

INTERNATIONAL WOLF

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SPRING 2017



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INTERNATIONAL WOLF



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Larry Kumpelman

Yellowstone Wolf 755M: A Breeding Male Without A Pack

In Yellowstone National Park, a male wolf wanders alone, his graying coat the result of advancing age and a rugged life. Tutoed in his youth by a strong, dominant female until he proved himself as a hunter and defender, 755M survived pack rivalries and avoided hunters only to become, eventually, a wolf without a pack—and a legend in Yellowstone's history.

by Betsy Downey



Courtesy Of US Fish & Wildlife Service

How Do States Estimate Their Wolf Populations?

PART 2 The Rocky Mountains and the Southwest

Effective wildlife management requires accurate estimates of animal populations. Wolves, however, are free-roaming and low-density, and they inhabit enormous, wild spaces—all circumstances that make them hard to count. This is the second in a two-part series in which Boyd and Thiel explain the methods used to collect population data on wolves.

By Diane Boyd
and Richard P. Thiel



George Desart

Wolf Reintroduction to Isle Royale? An interview with Dr. Rolf Peterson

The National Park Service has released a proposal to reintroduce 20 to 30 wolves into Isle Royale National Park in Lake Superior over the next three to five years. Here Dr. Rolf Peterson, who has studied the Isle Royale wolf population since 1970, discusses that proposal with *International Wolf*, describing possible long- and short-term effects of a reintroduction.



Dean Cluff

On the Cover

Gray wolf pup photographed near the vicinity of Gardner, Montana.

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Would Privatizing Livestock Reimbursements Better Serve Wolves and Humans?

I've often wondered what it would be like if commercial insurance carriers handled depredation claims for livestock lost to wolves. Would issues surrounding wolf management be less political? Could farmers and ranchers be better served, more quickly? Would private insurers be more effective in working with livestock producers to put preventative measures in place to reduce the number of livestock lost to wolves?



Rob Schultz

In the United States, livestock depredation reimbursements are handled differently in different states. Some states provide reimbursements for livestock lost to wolves, while other states do not. Funding can be sporadic or limited until appropriations run out, further elevating the frustration that ranchers and farmers experience. In many cases, livestock producers don't think the reimbursements are adequate.

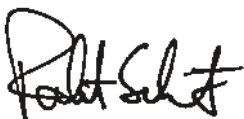
Much like insurance claims, depredation reimbursements are made only after the losses have been investigated. USDA Wildlife Services typically investigates claims and makes the determination as to cause of livestock deaths. If deaths are found to be attributable to wolves, Wildlife Services may begin predator control—most often resulting in removal of wolves from the area.

Governments are not well designed for providing these reimbursements, as they usually require legislative appropriations of taxpayer funds. Unlike the commercial insurance industry, government has no cash reserves on hand to pay claims—and some people argue that there is a conflict of interest if the government is responsible for both wolf population management and paying claims for depredation. Claims funding can become political, further damaging the public's impression of wolves.

Wolves are not the only species that depredates, but they are the predator that depredation payments are most commonly made for. States do not offer reimbursements if coyotes attack calves or if a bald eagle kills a chicken. These and other predators are just as active in killing farm animals, but rarely receive the public attention wolves get for doing the same thing.

If depredation reimbursements were privatized and handled by the commercial insurance industry, taxpayers would be relieved of these costs and livestock producers might be more efficiently served when losses occur. As in any other industry, livestock business owners have inherent risks, and the insurance industry is best positioned to support the agricultural community, just as they do by providing crop insurance. Additionally, private insurers may provide farmers and ranchers more incentive to take steps in preventing depredation in the first place.

What are your thoughts? Please send your opinions to comments@wolf.org and we will share them in a future issue of *International Wolf*. ■



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Wolf 755 at Tower Junction, January 2013

Yellowstone Wolf 755M: A Breeding Male Without A Pack

by BETSY DOWNEY

Photos by DOUG MCLAUGHLIN

On a cold November evening in 2012, baritone howls bounced off Amphitheater Mountain outside Yellowstone National Park's northeast entrance. Thrilled by the canid concert, our little group worried about the singers—Yellowstone's Lamar Canyon pack. The wolves were at risk outside the park during hunting season. The next day we saw them safely in the park, but they soon returned to Wyoming, where Wolf 832F (called 06) and 754M fell to hunters' bullets. Their deaths fractured the pack and turned breeding male Wolf 755 into a lone wolf in search of a new pack.



Wolves 755 and 754 from Soda Butte East,
March 2012

Yellowstone's wolves are part of the park's "biotic community" (a group of interdependent organisms inhabiting the same region and interacting with each other) where one change often triggers others. Wolves preyed on elk since before the park's founding and were exterminated by 1930, partly to protect park elk. They were reintroduced in 1995, in part to help reduce overgrazing by an elk population of nearly 20,000. Today park elk number about 5,000 year-round. Wolves have affected the elk decline, as have weather extremes, forage quality, other carnivores and hunting outside the park. Elk mortality and wolves' competition for prey probably contributed to the Lamar Canyon pack leaving the park in 2012 and to its subsequent destabilization.

Wolf 755's story begins with female Wolf 832F, born in 2006 and commonly known as "06" for her birth year. As pack leader she would overshadow Wolf 755 and be featured in many articles and the *National Geographic Wild* documentary "She Wolf." Packless in the 2010 breeding season, she attracted the attention of two yearling brothers, later collared as Wolf 754M and Wolf 755M, who traveled with several Druid pack females. Wolf Project technician Rick McIntyre speculated that they sensed Wolf 06's unusual strengths. Wolf 06 apparently found Wolf 755 healthy, interested and available; she relentlessly pursued and

bred with him. The three wolves stayed together, and in spring four pups were born to Wolf 06 and Wolf 755 in a den above Slough Creek at the west end of Lamar Valley. Later they moved to an old Druid den on the east end of Lamar Valley. Now named the Lamar Canyon pack ("Lamars" for short), they became one of the park's most observed packs.

The brothers, about 2 years old when the pups were born, had not yet learned the fine points of hunting and pack social structure. Lacking male role models, they matured slowly, leaving Wolf 06 with unusual responsibilities as a solo hunter, protective mother and undisputed pack ruler. The brothers, by contrast, seemed weak, immature, irresponsible and undependable. Accounts of Wolf 06's hunts often ended with, "And where were the brothers in all this?" The answer was, "Nowhere to be found!" Wolf Project Leader Doug Smith said they were the only wolves he'd ever heard wolf watchers refer to as "Dumb and Dumber."

Wolf 06 at first treated the brothers like subordinates. Once Rick McIntyre saw Wolf 06 and Wolf 755 attack a grizzly cub; Wolf 06 killed and fed on the cub but would not let the brothers near it. She was training them in proper pack behavior; they also learned discipline and hunting tactics from her. By 2012, with nine adults and four new pups, the Lamars had become a pack that McIntyre described as strong and functioning.

The brothers had "proven themselves as hunters and defenders of the pack." Wolf 755 had become a strong, breeding male in the prime of life.

While the Lamars stabilized, a serious rivalry with the Mollie's pack emerged. Named after Mollie Beattie (U.S. Fish and Wildlife Service director, important in Yellowstone's wolf reintroduction) it was one of the park's largest packs at almost 20. Possibly stressed by declining elk numbers, in late 2011 the Mollie's began trespassing into Lamar territory where elk numbers also were down. Led by Wolf 06 and Wolf 755 the Lamars repelled the Mollie's during the summer of 2012—but two-legged predators soon proved lethal for the Lamars.

By fall 2012 wolves in the three states bordering the park—Idaho, Montana and Wyoming—were delisted from federal protection and fell under state management. Yellowstone Park wolves could be taken in legal hunts if they left the park, which they rarely do. But that fall the Lamars crossed park boundaries into Wyoming, probably hunting elk that had left the park for lower grazing lands.

On November 11, 2012—when there was no armistice for wolves—Wolf 754 was legally killed in Wyoming, about 16 miles east of the park. The area had an eight-wolf quota. He was the seventh taken. The rest of the pack came back to the park, but soon returned to the area where Wolf 754 was killed, perhaps



Lamar Canyon pack from Bob's Knob, January 2012



Wolves 06 and 755 from Bob's Knob, January 2012

looking for the wolf, perhaps looking for elk. They found more trouble. On December 6, Wolf 06 was the eighth wolf legally harvested. (Wyoming's wolves were later relisted and cannot be hunted at this writing.)

Wolf 06's death left the pack in a precarious position. Research shows that loss of pack leaders may contribute to pack destabilization. When combined with disease, decline in prey population, food stress and inter-pack conflict, these losses negatively affect hunting, territorial defense and reproduction. The only other time Yellowstone wolves suffered such a loss was in 2009 when four Cottonwood wolves were harvested, and the pack completely disintegrated. In the 2012-13 hunting season 12 Yellowstone wolves were taken. At least three were pack leaders; two of them—06 and Wolf 754—were Lamars.

After Wolf 06's death several Lamars joined Wyoming wolves outside the park. The remaining Lamar females were Wolf 755's daughters. Wolves normally will not breed with their offspring, and when breeding season came in 2013, Wolf 755 left the pack. Daughter 926F formed a new Lamar Canyon pack with

a Wyoming male, but the Mollie's, other wolves, dispersals and mange have threatened its continuance. In 2014 the pack numbered eight; in 2015 it was nine. In early summer 2016 it was only three, but a few dispersers later joined them. One newcomer is Wolf 926's new mate, raising hope for the pack's survival and continuation of the 06-755 bloodline.

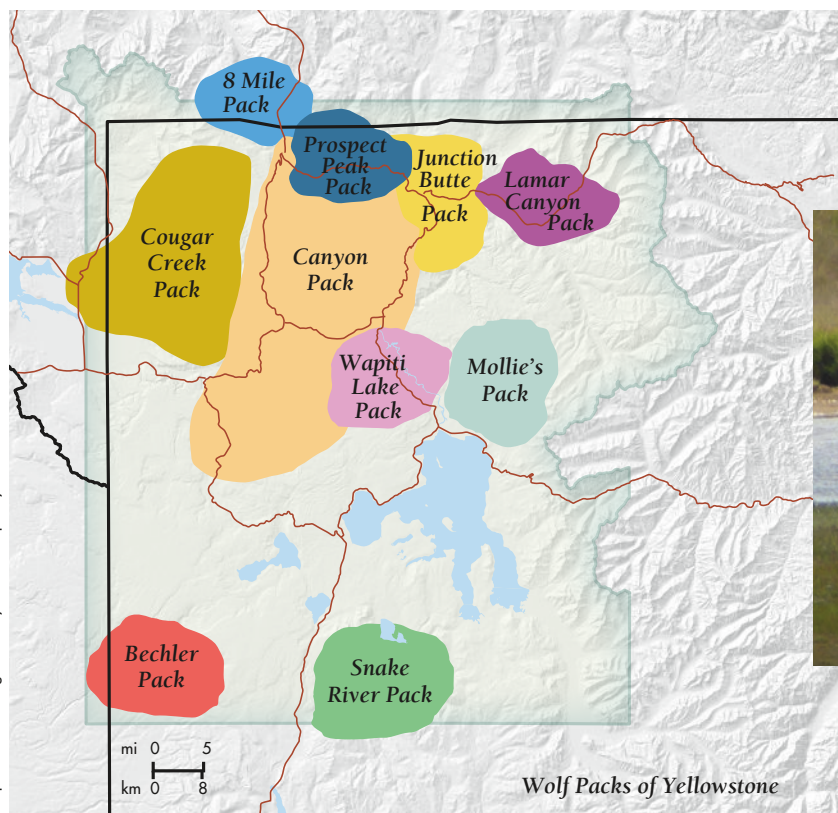
Wolf 755's story is similarly chaotic. In 2013-14 he prowled the Northern Range with various females. He joined a Mollie's female, but when his old pack encountered them, his daughter killed her. In early 2014 he travelled with Wolf 889F from the Junction pack and her sister. Their ménage a trois did not last. Another male lured the sister away, and Wolf 889F injured a leg and could not keep up with him. They split, leaving Wolf 755 in a territory where other packs were unlikely to welcome an adult male wolf.

Still alone in spring 2014, Wolf 755 appeared in Canyon-pack territory in Hayden Valley. The Canyons were down to the nearly 9-year-old breeding pair and their 2-year-old daughter. It was time for their daughter to bring a mate into the group or to disperse. Wolf 755

interacted with, but did not join them, perhaps because of status issues. Then the aging Canyon breeders relocated, leaving their old Hayden Valley territory to the two younger wolves.

According to Yellowstone's 2014 Wolf Project Report, Wolf 755's new mate was the fourth female seen with him after Wolf 06's death. This pairing seemed permanent. In 2015, with four new pups, they took over the Canyon pack's old den and were officially named the Wapiti Lake pack (Wapitis for short). With his mate staying at the den to care for their offspring, Wolf 755 was now the responsible head of a new family. He became a successful solo hunter like Wolf 06, once taking down an elk by himself, and like her, he spent hours playing with and training his pups. By the end of 2015 the Wapitis seemed stable and healthy; they were in good territory with no apparent rivals and their future looked bright. Until it didn't.

After Hayden Valley's roads closed for the 2015-16 winter there were no regular reports on the Wapitis. In late January of 2016 surprise visitors appeared in Lamar Valley—Wolf 755 and a female pup! His mate later joined them, but without the other pups. The trio soon returned to Hayden. When roads opened again, only the two adults and the female pup remained. The missing pups likely were killed by other wolves—perhaps the Mollie's.



Wolf 755 and Female Grizzly (not Scarface)

In spring 2016 the Wapitis again had four pups, bringing the pack up to seven, with Wolf 755 still a strong leader. But in summer, three Mollie's appeared in Wapiti territory, trying to displace Wolf 755. A pattern developed: when Mollie's joined the Wapiti females and played with the pups, Wolf 755 retreated. When the Mollie's left, Wolf 755 reappeared and joined his family. No bloody encounters ensued. Wolf 755 seemed to know a serious challenge would result in his death, and the Mollie's seemed to consider him too weak to require a fight. In late August, Wolf 755 left Wapiti territory. The Mollie's stayed. They had successfully displaced Wolf 755.

As fall 2016 approached, Wolf 755 wandered alone along the Yellowstone River, moving a bit more slowly than usual. His once-black coat had turned gray, and he was nearly 9 years old—a lot of years for an aging, lone wolf without a pack or a territory. He appeared briefly in Lamar Valley, then in Hayden and then disappeared again. No con-

firmed sightings or signals have been reported at this writing.

Yellowstone's interior has been locked in winter for months, with Wolf 755 trackable only by aircraft monitoring his collar signals—in active mode if he is still moving—in mortality mode if not.

Has he survived? If not, this tough old wolf will remain legendary in his own right, having delighted and educated park visitors for many years, enriched scientists' knowledge of wolves in the wild and contributed his DNA to generations of Yellowstone wolves. He will be missed—and as with Wolf 06, his stories will live on as an important piece of the history of wolves in Yellowstone's biotic community. ■

Betsy Downey is professor emeritus of history at Gonzaga University. She wrote of her experiences with Yellowstone wolves in the Spring 2005 and 2006 issues of International Wolf, wrote about Yellowstone wolf history for several of Bob Landis' film projects and coauthored an article with Bob Landis in the Spring 2014 International Wolf. She is indebted to Laurie Lyman, Kathie Lynch, Rick McIntyre, Doug McLaughlin, Doug Smith, and Bob Landis for help in keeping track of Yellowstone's wolves.

Additional Reading



Rick McIntyre, Yellowstone Park Foundation, "Notes from the Field," April 2013 and "The 06 Female" in Richard Thiel, Allison Thiel, and Marianne Strozewski, eds, "Wild Wolves We Have Known", International Wolf Center, 2013.



Yellowstone Wolf Project Annual Reports



Yellowstone Science, Twenty Years of Wolves, vol. 24, 1, June 2016 (www.nps.gov/yell/learn/yellowstone-science-24-1-celebrating-20-years-of-wolves.htm)



Wolf 755

Wolf 755 with Wolf 889

How Do States Estimate Wolf Populations?



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Part Two: the Rocky Mountains and the Southwest

By DIANE BOYD
and RICHARD P. THIEL

Note: This article is the second in a two-part series under the same title. Part one, in the winter edition of International Wolf, covered practices in Minnesota, Wisconsin, Michigan, Washington, Oregon and California.

In 1979 a female wolf trotted south from Canada to northwestern Montana and became the first wolf in a half century to establish a home range in the western United States.

Diane Boyd was privileged to arrive in the Montana Rockies a few months later to monitor wolf recolonization. She would never have imagined that the Rocky Mountain wolf population would grow from one to more than 1,700 in just 35 years, with wolves inhabiting Montana, Idaho, Wyoming, Washington, Oregon, California and Utah. Additionally, the Mexican wolf, extinct in the wild, was reintroduced to eastern Arizona in 1998, and breeding packs now have a foothold in Arizona and New Mexico. Wolf recovery in the western U.S. has been highly successful—and highly controversial. The significance of wolf restoration in the West is still unfolding ecologically, economically and politically.

Under protection by the Endangered Species Act (ESA) and state management programs, wolves arrived across the American West by their own tireless trot and in smoke-jumper airplanes and U.S. Fish and Wildlife Service (FWS) trucks. Methods of counting, monitoring and managing wolf populations vary from state to state, with advances in technology altering methodologies. Population monitoring encompasses many demographics, including count and age classifications, range, birth rate, mortality and dispersal. Counts and age classifications (pups and adults) are accomplished by direct observation from the ground and air, and by trail camera images. Use of radio collars increases the success and accuracy of counts, and public reports are important to assist field efforts.

Rocky Mountains

Wolves were eradicated from the western U.S. by the 1930s. Wolves occasionally dispersed into the northwestern U.S. from Canada, but without federal protection they were swiftly killed. In 1973 wolves were protected as “endangered” under the ESA, and that first lucky disperser into Montana in 1979 established a territory in the northwest corner of Glacier National Park, found a mate and became the founding breeder in the natural recovery process.

Throughout the 1980s and into the 1990s, this small, endangered population cranked out pups, and dispersers established new home ranges far from Glacier, but the rest of the Rocky Mountains remained essentially wolfless. In the mid-1990s, however, the political climate allowed the federal government to reintroduce wolves to Wyoming, Idaho and the southwestern U.S.

The 1995-96 reintroduction of 66 wolves—31 into Yellowstone National Park in Wyoming and 35 into the central Idaho wilderness—gave wolf recovery a huge boost. These “nonessential experimental” (not “endangered”) populations expanded rapidly. Eventually the Montana, Idaho and Wyoming populations connected geographically, genetically and politically.

The rapid growth of the Rocky Mountain wolf population quickly exceeded the ESA requirements of 30 breeding pairs for three consecutive years (a breeding pair was defined as an adult male, an adult female and at least two pups surviving until December 31), and wolves were delisted in 2011. Federal release of wolf management to each state was contingent upon creating an acceptable plan with means to count wolves and maintain federal recovery goals. In 2016 the federal government gave Montana and Idaho complete management authority without FWS oversight or funding.

Western wolf populations grew rapidly, and because of the wolves' elusive nature and low density, traditional methods of counting them became less effective, yielding counts below the true population size. Recently, a new population estimating method called Patch Occupancy Modeling (POM) came into use, and biologists hope it will be scientifically rigorous—and also more financially and logistically feasible. POM incorporates wolf sightings reported by hunters during annual harvest surveys, data from field biologists, and assessments of occupied wolf habitat.

The basics of the POM method are:

- Estimate the land area occupied by wolves in packs
- Estimate the number of wolf packs by dividing the area occupied by average territory size (600 km²) and correcting for overlapping territories
- Estimate the number of wolves by multiplying the number of estimated packs by average annual pack size (6.5 wolves)

Montana

Wolves have been counted in Montana since 1979. Montana Fish, Wildlife and Parks staff have used radio collars, direct observation, howling and track surveys, public reports and camera trapping to count wolves. Montana is federally required to maintain at least 100 wolves or 10 breeding pairs as a minimum, but the Montana state plan calls for a minimum of 150 wolves or 15 breeding pairs. The Montana minimum count for 2015

(calculated December 31, 2015) was 536 wolves in 126 packs, of which 32 qualified as breeding pairs. The POM is a work in progress there, not yet used to estimate wolf populations statewide. Montana has a regulated wolf harvest season that includes hunting and trapping.

Idaho

Wolves have been counted in Idaho since their reintroduction in 1995. Idaho Department of Fish and Game staff and the Nez Perce Tribe use a combination of radio collars, early den surveys, direct observations, howling and track surveys, livestock depredations, harvested wolves, public reports, DNA and camera trapping to count wolves. POM is an important tool there. As of May 5, 2016, the department shifted its focus statewide from traditional, direct counts to POM. The Idaho minimum count for 2015 (calculated December 31, 2015) was 786 wolves in 108 packs, of which 33 qualified as breeding pairs. Idaho has a regulated wolf harvest season that includes hunting and trapping.

Wyoming

Wolves have been counted in Wyoming since their reintroduction in 1995. The management and monitoring of wolves in Wyoming is done by the FWS and Yellowstone National Park—not the state of Wyoming—because Wyoming's wolf management plan was not accepted by FWS as viable to meet the requirements of the ESA. Tools used to count wolves there were radio collars, aircraft and direct observations. The Wyoming minimum count for 2015 (calculated December 31, 2015) was

382 wolves in 48 packs, of which 30 qualified as breeding pairs. As of this writing, there is no legal hunting or trapping season in Wyoming because wolves are protected as “endangered.”

Mexican Wolf—Arizona and New Mexico

Wolves have been counted in Arizona and New Mexico since their reintroduction in 1998. The Mexican Wolf Recovery Program is led by an interagency field team (IFT) composed of staff from the FWS, Arizona Game and Fish Department (AGFD), White Mountain Apache Tribe (WMAT), U.S. Forest Service, and U.S. Department of Agriculture/Wildlife Services. The New Mexico Department of Game and Fish withdrew as a partner agency in 2011. The Mexican wolf population is presently classified as nonessential experimental and not endangered. There is no legal hunting or trapping season in Arizona or New Mexico.

AGFD leads wolf population monitoring in Arizona; the FWS assists as needed. In New Mexico, the FWS has the lead for all aspects of monitoring and management. WMAT leads population monitoring on the Fort Apache Indian Reservation; AGFD and the FWS assist as needed. Methods used to count wolves include direct counts, counts of pups in the dens when pups are less than two weeks old, radio collars, trail cameras and public reports. Wolf population is intensively monitored, with approximately 50 percent of the wolves wearing radio collars. Managers add captive-raised wolves to the wild population to address genetic concerns and remove wild wolves to eliminate human conflicts

TABLE 1. Techniques used in estimating state wolf numbers

State	Occupied Range (km ²)	Interval	Snow Tracking	State or Federal Mgmt	Public & WS Reports	Aerial Counts	Camera Traps	Extrapolate	Patch Occupancy Modeling
MT	74,244	Annual	Y	S	Y	Y	Y	N	In progress
ID	108,482	Annual	Y	S	Y	Y	Y	Y	Y
WY	Unknown	Annual	N	F	Y	Y	N	N	N
AZ + NM	34,522 km ²	Annual	Y	S + F	Y	Y	Y	N	N

TABLE 2. Recent estimates in Northern Rocky Mountains and Southwestern States

State	Recovery Goal	Year Met	Year Delisted	Type of Estimate	# Wolves 12.31.15	# Packs	# Breeding Pairs
MT	*	2002	2011	Minimum count	356	126	32
ID	*	2002	2011	Entire population POM	786	108	33
WY	*	2002	Not yet	Minimum count	382	48	30
AZ + NM	To be determined	Not yet	Nonessential Experimental	Direct-minimum Count Entire population	97	21	7

*Federal recovery goals for MT, ID, and WY were pooled to be 300 wolves or 30 breeding pairs distributed over the three-state area. Montana has set its state recovery goals as 150 wolves or 15 breeding pairs.

as necessary. The Mexican wolf count is a census rather than a survey; an attempt is made to count every wolf. However, most wolves with expired radio collars and any offspring are still missed, along with any non-collared dispersers.

After ground counts are completed in November and December, an annual aerial count takes place in late January and early February. The minimum wolf count at year's end for 2015 was 97 wolves in 21 packs, of which seven qualified as breeding pairs. In 2016, six captive-born pups were cross-fostered into three wild dens with pups. In this process, very young pups are moved from a captive litter to a wild litter of similar age so the receiving pack raises the pups as their own. As of this writing, at least one of the cross-fostered pups survived until September 2016 when it was captured. Successful cross-fostering is significant because it will help managers introduce genetic diversity into the wild population and may eventually help boost the overall numbers of wolves in the wild. ■

Richard P. Thiel retired in 2011 as coordinator of the Wisconsin Department of Natural Resources Sandhill Outdoor Skills Center. He was team chairman of Wisconsin's wolf recovery project in the 1980s and continued serving as a wolf population monitor until he retired. He authored "The Timber Wolf in Wisconsin: the Death and Life of a Majestic Predator" (1993) and "Keepers of the Wolves" (2001), and he is co-editor of the International Wolf Center

book, "Wild Wolves We Have Known: Stories of Wolf Biologists' Favorite Wolves" (2013). As a member of the International Wolf Center Board of Directors, he also serves on the Center's Wolf Education Committee.

Diane Boyd began her wolf studies career in 1977, working with Dr. L. David Mech in Minnesota. She moved to Montana in 1979 to study wolf recovery in the Rocky Mountains. Diane has collaborated on wolf research in five states, three Canadian provinces, and in Italy and Romania. She currently works for Montana Fish, Wildlife and Parks in Kalispell, Montana as the wolf/carnivore specialist.

The National Park Service (NPS) on December 16, 2016 released a proposal to reintroduce 20 to 30 wolves into Isle Royale National Park in Lake Superior over the next three to five years. Before proceeding with reintroduction, the National Park Service will consider public input offered during a 90-day period ending March 15.

Dr. Rolf Peterson has been studying the Isle Royale population since 1970, along with Dr. John Vucetich who began as a field assistant in 1991. *International Wolf* (IW) was pleased to discuss this major proposal with Dr. Peterson.

IW: Dr. Peterson, please describe Isle Royale, its size and location, distance from the mainland, etc.

Peterson: Isle Royale is the largest island in Lake Superior, about 20 miles off the adjacent Ontario shore near the Minnesota border. Forty-five miles long and entirely forested, it has been a U.S. national park since 1940. Importantly, only about one-third of the mainland mammal species have become established on the island, so it is dominated by a single predator (wolf) and a single major prey (moose), with beaver a significant secondary prey during the open-water season, making it a relatively simple predator-prey system where none of the species are killed by people.

IW: Why and how has wolf research on Isle Royale been important?

Peterson: The long-term narrative about wolves and moose on Isle Royale has fostered more favorable attitudes toward the wolf. Research began in the dark days of the 1950s when wolves were summarily persecuted and denied a place to live, even in remote regions sparsely inhabited by humans. The long-term story simply fascinates people, and the resulting public interest has aided wolf recovery in North America and throughout the Northern Hemisphere. The focus of the

research is advancing our understanding of this predator-prey system, and science has produced an increasingly nuanced picture of wolf predation.

IW: Why can't wolves naturally recolonize the island?

Peterson: Winters have become warmer, shorter, and windier, resulting in a much-reduced frequency of ice bridges that would allow wolves to travel to Isle Royale. Solid ice bridges were present eight years out of ten in the 1960s, while presently there is good ice about one year in ten. It is clear now that the rare arrival of an immigrant wolf to Isle Royale—one that lives to reproduce with new genetic viability—has kept the population going since the late 1940s.

IW: What would happen if Isle Royale wolves went extinct and the population was never reintroduced?

Peterson: Fortunately, predictions can be based on Isle Royale history and

Wolf Reintroduction



on recent information from Canadian national parks where there are moose but no wolves. In short, moose numbers would increase until they hit limits imposed by limited food. However, by then forest communities would have lost plant species, some tree species would be unable to regenerate, aquatic habitats would be degraded, shorelines trampled into mudflats, and during severe winters, moose would starve *en masse*, sometimes catastrophically. By then moose density would be around 13 per square mile or more. At Isle Royale, forested habitats would be severely compromised by loss of tree species and overhead canopy and, given additional stressors caused by climate change, forest communities would become simplified (less species-rich) and subject to invasion by exotic species, including many grasses. Parks Canada, responsible for managing the country's national parks with the goal of maintaining ecological integrity, has

in recent years gone to the extreme of culling moose in several national parks in the maritime region where there are no wolves—and no reasonable chance of introducing any because of public fear and hatred.

IW: How long would it take for wolves to reduce the moose population significantly after wolves are re-established?

Peterson: That's a huge unknown at this point, especially since we are probably still two years away from having new paws on the ground. We anticipate there would be well over 100 moose available for each wolf in the early years of wolf introduction—far more than a wolf could affect—and it might take some years for wolves to self-organize in packs that would exert maximal predation pressure. A major die-off of moose may be unavoidable at this point. In any case, a race is on between an increasing moose

population and the balsam fir saplings that started growing a decade ago when moose numbers were reduced dramatically by wolf predation. This is the last cohort of regenerating fir on two-thirds of the island, where the parent trees have already disappeared.

IW: If wolves are reintroduced to Isle Royale, would there be an advantage to do so while the original wolves are still alive? If so, what would that be?

Peterson: Introducing wolves that would breed with the existing population was an option—termed *genetic rescue*—that could be expected to lead to recovery. That is unrealistic now, as the remaining wolves are rather old and could easily die before mainland wolves can be released. If the objective is to have wolves on Isle Royale, the sure-fire way to do this now is simply to introduce a new population. ■

Public comments can be made by visiting:
<http://bit.ly/isleroyalenp>

You may also mail or hand-deliver your written comments to: Superintendent Phyllis Green, Isle Royale National Park, ISRO Wolves, 800 East Lakeshore Drive, Houghton, Michigan 49931-1896.

Comment period ends March 15, 2017.

to Isle Royale?

An interview with Dr. Rolf Peterson



George Desort

A world authority on wolves and moose, Rolf Peterson began leading the Wolf-Moose Project in the early 1970s. After retiring as a professor in 2006, he devoted himself even more to the project and now spends more time on Isle Royale than on the mainland. Rolf continues to be fascinated by the scientific insights and surprises the island provides. To learn more about the project, visit isleroyalewolf.org.

Tracking the Pack

It Takes A Pack To Raise A Pair Of Pups

by Lori Schmidt

When the wolf care staff decided to proceed with our 2016 ambassador pups' introduction to our adult wolves without the presence of Luna, the lone dominant female of the pack, we fielded many questions about the decision. Would a pack of males bond well without a dominant female? Would the behaviors displayed by pack members be different in the absence of a female? Would the pups be socially integrated into the pack without Luna?

The answers revealed themselves with time and careful attention from the wolf care team. We continually assess pack dynamics in order to form a deeper understanding of our Exhibit Pack's social interactions and interpret the teachable moments. Below are some of those moments.

TEACHABLE MOMENT

1

Pups are allowed to feed without pack competition

With the exception of some food-possession displays by Denali, pups Axel and Grayson actively feed on the weekly "What's for Dinner" carcasses along with the adults. It's not uncommon to see Aidan defending the carcass and driving other adults away from the pups. Axel and Grayson will maintain this special feeding status throughout the winter season and assume their roles in the pack order after they reach maturity between 18 and 24 months of age.



TEACHABLE MOMENT

2

Et-epimeletic (care-seeking) behavior is a sign of pup bonding

Grayson's behavior in the early days of introduction indicated intimidation and a fear response. After weeks of staff work to encourage his confidence, and living in the calm, controlled pack environment led by our adult male, Aidan, Grayson began to form social bonds. Initially, his social preferences were adults Boltz and Aidan. Eventually, he displayed the behavior most common in a pup within its pack structure—the care seeking behavior termed et-epimeletic—to Denali, the adult wolf who had caused him the most anxiety. This is a definite sign of pack bonding.



Heidi Pinkerton

TEACHABLE MOMENT

3

A fresh snowfall will stimulate the pack

Whether motivated by his role as pack leader or by his distinct personality, when the first storm of the 2016-17 winter dropped 16 inches of snow within the Exhibit Pack enclosure, Aidan was the first to enthusiastically demonstrate behaviors that can be interpreted as social bonding. Aidan energetically engaged the pups in a significant portion of the Center's Ethogram (our behavioral dictionary) including playbows, invite chase, pounce, roll on back, snowplow, submissive paw and facewipe. Grayson and Axel were right there to mimic the behavior and pay homage to their pack leader, who diligently provided the calm energy that encourages pups to establish pack bonds. ■

Member Profile

Helping People (and Wolves) Recover

by David Kline

Question: What do 2 beagles, 12 shirts and 30 years have in common?

Answer: International Wolf Center member Mark Gittler

Anesthesiologist and International Wolf Center member Dr. Mark Gittler reports that the operating room at his Torrance, California hospital is kept at a fairly low temperature. To stay warm, he sports a comfortable, long-sleeved International Wolf Center

T-shirt under his hospital scrubs. He has 12 of them in his collection, in many colors!

Dr. Gittler has helped people safely through surgery for more than 30 years in Southern California. This native Californian headed east from the Golden State to study medicine at Brown University and then at George Washington University before returning home for an internship and residency at UCLA. He began private practice in the early 1980s. Asked what motivated him to enter the field, he said, “I found the science very interesting, but mainly I just wanted to help people get better.”

As a curious child, Dr. Gittler was fascinated with dogs, especially the family’s two beagles. Book after book about dogs led him to read about their ancestors—wolves! The knowledge he gained, in combination with his love of the outdoors—especially national parks in the western United States like Yosemite, Yellowstone and the Tetons—intensified Mark’s fondness for wild animals, and wolves in particular. As a still-curious adult, he continued to seek out articles on wolves and noticed that many of the authors had some tie to the International Wolf Center. This prompted him to become a member of the Center in 1992, and he has remained on the membership rolls ever since.

“I really like the strong focus on education the International Wolf Center espouses, because it’s vital to break down misunderstandings about wolves to help them recover and co-exist with people,” Dr. Gittler said. “I also believe education is the path to appreciation of other

large predators like bears and big cats.”

Dr. Gittler also dedicates time and talent to helping neglected domestic animals (like his most recent rescue dog, Luna) and volunteering for the Los Angeles County disaster healthcare team, where he would respond in the case of an earthquake. Recently he has increased his financial support of non-profit organizations like the International Wolf Center that have earned the Four-Star Charity rating from the watchdog group Charity Navigator.

What’s next for this wildlife and wildlands enthusiast? His plans include visits to more eastern national parks, such as Isle Royale, and a visit to his 50th (and final) state—Maine. Remembering a surprise moose encounter on a Teton hiking trail, he’s hoping to find a moose or two on Isle Royale and in the woods of Maine.

Thank you, Dr. Gittler. Members like you help make wolf education possible year-around for thousands of kids and adults. Your support of the Center sparks their interest in wolves around the world and encourages the crucial human understanding that fosters wolf survival in the wild. ■



Photo courtesy of Dr. Mark Gittler

To learn more about pack dynamics and using an Interactive Ethogram to document behavior, consider enrolling in our Wolf Ethology Class that runs July 29 through August 3, 2017. Learn more by going to www.wolf.org. Click on “Programs” and go to “Adventure Programs.”



Kelly Godfrey

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*Axel (left) and
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Thank You!

Wolves of the World

Wolves Encounter Fear And Loathing Near And Far

By Tracy O'Connell

Wolves continue to draw fire from some for fearsome behavior, from Finland, where they are killed to save them; to Norway, where more than half are slated for death; to India, where they are seen as a threat to aviation; to Canada, where they are viewed as super-sized and unnaturally vicious.

This is an example of some views of wolves around the world.



FINLAND

**Killing wolves to
save them:**

Wolf culls continue in Finland in an effort to increase the animal's acceptance among those living in wolf territory and to diminish illegal poaching, according to a statement from the country's agriculture and forestry ministry.

It is believed that 55 of Finland's 290 wolves were killed during the 2015-

16 hunting season, in two month-long culls. Another 23 animals were killed during the year in traffic incidents, by poachers, or were shot by police to protect people—a number that surprised officials who now might rethink this year's cull goals.

Environmentalists have criticized Finland for culling an animal strictly protected by the European Union, which allows some exceptions, such as hunting wolves in Finland's northern reindeer-herding areas and the more restricted hunting of individual wolves that attack livestock.

Sami Saynevirta, manager of the Finnish Nature League, notes that 20 breeding wolves were shot in last year's cull (rather than the expected taking of



iStockPhoto/Kjekol



A view to Raftsundet and mountains such as Trolltindan from Hinnøya, Norway

younger animals) resulting in concern over lack of genetic diversity among surviving animals.

The Finnish ministry counters that, before the culls, when hunting was not allowed, wolf populations reached a low of 120 to 135 animals in 2013, mainly due to poaching. Wolf hunting is a widespread tradition in Finland where 300,000 people each year seek permits—one of the highest rates in Europe.



NORWAY

47 of 68 wolves slated for eradication:

Two countries east, meanwhile (with Sweden in between), Norway has a similarly strong hunting ethos. With more than 200,000 registered hunters, it has one of Europe's smallest wolf populations, estimated to be 68 animals before the birth of pups in spring of 2016. The news of an intent to cull nearly 70 percent of those adult animals this year—47, to be exact, representing four of the country's seven wolf packs—has received the typical mixed reviews such plans evoke locally, along with international objections.

Wildlife authorities voted 9 to 1 last autumn to pass the measure, supported by farmers who say their sheep are at risk. The move is opposed by conservation groups and other protesters who have delivered anti-hunting petitions with 57,000 signatures, noting 47 is the largest number of wolves the government has recommended to kill in one year since 1911. In 2015, 11,000 people

applied for licenses to hunt 16 wolves—animals listed as “critically endangered” in the country that same year, according to the science website phys.org.

The Norwegian parliament agreed last June to limit the number of surviving wolf births to between four and six litters per year, including at least three for the in-country packs and the rest in the packs that travel between Sweden and Norway, which account for an estimated 25 additional animals. Media in 30 countries have covered the story, keeping the government aware of the controversy over it.

Silje Lundberg, leader of the national environmental organization *Naturvernforbundet*, claimed the cull poses a bigger risk that more wolves from Sweden will wander into Norway, if fewer established packs exist. Such roaming wolves have a tendency to attack livestock more often than established families of wolves do, Lundberg said, although he provided no evidence.

In mid-November, new reports showed that fewer sheep had been killed by wolves in the past year than in many similar, prior periods—a fact opponents point to as proof the cull is not needed. Vidar Helgesen, Norway's Conservative Party government minister in charge of environmental issues, in his deciding role on the issue, said he will probably go with the recommendation of Parliament on the preferred size of the wolf population.



INDIA

Wolf preservation meets airport siting:

Construction of a second airport near the city of Pune, near India's south-western coast, may pit developers against environmentalists over the survival of wolves and other endangered species. Pune is in the western state of Maharashtra, India's third-largest state by area and the world's second-most populated sub-national entity, with 112 million residents. (India's capital, Mumbai, called “Bombay” until 20 years ago, has 18 million inhabitants.)

The proposed airport would bypass limitations associated with expanding the existing Pune airport. Officials have visited several potential sites, one being a nearby village where the surrounding area is said to be home to up to 30 Indian gray wolves, divided into two packs.

The *Pune Mirror* reports that people studying local wildlife believe the area is also rich in grassland species that are fast disappearing from the country including chinkaras (Indian gazelles), hyenas, foxes, jackals, toddy cats (Indian marsupials) and hares, plus a rich variety of birds, reptiles and amphibians. Chinkaras and wolves belong to Schedule I of the Wildlife Protection Act of 1972, along with the tiger, for which conservation efforts are the highest in India.

The *Pune Mirror* quotes wildlife experts who warn that, in addition to actual airport construction, “...parallel development such as housing, malls and warehouses that come with the bargain

will destroy huge chunks of habitat, leaving no space for the wildlife. It will also pollute the water sources. Some of the areas are corridors for wildlife movement. If these get destroyed, it would restrict animal movement, leaving the existing population in pockets.”

Environmentalists believe that if the administration decides to use this area for the airport, despite its vulnerable wildlife situation, a strong mitigation plan should be developed. “There is already a need for protection from those who hunt for bush meat like porcupines, monitor lizards, hares and so on. Besides, plantations on the grasslands are also destroying the habitat. At present, unmonitored wildlife tourism is on the rise, causing much disturbance to the native species. With so many encroachments, conservation measures are crucial in the area,” stressed wildlife enthusiast Sonali Phadke in the *Pune Mirror* article.

“Eighty per cent of the grasslands have vanished, as they are still considered wastelands,” said Indrajit Ghorpade, founder of the Deccan Conservation Foundation, who has worked extensively on the preservation of grasslands. This thinking has claimed species like the cheetah and the Great Indian Bustard. “These are unique ecologies with endemic species. Development and

wildlife need to co-exist, and planning should keep in mind the ecological balance,” Ghorpade said.



CANADA

Canada sees continued human-wolf interactions:

As reported in the *International Wolf* winter issue, visitors to Canadian national parks have encountered bold wolves in campgrounds and on roads. One man from Ucluelet met with a pack of wolves while walking his two dogs on Wickaninnish Beach in Pacific Rim National Park. He was praised by Parks Canada staff for his response, which was to keep his dogs leashed and throw rocks to scare off the wolves.

In northern Saskatchewan, wolves are also becoming bold, and said by uranium mine workers in the Cigar Lake area to be lying in wait for humans, a situation blamed on habituation to human food sources both in Saskatchewan and in national parks.

In one instance a security guard at the Cigar Lake mine, responding to sounds of a scuffle, found a wolf with its jaws around the neck of a 26-year-old kitchen worker. “A single wolf basically




pounced on him,” said the mine report. “The whole incident is unusual—very unusual,” said Paul Paquet, a Raincoast Conservation Foundation biologist who provides wolf consultation for the mine owners.

Cigar Lake Facebook posts have cited wolves following hikers and work crews. “They are absolutely huge...they have no fear of man and come into the job sites often at night,” a former mine worker told the *National Post*.

In this region, one of the richest sources of uranium in the world, two other recorded attacks go back more than a decade—though Paquet, brought in to research the single resulting death, disputes a jury’s findings, noting that a black bear attack cannot be ruled out. Wolf biologist Brent Patterson later confirmed the jury’s findings.

After two attacks in 2005, mine owners brought in electric fencing, provided safety training and employed scare canons and other hazing practices. However, in a report to investors in 2015, mine owners noted they had been sanctioned for failing to maintain the fences, allowing animals into the refuse area where food could be found. ■

Additional Reading

-  “Study Sees Negative Relationship Between Legal Hunting and Poaching of Wolves,” *International Wolf*, Summer 2014, pp. 23-26, in part addressing wolves in Norway and Sweden.
-  “Wolves of the World,” *International Wolf*, Spring 2016, pg. 21, addressing wolves in three Scandinavian countries.
-  “Wolves of the World,” *International Wolf*, Winter 2016, pg. 19, addressing wolves in Canada.

Tracy O’Connell is professor emeritus at the University of Wisconsin-River Falls in marketing communications and serves on the *International Wolf* Center’s 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 w

Personal Encounter

A Canine Cosmos: My Encounter on Ellesmere Island

by Kira A. Cassidy

On the third day of June 2016 I woke up on a different planet. Okay, okay—I was still on planet Earth, with its pyramids and skyscrapers, baseball games and cornfields. But I was several thousand miles from all that, living next to an arctic wolf pack's den on Ellesmere Island, high above the Arctic Circle, northwest of Greenland. The wolf family of six adults and three pups went on with their daily lives, completely ignoring the human film crew camping nearby, and their brightly colored tents, smells of coffee and pancakes, sounds of zippers and metal cases, and pounding of tent stakes. It was certainly the wolves' world—one they have evolved with for at least tens of thousands of years. I was the alien in this scenario,

landing out of nowhere in a helicopter and then clumsily following the wolves for the next four weeks, trying to record everything I saw.

Ellesmere Island does feel like another planet. The only tree species is the Arctic willow, and the tallest one I saw was maybe pushing four inches. The Arctic cottongrass flower is a beautiful white puff, like an arctic hare's tail, on a stiff green stalk that positively looms over the tundra at a stately six inches. But this vegetation is rare and generally concentrated in low-lying areas where the snow melts and pools. Most of the landscape is bare rock or mud that may take the form of jagged peaks in one direction, hummocked slopes in another, and silty, eroded gullies in still another. And the

colors! We nicknamed one area "Mars" for its rusty cliffs and spines. Other areas were reminiscent of a lunar plain—a slate gray substrate interspersed with huge boulders casting endless shadows. There are mountains cleaved as if a glacier just yesterday flew past, condensing eons into seconds. Exposed purple scars run parallel to coal black seams divided by sulfuric lime-green ribbons. It is a terrain similar in color to Jupiter's moons, Europa or Io, but with a supremely adapted canine resident.

The wolves clearly knew these areas well and used them for specific purposes. Smooth, dry creek beds, even ones only 12 inches wide, were often used by the pack while traveling—might as well take the route easiest on your feet if you need to lope many miles to find food. Shaded areas of wet sand were a boon when the mosquitos were so fierce that adults slept with their heads buried in the ground under both paws and the pups could barely keep their watering eyes open. When the wind blew so hard our domed expedition tent was folding,



Ronan Donovan



Photos by Kira A. Cassidy



its metal braces bending, the arctic wolf pack slept, each in a carefully chosen spot with back to the wind, one small hill or hummock between themselves and the worst of the gales.

But some days felt utopic as the sun swung around the sky, dipping to about 25 degrees above the horizon by 2 a.m. A single day on Venus lasts nearly 6,000 hours—pretty comparable to Ellesmere's annual four-and-a-half months of constant daylight, mid-April to September.

The sunlight didn't seem to bother the wolves. On a lazy day at the den it might mean moving a bedding spot every few hours to follow the rays or avoid them, depending on the temperature. Other days might see the pack become restless in the middle of the night, when the sun's angle was lowest and turning everything gold as it passed through layers of atmosphere. So remains my most precious memory of the Eureka pack on Ellesmere Island—the six adults and all three pups playing for hours in the rich light of a sun just beyond midnight. Even the old, dominant male, who generally avoided the rambunctious pups and fawning yearlings, hopped up with a canine grin and took it in stride when a yearling female, running to him and little sister, tripped and tumbled, taking all three of them to the ground.

As I sat and watched the pack I noticed the moon, much lower than the sun and faded in the western sky. It might

as well have been Charon, the accompanying satellite to Pluto, or Triton, the geyser-filled moon spinning around Neptune. I was used to the moon rising and setting once per day, but this arctic moon rode the horizon, rose slowly for a week and then sank for a week, slipping out of sight for two weeks before rising again. By the end of my time on Ellesmere the days were growing shorter and the sun was sinking lower every day. Soon it would be wintery-dark, and the only glow would come from that moon as it circled in its bizarre pattern, lighting the way for two weeks and then gone again.

The change from day to night happens over several weeks so the wolves probably don't really notice. They probably feel warmer as their winter coat fills in all the way down to their toes, and perhaps feel less conspicuous as snow covers the tundra, making it tough for them to see each other—but easier to see a musk ox miles away. They probably gulp snow instead of water and don't miss the sharp rocks cutting their feet as they pad through powder for the next six months. They have evolved with this unique place—their world—for ages. And they continue, year after

year, or day into night—but really, those are the same thing.

Certainly my body wasn't adapted to this place. I didn't have thick fur or a tail—I needed wind-proof layers, waterproof gloves and a thick down jacket. I didn't have sharp teeth or hundreds of millions of scent receptors. I needed sunglasses, sunscreen and hand lotion. But something in me, maybe my heart or my frontal lobe, felt more at home than anywhere else, ever before. And maybe that's all that matters—that I didn't feel like an alien here. I felt like maybe I'd found my home planet. ■

Kira Cassidy is a research associate with the Yellowstone Wolf Project, where she began working in 2007. Kira completed her Master of Science degree in 2013 at the University of Minnesota with Dr. L. David Mech. In 2014 and 2016 Kira assisted natural history film crews documenting the lives of arctic wolves on Ellesmere Island, living close to the pack as they raised pups, hunted prey and navigated their unparalleled landscape.

Wild Kids

Meet the Pack

Grayson

Kelly Godfrey



Ambassador wolf Grayson demonstrated a face wipe (above) and snowplow behavior (right) after he ate from a deer carcass.



Ambassador Wolf Behaviors

Snowplows and face wipes are two common winter behaviors you might see in our ambassador wolves here at the International Wolf Center.

In performing a “snowplow,” a wolf sticks its face in the snow and moves forward to push the snow upward as it moves. A “face wipe” is a grooming behavior where a wolf wipes its face in the snow, usually after its face has become bloody from feasting on a carcass. Wolf pup Grayson shows us both of these behaviors in the photos on the left. To read more about our wolves or watch our wolves on webcams, visit our website: www.wolf.org

Vocabulary

WORD OF THE DAY

Carnassial Teeth:

Special teeth in the jaws of carnivores, including wolves, that act like scissors. They have sharp edges that slice together and help cut pieces of meat into chunks that are easier to swallow.



Ambassador wolf Denali using his carnassial teeth in the side of his jaw to rip pieces of deer meat



Don Gossett



Notes from the Field

“Dispersal” is a word often used when discussing wild wolves. It comes from the word “disperse,” which means to

scatter, distribute or spread over a wide area. Dispersal happens when a young wolf leaves its pack and sets out alone to start its own pack. Wolves can disperse hundreds or even thousands of miles from where they were born, each one looking for a new area to make its own territory. When a dispersing male wolf

meets a dispersing female wolf and they have pups, a new pack forms. Most wild wolf packs are formed this way, and usually, a wolf pack will be made up of family members—a mother, a father and siblings.

A great example of dispersal came from Wolf OR-7, also known as Journey. In September 2011 Wolf OR-7 left the Imnaha pack in northeastern Oregon. He traveled into California and then back to Oregon to establish his own pack in 2013. To learn more about Journey, visit the California Department of Fish and Wildlife at www.wildlife.ca.gov and type OR-7 into the Search box. ■

*California Department of Fish and Wildlife
trail-cam photo of a member of the Shasta pack*



DFW R1 CAM 4109

RECONYA

California Department of Fish and Wildlife

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

Play!



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.

CARNASSIAL

DISPERSAL

FACEWIPE

SNOWPLOW

A Look Beyond

Another Turn Of The Crank: The Case for Wolf Restoration in Western Colorado

By Mike Phillips, Turner Endangered Species Fund

After completing decades of wolf recovery work elsewhere in the United States, conservationists can begin to turn the crank of progress by focusing on the last great, remaining expanse of wolfless wildlands in the lower 48 states—the public lands of western Colorado.

Wolves were rendered all but ecologically extinct there by the 1930s, and the

last wolf was killed near the Colorado-New Mexico border in 1945.

While it is fitting that the species is listed as endangered under Colorado state law, it is unlikely that any proactive, state-led recovery effort will surface. Why? The state's law is best suited for management actions that promote the persistence of imperiled but extant species. For extirpated species like the gray wolf, the law specifies that reintroductions must be authorized by the legislature. Given the influence of the livestock industry, and to a lesser extent the big-game hunting industry, it seems unlikely that the legislature would ever willingly authorize wolf reintroductions.



The federal Endangered Species Act (ESA) also protects the wolf in Colorado. This should mean that recovery is inevitable. But for more than 20 years the U.S. Fish and Wildlife Service has shown no interest in restoring the wolf to western Colorado. In 2013 the agency made its disinterest clear when it released a draft proposed rule for the species to be removed from the federal list of endangered and threatened species for most of the country, including Colorado. Curiously though, as of January 2017 the proposed rule had not been advanced beyond the draft stage.

In addition to legal mandates, wolf restoration to Colorado is strongly indicated by the presence of extensive and

Nowhere else in the world does such an opportunity exist to restore an iconic, unfairly maligned animal across such an inspiring and continental landscape.

highly suitable habitat. The area contains more public land and prey for wolves than anywhere else in the U.S.

From 2004–2015 the roughly 18 million acres of public land supported an average combined population of deer and elk that included about 760,000 animals. This probably represents the largest population of ungulates available for wolves anywhere in the world—a noteworthy situation, since prey abundance is the best predictor of habitat quality for wolves in areas where human-caused mortality of wolves is low. Not surprisingly, a congressionally mandated

Map courtesy of the Rocky Mountain Wolf Project

Southern
Rockies
Ecoregion

North America
with Southern
Rockies Ecoregion
and Study Area

1994 study concluded that Colorado could support more than 1,000 wolves. Three additional studies, using increasingly reliable techniques, affirmed that Colorado could easily support a self-sustaining population of wolves.

In addition to extensive suitable habitat, public approval of the wolf's return to Colorado is significant. Regional public opinion surveys conducted across a span of 20 years reveal strong and durable support for restoration.

Even though western Colorado is ideally suited for the gray wolf, the area is a considerable distance from wolf populations elsewhere, making it unlikely that a population will inhabit the area through natural recolonization. Conventional wisdom based on decades of reliable research and wolf recovery actions indicates that reintroductions provide the best guarantee for re-establishing a wolf population in western Colorado. The distances are too great, with too many mortality hazards along the way, for a sufficient number of wolves from elsewhere to disperse to Colorado, find one another and survive long enough to give birth to the countless litters of pups required to create and sustain a population.

Gray wolf restoration remains a controversial and divisive issue. Consequently, the species continues to be restricted to about 15 percent of its historical range in the contiguous U.S., despite an abundance of suitable but unoccupied habitat, mostly in western Colorado. The best conservation science instructs that the widespread absence of this species creates a "problem of simplification" for nature. The big, bold idea of restoring the wolf remains a viable solution to that problem.

To advance this future, the Rocky Mountain Wolf Project (www.rocky-mountainwolfproject.org) was launched in March 2016 on the belief that education advances restoration.

A successful education effort could prompt the citizens of Colorado to convince the state or federal government of

the need to return the wolf to the state. Once begun, restoration would flow like water down a hillside. A wolf population in the western half of Colorado would serve as the last piece of a 40-year puzzle to re-establish the species from the High Arctic to Mexico. Nowhere else in the world does such an opportunity exist to restore an iconic, unfairly maligned animal across such an inspiring and continental landscape. For those who celebrate the importance of wild and self-willed nature, it is an opportunity that must be seized.

Once accomplished, a Colorado wolf restoration project would help to illuminate a new relationship with nature—one that is restorative and accommodating,

and advances peace, prosperity and justice for all life. ■

Mike Phillips has been involved with wolf research and recovery since 1980. He served as the first field leader for the historic efforts to restore the red wolf to the southeastern U.S. and the gray wolf to Yellowstone National Park. Mike has written and lectured extensively about wolves over the last few decades.

Regional public opinion surveys conducted across a span of 20 years reveal strong and durable support for restoration.

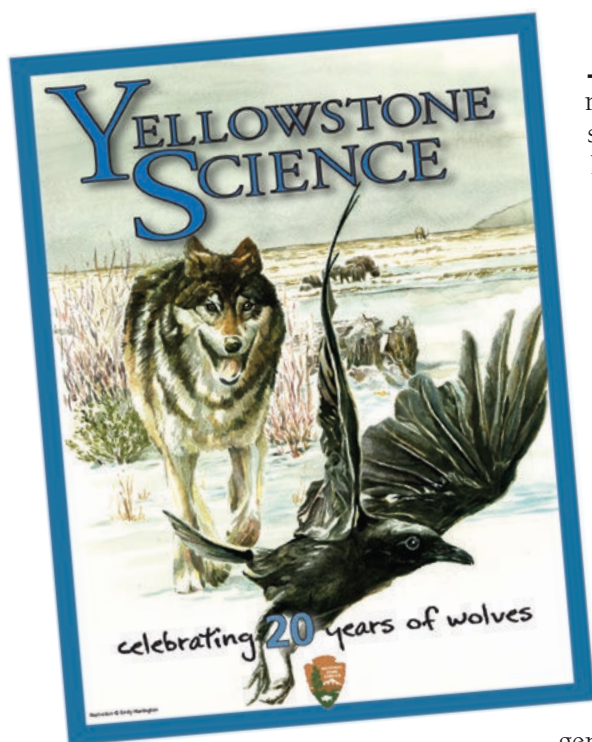


Jean-Francois Beaudry

Book Review

Yellowstone Science: Celebrating 20 Years of Wolves

Book Review by Nancy jo Tubbs



*Yellowstone Science:
Celebrating 20 Years of
Wolves*

2016 Yellowstone Center for
Resources

Guest Editor Douglas W. Smith

100 pages

It has Old Faithful, grizzly bears, hot springs, waterfalls, petrified trees and reintroduced wild wolves—so it's no wonder Yellowstone National Park is called one of the Seven Natural Wonders of North America.

A unique guide to those wonders is *Yellowstone Science* magazine, which twice a year “shares information from scientists and researchers with the public to highlight in-depth, science-based knowledge about the Greater Yellowstone Ecosystem.”

Its June 2016 issue is “celebrating 20 years of wolves” with articles and published scientific papers on all things Yellowstone-wolf. And by all things, we mean howling, genetics, elk, inter-pack aggression, parasites, motherhood and more.

Interviews with apex wolf biologists involved in the park's wolf restoration give the reader perspective on the importance of this natural scientific laboratory.

Why has the park been profoundly significant for wolf research?

“The Yellowstone population from the beginning has been the most scrutinized wolf population in history anywhere in the world,” said wolf research expert L. David Mech. “The percentage of the number of wolves collared with even VHF radios and the amount of time that they've been observed from the ground

has all produced tremendous amounts of data, which the biologists have turned into very informative publications.”

What makes wolf watching unique at Yellowstone? Doug Smith, project leader for the Wolf Restoration Project here, reveals one simple reason. “Because we have a road bisecting all the good wolf habitat in the park. Wolves up to this point in time have always been a remote wilderness species. They live in faraway places. And almost all of the monitoring of them has been through radio collars and airplanes. Yellowstone is the best example of continuous, year-round monitoring—not only aerial, but ground monitoring as well.”

For example, he notes, “Rick McIntyre went out every day for fourteen years and saw a wolf 97 percent of the days he went out.”

Want to explore the natural mysteries of an ecosystem that supports not only wolves, but grizzlies, mountain lions, bison, elk, bighorn sheep, deer, coyotes, foxes and eagles? This issue of *Yellowstone Science* is a veritable wolf-watcher's guidebook to the ecological intricacies of the park. You can learn, too, about the most pressing conservation challenges facing Yellowstone—one of which is, of course, the human presence.

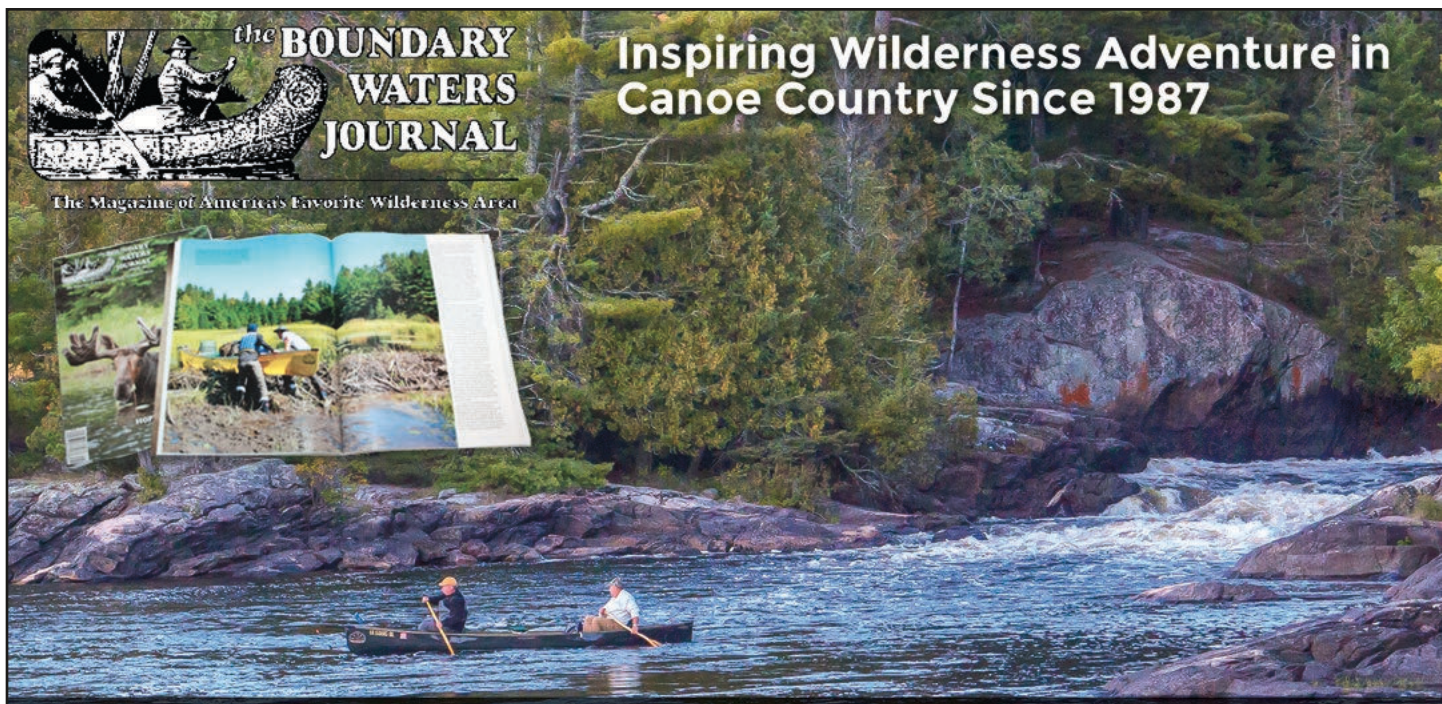
The magazine is available by subscription in hard copy or free online at www.nps.gov/yell/learn/yellowstone-science.htm, and anyone in love with Yellowstone or wolves will relish an in-depth look at this 100-page issue. ■



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Join us as we celebrate the remarkable, magnificent wolf!