

INTERNATIONAL WOLF

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FALL 2016

All in the Family

PAGE 4

It's Complicated: Mexican Wolf Recovery Efforts in Mexico

PAGE 8

You're Not From Around Here, Are You?

PAGE 12



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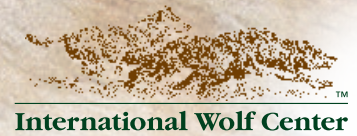
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INTERNATIONAL WOLF



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4

Chuck Vona

All in the Family

Wolf packs can be remarkably stable, and their composition and cooperation benefit the individual pack members in many ways. But loss of a breeder wolf can dramatically change pack dynamics. Understanding these issues is essential to successful wildlife management.

Justin Bohling



8

Courtesy of Universidad Autónoma de
Guerrero - Comisión Nacional de Áreas
Naturales Protegidas

It's Complicated: Mexican Wolf Recovery Efforts in Mexico

Mexican wolves are the most distinct and endangered subspecies of wolf in the Americas, in danger of extinction and considered officially extirpated from the wild since 1994. Current efforts to reinstate a wild population in Mexico began in 2006, and reintroduced Mexican wolves have adapted to the wild. The reintroduction project is fragile, though, as success depends on landowners committed to conservation.

Dr. Carlos Lopez Gonzalez



12

Mark Weber

You're Not From Around Here, Are You?

Scientists have reported the existence of 21 different dialects in which wolves howl, providing clues to their area of origin and their species. With 2,000 recordings of canid species' howls, computer analyses are revealing patterns that help wolves find each other, reveal the presence of strangers and share information across distances. This research may help preserve some canid species and prevent livestock depredation, as well.

Tracy O'Connell



International Wolf Center

On the Cover

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Departments

- 3 From the
Executive Director
- 14 Tracking the Pack
- 22 Wolves of the World
- 26 Personal Encounter
- 28 A Look Beyond
- 30 Wild Kids
- 32 Art Review

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Thank you to Hubbard Broadcasting!



Hubbard Broadcasting generously donated the use of a private plane and a pilot to safely and quickly transport our new arctic wolf pups from Toronto, Canada to Ely, Minnesota. KSTP-TV Channel 5 news anchor Kevin Doran accompanied the wolf-care team to get the complete story on the pups. KSTP-TV has been an outstanding supporter in promoting the arrival and development of the pups, and the International Wolf Center. Everyone at the International Wolf Center thanks the Hubbard family and KSTP-TV for their support in making the complicated process of transporting the wolf pups a whole lot simpler.



Hubbard Broadcasting plane touches down in Ely on May 25 with the two newest ambassador wolves aboard.

Rob Schultz

From the Executive Director

Wolf Pups' Journey to America

It was hard to believe the moment had finally arrived.

Joining us at the Ely Airport were U.S. Customs officers, a Fish and Wildlife Service agent, several International Wolf Center staff members and volunteers, our veterinarian and dozens of curious onlookers. Excitement and anticipation filled the air. In the distance, we could see landing lights flashing as the airplane that carried our new wolf pups made its final approach. Soon its wheels touched the runway, setting off an eruption of camera clicks and cheers. The newest members of the Ambassador Pack had arrived!

Getting to this point had not been easy. For weeks, our Center curator Lori Schmidt had been working feverishly to find a new source for two arctic wolf pups after our original arrangements (and several back-up options) had not produced the wolf litters we expected.



Rob Schultz

With estimates of fewer than 100 arctic wolves in captivity worldwide, finding sources for arctic pups is extremely difficult. In the end, Lori was able to find a pair in eastern Canada. With the helpful assistance of staff in the Canadian CITES office (the Convention on International Trade in Endangered Species), we were able to successfully negotiate the complicated importation process in record time.

Our next obstacle was figuring out how to safely transport the two neonates over what would have been an impossible, 22-hour car ride.

We reached out to the Hubbard family in Saint Paul, who graciously offered the use of a private aircraft and a news crew from the Hubbard Broadcasting KSTP-TV station to help document the wolf pups' journey to America. It was an incredible gift and an act of kindness; the pilot went to great lengths to make our pups and staff comfortable, and the station sent Kevin Doran, a top news anchor, to cover the story!

As the aircraft taxied to the terminal, customs agents quickly cleared its arrival. Soon pilot Tom Nelson opened the back door to the passenger compartment, and two little wolf-pup heads peered out of a carrier. Acquisition team leader Nancy Gibson and wolf specialist Cameron Feaster brought the pups into the terminal, where import paperwork was verified and veterinarian Chip Hanson conducted a medical check as the pups met Lori.

We are deeply grateful to the many kind people who helped make this day possible, including the Hubbard family, U.S. and Canadian officials, and our supporters, volunteers and staff. Thanks to all for a job very well done! ■

Rob Schultz
Executive Director



Kelly Godfrey

International Wolf Center board member Nancy Gibson and Wolf Specialist Cameron Feaster with pilot Tom Nelson and the two pups.

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Jerry Goldner

tain their position for years, producing several generations of offspring. Even following the death of one or both breeders, a pack can persist through survival of remaining offspring and/or accepting stepparents into the pack. Turnover from generation to generation can result in the same family occupying an area for years—and hence the well-known packs in places such as Yellowstone and Denali National Parks.

Exactly how and why wolves evolved this type of social system is the subject of tremendous interest and debate among scientists. What is well established, though, is that the stable, cooperative nature of wolf packs provides advantages to the individuals within them. The presence of litters of different ages enhances the survival of newborn pups. Offspring that remain in their natal, or birth, pack into adulthood

All in the Family:

by JUSTIN H. BOHLING

Perhaps no word is more associated with wolves than the term “pack.” The pack is one of the defining characteristics of wolf biology and stirs fascination in scientists and the public. Decades of research have opened a window into the inner workings of these social groups.

In wild populations the typical wolf pack is a hierarchical family unit composed of a dominant breeding pair and its offspring, cooperating to hunt prey, raise pups and defend territory. It can be remarkably stable; breeders can main-

have higher survival rates than those that disperse. Research on red wolves in North Carolina suggests that male wolves that hang around the pack for a few years before moving on (a phenomenon called delayed dispersal) are more likely to survive and father offspring than those that take off immediately upon becoming adults.

On the flip side, studies of wild wolf populations have revealed the effects of breeder loss and social disturbance. Packs that experience the loss of a breeder and fail to accept a new breeder are more likely to dissolve, meaning the individuals move apart and no longer act as a cohesive group. Loss of breeders makes a pack more susceptible to takeover from neighboring packs, too. If the pack does manage to persist following the loss of the primary breeders, it often does so at a smaller size, and if the remaining wolves manage to produce any offspring those pups are less likely to survive into



Jerry Goldner

Pack Disruption and Social Stability

adulthood. In populations experiencing high mortality and breeder loss, packs become composed of increasingly unrelated individuals instead of the typical related family group.

As one could probably guess, breeder loss can be amplified by human-caused mortality. To be clear, wolf populations free from human impact do lose breeders and experience turnover. However, the yearly rate of breeder loss is higher for populations that experience consistent pressure from humans. Further, the patterns of breeder loss are different. Normally breeders lose their position once they ascend in age and their vitality declines. Human-inflicted death, though, can hit vibrant wolves at their peak.

Now, there is a novel aspect of this phenomenon. Research from around the globe has shown that wolf populations can tolerate moderate levels of mortal-

ity every year, often up to 30 percent. In other words, in many areas one-third of the wolf population can be removed each year, and yet the total population can remain stable from year to year. However, while the *number* of wolves in a population may be stable, individual packs can be in dramatic flux. Therefore the composition of the entire population changes.

So, how do these populations stay stable? Even with the annual loss, the wolves that do breed manage to produce enough pups to replace those individuals that move away or die. Even more importantly, the dissolution of territorial

The typical wolf pack is a hierarchical family unit composed of a dominant breeding pair and its offspring, cooperating to hunt prey, raise pups and defend territory. Packs can be remarkably stable. On the flip side, studies have revealed the effects of breeder loss and social disturbance.

packs allows an influx of dispersers from neighboring regions, maintaining the number of wolves in a given area. Also, breeding wolves comprise such a small portion of a population (generally 15 to 33 percent during fall hunting seasons) that often relatively few are taken.

This quirk in wolf biology masks the impact of breeder loss. Even with moderate levels of human exploitation, a wolf population can still hit and even exceed management targets. However, the nature of these populations fluctuates. In heavily exploited populations, the social dynamics are altered, which has consequences on how wolves behave and move about the landscape. For eastern wolves in southeastern Ontario and red wolves in North Carolina, breeder loss is believed to facilitate interbreeding with coyotes. The thought is that the sudden loss of a breeder can cause its mate or another pack member to quickly look for a mate. If the only individuals available nearby are coyotes, then they

may interbreed. Also, as packs fracture, individual wolves are forced to feed themselves, sometimes in an unknown area. That may result in them going after easy targets, and some studies suggest it can impact rates of livestock depredation.

This phenomenon is not unique to wolves: other carnivores display similar social reactions to hunting. Research on cougars in the Pacific Northwest has shown that trophy hunting tends to remove older males that rule over expansive territories containing the home ranges of multiple females. These males defend this territory from younger males searching for their own place to settle. When these older males are removed, younger males rush in. They enter territory already occupied by females, some of which may have offspring from the previous male. A new young male may view these offspring as competition—not only for him, but for his potential offspring. Areas with heavy hunting of cougars often see higher levels of infanticide. Females will then adjust their behavior to avoid these younger males, sometimes selecting poorer quality habitats.

The presence of more young males also leads to more territorial overlap. When these territories overlap in human-occupied areas, it can lead to more human-cougar conflict. Heavy hunting of cougars results in more livestock predation, not less. Similar patterns have been observed for other carnivores such as bears and big cats, and other species with complex social systems such as African elephants.

The question then becomes how to address this issue from a wildlife management perspective. Wildlife managers are trained to use a host of information to understand animal populations. Typically it comes down to the numbers. Data such as births, deaths, immigration, emigration, recruitment, habitat availability and quality, and other variables feed mathematical models that estimate the number of individuals standing at the end of the year. That is how hunting quotas are set; managers use those data to estimate how many individuals can be harvested and still keep a population within a given target. Targets are based on a variety of factors such as



Hilary Cooley/U.S. Fish and Wildlife Service

maintaining population viability, minimizing human-wildlife conflict, preventing overabundance, meeting legal requirements and others.

Adding social dynamics to the mix introduces another layer of complexity. Individuals can no longer be seen as mere numbers; the presence and death of certain individuals, such as pack breeders, has a disproportionate effect on the population. Individuals targeted by hunters, such as the breeding male, the tom cougar or the bull elephant are important to maintaining stable social dynamics.

Incorporating social dynamics also raises the question of what constitutes successful population management. Is the goal based solely on numbers, or do the characteristics of the population matter? There is an increasing emphasis in conservation circles on the concept of “ecologically relevant” recovery. This means that the recovery of depleted species is defined not only by its abundance, but also its return to its ecological niche and impact on the ecosystem. A companion concept may be centered on the idea of social recovery, meaning that successful management facilitates the expression of natural social dynamics. For wolves, this could mean fostering an environment where packs can ebb and flow, with minimal disturbance from humans, in environments such as national parks, wilderness areas and protected zones.

Creating such environments would require a shift in approach to setting hunting regulations and responding to depredation issues. Such an experiment is being carried out in the state of Washington with cougar management. Wildlife managers have adopted regulations and hunting quotas designed to limit mortalities of older male cougars and to target young males instead.

Science has provided fascinating insights into the social systems of wolves, including the impact of pack disruption on wolf behavior and social dynamics. There is always more to learn, but the real challenge for the future will be incorporating a more complex view of wolf social biology into our management of this highly scrutinized species. ■



Oregon Department of Fish & Wildlife

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Justin Bohling is a conservation biologist with a B.S. from SUNY College of Environmental Science and Forestry, and a Ph.D. from the University of Idaho. His dissertation focused on the endangered red wolf in North Carolina. He has published research articles on wolves and assisted the U.S. Fish and Wildlife Service with red wolf recovery efforts. Currently he is a conservation geneticist at Abernathy Fish Technology Center in Longview, WA.

It's Complicated: Mexican Wolf Recovery Efforts in Mexico

by CARLOS A. LÓPEZ GONZÁLEZ
and NALLELI E. LARA DÍAZ

Mexican wolves are the most distinct and endangered subspecies of wolf in the Americas. In Mexico, they have been considered to be in danger of extinction since 1977, and considered officially extirpated from the wild since 1994. Current efforts to reinstate a wild population in Mexico began in 2006 with the selection of six potential release sites throughout the Sierra Madre Occidental and Oriental mountain ranges. A 2012 habitat analysis showed that the extent of available sites favorable for the reintroduction of wolves is larger than previously thought.

Current restoration efforts involve both biological and social considerations. The Mexican National Commission of Protected Areas and SEMARNAT (Mexico's environmental ministry) authorized the release of a breeding pair in the Mexican state of Chihuahua. This was followed by five additional releases from 2012 to 2015, for a total of 16 wolves.

Population status in the wild

Of these 16, one particular pair was a 7.5-year-old female and a 2.5-year-old male. They established a breeding territory and in spring 2014, five months after release, produced a litter of five pups. This is the first documented litter of wild-born pups in Mexico since the late 1970s. This family group is known as the "Mesa de Lobos" pack. To date,





the breeding pair has produced two additional litters. Six pups were born in 2015—and at this writing, localized wolf movements are consistent with the birth of a new litter. (We have not verified the number of pups in order to limit disturbance.) The December 2015 release of a family group composed of two adults and four yearlings brings the number of Mexican wolves living in the wild at the beginning of the 2016 breeding season to 19.

A significant event occurring this year was the bonding of the first wild pair formed in Mexico (Male 1403 and Female 1418) where a male, wild-born in 2014, had been sharing his space with a yearling female released in 2015. Dr. L. David Mech, renowned wolf biologist, has pointed out that if you want to know whether wolves are present in the landscape, you should let other wolves show you the way—and in this case, it worked exactly as he suggests. This pairing represents the first successful dispersal within this small population.



It will benefit the genetic composition of Mexican wolves living in the wild, and it indicates that new pairs can be formed in the wild, enhancing the possibility of a new pack being established, which increases the likelihood that the population will become self-sustaining.

Mexican wolves and land ownership in Mexico

The Mexican landscape, in contrast to the western United States, is dominated by privately and communally owned land where natural, protected areas become a layer “on top” of the current ownership. Due to that situation, the conservation landscape is ruled by personal interests without the safety and protection factors of federally owned land (e. g. national parks and national forests). This scenario complicates the recovery of wolves in Mexico.

As a first step, conservationists must obtain permission to release wolves on a property, which, as one might imagine, is often unobtainable. Sometimes permission is granted to release, but not to maintain wolves on the land. A few committed ranch owners dedicated to conservation have provided opportunity to carry out a release and permission for the wolves to stay on their land.





As part of the Mexican wolf reintroduction project in Mexico, we are assessing prey availability—specifically the presence of large ungulates, which include white-tailed deer, mule deer and collared peccaries. Using the available-prey numbers in the region, we have estimated the density of wolves to be about five wolves per 386 square miles (1000 km²), which is not significantly different from other wolf populations in human-dominated landscapes.

Mexican wolves in release areas are moving through an open landscape of oak woodlands and rolling hills, an environment rich in diversity with abundant wild prey. In order to help assure survival of wolves recently released, we are using a technique called diversionary feeding in addition to wild prey; it simply supplements a portion of wolves' diets until wolves begin hunting regularly. Wild food consumed by Mexican wolves in the region is assessed using scat analysis and genetic markers. Through these methods, we have determined that wolves are feeding on white-tailed deer (about 50 percent of the biomass consumed), food supplementation (20 percent) and livestock (seven percent). Small prey including squirrels, skunks and cotton rats are important food for young pups.

Mexican wolves and livestock/ social conflicts

Livestock-wolf conflicts are to be expected in any region where wolves live or are released, and northwestern Mexico has been no exception. A total of eight calf depredations have been documented in the area since 2012—an average of 0.1 attacks per month. The Mexican wolf project has a helpful ally in dealing with depredation, as the Mexican government's depredation insurance compensation program pays up to 50 percent of market value per head of cattle. To aid the wolf program, this fund will not pay ranchers who do not modify their livestock husbandry techniques. This program addresses only the immediate loss of livestock; complementary



actions include collaboration with willing ranchers to minimize conflict with large predators such as jaguars, pumas and black bears by using stroboscopic lights, radio-activated guard boxes, fladry (rope mounted along the top of a fence with strips of colored fabric suspended from it), and range riders (humans on horseback who manage and protect herds). These tactics have considerably reduced the number of depredations.

One social component of our project is community outreach to improve livestock husbandry techniques. This includes workshops for local livestock association members, natural resources officials, outdoor guides and outfitters, and landowners. The objective of these workshops is to share information—but also to establish opportunity for personal interactions about the project. We depend on acceptance by these





What is the future of the program?

groups; it's important to the success of the reintroduction process. As part of the process, we offer landowners several practical, alternative husbandry and habitat-rehabilitation techniques. We are also implementing habitat restoration projects. Our outreach efforts have opened doors for the project, allowing us to build relationships with landowners, develop and implement habitat rehabilitation, and continue with wildlife monitoring. These efforts have led in several instances to commitments by landowners to allow the release of wolves on their properties.

With a focus on future generations of landowners, we are currently spending time in rural elementary schools carrying out an educational program that illustrates the importance of nature, habitat and wildlife—including wolves.

Reintroduced Mexican wolves have demonstrated that they can adapt to the wild and restore a wild population — hunting, breeding and producing pups. The Mexican wolf reintroduction project is very fragile, as its success depends on willing landowners committed to conservation.

Therefore, work in this early period of the program has to be intense and constant. We need to continue releases of Mexican wolves, particularly family groups with small pups, to increase integration of new packs and production of future generations. To build on current success, our outreach work to increase tolerance for the presence of wolves cannot be stopped. Only a joint effort among scientists, landowners and government will allow Mexican wolves to survive and inhabit the wild lands of northern Mexico. ■

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🐾 All photos, unless otherwise credited, are Courtesy of Universidad Autonoma de Querétaro - Comision Nacional de Areas Naturales Protegidas

Carlos A. López-González is a research professor at the Universidad Autónoma de Querétaro. He has been engaged in the study of large carnivores for more than 20 years, including ecology, behavior and human-wildlife conflicts, as well as the development of conservation and management strategies. He has worked with the Mexican wolf reintroduction project since 2002.

Nalleli E. Lara-Díaz is a PhD candidate at the Universidad Autónoma de Querétaro. She is currently studying the spatial and temporal ecology of black bears and has collaborated with the Mexican wolf reintroduction project in the Mexico-U.S. borderlands.





You're Not From Around Here, Are You?

Emmanuel Keller

by TRACY O'CONNELL

"You must be new around here."

That's a phrase wolves might communicate after hearing the howls of those from another pack. Scientists reported last April in the online journal *Behavioural Processes* the existence of 21 different dialects in which wolves and other canids howl, which among other things give clues to their area of origin and their species. The study was entitled "Disentangling canid howls across multiple species and subspecies: Structure in a complex communication channel."

Lead researcher Arik Kershenbaum, a zoologist at the University of Cambridge, claims that a skilled listener such as his colleague Holly Root-Gutteridge, a biologist at Syracuse University, can identify a wolf's subspecies by its howl—as she did while viewing a movie, noting the

howls were inconsistent with the sounds wolves from that region would make. Kershenbaum, Root-Gutteridge and their research collaborators, representing four nations including Spain and India, set out to further explore what could be learned from the howls of wolves and other canids.

The team collected 2,000 recordings of howls from 13 species of canids around the world, including wolves, dingoes, coyotes, jackals and domestic dogs (the dog howls came from YouTube videos) and compared them using a computer program that analyzed qualities such as pitch and fluctuation.

A second computer algorithm then clustered the howls into groups that were similar to each other and different from every other howl. Once researchers had established the different howl types, they looked at how those types were used by different populations. Some species

and subspecies used certain howls often and neglected others, Kirshenbaum told *Living on Earth*, an independent media outlet of Public Radio International, adding that some are quite varied in their repertoire.

This research could enable scientists to track wild canids acoustically. Kirshenbaum said it might also help the endangered red wolf recover by reducing the likelihood of it breeding with coyotes.

"We found that the howling behavior of the two species is very similar. This may be one reason why they are so likely to mate with each other. Perhaps we can take advantage of the subtle differences in howling behavior we have discovered to keep the populations apart," he noted.

He sees the research results to be of interest to those studying human linguistics as well, telling the online source *Science Daily*, "Wolves may not be close to us taxonomically, but ecologically their behavior in a social structure is remarkably close to that of humans. That's why we domesticated dogs—they are very similar to us. Understanding the communication of existing social species is essential to uncovering the evolutionary trajectories that led to more complex communication in the past, eventually leading to our own linguistic ability."

Kirshenbaum also studies dolphins, and says there are many

parallels in social behavior, intelligence and vocal communication—all comparisons that extend to humans. "As well as being intelligent and cooperative species, wolves and dolphins have remarkably similar vocal characteristics. If you slow a dolphin whistle down about 30 times it sounds just like a wolf howl," he said.

The content and causation of wolves' howls has long been of interest. Researchers Fred Harrington and Cheryl Asa say wolves can hear a howl up to six miles away in a forest and up to 10 miles away on tundra, and that an average howl lasts three to seven seconds, while a pack chorus can last 30 to 120 seconds, and longer during breeding season.

They note that howling helps wolves find pack members and can be part of a reunion. Unfamiliar howls reveal strangers. Lone wolves howl for a mate. Though many believe howling is a bonding experience, Harrington and Asa say

there is no empirical evidence of this. They say a pack's size cannot be determined from its howls, and in times of uncertainty wolves may use a "poker" howl that limits information available to unintended ears.

The Kirshenbaum team's next step is to determine the meaning behind different howls, he told *Life on Earth*. Such information could be used to keep wolves away from livestock and reduce conflict with ranchers—something that has been tried before but not successfully, since the meaning of different howls has not been known. When communicating with predators in their own language, Kirshenbaum notes, it would be extremely important for ranchers to play a howl that says, "Don't come near here; we're a strong and aggressive pack," and not a howl that says, "Come over here, we've found food." ■

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



Tracking the Pack

Introducing Axel and Grayson

by Lori Schmidt

On May 25 the International Wolf Center completed the process of adopting two captive-born, arctic wolf pups from an accredited Canadian zoological facility. The adoption process began in December 2014 with research on captive facilities, wildlife and border crossing permits, genetic lineage

and veterinary records, and concluded with the final U.S. Fish and Wildlife Import permits cleared at the Ely, Minn. airport. We welcomed two robust and alert pups nicknamed “Axel,” after Axel Heiberg Island in the Canadian arctic, and “Grayback,” based on a color pattern on the pup’s shoulders. A Name the

Wolf Pups contest held by Hubbard Broadcasting’s

Port Director Anthony Jackson, U.S. Customs and Border Protection, Wolf Curator Lori Schmidt and Wildlife Inspector Matt Roberts, U.S. Fish and Wildlife Service.

KSTP-TV in Minneapolis yielded more than 1,900 name submissions. The Center wolf care staff narrowed the selection to three names per pup, and a national, online vote determined the winners. Results were announced July 11 on KSTP-TV (Channel 5) Eyewitness News.

We are proud to introduce our newest ambassador wolves, Axel and Grayson.

From the first days in Ely, we noticed Axel appeared to have a stronger instinct to explore than his littermate, Grayson. The pups were housed in the new Wolf Care Center kennel with a lot of stimuli and protective hay. The hay kept the pups warm and sheltered, and gave caretakers a place to rest while maintaining their 24-hour watch over the pups. Axel was the first pup to climb on the hay bales and tree stumps that were at least twice his height—the first indication that Axel had strong instinct to explore. But with exploration can come uncertainty, and



Rob Schultz



Kelly Godfrey



Rob Schultz

Member Profile

Axel had a tendency to display some anxiety toward unfamiliar surroundings. A new person or an unexpected noise would trigger retreat. The process of socializing wolf pups requires the staff to provide distractions that change pups' focus from obsession with an unfamiliar stimulus to adapting to sights and sounds in the exhibit.

As part of the data collection process, caregivers recorded every behavioral event they witnessed. Initially, Axel's favorite activities were taking balsam fir branches from the enclosure walls and dragging his stuffed moose around the enclosure, but having matured a bit, he has become more engaged in rank-order and predatory behaviors, including stand-overs, T-1 tail postures, stalking and pouncing on his littermate.

Even before the pups arrived in Ely, we noticed that Grayson was more attuned into his surroundings and was influenced by even the slightest changes—including new caretakers. He often watched and waited as activities went on around him, showing a little more shyness than Axel.

He seemed to sit back and observe before acting, and given Axel's personality, there was plenty for Grayson to observe! Grayson was the first to howl in response to the adult wolves, and overall, he did far more howling to the adult wolves—and particularly to our retired wolf, Grizzer. Further, Grayson howled not only when he was awake; he displayed the unique behavior of howling in his sleep. He was the first to dig around in his environment to find new things like branches, pine cones and rocks, and the first to hide his food (caching).

To learn more about the 2016 pups and their transition into the Exhibit Pack, check out www.wolf.org for our Wolf Logs, You Tube channel and webcams, as well as our monthly Wolf Care webinars and individual adoption kits. ■

Anika Hahn: Philanthropist at 13

By David Kline

Seventh grader Anika Hahn grew up in a family with a multi-generational culture of giving back to the community—so it was no surprise to her mother that Anika chose to celebrate her Bat Mitzvah by inviting friends and family to make gifts in her honor to the International Wolf Center.

After speaking with Wolf Curator Lori Schmidt, Anika decided to designate her gifts to projects that would directly benefit the wolves. Plans were made to add more resting rocks and shade trees near the front of the exhibit pack's 1.25-acre enclosure. Adding these flat-topped rocks near the new shade trees and other rocks just below the surface in the pond will allow the ambassador wolves to stay cool while remaining more easily visible from the observation windows. In addition, a new ultra-violet pond filter will keep the pond free of algae, and an outdoor mister will provide additional comfort on the warmest days.

Anika first became fascinated with wolves as a third grader during a family visit to the International Wolf Center in Ely, Minnesota. She returned home and began reading and researching everything she could find about wolves. Anika even donated her birthday gifts that year toward the educational efforts at the International Wolf Center. Her mother notes that Anika grew up in a nature-loving family; a Samoyed, Labrador retrievers and a German short-haired pointer all familiarized Anika with canines.

The outdoors holds a special place in Anika's heart. She enjoys hiking, boating and swimming, and archery—that is when she can squeeze them in between



Kelly Godfrey



Anika designed this thank you note to send to each of the 83 people who made a gift to the International Wolf Center in honor of her Bat Mitzvah celebration.

reading, dog walking, violin practice, tap and jazz dancing, friends and the occasional peek at the wolf cams on wolf.org!

Wolves aren't the only animals Anika loves learning about. White-tailed deer and sea animals like manatees, turtles and jellyfish have inspired her young mind, too. Exploring career options is still in the early stages for Anika, but being an environmental attorney is currently the front runner.

We thank Anika for her philanthropic leadership, for her generosity to the International Wolf Center, and for the wonderful example she is setting for other young adults in caring for the earth and its inhabitants. ■

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Heidi Pinkerton

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Axel and Grayson: The Dynamic Duo!

Heidi Pinkerton

Axel and Grayson spend their days eating, sleeping and 'playing'. However, as our Wolf Curator Lori Schmidt explains on these pages, these 'playing' behaviors are actually the way pups learn and practice critical survival skills.



Heidi Pinkerton



Heidi Pinkerton



Heidi Pinkerton

- Upper left: **Jaw spar** – two wolves ‘fencing’ with wide open jaws to demonstrate status.
- Above and left: **Standover** – A show of dominance in which one wolf straddles another.

Heidi Pinkerton's adorable pup photos are available at rootriverphotography.com.



Heidi Pinkerton



Heidi Pinkerton



Heidi Pinkerton

- Top left: **Grab bite** – Wolf pups are born with predatory instincts; they practice behaviors on each other that would be beneficial when hunting prey.
- Above: **Squash** – A “squash” leaves a littermate unable to maneuver, allowing the “squasher” to gain possession of something from another pup.
- Above right: **Jaw spar**
- Right: **Tug-of-war** – Play behavior that helps pups develop survival skills. Because wolves typically feed on one large carcass as a pack, pups practice skills necessary to grab, tug and capture a piece of the prey. (Today it’s a branch; tomorrow it might be a deer leg.) Also showing **Ears pricked** – Erect, forward ear posture that demonstrates alertness or heightened attention.





Ann Rosberry



You can “adopt” Axel and Grayson! Purchase adoption kits online at the Wolf Den Store.

SHOP.WOLF.ORG



Heidi Pinkerton

Wolves of the World

Wolves Around the World

By Tracy O'Connell



CANADA

It is believed there are only two wolves (down from three in the 2015 count) still living on Isle Royale, a national park 15 miles from the Canadian shoreline in northwestern Lake Superior.

Dr. Rolf Peterson is a professor at Michigan Technological University and lead researcher on a long-running study of Isle Royale. Peterson, along with other wolf biologists, has sought to release additional wolves onto the island to control moose population and restore wolf numbers to previous levels. Others have argued that intervention would interfere with the way of nature. (See spring 2014 edition of *International Wolf*.)

Wolves arrived on the island in the 1940s, presumably by crossing a winter ice bridge from the mainland. They have maintained a population averaging 22 animals over the length of the study, peaking at 50 in 1980 and dropping to

nine in 2014. No one knows the reason for the precipitous population decline that eliminated one of the island's three packs in a single year.

Lack of intervention, Peterson has warned, will allow the moose population to grow unchecked, and moose browsing may do long-term damage to the forests. The island had about 500 moose in 2009 and 1,250 a year ago, with an aerial census showing a robust crop of calves with numerous sets of twins—indicative of a healthy herd and continuing population growth.

Peterson shares his concerns in the annual report on his study of Isle Royale's wolves and moose, an effort supported by his university, the National Science Foundation and the National Park Service.

Peterson is also concerned that white-tail deer may swim to the island, as deer bodies found washed up on shore indicate that some are making the attempt. He fears more deer will exacerbate overbrowsing and possibly bring infestation of parasites such as brain worm.

Firm census figures for moose and wolves are unavailable for winter 2015-16 (weather and lack of available National Park Service airplanes curtailed the annual mid-January to early March study by about 14 days) but the two wolves that are believed still alive, a male and female, are six and eight years old respectively, and thus unlikely to reproduce.

DNA analysis of scat samples shows they are half-siblings born to the same mother, with the male being the father of the female—a complication that arose as the number of possible mates dwindled. The pair produced a pup in 2014 (now believed dead) that had spine and tail deformities, presumably the result of inbreeding, so severe they were visible from the survey airplane. Inbreeding has been suspected since the early 1990s, evidenced by structural abnormalities found in the three dozen wolf carcasses recovered and studied since that time.

Wolves crossing ice bridge near Isle Royale



Rolf Peterson



Rolf Peterson

The National Park Service, which has authority over Isle Royale, began studying possible remedies for the dwindling wolf population in 2014. They accepted public comments into May of this year in a process expected to wrap up in 2017 and be implemented after that. At present, there are four options the Park Service may pursue.

- Do nothing, leaving the wolves, moose and island ecosystem to evolve as they will without interference.

The other three alternatives involve release of new wolves onto the island in various scenarios:

- Introduce wolves as a one-time event over a defined period of time to increase the longevity of the wolf population on the island.
- Introduce wolves as often as needed to maintain a population for at least the next 20 years (the anticipated life of the plan) with wolf numbers based on the best available science and professional judgment.

- Establish thresholds of moose and vegetation-destruction levels which, if reached, would result in wolves being introduced to the island as a one-time or as-needed event.

Considerations that have been scrapped include hiring human hunters to control the moose population and “genetic rescue”—introducing new wolf bloodlines to breed with the existing population.

Genetic rescue is a method supported by Peterson’s university colleague John Vucetich because it would approximate nature, as if new wolves came to the island of their own accord. (It is believed new wolves arrived at the island naturally in 1967 and 1997, and perhaps at other times.) It would quickly restore numbers, enable the passing-on of information from a population that has lived on the island, and enable research on a problem different from reintroducing a species once it has died off—a situation already studied in Yellowstone National Park. Peterson and Vucetich now believe

it is too late for this option to change the future for Isle Royale’s resident pack due to the age of the surviving pair; to be effective, genetic rescue would have had to happen years ago, when wolf numbers were greater.

The Isle Royale study began with the intent of studying the effects of predation on moose populations, and that remains its key purpose. The longest-running study of predator-prey relationships in a closed environment, it was launched, the report recalls, “...during the darkest hours for wolves in North America.” Humans had driven them to extinction in large portions of their former range. The hope was that knowledge about them would replace hateful myths and form the basis for an ecologically sound relationship.

The wolves of Isle Royale have offered scientists at Michigan Tech an unprecedented, 58-year opportunity to study a predator-prey system on an isolated island, as the *Detroit News* reported in April, adding that the study captivated the attention of scientists and the public worldwide.



In a blog post marking the end of the aerial census of the island a year ago, Peterson wrote “Without saying it, I thought, ‘Thank you, wolves, for all you’ve taught us... I’m sorry, very sorry, that it wasn’t quite enough.’ Before the (airplane) engine was quiet, I had dried my eyes... knowing this was the last time anyone would see wolves on Isle Royale this winter, and perhaps for a very long time to come.”

More on the study can be found at isleroyalewolf.org.



ISRAEL

At least one striped hyena has joined forces with a wolf pack in the Negev desert in an unlikely pairing that has drawn the attention of researchers. The large carnivores have been known to hunt together, as indicated by their intermingled paw prints. While this phenomenon was first seen four years ago, the sighting of a hyena with a wolf pack has only recently been documented.

The animals share the same diet, which includes mammals, insects, plants, and scavenged trash and carrion, in a harsh environment with scarce food—a situation that normally would create competition rather than cooperation. Additionally, striped hyenas typically are solitary animals known to fight with lions and African wild dogs, and steal

kills from leopards and cheetahs. Wolves are social, but not with other species; they prey on lynxes and on their own closest relatives, coyotes and dogs.

As reported earlier this year in the publication *Zoology in the Middle East*, it appears the advantages gained by cooperation outweigh the challenges, with each species bringing unique skills to the hunt. Wolves are better hunters than hyenas because of their pack hunting techniques and their inborn speed and agility, while hyenas are better at scenting prey and performing dexterous tasks such as opening cans and cracking bones.



PARTNERING WITH AUSTRALIA

Biologists in two very different nations have joined forces to examine the impact of apex predators in their respective countries. The three-year study looks at wolves in Israel and dingoes in Australia, and may be valuable to other nations adjusting to the effects of living with wolves or considering rewilding proposals.

Jwire.com, a digital source of news for the Jewish community in Australia, quotes Australian researcher Dr. Arian

The Dingo Fence is a pest-exclusion fence that was built in Australia during the 1880s to keep dingoes out of the southeast part of the continent (where they had largely been exterminated) and protect the sheep flocks of southern Queensland.



Wallace saying, “Traditionally, dingoes have had bad press in Australia, as have wolves in the Middle East, but my research has shown that they are important for maintaining healthy ecosystems. We need to understand that role better.”

Israel provides a unique study because of the varying ecosystems and human activities the wolves must navigate, such as the militarized zones and minefields of the Golan Heights, which Jwire describes as dangerous for humans but safe for wolves.

There are also parallels between Australia’s ‘dingo fence’ and the border between Israel and Jordan, both of which create distinct environmental conditions on either side because of human attitudes and actions.

Research on the ecological role of wolves in Israel will be directly relevant to conservation in Australia, the Jwire article notes, as that country undergoes a transition to coexistence with dingoes. It adds that trophic-cascades research (where predators affect other species down the food chain) has contributed to a global shift away from fear and toward appreciation of large and potentially dangerous predators.



Dreamstime.com

International Wolf

Artist Rainer Opolka with one of his wolf sculptures. The sign says, “Please don’t feed the wolves.”

A large banner near the exhibit explains that the artist loves wolves; the work is a protest against intolerance and hatred.



Photos courtesy of Rainer Opolka



GERMANY

Meanwhile...66 metal statues of wolves posed in vicious or negative attitudes (such as a Nazi salute) were on display to protest racial intolerance, hatred and a Neo-Nazi attitude toward refugees. Titled “The Wolves are Back,” they are the work of artist Rainer Opolka. Measuring nearly six feet, the statues were initially installed in the Saxony capital of Dresden in March. Opolka hopes to take the exhibit to capitals of other German states. ■

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.

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

Personal Encounter

A Very Personal Encounter

by Quinn Harrison

Photos by Sarah B. Bassing

Crouched and alone, I listened to the distant rustling of vegetation give way to a thunderous trampling of bushes and ferns. My reaction was neither confusion nor curiosity—I felt only panic. Whatever it was, it was large, it was moving fast and it was getting closer. My mind desperately attempted to calculate the distance and trajectory of the racket. Fifty yards? Maybe. I was completely unprepared, vulnerable and exposed. Some unseen creature and I were about to conduct a backwoods physics experiment, and I was going to be one of two objects that could not occupy the same space at the same time. The defenseless one.

Finally, my brain kicked in.

“It’s going to break the clearing right there. It is going to run into you. Stand up. STAND UP! Ball up your fist and yell. YELL!”

But before I could follow that final parasympathetic command, a completely unpredicted thought popped into my

head. A tiny ray of analysis had penetrated what had grown into a wall of reaction: “My goodness, it’s *panting*. Like a dog. And it smells terrible.”

All this was taking place in northern Idaho, a couple of hours south of the idyllic town of Wallace. I was with a crew of wildlife technicians working for the University of Montana, and our job was to find wolf pups. It was early in the season, and we were coming off a hot streak that had lasted from the towns of Emida to Avery. Our purpose in finding pups was to compare a traditional method of estimating pack size (by radio-collaring and following animals) against a novel, non-invasive method: sampling scat from rendezvous sites for DNA. We spent our days traversing Idaho, looking for wolf sign. If you find enough wolf sign you might be getting close to a rendezvous site, and if you’re close

to a rendezvous site you might be able to count puppies.

Our hot streak came to a screeching halt in the Honey Jones pack’s territory. Our crew had first documented this pack the year before. We knew where these animals should have been, but we were finding no indications of their presence. Frustrated by days of bad luck, we set up camp at the side of a logging road, and it was there I had my run-in with the panting, stinky wolf.

As a wolf technician, I’ve had my share of close encounters with wild



wolves. When you're around wolves you get a wonderful sense of them, well beyond the sense of sight we so depend on. Some of us know the smell of a wolf; it's a notch above the nose-smacking odor of a coyote and several notches shy of the musky reek of fox. (Whatever foxes do in their spare time must be disgusting.) Many of us know very intimately how wolves sound. We've heard their howls fill valleys and bounce off mountainsides. Some of us have heard them bark or make that ineffable "raw raaaw" noise that comes with playing.

While I can think of many encounters with wolves that reinforced my perceptions of them, very few have redefined those perceptions. The panting wolf, barreling at me through the underbrush while I was answering the call of nature,

was a redefining experience. Just as I managed to get my pants up around my waist, the wolf broke the clearing and came into sight. It was big, it was black and it was about 15 feet in front of me when I suddenly materialized into its reality. The surprise and confusion on its face matched my own.

If you've never seen a wolf slam on its brakes from a fast trot, Scooby Doo gets it pretty close. It's almost comical—when it's not within the bubble of your personal space. There was nothing malicious about this interaction, though, and it was over quickly. Neither of us wanted anything to do with the other in that place, at that time, and with a final, backward glance of befuddlement and disgust the wolf exited the glade and was gone.

As I walked back to camp, I was still dwelling on the panting. That was a noise familiar from afternoon dog walks, BBQs in the park and childhood wrestling matches with my best friend—a heeler mutt named Gretchen. But here it was in the St. Joe Mountains. It fit here as

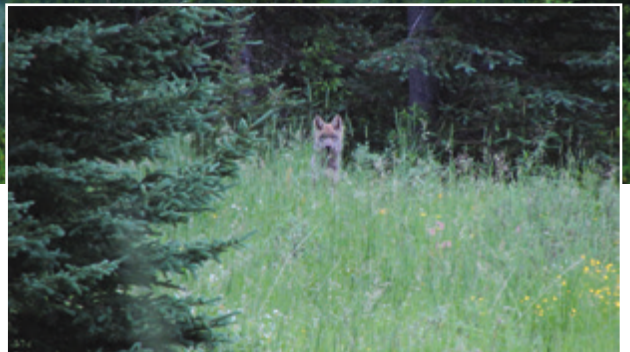
naturally as an elk bugle or the treetop laugh of a gray jay. But I had to reconsider this sound; I had to transplant it from my childhood to the damp, cedar forests of Idaho, where it had a new meaning for me.

My crewmate Charlie, with his toothbrush still hanging from his mouth, shouted at me as I broke into view of the tents, "A WOLF! A BIG BLACK WOLF JUST RAN THROUGH CAMP! DID YOU SEE IT?"

"Yes," I replied. "I sure did. It caught me with my pants down!"

But that was OK. Now I could say that a wild wolf and I had seen each other—really, *really* "up close and personal." ■

Quinn Harrison works as a wildlife technician for the Yellowstone Wolf Project. He has also worked for the Arizona Game and Fish Dept. as a technician on the Mexican Wolf Project and has studied wolves, cougars and bears throughout western North America. He currently lives in Gardiner, Montana.



A Look Beyond

Coywolf: A New Species in Our Midst?

Jonathan G. Way

You may see one trotting down a neighborhood street or hear a pack howling anywhere in New England, from rural areas to urban centers. It looks bigger than a coyote but smaller than a wolf—and that's because the “coyotes” in northeastern North America are hybrids between coyotes and wolves. A paper I recently co-authored states that

they should be called coywolves and that they warrant new species status—*Canis oriens*—“eastern canid” in Latin.

This conclusion is based on the fact that these animals are distinct physically (in form and structure) and genetically from their parent species of mainly western coyotes (*Canis latrans*) and eastern wolves (*Canis lycaon* or *Canis lupus lycaon* depending on which school of genetics one favors). However, they also include smaller amounts of genetic material from the gray wolf (*Canis lupus*) and domestic dog (*Canis familiaris*). Despite the mixed-species background that created it, there is no ongoing hybridization in most of this creature's range, which centers around New England—and that means we have a new species in our midst.

The coywolf: a biographical sketch

Before explaining the unique characteristics of the coywolf, let's take a quick snapshot of this animal. The coywolf colonized northeastern North America 50 to 75 years ago. The emerging picture of the coywolf is that it has a larger home range than most western coyotes, but a smaller one than wolves, at about 11.5 square miles or 29 square kilometers. It also travels long distances (10 to 15 miles or 15 to 25 kilometers) daily and eats a variety of food including white-tailed deer, medium-sized prey such as rabbits and woodchucks, and small prey such as voles and mice.

Coywolves are social, often living in families of three to five members. The coywolf has ecological and physical characteristics that can be seen on a continuum of coyote-like to wolf-like. Overall, though, the coywolf seems to occupy an ecological niche that is closer to coyotes than to wolves, which are typically predators of hoofed animals like deer.

Some scholars claim that because this animal is predominantly coyote it should be called a coyote, and not a coywolf. In analyzing this claim, it is



Wolf

Coywolf

Western Coyote



important to remember the difference between a numerical (e.g., voting where the majority wins) versus statistical difference. Research has found coywolves to be significantly independent from western coyotes and eastern wolves in both body size and genetics. This means that they classify differently from both of their parent species. Yet they are numerically closer to coyotes (just 35-37 percent larger) than they are to wolves (which are 61-71 percent larger than coywolves) which gives some scholars the inaccurate perception that they are just coyotes, based on the fact that they have always been called coyotes in the Northeast. But it is important to remember that nearly 40 percent of this animal is NOT coyote.

Given the relatively small amounts of dog in the coywolf's genome, and the fact that dogs are very closely related to wolves, it seems reasonable to keep 'coywolf' rather than 'coywolf-dog' as this creature's name.

The term *coywolf* does not suggest that this animal is equally or more wolf than coyote. However, the terms coyote, eastern coyote and northeastern coyote undervalue the importance of the eastern wolf in the ancestry of this canid, effectively ignoring these facts:

1. One-third of the population's mitochondrial DNA (mother-inherited DNA) is derived from the eastern wolf.
2. Another one-third of that DNA is not found in most western coyote populations, but is found in eastern wolves.
3. A different type of DNA used for genetic profiling of individuals indicates that coywolves are unique and separate from western coyotes and eastern wolves.
4. Coywolves share father-inherited genes with eastern wolves.
5. In body size, coywolves are unlike either of their parent species.

Coywolves would be more closely related to coyotes than wolves on a *continuum* of gray wolf-to-western coyote, but the eastern wolf constitutes an intermediate species that blurs species differences among all canids. Recent research has concluded that eastern wolves form a bridge that facilitates wolf-coyote hybridization.

New Family Member Golden, Not Gray

Recent reports suggested that some African golden jackals were more genetically aligned with gray wolves (*Canis lupus*) than with the more obvious golden jackal (*Canis aureus*). This finding was surprising to canid genetics researchers Wayne and Koepfli, given the absence of gray wolves in Africa.

After extensive genetic testing, they came to this conclusion:

"To our surprise, the small, golden-like jackal from eastern Africa was actually a small variety of a new species, distinct from the gray wolf, that has a distribution across North and East Africa," Wayne says.

The researchers (Robert K.) Wayne and (Klaus-Peter) Koepfli have named this previously unrecognized species the African golden wolf.

Note: The above is an edited version of the summary of Bob Wayne's 2015 study with Koepfli (lead author) and many others in Current Biology showing that the African golden jackal, which some geneticists had recently said were gray wolves, were not.



Eyal Cohen

Hybridization is a natural process that can be accelerated by human modifications to the environment like hunting and habitat destruction. Even most humans have a hybrid genome with Neanderthals, although considerably less (~3-to-5 percent) than coywolves have of wolf genome input. Where there are permanent alterations to the environment (as in southern New England), there could be benefits to hybridization—like allowing coywolves to use the genes from all the species that created it, and evolve into an "appropriate" canid for the landscape.


One challenge to preserving the unique coywolf genome is the possibility of these animals becoming swamped by "western" coyote genes from the southern and western United States. The other flank of colonizing "eastern" coyotes (from the mid-Atlantic and south-east U.S.), which has fewer wolf genes, has just recently contacted the western part of the coywolf range. Thus, it remains to be seen whether this animal will remain distinct as opportunities increase for hybridization, which may alter the percentages of coyote and wolf in this hybrid. Eastern *Canis* genomics should be monitored now and in the future.


Why does it matter?

In the long run, does it really matter what we call this animal? In the course of this creature's less than 100-year his-

tory, it has been called coyote, eastern coyote, coydog, Tweed wolf, brush wolf, new wolf, northeastern coyote—and now coywolf. But as scientists, we are charged with accurately describing natural systems, and for this reason alone it is important that we precisely debate and characterize the systems we are studying. Since science is inherently self-correcting, it leads one in new directions by its very nature. While there may be continued controversy over this animal's designation, based on available evidence, *coywolf* does appear to be the very best name for the canid inhabiting northeastern North America. ■

Additional reading:

 Way, J.G. 2013. Taxonomic Implications of Morphological and Genetic Differences in Northeastern Coyotes (Coywolves) (*Canis latrans* × *C. lycaon*), Western Coyotes (*C. latrans*), and Eastern Wolves (*C. lycaon* or *C. lupus lycaon*). *Canadian Field-Naturalist* 127(1): 1–16.

 Way, J.G. and Lynn, W.S. 2016. Northeastern coyote/coywolf taxonomy and admixture: A meta-analysis. *Canid Biology & Conservation* 19(1): 1–8. URL: http://www.canids.org/CBC/19/northeastern_coyote_taxonomy.pdf.

Jonathan Way is the author of two books: *Suburban Howls* and *My Yellowstone Experience*, and the founder of *Eastern Coyote/Coywolf Research* (www.EasternCoyoteResearch.com).

Wild Kids



Meet the Pup Brothers

by Kristina Allen

Axel and Grayson were born on May 2, 2016. They are arctic wolves, a subspecies of the gray wolf species. The arctic wolf subspecies consists of a few hundred to a few thousand individuals in the wild, and only around 100 in captivity, so Axel and Grayson are actually very rare! As the newest pack members mature, their coats will change color from tan to white, or some mixture of white and black. Arctic wolves tend to be stocky compared to other subspecies, because in the wild, they live in a very cold, harsh climate. With their compact bodies, Axel and Grayson will retain their body heat a bit better than other ambassador wolves do.

Axel

Even at the age of three weeks, Axel routinely asserted his dominance over his brother Grayson, and he is still fond of stalking his brother and suddenly pouncing on him. Along with Axel's assertive nature, he seems to enjoy caching food (hiding it for later) and gnawing on anything he can chew. He even prefers to have his vitamins placed on a chewy item such as a cow hoof or a pig ear rather than having them fed from

a human's hand. Climbing has been a wonderful novelty for Axel; as soon as he discovered hay bales in the pup enclosure, he began crawling up and over them. Axel and Grayson will learn to submit to older wolves in the exhibit pack, but even as a very young pup Axel began standing his ground when Luna tried to stare him down.

Grayson

Like his brother, Grayson weighed about a pound when he was born. Grayson didn't gain weight as quickly as his sibling, which put him at a slight physical disadvantage during play bouts with his brother. Grayson has quickly learned to compensate, though. Over time, he has become bold enough to start playing by stalking his brother or biting him. Grayson often seeks comfort from pup care volunteers and staff, but his confidence is definitely growing as he matures. The pup-care team tries to distract the pups from things that make them uncomfortable, like the sound of airplanes and the noisy weed-whacker. To focus the pups' attention on something else, we like to give them interesting things like feathers, ice cubes or bones to investigate. At one point, Axel and Grayson found an old skull that Grizzer had cached—a brand new experience that kept the pups entertained for quite a while.

Grayson

Axel



Kelly Godfrey



We got Axel and Grayson from Canada when they were very young. They came from a litter of four, so they are brothers. Arctic wolves can have between 3 and 12 pups in a litter. Wolf pups are born blind and deaf, with blue eyes, but they soon can see and can howl as young as three weeks old. Arctic wolf pups are born with dark fur that turns white by about six months old, so Axel and Grayson are getting lighter by the day. Visit wolf.org and click on "Our Wolves" to follow the pups' progress through wolf logs, videos and photos! ■



True or False?

Read Notes From the Field, left, and see how much you remember!

- | | | |
|---|---|---|
| 1. Wolf pups are born with green eyes | T | F |
| 2. Wolf pups are born blind and deaf | T | F |
| 3. The number of wolf pups in a litter can be 25 | T | F |
| 4. Wolf cubs live in an eyrie | T | F |
| 5. Arctic wolf pups are born with dark fur | T | F |
| 6. Wolf pups can howl as young as three weeks old | T | F |

1. False 2. True 3. True 4. False 5. True 6. True

Arctic Pups Word Find

Use the Word Bank below to find as many words as possible in the Word Find puzzle. Words can run horizontally, vertically or diagonally.

Territory **Arctos**
Yearling **Teeth**
Weaning **Calf**
Musk Ox **Den**
Lupus **Cow**
Canis
Pups
Tundra

I	D	Q	E	D	G	M	N	A	B
W	E	A	N	I	N	G	X	X	O
N	N	Y	E	A	R	L	I	N	G
W	T	E	R	R	I	T	O	R	Y
B	L	M	T	H	K	G	C	T	A
P	U	U	C	U	A	S	A	E	R
U	P	S	C	A	N	G	L	E	C
P	U	K	O	Q	N	D	F	T	T
S	S	O	W	E	M	I	R	H	O
Z	J	X	P	V	V	T	S	A	S



Ann Reaberry

The Artwork Formerly Known as *Animalopolus Connectallus*

Art Review by Abbe Pedersen



Abbe Pedersen

Syrup bottles, coaxial cable, old window screens, thousands of zip ties, shampoo bottles, old bikes, milk jugs and yards of metal framework don't really call to mind the soft, green forest and the peaty bog, do they? But the spectacular vision of creativity and skill that is the sculpture *Moose and Wolf* manages to do just that.

This towering work of art made its debut in the Minneapolis Convention Center plaza in early June to kick off the 2016 Northern Spark Festival, which uses artistic expression of every kind to bring attention to this year's theme—*Climate Chaos/Climate Rising*. Festival organizers hold that people need facts

to make informed decisions—but stories and culture are the things that change minds and behavior, and art can create human connections to issues that seem tired or impossibly contentious.

Wolf and Moose was the winner of the Minneapolis 2016 Creative City Challenge. A collaborative effort by artists Christopher Lutter, Heid Erdrich, Kim Ford, Karl Stoerzinger, Coal Dorius and Missy Adzick, the sculpture (formerly known as *Animalopolus Connectallus*) consists of spectacle-scale animal sculptures of a wolf and a moose that are interactive, animated and illuminated.

The massive sculptures are constructed of found and recycled materials. Interactive features include stationary bicycles which, when pedaled, generate animations inside the bodies of the animals. Pull the wolf's rope and it lifts its massive head to howl at the sky, with red (or sometimes blue) eyes staring, while the illuminated, rotating Earth spins in its chest. The moose swings its antlers toward the wolf

as its chest reverberates with the beat of its heart (a huge bass drum). Pedaling also powers a small speaker that plays recorded works of poetry and stories reflecting our relationship with animals and the Earth.

Nancy Gibson from the International Wolf Center was on hand for the debut, speaking to the audience about wolves, moose and wildlands and then leading a “howl” to kick off the festival. People of all ages visited the Center's display table to handle wolf skulls and other natural artifacts.

Moose and Wolf beckons to the child in all of us to play, to pedal, to wonder, and to reflect on our place as humans in the natural order. As the age of climate change unfolds, scientists, researchers, politicians and artists are turning to animals with renewed appreciation of all we have learned from them and all they have given us, and revived sense of respect for their keen powers of awareness and their gift of living in balance with nature.

The sculpture will be on display until mid-October. ■



Sally Thornton



Joyme Halbritter, Minneapolis Convention Center Plaza, Northern Spark 2016, Northern Lights.mn



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