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FALL 2015



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INTERNATIONAL WOLF



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FALL 2015



Swings in Management Challenge Wolf Conservation in Wisconsin

Wisconsin's wolves have gone from federal to state authority and back again four times since they were listed under the Endangered Species Act (ESA) in 1974. Adrian Wydeven and Erik Olson believe that wolves can co-exist with humans, but active management is necessary to reduce conflicts, which is difficult when wolves are listed as endangered. The effects of swings in state management can create more intolerance for wolves, a possible increase in illegal killing and, ultimately, an even greater challenge to wolf conservation.

*By Adrian Wydeven
and Erik R. Olson*



What Have Wolves To Do With The Moose Decline In Northeastern Minnesota?

Do wolves, in fact, have a bearing on the declining populations of moose in Minnesota? In an interview with Dr. L. David Mech, *International Wolf* poses questions aimed to get to the heart of the matter. Mech's insights address continuing studies and summarize factors that are involved in the declining numbers of Minnesota's iconic animal.

*Interview by
International Wolf*



Bigger, Badder Dogs Could Help Western U.S. Sheep Ranchers

Ranchers in the western U.S. have reached out to researchers within the Wildlife Services division of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service to introduce "bigger, badder" dogs to protect their flocks from wolves. The study, now in the second year of a three-year project, is bringing together qualified ranchers and imported dogs to identify a breed (or breeds) that could outperform the smaller, white dogs that were used when coyotes were the main sheep predators. Researcher Dr. Julie Young, coordinator of the training, selection and placement of the livestock guard dogs, says sheep herders are eager to see the results.

By Tracy O'Connell



On the Cover

Photo by: Tom & Pat Leeson
Young wild gray wolf in Yellowstone National Park.

To view more of the Leeson's' photography, visit: www.leesonphoto.com/

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Luna—Photo by Darcy Berus

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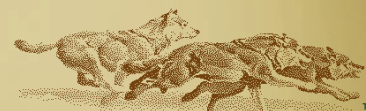
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From the Executive Director

Isle Royale. . . How Long Will the Wolves Last?

Islands are interesting places. And their ecology is more complex than what most people presume. Lake Superior's Isle Royale is no exception.

For decades, the spotlight has been on this remote, rugged place where leading researchers have studied the relationship between wolves and their main prey, moose, in a natural environment, relatively free of human interference.



Rob
Schultz

From this research we learned a great deal about wolves—how they live and how their survival correlates with a variety of natural factors. We've learned that life on an island evolves with time. Its relative isolation presents complications that scientists are still trying to understand. And the current state of the wolf population on Isle Royale prompts many questions that researchers are seeking answers to. Despite an average of about 25 wolves having lived on Isle Royale annually since 1949, only three remained in 2015.

Is a permanent population of healthy wolves possible on an island without regular infusions of new individuals? Are there environmental obstacles in these environs that affect the demography and

long-term survival of populations that we have yet to understand? How large would an island need to be to support enough wolves to overcome these kinds of barriers?

In April we learned about three wolves that arrived by ice bridge on Michipicoten Island, also in Lake Superior, and also having a large population of prey—in this case, woodland caribou. Scientists are eager to learn how these wolves fare in a similar, but smaller, island environment with abundant food, but isolated from other wolves and humans.

While the immediate future of the wolves on Michipicoten Island appears to be more promising than the fate of Isle Royale's present wolves, significant barriers challenge the survival of any species living with so few individuals and little, if any, introduction of new members bearing new genes.

While we are sad to see what may be an end to an era on Isle Royale, the most fascinating part of the story could, in fact, be yet to come. With an exploding moose population on the island and the reality that ice bridges continue to form, it could be just a matter of time before the next generation of wolves discovers Isle Royale, just as we're seeing on Michipicoten Island.

For those who follow, the future may be just as challenging—and fascinating—as the wolves that lived on these remote islands before them. Only time will tell.

Follow the fate of this long-term study at: www.isleroyalewolf.org. ■



Rob Schultz,
executive director



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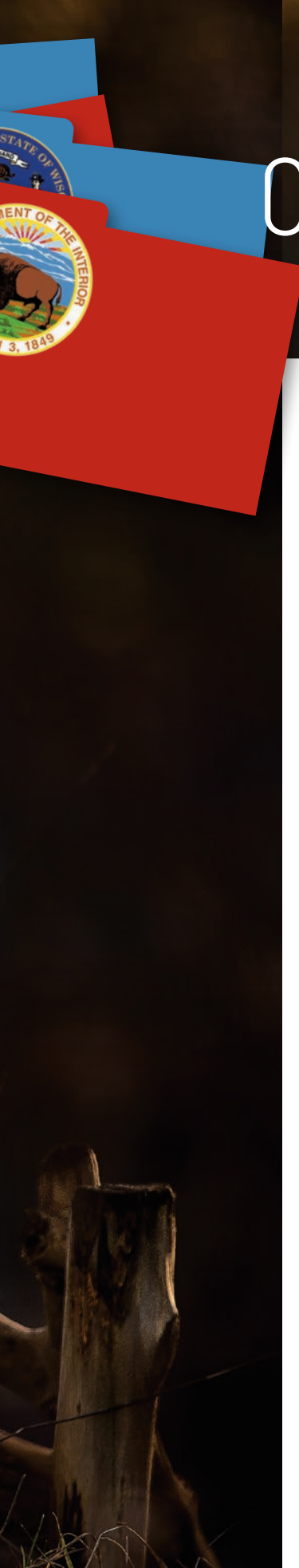
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Swings in Management Challenge Wolf Conservation in Wisconsin

By ADRIAN WYDEVEN
and ERIK R. OLSON





On December 19, 2014 wolves in the Great Lakes region reverted to federal protection under the Endangered Species Act (ESA)—threatened in Minnesota, and endangered in Wisconsin, Michigan and rest of the region, after being delisted early in 2012. This was the fourth time wolves had gone from federal to state authority and back again since they were listed under the ESA in 1974.

While some cheered this decision, those of us long involved in the conservation of wolf populations across the region cringed. We recognized that this action would likely lead to more intolerance for wolves and possibly an increase in illegal killing, ultimately making wolf conservation an even greater challenge.

To many this may sound counter-intuitive. The ESA is a powerful law for protecting endangered wildlife. The listing of gray wolves in the Great Lakes Region was undoubtedly a critical step to the recovery of wolves in the region. Under the ESA, the wolf population in the region grew from around 750-950 wolves only found in the arrowhead of Minnesota to a regional population of roughly 3,800 wolves in midwinter of 2014 found throughout northern Minnesota, central and northern Wisconsin and the upper peninsula of Michigan.

Early on, wolves established packs on large blocks of forest land with low road densities, but as the wolf population grew, wolves began establishing in areas with greater potential for wolf-human conflict. Unfortunately, the ESA does not provide much flexibility for state wildlife managers to manage conflicts, especially when wolves are listed as endangered. For example, since 2003 wolves in Wisconsin were reclassified or delisted four times: in 2003, 2007, 2009 and 2012, and relisted four times: in 2005, 2008, 2009 and 2014 (see page 7, History of Western Great Lakes Wolf Management Authority).

Additionally, court cases have caused other important changes in wolf management during this time. For example, in both 2005 and 2006 Wisconsin and Michigan received permits from the federal government to kill wolves that attacked livestock or pets near homes, and court cases in 2005 and 2006, respectively, revoked those permits. This back and forth in wolf regulative authority from protective to management-oriented has been likened to a game of ping-pong by some wildlife biologists—where the *game* of wolf management turns into a win-lose political competition between stakeholder groups. These swings in management authority have fostered

negative attitudes and intolerance toward wolves and the ESA.

The Wisconsin Case study

In Wisconsin we have observed an increase in illegal killing associated with increased frustrations over inconsistent wolf management. In the 1990s only about 24 percent of radio-collared wolves were dying from illegal killing, but in the early 2000s that number rose to 37 percent, and by 2010 and 2011 it was up to 43 percent.

After more careful examination it became apparent that illegal kill rates have fluctuated with wolf management authority since 2003 when wolves were first reclassified to threatened in Wisconsin. In the four years when wolves were mostly reclassified as threatened or delisted, and active state management was in place, an estimated average of 5 percent of wolves one year old or older died each year from illegal killing. However, during the five years when wolves were mostly listed as federally endangered, the average illegal kill was about 10 percent of the adult population.

In the journal “Conservation Letters” Olson et al. (2014) carefully examined trends in illegal killing relative to management authority. The study found that during 2003-2011, a total of 222 wolves were killed legally in Wisconsin for attacking domestic animals or for human safety concerns. During this same period a conservative estimate of 390 wolves were killed illegally. In another analysis, this study found that radio-collared wolves were twice as likely to be killed illegally in winters following summers where legal lethal controls were not available.

There was also a strong relationship between rates of illegal killing and the percentage of year with state management authority. With less state management authority, higher rates of illegal killing were observed. There was also an inverse relationship between legal lethal controls and illegal kills. As lethal controls increased with more depredating wolves being removed, rates of illegal kills declined. If lethal controls were possible for more than half of the year, rates of illegal killing would likely be less than those for



Kristin J. Garland

While poaching of wildlife should never be condoned, growing rates of illegal killing also signal frustrations with wolf management policies.

wolves removed in wolf-human conflict situations.

Illegal killing of wolves has been an ongoing mortality factor in Wisconsin since wolves recolonized the state in the mid-1970s. The Wisconsin wolf population declined to only 14 in the mid 1980s, probably due to a combination of canine parvovirus and high rates of illegal kills. By the 1990s attitudes toward wolves seemed to have improved and illegal kills declined, allowing for rapid growth of the Wisconsin wolf population growing from 34 wolves in 1990 to 205 in 1999.

Research by Stenglein et al. (2014) found that undetected mortality, likely cryptic poaching, was the highest during the 2003-2011 period when the swings in wolf management authority were the most frequent and extreme, relative to the 1980-1995 (second highest) and 1996-2002 (lowest) time periods.

Between 2001 and 2009, Adrian Treves, Lisa Naughton-Treves and collab-

orators conducted three attitude surveys across wolf range in Wisconsin (Treves et al. 2013). During that time, residents of wolf range indicating they would shoot a wolf if seen while deer hunting increased from 12.8 percent to 16.5 percent. Attitudes toward wolves seemed to generally decline during the period.

Christine Browne-Nunez and collaborators conducted focus groups with various stakeholders while wolves were federally listed in 2011 and after delisting and state management was begun in 2012 (Brown-Nunez et al. 2015). During the period attitudes did not change much, and many of the stakeholders remained negative toward wolves. But it was also clear that negative attitudes were as much due to frustrations concerning how wolves were being managed, especially by the federal government. Although most participants did not indicate changes in likeliness to kill wolves illegally, 40 percent indicated the implementation of lethal controls improved their attitudes toward wolves. Changes in attitudes are not likely to occur over short periods, though wolf conflicts such as depredations on pets or livestock can create negative attitudes very quickly. However, changes to positive or more tolerant attitudes are more likely to occur over much longer periods. While attitudes may take time to change, based on our assessment, actual actions (illegal killing of wolves) may change much more quickly with changes in policy.

In winter and spring 2014, Bob Holsman with Wisconsin DNR Bureau of Science Services conducted one of the most comprehensive attitude surveys on wolves ever done (Holsman et al 2014). Responses were received from 59 percent of 8,750 surveys sent out throughout the state. Despite the growing rates of negative attitudes seen in the state in the 2000s, overall state residents remained fairly positive toward wolves. Even in

counties in wolf range, 44 percent of residents were favorable toward wolves and 24 percent were neutral. On an overall index of attitudes with 12 being extremely positive, 0 being neutral and -12 being extremely negative, wolf range residents averaged 2.5. When asked about desired wolf population for the state, residents in wolf range included: 19 percent wanting more wolves, 26 percent wanting the same as currently existed, 27 percent wanting fewer wolves, and 11 percent wanting no wolves. The wolf population at the time of the survey was estimated 660-687 wolves in mid-winter. A total of 62 percent of residents in wolf range supported wolf hunting and trapping seasons, while 21 percent opposed it. Most residents in wolf range supported use of lethal controls for wolf threats to human safety and attacks on pets or livestock, but they did not support the use of lethal controls to reduce wolf predation on elk or deer, or for wolf attacks on hunting dogs. In general, it appeared that most Wisconsin residents were willing to live with wolf numbers occurring on the landscape as long as adequate controls and flexible management were in place.

The ESA has been critical to wolf recovery in Wisconsin and the Great Lakes region. Keeping wolves protected when the wolf population was critically low was essential for recovery to occur. But conservation decision-making is complex, and the difficulties for transitioning from protection under the ESA to state authority extend beyond just wolves—although wolves definitely highlight this issue. With increasing wolf-human conflicts and inconsistency in management authority and ability to implement lethal control, negative attitudes toward wolves began to grow. As members of the public became frustrated, a backlash developed against wolves, and people took matters into their own hands. While poaching

of wildlife should never be condoned, growing rates of illegal killing also signal frustrations with wolf management policies. When a population of wildlife is no longer in need of endangered species protection, especially for those in need of active management, keeping such protections in place can become counterproductive. Law enforcement of illegal killing is difficult when attitudes regarding wolves and wolf management are so negative. It is also difficult to investigate and prosecute illegal killing because that is often done secretly. Most illegal wolf kills occur in remote areas and wolf carcasses are rarely found unless radio-collared at the time of the shooting.

Across the United States all large wildlife exists as a consequence of attitudes toward the species, and the decisions to actively manage or provide conservation for them. Thus, ultimately all large wildlife is under some level of human control. Few wild or wilderness areas exist to allow large wildlife species to undergo natural population fluctuations without any human intervention. This is especially true for gray wolves living in places like Wisconsin. Wolves can co-exist on this landscape with humans, but active management is necessary to reduce conflicts. Ultimately humans will control generally where and how many wolves exist on the landscape. If we manage the wolf population through a highly regulated system of sustainable harvest and focused depredation controls, the wolf population is less likely to be controlled by poaching and illegal killing. For long-term wolf population viability, this will prove to be better conservation of wolves than having them overprotected through regulations that can't be defended or enforced. ■

Erik Olson is an assistant professor of Natural Resources at Northland College in Ashland Wisconsin where he teaches wildlife-related courses. Erik's research has focused on wolves and other wildlife both locally and internationally.

Adrian Wydeven retired as a wildlife biologist from the Wisconsin DNR in January 2015 after 33 years working for the agency, and between 1990 and 2013 headed up the state wolf recovery and management program.

History of Western Great Lakes Wolf Management Authority

After their initial protection in 1974, wolves in Minnesota were reclassified as threatened in 1978, a classification status which allows more management authority for the state, while wolves in Wisconsin and Michigan remained listed as endangered. On June 29, 1998, Bruce Babbitt of the Clinton Administration announced the start of a reclassification process for the Western Great Lakes, with the intent to delist wolves in the region from the federal list of endangered species, because it appeared the wolf population in the region would achieve recovery levels in the near future. The wolf population was estimated at about 2,800 wolves for the region, but nearly 90 percent existed in Minnesota. The reclassification process officially began in 2000, but when completed in 2003 it was modified to all wolves in the region being reclassified as threatened as part of a large Eastern Wolf Distinct Population Segment (EWGPS). The DPS ran from the Dakotas to New England on the Atlantic Coast, but only Wisconsin, Minnesota and Michigan had breeding populations of gray wolves.

Court challenges to the reclassification resulted in wolves in the region returning to endangered status in 2005, except in Minnesota where they remained listed as threatened.






The next reclassification attempt in the region began in 2006 and was completed in 2007. This time the DPS was reduced to the Great Lakes region, similar to the proposal by Babbitt in 1998. This process was also reversed in 2008 by a court decision. Wolves were again delisted in spring 2009, but were relisted two months later.

A revised delisting rule was developed in 2011 and completed on January 27, 2012. By the time of this delisting under the Obama Administration there were an estimated 3,700 wolves in the region, with 40 percent of those wolves occurring in Michigan and Wisconsin. Because of a new court challenge, wolves were relisted on December 19, 2014. Thus, this wolf population that was ready for delisting and reverting back to state management back in the late 1990s, in 2015 continues to be federally listed as endangered and threatened.



Cheryl Schneider

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Russ Osborne



What Have Wolves To Do With The Moose Decline In Northeastern Minnesota?

Moose are an iconic species in Minnesota, not only as big-game animals, but also for the thrill these massive beasts give to people who view them under any circumstances. During the past 30 years Minnesota's moose numbers have suffered a serious decline raising concern over the direction the moose population is heading. Some studies have been done to determine the cause or causes, and others are underway. Initial studies seemed to indicate that warming temperatures might be an important cause of the decline, but the evidence for that was found to be faulty. Since then other factors, including wolf predation, have become suspect. *International Wolf* asked U.S. Geological Survey senior research scientist Dr. L. David Mech to discuss this situation. Mech recently published the results of one study on this subject.

International Wolf: What is the recent history of moose in Minnesota?

Mech: A half century ago, moose lived throughout much of northern Minnesota, with up to about 9,000 in northeastern Minnesota and 4,000 in northwestern Minnesota. The population fluctuated considerably but did support regulated hunting seasons.

International Wolf: Specifically, where do moose live in Minnesota?

Mech: What's left of the northwestern Minnesota moose population occupies an area south to southwest of Lake-of-the-Woods near Baudette and Warroad. In the northeast, moose occupy an area roughly northeast of a line between Two Harbors and Voyageurs National Park, right up to the Canadian border.

International Wolf: How many moose are left now?

Mech: The northwest population declined to less than 100 in 2007 (the last population estimate), and the northeast population to about 3,500. Bear in mind that, as with most wildlife numbers, moose estimates are rough, even though the animals are more easily seen from the air than most other species. Still, the confidence limits around the estimate indicate that one can be 90 percent confident that the real number is between 2,610 and 4,770 in northeastern Minnesota.

International Wolf: When did Minnesota's moose population begin to decline?

Mech: Moose actually increased from the 1960s until the mid-to-late 1980s when numbers peaked. They have declined ever since in northwestern Minnesota, and since 2006 in northeastern Minnesota.



USFWS / Ryan Hagerly



Sharon Somero

International Wolf: Are moose still being hunted?

Mech: No. Hunting was halted in northwestern Minnesota in 1996 and in northeastern Minnesota in 2012, even though studies showed that hunting was so light that it seemed to have little effect on the decline.

International Wolf: What do we know about the cause of the moose decline?

Mech: Well, it's complicated! In northwestern Minnesota, quite a thorough study, already published, tested several factors: parasites and diseases, predation, hunting, high temperatures, competition with deer, and habitat quality. The biologists concluded that parasites, diseases, high temperatures, chronic malnutrition, and nutrient deficiencies all combined to cause the decline.

International Wolf: So wolves were not implicated in the northwestern Minnesota moose decline?

Mech: Correct.

International Wolf: What about in northeastern Minnesota?

Mech: The ecological situation is considerably different there. Northeastern Minnesota is a less fertile area with higher precipitation, both snowfall and rainfall. A high proportion of the moose in that area tend to live northeast of Ely, up along the Canadian border where deer are sparse, and in winter non-existent. The area is speckled with lakes, ponds, and various waterways.

International Wolf: How do these differences affect the moose decline?

Mech: In some of the moose range there, wolves have little else to eat except moose in winter and moose and beavers in summer. In the northwestern moose range, wolves could feed on deer year-around. Thus, one might expect that in northeastern Minnesota wolves might affect moose numbers more, somewhat like on nearby Isle Royale, where there are no deer.

International Wolf: Is there any evidence, then, that wolves might have been a factor in the northeastern Minnesota moose decline?

Mech: Well, as moose declined, wolf numbers increased. This is especially true of the relationship between wolf numbers and the calf:cow ratio the following year (see graph). Out of a perfect correlation of 100 percent, wolf numbers correlated negatively with the calf:cow ratio by 75 percent. That's probably more than coincidental.

International Wolf: But correlation is not causation, right?

Mech: Correlation is not necessarily causation. However correlation can be a good clue to a possible causal relationship. And that is what could be the case here. We know from many other studies that the primary type of moose that wolves kill are calves, especially during summer.

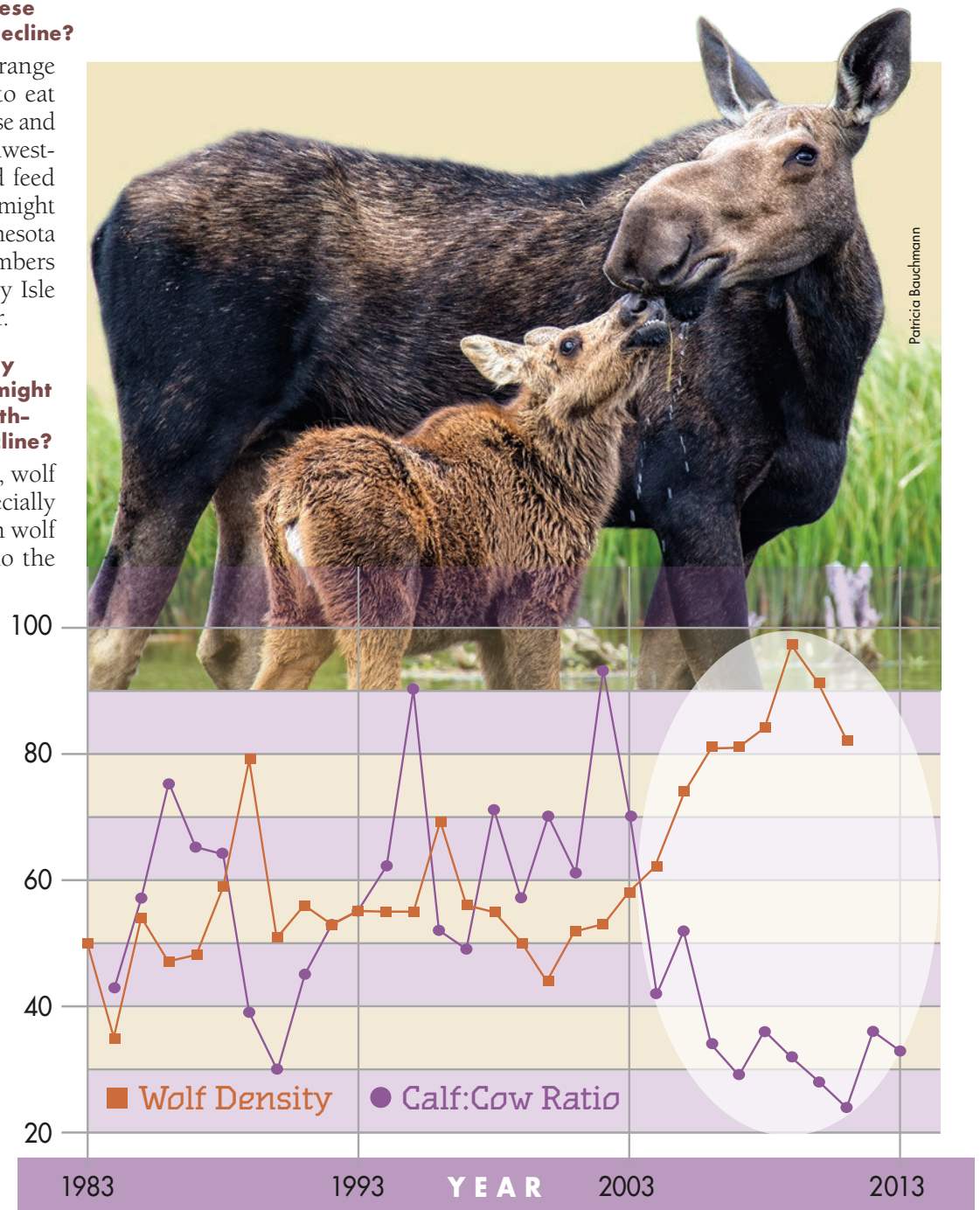
International Wolf: But wolves and moose have been living together in northeastern Minnesota for much longer than before when the moose began declining. Why would wolves just now be involved with the moose decline?

Mech: Wolves in this area were beset by a new disease, canine parvovirus, for many years but finally developed resistance, and that allowed them to increase. As they increased each year, the rate of moose calf survival the next

summer—measured by the calf:cow ratio the next winter—declined.

International Wolf: Is part of the problem with the moose decline the fact that adult mortality is unusually high?

Mech: Yes, and that problem may or may not be caused by wolves. The Minnesota Department of Natural Resources has radio-tagged more than 100 adult moose. Wolves have killed many of them, but others have died from parasites, acci-



Source: Wolves (Dave Mech and Shannon Barber-Meyer, USGS) and Moose (Glenn DelGiudice, MN DNR) in NE Superior National Forest



Tim Schleicher

Doug Brown

dents, and other miscellaneous causes. The mystery remains as to what it is about these moose that subjects them or predisposes them to all these types of losses.

International Wolf: So the moose decline could be caused by problems both with the annual calf crop and with the adult moose?

Mech: Yes. Maintaining a population at a given level depends on the adult segment surviving at high enough numbers so that the number dying each year is about equal to the number of new calves that survive to adulthood. If the calf crop is larger than the number of adults that die, the population increases. If the calf crop is too low to replace the adults dying, the herd decreases.

International Wolf: If wolves do constitute a significant part of the problem, does that just mean that eventually there won't be any moose left where moose are the wolf's only year-around prey?

Mech: No. Probably not. As has been the case on Isle Royale, if moose numbers drop too low, then wolf numbers also drop. That would take some wolf pressure off the moose herd, and both calf and cow survival could increase.

International Wolf: Any sign of that happening?

Mech: Actually since about 2009, wolves in the part of my study area that overlaps the moose study area have been declining. The calf:cow ratio during the past few years doesn't seem to be as low as it was in the previous few years, but it will take a few more years to see if there is a real upward trend in that ratio.

International Wolf: Do any of these findings mean that high temperatures are not a cause of the north-eastern Minnesota moose decline?

Mech: No. They just mean there still is no valid evidence that high temperatures are a cause. Perhaps some evidence will still show up in the ongoing studies.

International Wolf: To summarize, then...

Mech: There is some evidence that an increase in the wolf population in the northeastern Minnesota moose range may have reduced the annual moose calf crop and thus the moose population. However, during the past few years, wolves in that area have declined, which could improve the calf crop. Hopefully, the continuing studies by the Minnesota Department of Natural Resources will learn what other factors are involved. ■

Dr. L. David Mech is a Senior Research Scientist with the U.S. Geological Survey, and the founder and vice chair of the International Wolf Center. He and his colleague, Dr. Shannon Barber-Meyer, are conducting a long-term study of the wolf population in part of northeastern Minnesota.



Bigger, Badder Dogs

Could Help Western U.S. Sheep Ranchers

by TRACY O'CONNELL

Sheep ranchers in the western U.S. worried about wolf predation are getting a hand from federally managed multi-year research that seeks to introduce “bigger, badder” guard dogs to protect their flocks.

Dr. Julie Young, who heads the effort, notes that sheep herders have reached out to her organization for help. The guard dogs they had traditionally been using were smaller breeds selected nearly 40 years ago for use when coyotes were the gravest threat facing the flocks.

These breeds—typically Great Pyrenees, Akbash, Komondors, Maremmas, and sometimes crosses of

these breeds—range from 23 to 31 inches (70 to 80 cm) high at the shoulder and weigh 66 to 134 pounds (30 to 61 kilograms). Selected for wide use in livestock guarding situations, based on research in the 1970s, they are collectively called white dogs because of their primary color.

Sometimes their breeds are referred to by other names; sorting out distinct

breeds is difficult when common crosses or breeds differentiated only by their coat length or color, or the language spoken in the geographic area, are known by similar names. By whatever name, they are doing fine in their protection tasks, Young notes of the white dogs, especially as many are mature and showing the results of years of experience. The larger threat is now from wolves, weighing more and needing a more formidable opponent.

Young is the supervisory research biologist with the Logan, Utah, National Wildlife Field Station. The Station is part

Julie Folk



T. Novotny

shutterstock/Koraysa

Kangal

**Ranchers are eager
to see the results
of the experiment,
Young says, explaining
that science
takes time.**

of the Wildlife Services division of APHIS (Animal and Plant Health Inspection Service), itself nestled within the United States Department of Agriculture.

Returning to the initial breed selection research from decades ago, Young and her colleagues moved up the size chart to recommend three larger breeds—Kangals, from Turkey; Karakachan from Bulgaria, and Cão de Gado Transmontano from Portugal. Overall, these breeds average 27.5 to 29.5 inches (70 to 75 cm) at the shoulder and weigh 88 to 143 pounds (40 to 65 kg).

To qualify for the study, ranchers need to have enough sheep to occupy the attention of three dogs, the minimum number placed at each ranch. That would be flocks of 150 or more ewes, with their lambs; preferred are flocks of 300 to 500 ewes, plus lambs. Not all ranchers interested in participating have enough sheep to guard, and some are maxed out in their capacity for guard dogs with the existing, smaller white breeds.

Much of the actual selection and placement involved in matching ranches and dogs relates to logistics, Young says. The selected breeds are not commercially available in the U.S., so they must be imported. While driving around Europe on a buying trip, the car filled with frolicking pups, might seem like an idyllic gig, the reality is different. The budget doesn't allow European travel to select dogs. "I was going to Europe for another purpose and managed to get a couple extra days," Young explained. This enabled her to meet with people in the countries where the targeted breeds are found who were experienced in training, selection and placement of livestock guard dogs and who would handle the European end of the project.

These relationships have proven pivotal in establishing a pipeline of pups coming to the U.S. "We want to have an equal number of dogs of each breed in each study site," Young notes—Washington/Oregon, Montana/Wyoming, and Idaho. The demand for the dogs is there, but the arrival of pups does not always make scheduling easy. They depart from various European air-

ports, in various numbers, at times that are not always predictable, but which must fit within a window dictated by the paperwork required to ship the dogs. Some pups have not survived the flight.

The ideal plan is to take the pups from the airport to their new homes, says Young, who is assisted by technicians and grad students. While 90 percent of the placements work out this way, some pups arrive while the staff is away delivering other dogs across vast regions. On those occasions Young arranges with local sheep owners to take the latest batch of pups until final delivery can be arranged, to ensure the bond between dog and sheep is not severed by time.

Once in their new homes, the dogs must differentiate threats to the flock from non-threatening situations—for instance, to not attack herding dogs, which are smaller breeds that move the sheep from one location to another. Wildlife Services warns those walking, bicycling or riding horses on multi-use land where sheep are grazing, about the possibility of being challenged by guard dogs. Hikers are warned to keep their own dogs leashed, and bicyclists are told to walk their bikes in the presence of these dogs, because the slower pace will not be seen as threatening to the flock, compared to the speed of a cyclist riding.

The ability to bond with sheep and to not be aggressive toward humans or livestock are among the attributes being studied, in addition to success in thwarting predation. The new protection dogs will be monitored with direct observation and GPS to see how they perform. Each comes from a similarly mountainous region in Europe, so climate is not seen as a differentiating factor in the performance of the various breeds.

In addition to dissuading predator attacks, there are other advantages to using livestock guard dogs. They can keep possibly diseased wildlife away from the animals being guarded and provide the bonus, to purchasers of food products from such a flock, of knowing that nonlethal means of protection were used.

Young is completing the second of three years of research, preceded by plan-



ning. While work is done year-round, the high season is April to October, when sheep are typically moved from place to place as grazing conditions change. At the close of her work in 2016, the results will be assessed and reported. Young wants to see how each of the new breeds performs, compared to the other new breeds and to the existing white dogs, which serve as controls. While wolves are the main cause for the research, Young is looking at experiences with other predators that frequent sheep country, including bears, bobcats and cougars. Ranchers are eager to see the results of the experiment, Young says, explaining that science takes time.

If these bigger, badder dogs do the trick, the effort could be favorable to the image of Wildlife Services, which has been accused by several non-profit

conservation organizations in two lawsuits filed in February and March of this year, of eradicating predators at the request of ranchers, instead of recommending non-lethal means of livestock protection. ■

Additional Analysis:



Rigg, Robin. Livestock guarding dogs: their current use worldwide. 2001. Slovakia, Published by the Canid Specialist Group of the International Union for Conservation of Nature. (available online)

Tracy O'Connell is associate professor emerita at the University of Wisconsin-River Falls, where she taught marketing communications. She serves on the IWC's magazine and communications committees.

Professional Dialogues Remain Relevant to Captive-wolf Managers

by Lori Schmidt

In October 2005 the International Wolf Center (IWC) sponsored a symposium in Colorado Springs; as part of the symposium a meeting of captive-wolf managers was convened. The meeting included feedback from 18 facilities managing socialized wolves for educational purposes and non-socialized wolves as part of the Species Survival Plan (SSP) administered by the United States Fish and Wildlife Service. It has been 10 years since the Colorado symposium, but the topics discussed then are relevant today, especially prior to the arrival of the IWC's 2016 pups. So, what are the topics on the minds of captive-wolf managers?

Social Pack Dynamics—maintaining cohesive pack structures

It is critical that the Center's pack be a stable unit prior to the pups' arrival.

Since March 2011, Aidan has been the pack leader and has shown strong dominance with the 2012 litter. As a maturing juvenile, Boltz attempted to climb rank, but was decisively stopped by Aidan. It is critical that the pack has strong leadership; without leadership, juvenile wolves seem to keep testing for status until pack members enforce limits or, in the case of the 2000 litter of Shadow and Malik, until they force the older wolves into retirement.

Enrichment Techniques—new and innovative facility designs to enhance exhibit

During the summer and fall of 2015, the Center embarked on some significant capital improvements for the wolf care program. One phase of the cam-

paign involved a building expansion to allow the pups' direct access from the pack holding area into a secure and dry lab space to maximize their socialization time and improve the facility for those staff and participants working with pups 24 hours a day. Another phase included improvements to the pond for better cooling in the summer and a forest-thinning project to reduce the risk associated with wildfires.

Handler Interactions with Wolves and Handler Safety Issues

Another critical initiative for the year prior to the pups is the need to maximize safe handler interactions with all of the adult wolves in the Exhibit Pack. Just because wolves are socialized, doesn't necessarily mean they respond to all handlers equally. Wolves have differ-



ent responses to different staff—some very social, some a little less trusting. But, when we introduce pups, there is so much excitement in the enclosure that we need all available handlers to oversee the introduction. If a particular wolf is unfamiliar with a handler or is uneasy, even the slightest tension can cause redirected aggression to a pup or a lower ranking handler. Our introduction plan is adamant that the handlers in the enclosure, or even in the wolf yard, during the introduction week *must* have a good relationship with both adult wolves and the incoming pups. One thing about a pup introduction—lessons learned from past practice are valuable, but we can't be complacent when it comes to the individual personalities that form the Exhibit Pack. ■

You can follow the progress of the 2016 pups starting in late May 2016 on wolf.org, YouTube and Facebook, until their tentative introduction to the pack around the first week of August 2016.



Wolves, Dogs and Guests Howl at the Moon in Honor of Program Success

by Margo Ensz

If you heard a chorus of howls in Roseville, Minnesota on May 7, chances are it was the sound of guests, members, and supporters enjoying the festive atmosphere of the International Wolf Center's Howl at the Moon Gala!

The event, now in its second year, supports the Center's education programs, including the Wolves at Our Door free public school program for Twin Cities metro-area students, WolfLink videoconferencing programs and Wolf Discovery Kits.

After a welcome from Executive Director Rob Schultz, special guest, actor and International Wolf Center (IWC) member James Denton gave a short and impassioned speech about his family's support of the Center's mission and educational focus. He returned to the stage later in the evening to join board member Cindy Carvelli-Yu for a comedic and successful live auction.

Prior to the event we invited Facebook followers to post videos of their pet dogs howling like wolves. The top five videos were showcased at the gala and a panel of expert judges (board members

continued on page 19



James Denton



Photos: International Wolf Center

INTERNATIONAL WOLF CENTER

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Thank You!



International Wolf Center

Centerpieces of children's cards

Continued from **Howl at the Moon Gala**,
page 17

Judy Hunter and Dr. L David Mech were joined by Denton's daughter Malin) rated each dog's "performance," which, along with previous votes by attendees, determined the winners of the competition.

Board member and co-founder Nancy Gibson delighted the crowd with recollections of the early days of the Center and the challenges the founders faced. She emphasized the imperative and lasting commitment the Center has to education, and the impact that members, donors, and supporters have on educational programs.

Mech, IWC founder, continued the reflection on the 30-year anniversary to a captive audience. He spoke of the need researchers and biologists found over 30 years ago for unbiased and fact-based information on wolves, and how the International Wolf Center became the answer to that need.

The night would not have been complete without an interactive visit from the Center's ambassador wolves. Curator Lori Schmidt spoke over recorded video of Luna, Boltz, Aidan and Denali, describing their behaviors, and, true to the theme of the night, featured videos of the wolves' various howls. ■

Margo Ensz serves as the International Wolf Center's membership specialist.

Wolves of the World

Roving European Male Wolves Make Tracks in New Turf

by Tracy O'Connell

A wolf was first spotted in the Netherlands in early March of this year, believed to have walked to Drenthe, a province in the country's northeast, from nearby Germany. A similar-appearing animal was captured in photos taken from quite close range, resulting in speculation that the animal was unafraid of humans. The arrival was reported in various media and on the Web site *Wolven en Nederland*, dedicated to the anticipated arrival of a wolf in the Dutch countryside.

The site's mission states in part: *Media tell us wolves evoke lots of emotions, as truths, half-truths and untruths are being*

told. Not only this, but also the belief that wolves indeed are advancing towards the Netherlands, made us decide to investigate the facts about wolves and to prepare for their arrival. Together with a broad network of colleague organizations we'll prepare to give the wolf a warm welcome when it places its first paw on Dutch soil.

The blog *wolveswolves* is among several media reporting of the visit and posting citizen videos of the wolf visiting the Netherlands and the wolf, believed to be the same, 121 miles (200 km) away in Germany. Last year the Netherlands addressed the possible arrival of wolves with a law making it illegal to hunt them.

Meanwhile the site *Wolven en Nederland* has reported other wandering

lone males across Europe. One, a radio-collared yearling from eastern Germany, left his pack's territory in March. After a three-week stroll he ended up west of Berlin, but the return journey the same way took only three nights. Since then, the site reports with a note of anthropomorphic humor, "the youngster stays at his parents' place." It predicts that he will probably leave again at the age of two.

Another reported March disperser is a one-year-old named Alan, radio collared in Lausitz (Lausatia in English), a region in Central Europe that includes part of the German states of Saxony and Brandenburg as well as western Poland. By the end of April Alan left his natal pack and spent three weeks in June in one area of eastern Poland, near the Biebrza marshes. Latest reports have him residing in Belarus after a journey of over 1000 km (621 miles).

Also in March, *PraguePost.com* reported a fresh photo from a camera trap proving the presence of a wild wolf in the Šumava Mountains, southwest of Bohemia. The photo shows a male strolling the right bank of the Lipno reservoir near the village of Loucovice. Previous sightings in prior months also disclosed the presence of lone wolves in nearby locales. "We discussed the photo with our partners in the region and also experts in Saxony, Bavaria and Italy. We know it is a wild animal," Tereza Minaříková, from ALKA Wildlife, a non-governmental organization formed in 2007 and focused on ecology and conservation, told the Czech News Agency.



**Pet Food Company
Promotes Wild Lands,
Wolf Freedom**

Almo Nature, a pet food company, has released several short videos on its Web site and You Tube channel



*A motorist captured
this image of a wolf running
along a highway near Drenthe, Netherlands.*



Martin Harvey



Thomas Krumenacker



Elizabeth Murray



Foundation for the Protection of the Arabian Leopard in Yemen



Andre DeCorie

addressing the role of wolves and biodiversity in protecting the environment. Founded in 2000 and based in Europe, the company claims to be the first in the world producing dog and cat food made entirely of pure ingredients, and without additives. Its Web site addresses a range of environmental concerns including the type of product packaging used and the reduction of CO₂ carbon emissions. With products sold throughout much of Europe and parts of the United States and Canada, the company believes these videos provide shoppers information about an added environmental benefit when buying pet food sourced in a region rich in biodiversity.

As reported on the blog *wolves-wolves*, Almo Nature is convinced that the native predators which live in the Italian regions, such as wolves and bears, can in fact give real added value to the agricultural products of those areas, and can be positively identified with them in the promotion and sales processes.



Norway Jails Wolf Poaching Ring

Norway has jailed five men found guilty under organized crime laws of hunting wolves illegally. In what has been called a landmark case, the men were each sentenced from six to twenty months in jail. Four are appealing the decision. Norway is believed to have one of the lowest wolf populations in Europe and a strong hunting ethic, as described in the Summer 2014 issue of *International Wolf*, which reported research examining the different attitudes toward hunting between the neighboring nations of Sweden and Norway, which share a long border encompassing wolf territory.



Range Needs of Cheetahs, African Wild Dogs Studied

African wild, or painted, dogs are the canids most demanding of large range in Africa. Of the wild cats, cheetahs most need lots of space. Hence, the two are being studied together in a process engaging government, community and private interests in what is called the Range Wide Conservation Process, described at www.cheetahandwilddog.org/. Both species have a great deal in common, including a pattern of living in low densities and ranging widely, and

both face threats resulting from range fragmentation and loss of habitat.

Recent articles in *International Wolf* have addressed the Ethiopian wolf and the discovery that some golden jackals might be a wolf subspecies. How do painted dogs (*Lycaonpictus*) fit in? Marked with colorful splashes of black, brown and orange, and with large ears that have been called bat-like, they are distinct from wolves, coyotes and domestic dogs, but more closely related to them than to other canids.

Wolves of the World
continued on page 22

Listen! Was That a Wolf?

by Nancy Jo Tubbs

Want to be part of a citizen science project that puts you up close and auditory with gray wolves, red wolves, coyotes, dingoes and maybe your own dog? The Canid Howl Project invites you to join with scientists from around the world to listen online to the recorded voices of canids, including European, Iberian and Asian wolves. From the project website, volunteers hear a vocalization, view a spectrogram (a graphic picture of the sound) and, using the mouse, track the frequency and pitch of the howl as it varies.

Researchers will use the data gathered by citizen scientists to evaluate thousands of canid calls recorded in the wild, at zoos and from people's homes of domestic dogs. From this, a consortium of scientists wants to learn what the various calls convey. Is a wolf defending its territory? Is a pack preparing to hunt? Which animal or pack is howling? Scientists want to know whether broadcasting some territorial calls from ranches would keep wolves away from livestock.

Why involve so many volunteers? "Analyzing these recordings is difficult and time consuming," the Canid Howl Project website explains. "It's easy to make mistakes, and mistakes can change the conclusions that we draw. By having hundreds, even thousands, of volunteers giving their own analysis of the canid howl sounds, any one mistake is unlikely to change the overall interpretation."

You can participate or contribute a recording of your own dog's howls to the project at howlcoder.appspot.com/HowlCoder.html. This is a fascinating way to join the proud traditions of citizen science and conservation biology while listening in on the mysterious language of wolves.

Continued from **Wolves of the World**, page 21

Once believed to number over half a million spread across 39 countries in Africa, today there are believed to be fewer than 5,000, representing five sub-species in perhaps as few as 14 nations. They are the largest of the African canids and the only canid without dewclaws on the forelimbs. They are also variously called the African hunting dog, Cape hunting dog, painted wolf, painted hunting dog, spotted dog, or ornate wolf.

Compared to wolves, painted dogs are smaller and lighter, but larger, than other African canids. No two have the same coloration. Painted dogs have a unique vocalization used to communicate with their pack—rather than a howl, it is described as a birdlike chirping sound. Like wolves, they run long distances in hunts for prey that include small to medium sized ungulates like the Thompson's gazelle or impala. Hunts end in a kill more than 80 percent of the time.

As with wolves, only the top-ranked female in a pack reproduces.

Painted dogs have litters ranging up to 19 pups, with 10 the most common number. Adults are left behind to guard the pups, in some cases including males, while females join the hunt. ■

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



Nick Scott-Smith

Painted dogs are smaller and lighter than wolves, but larger than other African canids. No two have the same coloration.



Nick Scott-Smith



Tim Lumley

Projects Consider Increased Elk Populations for Minnesota

The possibility of increasing elk populations is gaining momentum from the Legislative-Citizen Commission on Minnesota Resources (LCCMR) with one project in its early stages and another being considered for funding in 2016. Two small elk populations in northwestern Minnesota are currently being managed at low levels to avoid problems that can arise when elk cause agricultural damage.

The LCCMR granted \$200,000 for a Minnesota Department of Natural Resources project to GPS-collar 20 adult elk in January 2016 to study the animals' home ranges and how they use habitat throughout the seasons. The DNR contributed an additional \$69,250 toward the project that is geared to predict where elk numbers might naturally expand and new populations might reasonably be located.

The University of Minnesota has submitted a proposal for a \$325,541 grant from the LCCMR for two feasibility studies in northeastern and east-central portions of the state. One would evaluate portions of Pine, Carlton and St. Louis counties for habitat suitable for restoring elk, and the second would survey residents of the areas for the level of support for a restoration effort. If approved, the project would run from 2016 through mid-2019, led by scientists from the University of Minnesota Department of Fisheries Wildlife and Conservation Biology, the Minnesota Cooperative Fish and Wildlife Research unit, and the Fond du Lac Resource Management Division.

The end result would be more elk for Minnesota and another menu item for wolves.

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

Personal Encounter

A Wolf, Alone on the Coastal Plain

by Jonathan C. Slaght

In northern Alaska the formidable Brooks Range yields slowly to a coastal plain—a flat, arresting expanse rolling confidently north for 125 miles until stopped dead by the Arctic Ocean. This is a surreal landscape of grasses, stunted shrubs, and standing water where travel is akin to walking on wet pillows, and sound is largely reduced to the static of wind and the whine of mosquitoes; two tyrants vying for dominance over this tundra kingdom.

I was riding shotgun in a battered, blue-and-silver Ford F-250 pickup on an early July day in 2010, a truck retrofitted by my brother to run on vegetable oil. We had just completed a three-day hike into and out of Atigun Gorge, where we battled alternating waves of mosquitoes and snow while negotiating gauntlets of mountain, rock and tundra. I was frankly relieved to return to the truck and discover it and its 50-gallon drum of vegetable oil unmangled; I was worried that, in our absence, a passing grizzly bear might sniff its way to our unguarded vat of deep-fried, French-fry-pungent sludge and choose to eviscerate it.

We eased along the Haul Road heading north towards the oil

town of Deadhorse, and with the Brooks Range at our backs and the cool wind of the Arctic Ocean ahead, I immediately noticed a lone wolf. He had little hope of slinking past unseen. Anything taller than a foot on the North Slope attracts attention and, despite the late hour, it never gets dark this far north at this time of year—eleven at night or five in the morning are just as bright as one in the afternoon.

The wolf limped across the gravel of the Haul Road before returning to the springy, moist substrate on the far side, where he paused to look back at us with curiosity and suspicion. I did not envy this animal; lone wolves are often animals dispersing through hostile territories; individuals perhaps driven forcefully from their natal pack and left to fend for themselves. Hunting solo offers few advantages for a beast accustomed to

the strength of numbers to take down much larger prey.

As the wolf moved I could not discern any obvious injury to explain the limp; perhaps it was the vestige of a swift kick from a fleeing caribou, or possibly a bite administered by the local pack that regarded him as a threat. If the latter, he had been lucky to escape, as trespassers are often killed. The wolf then turned away and pushed out across the endless carpet of tundra flowers, moving with slow deliberation and no obvious destination in sight.

It's been years since I visited the coastal plain, but this wolf encounter has remained vivid in my mind. It was a snapshot of beauty and solitude, a quiet moment between the ebbing of wind and the advent of mosquito when a wolf and I locked eyes, then continued on. ■

Jonathan C. Slaght is the projects manager for the Wildlife Conservation Society's Russia Program, where he oversees grants and is involved in research projects focused on Blakiston's fish owls, Amur tigers, and Siberian musk deer. He is the English-language editor of the Far Eastern Journal of Ornithology. His research and photographs have been featured and referenced in The New York Times, National Public Radio, Scientific American, Smithsonian Magazine, and Audubon Magazine, among others. Jonathan splits his time between Russia and Minnesota.



Jonathan Slaght

Book Review

Close Your Eyes and What Do You See? The Big, Bad Wolf?

by Nancy Jo Tubbs

Close your eyes and picture a wolf. Now, describe that animal. Two images come to my mind: A black, gray, brown canid trotting across the road on Van Vac Road near my home. And a zoot-suited, wolf-eared, seductive Jonny Depp crooning, “Hello little girl,” to Red Riding Hood in the newish movie, *Into the Woods*.

Debra Mitts-Smith’s book, *Picturing the Wolf in Children’s Literature*, guides the

reader and viewer through an academic’s introduction to wolf images seen by children of many cultures. They range from the realistic National Geographic’s Arctic wolf photos to the mythical Viking image of Fenir, the wolf that swallows the sun.

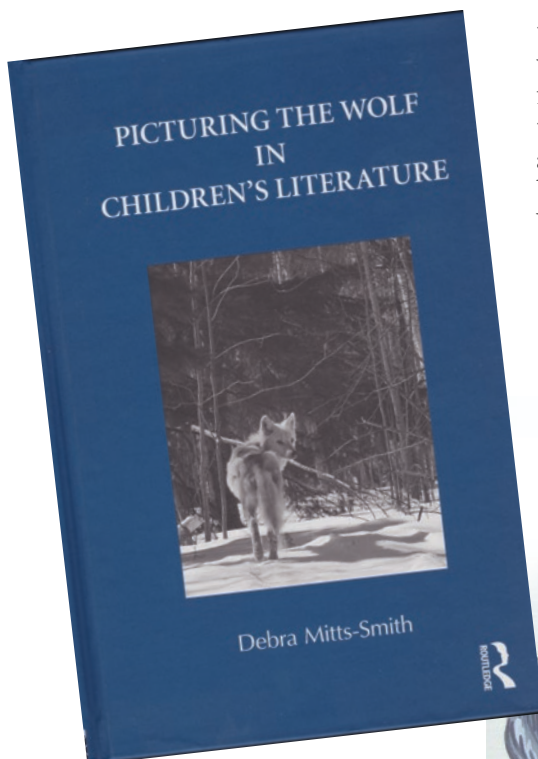
Mitts-Smith poses the idea that since the pictures in children’s books usually create the first, and often only, images of wolves most people see, they deserve serious study and reflection. Along with text, the photos suggest the social context, philosophy and emotions with which one may view this complex animal. For example, do we fear it like the monster under the bed or love it as a symbol of wilderness? To cover this broad spectrum, Mitts-Smith researched Western Europe and North American sources, including myths, fables, fiction and nonfiction that feature illustrations and speak to youth.

The book is rich with specifics and annotated references. An example: “Literary scholars Arthur Arnold, Sean Kipling Robisch and Sarah Greenleaf support the view that a child’s under-

standing of wolves depends on what a child reads (Arnold 1986, 101; Greenleaf 1992, 58; Robisch 1998, 256-95). So if a child reads Aesop’s *Fables* or Joel Chandler Harris’ *Brer Wolf* tales, the child will understand the wolf to be dull, slow-witted, and gluttonous, but if a child reads Rudyard Kipling’s *The Jungle Book*, then he or she will see the wolf as friendly to boys as well as courageous (Arnold 1986, 102-3).”

Readers can thematically track the wolf through the book, according to the ways complicated humans perceive this complex animal. We emerge from this reading to see the wolf in a range of identities. It is predator, packmate, a fabled fool, cousin to our pet German shepherd, a source of controversy as both endangered and hunted and, in some stories, a friend to children.

Adults will find this a useful guidebook to the wolf that is symbolic of fear or love of the wild in our lives. Perhaps it will lead us to differentiate between the wolf of *Red Riding Hood* and the wild wolf that, if we are lucky, crosses the road in front of us, stopping just long enough for us to register each other’s reality before it slips into the woods. ■



*Picturing the Wolf in
Children's Literature*

by Debra Mitts-Smith
2010 by Routledge
185 Pages



Carol Wellarova

A Look Beyond

Can the Wolf Center's Success Spread to Tigers in India?

by Nancy Gibson

A cow was chased in town last night. A woman was attacked as she walked along the road. Tracks were seen, rustling grass and prowling sounds echoed through the night. Light was breaking, but the previous night's tales sounded like home. I had just traveled almost 8,000 miles to India; this time the fears were of tigers, not wolves.

Large animals with big teeth that roam in the night cause some rather fearsome possibilities, yet they also enliven our world. Thus switching from education about canines to much maligned felines seemed a worthy prospect.

I had an open invitation to visit India from Dr. Yadvendradev Jhala, the senior professor and scientist at the Wildlife Institute of India. Whereas his studies once focused on wolves in India, his attention is now concentrated on tigers. Dr. Jhala, who studied in the U.S., has been a frequent and popular guest speaker at the International Wolf Center's symposiums and has been a visitor and supporter of the Center. He saw the Center's success and wanted to mimic it in India—for tigers. I coaxed my husband Ron to join me, and our son and his fiancé also couldn't resist the opportunity to see India, especially with inside help from tiger researchers.

The Bengal tiger and the pea fowl are the signature pride of India and the National Parks. Before dawn long lines of cars packed with visitors anxiously await zone assignments to get a glimpse of the famed wildlife. "Gypsy" jeeps bounce the rutted trails that are only open in the morning and late afternoon. Guides analyze footprints, study scratch marks and assess the calls of gray langurs and spotted deer for tiger alarm calls. Any

sign or clue gets adrenaline pumping, and off we race in pursuit of tigers.

Our first day in the field was coming to a close when someone spotted a rare sloth bear. We veered in its direction, but to our surprise we saw a tiger cub's head resting between the long grasses peering at us. Never doubt the power of camouflage, but this time good spotting won. The five-month-old cub rose and wandered over to its mom, which was belly up and sunning herself. She barely opened her eyes, but most likely she

knew the routine—cameras started clicking, whispering ensued, smiles broadened and indelible memories were cast.

During the next two weeks, we would see 10 tigers in four park reserves, and each experience confirmed the urgency to save this remnant population of tigers. Humans are their only hope, but also their demise. Last year 64 known tigers were poached for their body parts, often sold to a lucrative Asian market. India's national parks offer some refuge, but the very nature of tigers requires large territories for males to move long distances to limit competition. Each park is hemmed in by a burgeoning human population in constant conflict with wildlife. In addition to habitat needs,

continued on page 28



Nancy Gibson



Short Stories from Little Wolf:

While visiting the International Wolf Center in Ely, young wolf enthusiasts can visit a special area called "Little Wolf." In the Little Wolf area, kids learn about wolves through several fun activities. One activity is to write a wolf story! Below is a recent story.

Vocabulary

Rendezvous site:

A small territory or site where the pack lives when the pups are big enough and old enough to leave the more sheltered den site. The adults leave the rendezvous site to hunt while the pups wait for adults to return with food for them. Most of the time, an older wolf stays behind to protect the pups. This rendezvous site is also where the pack plays and sleeps. The pack uses the rendezvous site until the pups are large enough to keep up with the adults as they travel around their territory during late fall and winter.

Den: A shelter where the mother bears her pups. The den is usually a big hole dug into the ground or a small cave. Dens protect the mother and her pups from other animals and bad weather.

Hormone: A chemical messenger in the body.

there once was a littel
wolf who lived in the
woods alone with no mother.
But one day his life changed
he was walking down
his street another wolf
came and he asked to
play so he said yes and
they playd all day and
became freinds. the

END



By Ellie From MN Forest Lake



Notes from the Field

Wolves in the wild in this area are born in late April or early May. During the late summer and early fall, the pups live with the pack in an area called a rendezvous site. By this time of year, the pups are very active. They start joining the adult wolves on short hunts and test their independence in many ways. They are growing fast and usually weigh between 30-70 pounds! Soon they will be almost full-grown and will look like the other adult wolves.



Aidan turned seven years old earlier this year. He continues to be the dominant male in the pack. The pack's dominant female is Luna. Aidan and Luna have spent a lot of time together during the latter part of the summer. There may be biological reasons behind this behavior. Mammals have a chemical or hormone in their bodies called prolactin. This hormone is important for wolves because it helps them display more nurturing behavior towards pups. Even in our captive exhibit where the wolves don't have pups, prolactin is believed to increase in the late spring and decrease by early fall. Whether the hormones influence the wolves' social behaviors or summer is more relaxing, the staff does observe the dominant pair spending more time together. ■



Don Gosselt



Make-a-Word

How many words can you make from these terms?

Try making two-, three-, and four-letter words using the letters found in each term below. If that's too easy, see if you can make a five-letter word from each term.

Example: habitat

a	t		
h	i	t	
t	h	a	t

rendezvous

CHALLENGE: FIND A FIVE-LETTER WORD FOR EACH PUZZLE!

--	--	--	--	--

prolactin

--	--	--	--	--

independence

CHALLENGE: FIND A FIVE-LETTER WORD FOR EACH PUZZLE!

--	--	--	--	--

den site

--	--	--	--	--

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

education has to be in the equation for tiger survival.

With Dr. Jhala's urging, I prepared a presentation of the history, mission and programs at the International Wolf Center, striving to incorporate the similarities to tigers. My job was to urge the leaders of the National Tiger Conservation Authority, the Wildlife Institute of India, and park officials to take the initiative to get it built. No one doubts the need was pressing, and the energy was positive. I was rushed to a room of reporters for a press conference announcing the International Tiger Center. Unfortunately it was in Hindi, but I worked with an interpreter, and the air of enthusiasm broke the language barrier. I later collaborated with Dr. Jhala on the proposal, and its fate is currently being deliberated by the park and the government wildlife authorities.

My hopes are to return to India to consult with the collaborators of the proposed Tiger Center and to catch a glimpse of an Indian wolf. Most of the 2-3,000 wolves inhabit the Peninsula

Yajuvendra Upadhyaya



Wild dogs of India are among the tiger's competitors for prey.

region of Western India where arid and semi-arid grasslands also house livestock, which impedes the conservation process. Slightly smaller populations of 40-50 pound wolves live in the Himalayas, mostly in protected areas. In several of the national parks, tigers, leopards, dholes, jackals and wolves live in tight landscapes, avoiding each other while trying to get a piece of the prey. From what we observed in the park

reserves, the tigers have a sufficient prey base of spotted deer, sambar and nilgai. Cattle, pigs and goats were abundant everywhere else and, with that, constant conflicts prevail.

Dr. Jhala and his colleagues announced a 30 percent increase in tigers to 2,226 individuals in March 2015. It was euphoric headline news. But weeks later the government slashed the

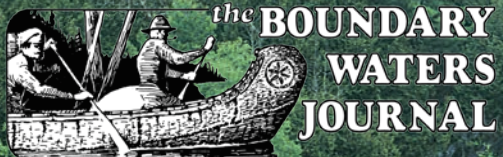
Tiger Project budget by 15 percent, cut the protected areas for tigers and other wildlife, sliced the budget of the Wildlife Institute of India and planned new roads to crisscross India's key wildlife corridors.

While that news is indeed dire, perhaps building the International Tiger Center can make a difference for this magnificent predator. The merger of dedicated citizens, educators, and savvy scientists built the International Wolf Center, and it is imperative that we spread the success to other countries and species. It is a burden to get the right information to the right people to make the right decision. If we do not, it will impoverish our future. ■

*Nancy Gibson is a member and former chair of the International Wolf Center board of directors. She authored the book *Wolves*, and won the Willard Munger Award for environmental stewardship. Gibson was the naturalist on the Emmy-Award-winning PBS show *Newton's Apple*.*

Yajuvendra Upadhyaya





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