in Bulgaria, with the density highest in the southwest, along the Macedonian border. Most wolves can be found in the Balkan and the Rila mountain ranges. The German non-governmental organization EuroNatur Foundation is working on a management plan to help Bulgarian wolves, which it says are under pressure after Bulgarian authorities, believing the population was greater than it actually was, allowed the shooting of “an irresponsible number.”

The plan is to be put in place in cooperation with the Bulgarian Ministry



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Wolf habitat in Bulgaria includes forested hills even close to villages.

Denise Taylor



Adobe Stock / Yakov

of Environment and Water, local forest authorities and scientists. EuroNatur wants a “conflict-free coexistence of wolf and man,” according to Sophia. globe, and intends to create databases regarding the distribution of wolves in Bulgaria and to step up surveillance and research. Its goal is to stabilize the wolf population by implementing awareness campaigns, by “creating wolf acceptance” and by making sure the problems of farmers with their livestock are being taken seriously.



INDIA

A drastic drop in the population of Indian gray wolves in the western state of Gujarat, from 1,374 in 2000 to less than 200 now, is worrying wildlife experts, *The Times of India* reports. The forest department has focused on turning this situation around with efforts to research wolf habitats, radio collar some animals to study them and set up a breeding center at

Sakkarbaug Zoo, one of the country’s largest and oldest. Officials say there are only about 1,000 wolves left in the entire country.

Reviving wolf numbers is seen as important to save crops from wild boar and nilgai, a large brown or bluish-gray, native antelope. Sometimes wolves attack domestic animals, however, leading traditional herders called maldhari (the word means “keeper of animals”) to throw burning wood into dens, leading to the drop in wolf numbers.

Chief Conservator of Forests A. P. Singh said the department has asked the state government to consider giving legal protection to wolves and paying compensation to maldharis for domesticated animals killed by wolves, as is done in cases of leopard and lion predation. The department is also scanning accident reports to identify roads where wolves die frequently, with plans to propose underpasses for use by wolves. ■



Tracy O’Connell is a retired professor of marketing communications at the University of Wisconsin-River Falls and a member of the International Wolf Center magazine and communications committees.

Personal Encounter

Meeting Ole Gimpy

Original article by Lu Carbyn for *Wild Wolves We Have Known: Stories of Wolf Biologists' Favorite Wolves*

Edited for this publication by Tracy O'Connell

I sat at the edge of a clearing near the sweet grass meadows watching ravens feed on the remains of a wolf kill. It was below zero, but the February sun had begun to take the sting of coldness out of my body. Water was boiling in my billie can, a primitive container. In this northern landscape the trappings of civilization are replaced by more basic, fundamental needs: warm clothing, dry feet, food and a good cup of tea.

I was in Wood Buffalo National Park because, from my childhood, I had enjoyed the challenge of being in wild, remote places. Situated in the northeast corner of Alberta, Canada and adjacent to the Northwest Territories, the park encompasses a huge, watery environment where two great interior river systems, the Peace and the Athabaska, merge. Great swaths of wet meadows lie interspersed with aspen parkland forests in this enormous delta ecosystem.

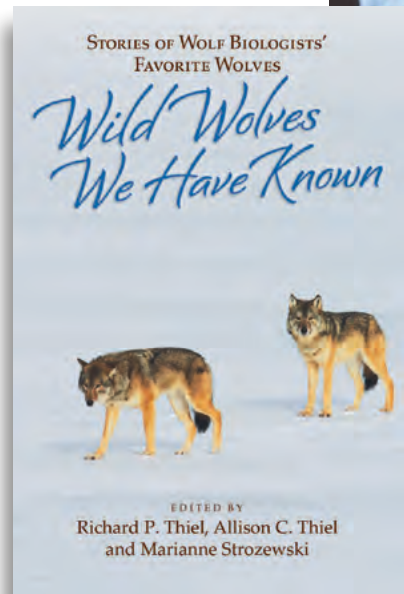
On this morning I glanced across the sedge meadows and noticed movements. A grayish body, with little definition as to size, progressed forward slowly and haltingly at the edge of the willows bordering a ridge. I strained through the binoculars, trying for a better view, and a strange apparition gradually materialized. At intervals its forward motion was hampered by an awkward hop, like



a worn down street person slowly ambulating on crutches through a city slum. Gradually I was able to focus on the animal; as it stopped I could see this was a very large, long-legged wolf. It had motley fur, not as thick and uniform as that of most wolves this time of year. No doubt its ragged condition was brought on by poor health and malnourishment.

The wolf took little notice of my presence, allowing me to approach slowly to within 150 meters (450 feet), which afforded a clearer image. At first glance its coat appeared grayish, but it looked to have once possessed that classical white coat underlain by a solid coating of black underfur. Having been subjected to the rigors of winter, the hot summer days prior to that, and with the loss of guard hairs obvious to me at this close range, this old-timer's coat appeared dirty gray with a brownish base. I was impressed with the creature's size and how gaunt and lanky it was. This wolf was limping, and its head was tilted—likely blind, I thought, or possibly it had only limited vision in one eye.

It had to be an old animal. Out here, though, age is a relative thing. In the wilds of Wood Buffalo National Park, a five or six year-old wolf is already old. In an earlier day, this gimpy old wolf making its way in front of me had made its living preying on bison. Now, no longer associated with a pack, it had to depend on other sources of sustenance. A lone wolf such as this could make it by garnering scraps from bones, the odd leftover from a goshawk-killed



ptarmigan, a piece of bison skin, the occasional mouse.

Ole Gimpy was undoubtedly a worthy adversary in the prime of his life. It had likely been a dominant male, possessing the fierceness of a tough warrior following his biological calling to kill, eat and reproduce. But here wolves suffer incredible bone injuries from battling their massive prey. It is likely that Ole Gimpy had accumulated its share of injuries over its brief life, including perhaps more recent ones that accounted for his awkward movements, and that those injuries left this once-healthy pack leader reduced to a pathetic scavenger.

Over the 12 years I traveled this region on foot and by canoe, I witnessed on numerous occasions the intense struggles between predator and prey. My



Lu Carbyn

observations accounted for only a fraction of the wolf/bison interactions taking place each year. Each of the 200 wolves in Wood Buffalo Park has a personality and character of its own, affecting and altering the cycle of life and death in one of the world's most remarkable boreal ecosystems. ■

Ed. Note: This encounter is one of many recounted in the book Wild Wolves We Have Known, a collection of stories by environmental researchers who have studied wolves for decades. It can be purchased at shop.wolf.org.

Lu Carbyn is an adjunct professor in the Department of Renewable Resources, University of Alberta and retired research scientist with the Department of the Environment, Ottawa, Canada. He has worked on wolf studies for 42 years, including studies in Poland and Portugal. He is the Canadian member of the International Union for the Conservation of Nature and Natural Resources (IUCN) Wolf Specialist Group and Canid Group.



A Look Beyond

Ranchers Probe Options for Getting Along with Wolves

Tracy O'Connell

Being successful neighbors with a wild environment is an ongoing challenge around the world. Questions and disputes arise as wolves and other large carnivores repopulate areas from which they had been extirpated, often by frightened or angry humans who feared for their safety and that of the livestock that provided their food and income. This publication has featured a number of stories about non-lethal coping strategies, from more effective guard dog breeds to fencing, electronic warning collars and other efforts.

Last fall, newspapers in two western states provided additional looks into the issues of living with wolves. Mitch Friedman, founder and executive director of Conservation Northwest, a Washington-based wildlife and wildlands conservation organization, wrote in an editorial in *High Country News*, "A gray wolf looking for a home can't do better than the state of Washington."

Acknowledging that state had made headlines for killing wolves from five packs in as many years, he points to "a model for building coexistence based on bringing stakeholders together through respect, dialogue and a search for common ground" in which "nearly 100 Washington ranchers and farmers signed agreements to employ deterrence measures, from range riding to guard dogs, to prevent or reduce conflicts with wolves."

This agreement "gives those living and working in wolf country incentive to participate without fear of the goalposts being constantly moved," he wrote, adding, "It takes respect, listening and

a willingness to collaborate and compromise, but many folks in our state are working with their neighbors to create a future of healthy wolf packs that can coexist with vibrant rural communities. For all the sound and fury everywhere else, Washington is where wolf recovery is being done right. It's a wildlife conservation model others ought to follow."

Meanwhile, two approaches coming out of Siskiyou County in northeastern California, where wolf packs are making a home for the first time in 100 years, include a rancher promoting ways of helping cattle respond more effectively to predator attacks, and a "branding" effort to promote meat raised by ranchers who use wolf-friendly depredation reduction methods. Butte Valley rancher Mark Coates has been written up in publications from the local daily newspaper to *Beef* magazine for a program he describes on his website, *rancherpredatorawareness.com*, as "a stockmanship skill to encourage cattle to herd into a defensive stance and defiant posture when predator pressures are present." It is a "proactive, low-cost solution to avoid wolf, black bear, mountain lion and coyote confrontations" which Coates says has improved his herd's ability to survive coyote and wolf attacks.

In videos on the site, Coates outlines the steps to get cattle to rely on their instincts, using dogs to acquaint the cattle with predator behavior, so they are calm and develop what he calls herd awareness and defensive posture, rather than splitting off from the herd to flee or attack, and thus becoming a predator target. He summarizes his method saying, "Good stewardship involves good ranchers."

An effort sponsored by the California Wolf Center, which according to its website is "dedicated to the recovery of wolves in the wildlands they once roamed," promotes meat products sold by ranchers who use non-lethal depredation control efforts, calling its project the Working Circle Protective Stewardship Program. The center announced last June that Mt. Shasta Wild, a family ranch in Siskiyou County, provides the first example of such stewardship. The Working Circle program was adapted from efforts used in places such as Alberta, Canada, where trained range riders, paid for by program partners, help protect the herds of participating ranchers. The California Wolf Center's Karin Vardaman stresses that the program is comprehensive, scientifically based and involves collaboration.



The program website notes “This holistic approach brings additional benefits to wildlife and the land through responsible and ethical stockmanship, progressive grazing strategies and awareness of the environment,” stressing that the effort “...must be land/cattle owner driven, as this is their community, their land and their livestock.” The Working Circle is experiencing early success in northern California and southern Oregon as it aims “to neutralize the polarizing debate that continues to hinder the ability of wolves, livestock and people to thrive,” the website states.

Rancher Mark Coats and Working Circle representatives make presentations for groups and conferences; they did so in April during Sedona Wolf Week in Arizona at a “co-existence” event promoting non-lethal ways of living with wolves. ■

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



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Book Review

The Last Stand of the Pack: Critical Edition

Book Review by Nancy Jo Tubbs

Saddle up for a rough ride over the first two-thirds of this critical edition of the *Last Stand of the Pack*. It begins with a re-publication of the bloody tales dramatized by Arthur H. Carhart and Stanley P. Young. The stories were culled from the reports of federal hunters who had been hired to wipe out the last surviving wolves in Colorado in the early 1900s.

Killed first for bounties and then by U.S. Biological Survey Predatory Animal Control hunters, wolves had nearly disappeared from the state. But a few of the most wily remained. Old Lefty, Rags the Digger and Three-Toes were among the last nine, and so notorious that they were named and relentlessly pursued over rough terrain by the most famous and successful hunters. These wolves had survived to continue taking ranchers' livestock after they had seen, tasted and smelled every snare. They knew the scent of men and horses, which signaled danger, the bitterness of strychnine layered in cow fat, and foot traps, which the wolves often cunningly dug up and left exposed.

The first 199 pages of the book tell those tales of "range justice" ad nauseam, ending with a few pages sharing 1920s notes of gratitude such as, "You are doing great work for us stockmen—let us know when we can be of any further assistance in furthering your operations on predatory animal control."

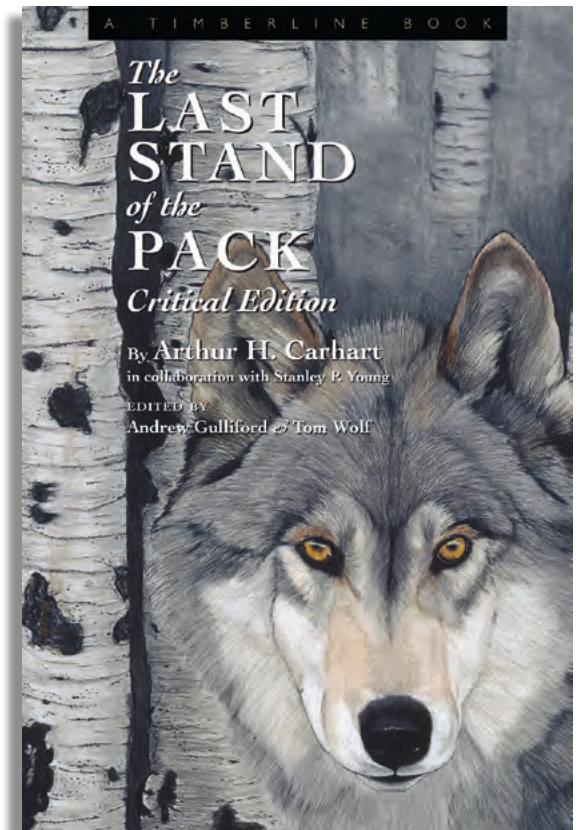
In following chapters, the purpose of the book comes clear: to make the case that wolves belong in Colorado. Renowned wolf researchers remind us that the federal Endangered Species Act of 1973 has made possible the recovery

or reintroduction of wolves in eight northern states and two in the southwest—and argue that Colorado should be next. They assert that western Colorado, specifically the Southern Rockies Ecoregion, could make wolves at home in about 18 million acres managed for conservation that host plenty of prey—herds of deer and elk. They point to a 1994 U.S. Fish and Wildlife Service study that reported that the habitat could support 1,000 wolves.

Authors introduce the Rocky Mountain Wolf Project, begun in 2016, which works to present the public with science-based wolf information and to "cultivate enthusiasm among Coloradans about returning wolves to the western half of the state."

Anti-wolf voices still resound, too; in fairness, they are represented in chapters written by those representing today's ranchers and stockmen.

Anyone with a dog in the fight for wolves' presence in or exclusion from Colorado will find *The Last Stand of the Pack* a provocative primer in preparation for the dialogue to come. ■



The Last Stand of the Pack: Critical Edition

Author: Arthur Carhart
Timberline Books, 2017
280 pages



Luna—Photo by Darcy Berus

PASSION

LEGACY

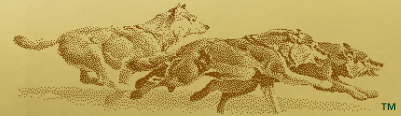
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