INTERNATIONAL WOLF

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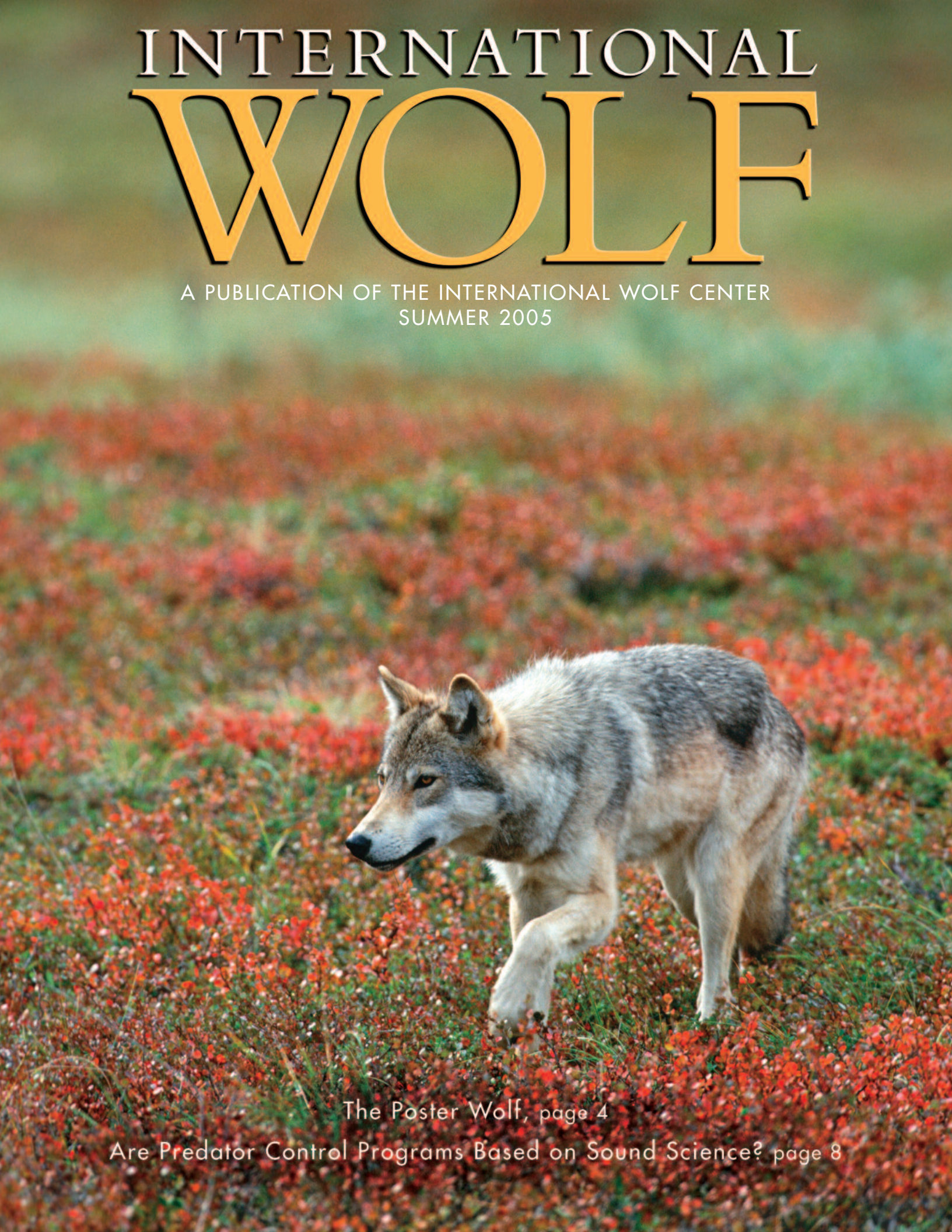

INTERNATIONAL
WOLF
THE QUARTERLY PUBLICATION OF THE INTERNATIONAL WOLF CENTER
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Bobbie Holaday


International Wolf Center

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Sound Science Is the Basis for Alaska's Wildlife Management, *Cathie Harms*

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On The Cover

A member of the Toklat wolf pack stalks prey in Denali National Park, Alaska.

Photo by Leo & Dorothy Keeler

Leo & Dorothy Keeler have specialized in working with the Toklat wolves in Denali National Park since 1989. To see more of their work, follow the "Toklat Wolves" link on their Web site at www. akwildlife.com.

Mike Possis/www.wildthingphoto.com

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PHOTOS: Unless otherwise noted, or obvious from the caption or article text, photos are of captive wolves.

As A Matter Of Fact

Question: In what areas of the United States are gray wolves classified as endangered?

Mike Possis/www.wildthingphoto.com

Answer: As a result of a U.S. District Court ruling on February 1, 2005, gray wolves are classified as "endangered" in all of the contiguous United States with the exception of Minnesota, which was downlisted to "threatened" in 1978. For more information on this ruling, visit www.wolf.org. ■

New Question

Where did Adolph Murie conduct his primary wolf study?

West Gate

From the Executive Director

The owl left a perfect impression in the fresh snow despite the interlacing highways of rodent trails. The primary feathers of the right wing left a series of graceful streaks, and the roughly triangular shape of the owl's short tail made an especially deep mark. The impression seemed oversized until I surmised that the owl had been intent on throwing its whole body into the capture of the rodent that had attracted its attention. The final evidence of the drama was the delicate row of small red blood spots, like a necklace, near the top of the owl's impression—just where its head should have been. The necklace gave evidence that the owl had been successful in its quest for its prey that night.

Walter Medwid

What struck me about the owl encounter was the "invisibility" of what had happened. The owl played out its role as predator, and the mouse or vole played out its role as prey. Hunger was the key motivating factor for both of the players as each searched for their distinctive foods. This evolutionary dance played out just as it is supposed to. There were no headlines, no protests (except for what the mouse may have uttered), and no compensation changed hands.

And this is what wolves do—they live by the biological, ecological and behavioral rules that make them the remarkable species they are. And those rules have been honed over the centuries through evolutionary processes.

In the flood of recent newspaper accounts, magazine articles and online coverage of wolves, especially in the Northern Rockies, it is easy to lose sight of the simple and yet incredibly difficult rules by which wolves live. Instead of understanding those rules, people so often attribute to wolves motives that go far beyond any biological reality. Instead of seeing what just is, we see what is "good" or "bad" according to our particular reference points for what is good or bad. We never understand a critical point—that wolves and their prey species co-evolved, and in so doing, benefited from the process.

Wolves, by and large, live invisibly. The harm they do to livestock is the exception, not the rule, and only in the most unusual circumstances do they adversely affect prey populations.

Those exceptions should never define the wolf. To truly define the wolf, we must include such words as deer, elk, moose and caribou. For without those words one can never truly understand what made the wolf a wolf. ■

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This photo of wolf 511 as she bounded out of her crate was made into a poster that appeared widely—thus 511 became "the poster wolf."

The Poster Wolf

by
BOBBIE HOLADAY

photos by
GEORGE ANDREJKO
Arizona Game and Fish Department

A young female wolf burst out of the steel crate and bounded into the deep snow. The 10-month-old youngster became the first wolf for 50 years to set foot on the ground in the forests near Alpine, Arizona. From high in the blue sky, the sun shown so brightly that she blinked her eyes after the darkness of the crate. Then from another crate, her mother leaped out to join her, and the two wolves frolicked under ponderosa pines inside a large holding pen. Soon, the father wolf ran out of his crate to join his pack.

This is the true story about a young female wolf we'll call 511 because she never was given any other name, just the number 511. How did 511 come to be the first wolf to return to the Southwest? Why did she become known as "the poster wolf"?

Mexican wolves were released in the Blue Range Wolf Recovery Area, made up of the Apache National Forest of Arizona and the Gila National Forest of New Mexico.

During the 1800s, many Mexican wolves made their home in the Southwest. They lived in the lush green forests in Arizona and New Mexico, where they killed deer and elk to eat. In the late 1880s, people came to the Southwest from eastern states. Many of these settlers were ranchers who brought cattle with them to graze on the plentiful grass and shrubs. The wolves turned to killing cattle for food after the settlers consumed much of the deer and elk populations.

The settlers were upset when the wolves killed their cattle, and they feared that the wolves might kill their children. They asked the U.S. government to help them get rid of wolves. Most everybody agreed. The wolves must go. Both government and private wolf controllers poisoned and killed every wolf in the southwestern United States, although a few remained in Mexico.

By 1960, with no wolves to kill them, there were too many deer and elk in the Southwest. Large numbers of these plant eaters plus the settlers' grazing cattle soon ate the grass and shrubs down to the ground. Scientists began to realize that they should not have removed all of the wolves.

U.S. government and state agencies put together a plan during the 1970s to bring back some Mexican wolves to the Southwest. Biologists agreed that they would create a captive population of Mexican wolves. They would catch a few wolves in Mexico and place them in zoos in the United States. They would let the wolves mate and have pups. In time, they would return some of them to the forests where they had once lived.

When the ranchers heard about the plans to bring the Mexican wolf back, they were very unhappy. A citizens' group that wanted the wolves returned told the government biologists that they would pay the ranchers for any cattle that the wolves killed.

The place where the biologists decided to put the wolves was known as the Blue Range Wolf Recovery Area. It was made up of the Apache National Forest of Arizona and the Gila National Forest of New Mexico. Nearby were two Indian reservations. On one lived the White Mountain Apache tribe, and on the other lived the San Carlos Apache tribe.

The White Mountain Apaches decided to allow the wolves to live on their reservation, but the San Carlos Apaches were afraid the wolves would kill too many cattle. They said that if wolves ever came on their lands, the biologists must remove them.

During the 1990s, the U.S. government and state agencies held many meetings where people spoke out about how they felt about the wolves. Finally, these agencies wrote a plan and rules stating how they would control the wolves brought back to the forests. Wolves that strayed outside of the recovery area or onto the San Carlos Apache Indian Reservation would be captured and returned to the recovery area.

The biologists chose a few Mexican wolves that had been living in zoos and prepared them for their return to the wild. They brought them to a large compound in New Mexico, where they left them alone. They wanted the wolves to fear humans. The only time the wolves saw humans was when food and water were provided or when veterinarians examined them.

In April 1997, wolf 511 was born at the wolf compound. Her mother was named Parkeyes, and her father was named Rio. Rio's grandfather was Don Diego, one of the wolves caught in Mexico to start the captive breeding program. The biologists gave any wolves born in the compound numbers, like 511.

In fall 1997, the three wolves were fitted with radio collars so that when they were released into the wild, the biologists could monitor their actions.

On January 26, 1998, when 511 bounded out from her crate into the snow, a photographer took a picture of her that was made into a colorful poster. The poster picture appeared everywhere. That is how 511 came to be known as "the poster wolf." The biologists called that wolf family the Campbell Blue pack. On March 29 they opened the pen's gate and let the wolves run free. It wasn't long before Rio and Parkeyes found elk to kill for food.

After she was 1 year old, 511 left her parents and went to find a mate. She traveled north toward Springerville, and later to Heber and then headed toward Show Low, but she found no wolves.

People who lived nearby were afraid that the young wolf would harm their children and expressed their alarm to the agency officials. The officials told the people that in all of recorded worldwide history there have been very few cases of a healthy wild wolf attacking or killing a human, but that did not stop the people from fearing that the roaming wolf might gobble up their children. Wolf 511 had to be captured because the federal rule stated that any wolf that strayed outside of the recovery area must be caught and returned to the recovery area or to a captive compound.

The agency officials sent a trained net-gunner in a helicopter to capture 511. The net-gunner shot the net over her and caught her. Wolf 511 was returned to the New Mexico compound, where she again had to live in captivity.

The wolf compound keeper said, "She was exceptionally large and healthy and acted much wilder than before her release to the wild. She's amazing! I've seen a lot of wolves. You get to know when a wolf has it and when a wolf doesn't. She has it."

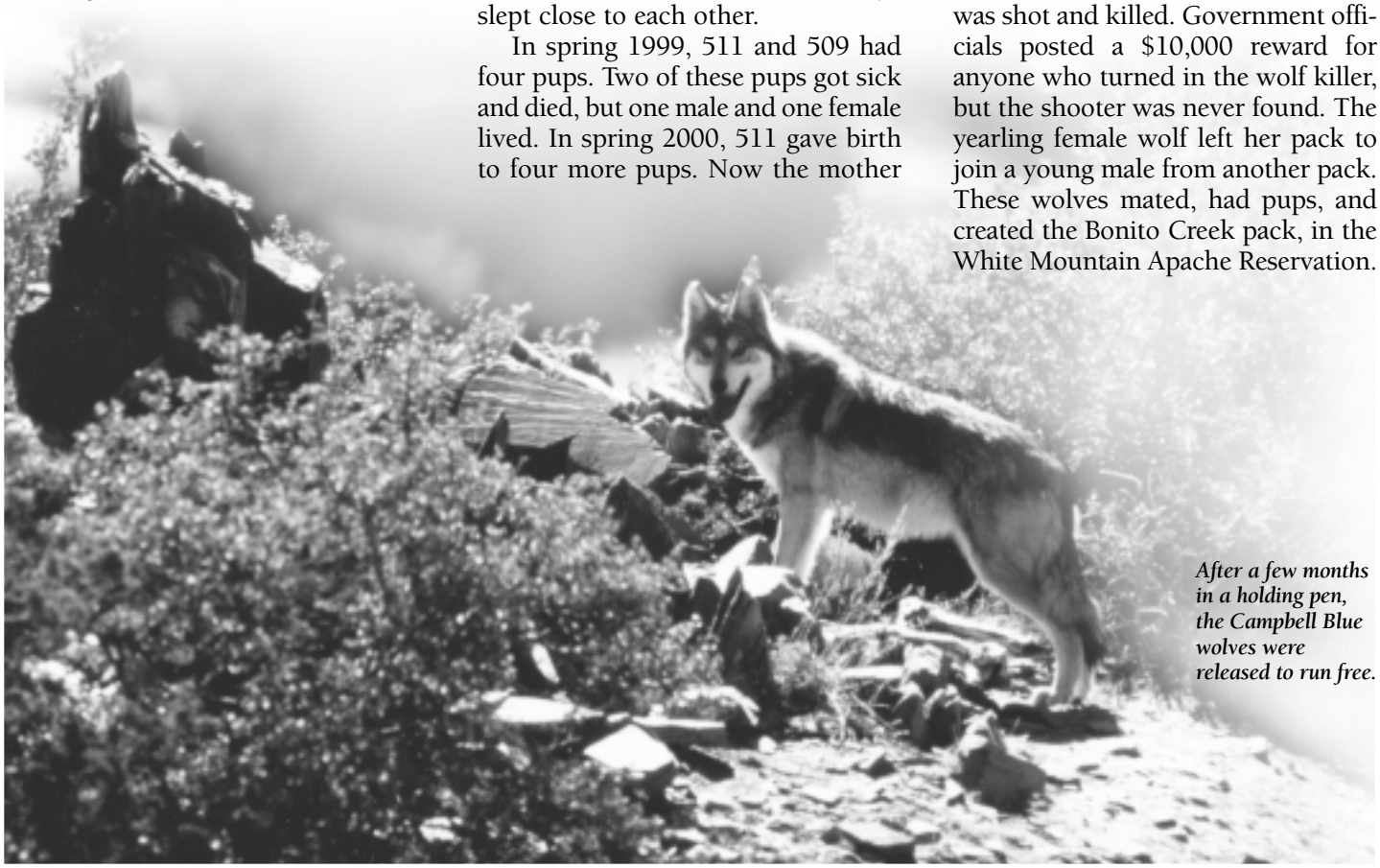
After wolf 511 and her mother had left their crates, Bobbie Holaday opened the crate that held Rio, 511's father.

After a few months, 511 was put into a pen with three young male wolves. The largest wolf, 509, was always picked on by the two other wolves. Wolf 511 chose him for her mate. Wolf 511 defended 509 against the other wolves, and the wolf keeper noticed that the two wolves always slept close to each other.

In spring 1999, 511 and 509 had four pups. Two of these pups got sick and died, but one male and one female lived. In spring 2000, 511 gave birth to four more pups. Now the mother and father wolves had a real pack with the two yearlings and four pups.

In July 2000, the biologists returned 511's pack, now called the Francisco pack, to the wild. It wasn't long before the parents and their yearling wolves were able to kill elk to feed the whole pack.

The yearling male wolf wandered near Reserve, New Mexico, where he was shot and killed. Government officials posted a $10,000 reward for anyone who turned in the wolf killer, but the shooter was never found. The yearling female wolf left her pack to join a young male from another pack. These wolves mated, had pups, and created the Bonito Creek pack, in the White Mountain Apache Reservation.



After a few months in a holding pen, the Campbell Blue wolves were released to run free.

Above: Biologists loaded wolves into panniers, special crates, for their trip deep into the wilderness. Two panniers can be loaded onto one mule, one on each side. The six wolves were carried on three mules, and two other mules carried equipment. A project biologist on horseback guided each mule.

Above left: Biologists carried wolves in panniers to a mesh pen, where they stayed for a few days before being released to the wilderness.

Wolves 511 and 509 continued to travel together with their four youngsters. In spring 2001, two new pups were seen for a short time but then disappeared. Biologists believed the pups did not survive their early weeks.

In spring 2002, five more pups were born. The Francisco pack seemed happy to run free in the forest. The four yearlings born in 2000 were now nearly adults. One by one, they left their pack, perhaps to seek other wolves, but their locations were unknown.

Later that year, the rest of the Francisco pack were often seen on the San Carlos Apache Reservation. The tribal officials demanded that the agency biologists remove them from their lands. Because of the federal rule, the biologists had no choice but to capture these wolves.

One female yearling was trapped in January 2003 and returned to the New Mexico compound. In March, a male yearling was trapped, and during April the other yearling male was caught. The two males joined their sister and played together in the compound.

In mid-April, 511 was trapped and returned to the compound. The wolf keeper said, "I saw the mother wolf dash into the pen to join her yearlings. Tails wagged wildly, and the wolves exchanged many licks. They mouthed and pawed each other lovingly." The last day of April, another yearling female was trapped and joined her family.

In early May, 509 was captured and reunited with his pack. The wolf keeper related that "the day after the reunion, I saw 509 strutting around the pen like a proud father wolf, followed by the four younger wolves."

The uncaptured Francisco pack female yearling left the San Carlos Apache's land and returned to the recovery area. She later was occasionally seen back on the reservation. Efforts to recapture her were suspended.

Late in June 2003, the biologists were ready to return 511's pack to the recovery area. The wolves were loaded into panniers, special crates built to be carried on a mule's back, and carried on three mules into remote wilderness in the Gila National Forest in New Mexico.

Their new home was many miles away from people and cattle. There were springs of clear water under ponderosa pines. Lots of deer and elk roamed the same forest, so 511 and her pack would not have to travel far to find food.

The six wolves were first placed in a nylon mesh pen for a day to get used to the area. The next day the biologists opened the pen. Once again the Francisco pack ran freely through the forest like wild wolves should.

Two days after the Francisco pack was released, a biologist flying overhead watched all the pack members traveling together a mile east of the pen. He thought, "At last, our poster wolf and her pack have found a happy home." ■

Author's note: This text was reviewed for technical accuracy by U.S. Fish and Wildlife wolf biologists Colleen Buchanan and Melissa Woolf.

Bobbie Holaday spearheaded the citizen effort behind the U.S. Fish and Wildlife Service and Arizona Game and Fish Department's program to reintroduce the endangered Mexican wolf to the Blue Range Area of Arizona and New Mexico. In 1988, she founded Preserve Arizona's Wolves (P.A.WS.). She has received numerous awards for her environmental advocacy.

Tom Brakefield

Currently an estimated 7,700 to 11,200 wolves live in Alaska.

Are Alaska's Current Predator Control Programs Based on Sound Science?

The Alaska Department of Fish and Game (ADF&G) initiated two predator control programs in winter 2004 and three more in winter 2005 to reduce the number of wolves in certain areas to allow moose populations to increase. On January 6, 2005, a letter signed by 123 biologists from the United States and Canada was sent to Alaska's governor, Frank Murkowski, expressing concern about these predator control programs. The following articles present opposing viewpoints about the scientific basis for the design and implementation of ADF&G's predator control programs.

Sound Science Is the Basis for Alaska's Wildlife Management

by Cathie Harms

Alaska's wildlife management must be based on sound science to accomplish the job of the Alaska Department of Fish and Game (ADF&G): to manage, protect, maintain and enhance wildlife for the benefit of Alaskans, now and in the future. Other than in the cities, healthy populations of predators currently inhabit their historic ranges within Alaska. Currently an estimated 7,700 to 11,200 wolves live in the state. All wildlife management in Alaska, including control programs, is designed to maintain sustainable wildlife populations. As a result, none of our large predator populations has ever been endangered or threatened.

Research conducted by department biologists and others has improved our understanding of predator-prey relationships and has shown that in most of Alaska moose populations are held at low levels by predation (by wolves and bears), even when habitat can support more prey. Research has also shown that when predation is a limiting factor, and habitat is adequate, reducing predation can allow moose populations to increase and/or provide higher harvest levels for people.

Alaska supports approximately 600,000 people, many of whom depend on wildlife for food, but Alaskans are not unanimous regarding management goals for wildlife. Therefore, ADF&G must provide for the diversity of interests by managing different areas in different ways.

Alaska supports approximately 600,000 people, many of whom depend on wildlife for food, but Alaskans are not unanimous regarding management goals for wildlife. Therefore, ADF&G must provide for the diversity of interests by managing different areas in different ways. Currently, predator control programs are not in effect in more than 90 percent of Alaska (an area greater than twice the size of Texas). On less than 10 percent of the state's area, we are attempting to reduce the level of predation to allow moose populations to increase and provide more harvest for people.

Predator Control Programs Are Not Based on Sound Science

by Vic Van Ballenberghe

Alaska's current predator control programs are clearly not based on sound biological science, nor is there any requirement that sound science must provide the basis for designing, implementing and monitoring predator control. Furthermore, within Alaska, there is no general agreement among hunters, wildlife biologists and policy-makers as to what constitutes sound science. As a result, the current programs are based mainly on political science and are strongly endorsed by Alaska's governor, Frank Murkowski, who vows to continue them no matter how much controversy and protest they generate. Up to 610 wolves will be shot by May 2005 in five areas totaling 43,000 square miles, with several hundred more wolves to be shot in the coming years. Additional programs are likely to be added soon.

Implementing wolf control to increase moose numbers without examining the role of bear predation, poor habitat, severe winters and overhunting is similar to performing surgery to cure pain without diagnostic x-rays, blood tests or MRIs.

On January 6, 2005, a letter of concern signed by 123 biologists from the United States and Canada was sent to Governor Murkowski. It noted that the new programs depart from past efforts to utilize planning teams, prepare peer-reviewed study plans and gather missing data. Past efforts followed standards and guidelines recommended by a National Research Council (NRC) review. The letter urged the governor to return to sound design and monitoring of control programs by using key standards, including conducting control as adaptive management, monitoring control so as to determine its effectiveness or lack thereof, avoiding programs with a low probability of success, and reexamining inflated ungulate population objectives often based on historical highs.

The letter expressed particular concern about Alaska's intensive management statute. Its implementation has resulted in chasing unattainable ungulate population

Sound Science Is the Basis for Alaska's Wildlife Management

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ADF&G initiated two predator control programs last winter and three more this winter. In each case, moose are at low densities, predation by wolves and bears is preventing an increase in moose numbers, and habitat is sufficient to support more moose. The programs make sure that wolves are not eliminated from the control areas and are designed to increase the harvest of moose for human consumption. Progress is closely monitored.

The Nelchina Basin in Unit 13 between Anchorage and Fairbanks is an important hunting area for locals as well as residents of the two cities. Moose numbers declined in the 1990s after a series of deep-snow winters. About the same time, using aircraft to hunt by landing and shooting wolves was prohibited. Wolf numbers increased substantially, and although many moose calves were born, few survived to adulthood. Moose hunting was restricted, and bear hunting and wolf trapping and hunting were liberalized. Despite the resultant increases in wolf and bear harvest, predator populations did not decline.

Predator control in the Nelchina Basin was authorized in 2000 but not implemented until January 2004, when land-and-shoot permits were issued to private citizens. By April, 127 wolves had been taken, and the program was suspended for the summer. In November 2004, 21 permits were issued and as of January 12, 2005, 29 wolves had been taken. It is too early to call the program a success, but survey results suggest the decline in moose numbers has stopped, and calf survival has increased. The program was approved for five years.

The control program in Unit 19D East surrounds the village of McGrath, which is not accessible by road. Local people need 130 to 150 moose each year to feed their families, but since 1999 the average annual harvest has been below 80.

Residents of the area first asked for help in 1994. Predator control was authorized in 1995 but not implemented until late 2003. Meanwhile, moose hunting was restricted, and bear and wolf hunting and wolf trapping were liberalized, without significant effect on moose or predator numbers.

The McGrath program is designed to decrease predation for up to five years to increase moose survival and, eventually, harvest rates. During the past two springs, ADF&G staff moved bears to boost summer calf survival.

Three permits were issued to citizens to take wolves using aircraft. Teams took 11 wolves last year, and as of the second week of January, 7 wolves had been taken in 2005. As a result of the management program (including bear removal), calf survival has risen, and moose numbers have increased by 19 percent over the past two years. Program goals can be met within five years.

Three additional wolf control programs near Aniak, along the west side of Cook Inlet, and near Tok commenced this winter. Results are being monitored to ensure we reach management goals and that program sideboards, such as the required number of wolves remaining, are met. Significant past and current research guides these programs, and results will contribute to what is known about predator-prey relationships in northern ecosystems. Sound science is the basis for Alaska's wildlife management policy decisions.

Controversies will continue. The fact remains that predators are valued in Alaska and will continue to play their role in our ecosystems in the future. ■

Cathie Harms has worked for the Alaska Department of Fish and Game, Division of Wildlife Conservation, for 24 years as a biologist and information officer. Wolf management has been a controversial issue in Alaska throughout her career.

Leo and Dorothy Walter

Research has shown that when predation is a limiting factor, and habitat is adequate, reducing predation can allow moose populations to increase.

Predator Control Programs Are Not Based on Sound Science

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objectives with poorly designed predator control programs that may risk long-term sustainability of ungulates, protection of ungulate habitat integrity and viability of predator populations.

Past programs referred to in the letter include one for the McGrath area on the Kuskokwim River in interior Alaska. This was the first program designed following the 1997 NRC review. Then Governor Tony Knowles appointed an "Adaptive Management Planning Team" that met to provide recommendations to remedy an apparent shortage of moose. It reviewed the biological information, subsistence needs and possible solutions, including predator reductions and moose hunting season closures. The team identified data gaps and authorized preparation of a peer-reviewed study plan to guide research and management actions.

Lynn and Donna Rogers/www.bearstudy.org

Research has shown that when predation is a limiting factor, and habitat is adequate, reducing predation can allow moose populations to increase.

The process used in crafting the McGrath plan could have served as a model for plans in other areas, but when Governor Murkowski's new Game Board met in March 2003, they disbanded the team, shelved the study plan and changed a key recommendation to allow private pilots to shoot wolves with fixed-wing aircraft, rather than Alaska Department of Fish and Game (ADF&G) employees using helicopters. Furthermore, the McGrath model was not used in designing four other programs, one of which was approved despite objections by ADF&G biologists that data were insufficient. At one point the Game Board indicated its desire to rely primarily on reports by local residents who felt there were too few ungulates and too many predators.

The dangers of this approach, as opposed to science-based programs, were illustrated at McGrath. Early in the debate attention was focused almost entirely on reducing wolves. After the planning team recommended examining bear predation, a bear translocation program resulted in greatly increased moose calf survival. Bears were much more important predators on young moose calves than were wolves. The team also recommended examining moose habitat quality. Preliminary results indicated vast areas of marginal moose habitat that would not support many moose even in the total absence of predators.

But most importantly, the team called for better moose census data. A properly designed aerial census done under good conditions in autumn 2001 revealed about four times the number of moose estimated only one year previously. In fact, the better census indicated that the moose population objective in that area had already been met without wolf reduction, and moose were not nearly as scarce as some local residents had claimed.

The lessons from McGrath are clear. A science-based program must first include adequate data to diagnose the problem and determine the cause. Implementing wolf control to increase moose numbers without examining the role of bear predation, poor habitat, severe winters and overhunting is similar to performing surgery to cure pain without diagnostic x-rays, blood tests or MRIs. Similarly, science-based programs must have carefully designed monitoring protocols of proper magnitude, duration and geographic extent to evaluate the outcome of control programs. The protocols should be included in a peer-reviewed study plan. The science of adaptive management whereby wolf control actions are treated as experiments should serve as a blueprint of how to proceed.

Alaska's current programs that depart significantly from sound science risk negative, long-term consequences that may well outweigh short-term benefits. That is why 123 biologists contacted the governor and asked that he reexamine these highly controversial programs. They were not asking for anything new—the McGrath model already exists. Now, we just need to reapply it. ■

Vic Van Ballenberghe first studied moose and wolves in northeastern Minnesota as a graduate student. He moved to Alaska in 1974 and has researched moose, wolves and predator-prey relationships there ever since. He has been appointed to the Alaska Board of Game three times by two different governors.

The Way of the Wolf

Most of the wolves remaining in Europe west of Russia live deep in the forests of the Carpathian Mountains. Yet even this last remote sanctuary for large carnivores faces threats from new highways and other development.

Peter Surth, a wildlife manager and former carnivore tracker for the Carpathian Large Carnivore Project, will lead an expedition to track large carnivores (wolves, bears and lynxes) and raise public awareness of these animals beginning April 1, 2005. People can join Surth on "The Way of the Wolf" for weekly (or longer) stints as he hikes the entire Carpathian Mountain chain, starting in Romania and crossing through Ukraine, Slovakia and Poland before reaching Germany some four months later. The team will gather information about the genetic composition, distribution and movements of the large carnivore populations of Eastern and Central Europe by tracking predators and collecting scats, leading to the identification of important corridors and crossings that should be protected.

The "Way of the Wolf" will provide an opportunity for adventurers to experience the spectacular beauty of the Carpathian Mountains, the rich and diverse cultures of Eastern and Central Europe and the camaraderie of an international team of trekkers, while directly aiding conservation efforts. For more information, visit Surth's Web site: http://www.thewayofthewolf.net. The International Wolf Center will follow along by posting periodic updates from the expedition on its Web site and a full report following its conclusion.

Alan Sparks

Peter Surth will lead "The Way of the Wolf," an expedition to track large carnivores in the Carpathian Mountains, beginning April 1, 2005.

Sharing the Future with Young Women

What if one of the International Wolf Center's educational programs made such a difference in a young women's life that it inspired her to seek a career helping wolves?

Such is the hope of those who coordinate the annual "Share the Future in Science and Mathematics" conference. The conference, sponsored by Bemidji State University, is devoted to encouraging young women to become interested in mathematics and science, and to consider pursuing careers in these fields.

Jen Westlund, program director for the International Wolf Center, was one of several presenters at the 14th annual conference that brought together nearly 250 seventh- and eighth-grade girls from northern Minnesota in January 2005. According to Westlund, the Center's programs were among the most popular, and both of her presentations were filled to capacity. Westlund discussed wolf biology, the issues involved in living

Mech Receives International Recognition

L. David Mech, founder and board member of the International Wolf Center, was recognized by International Wildlife Photography for his study, publication and conservation of nature. The award was presented on February 25, 2005, at the International Wildlife Photography Symposium in Valencia, Spain. Mech was also featured as a lecturer at the symposium, which drew international scientists, naturalists and political representatives, and honored the memory of Dr. Felix Rodriguez de la Fuente, a renowned natural history documentarian in Spain and a pioneer in the study of the ethology of wolves.

Mech is a senior research scientist for the U.S. Department of the Interior and an adjunct professor at the University of Minnesota in St. Paul. He has studied wolves on Isle Royale, Michigan, and in Minnesota, Canada, Italy, Alaska, Yellowstone and elsewhere since 1958. Mech has authored several books including his most recent, *Wolves: Behavior, Ecology, and Conservation,* which he co-edited with Luigi Boitani.

International Wolf Center

logo to come

with wolves and the role of science in the human relationship with wolves.

"It was interesting to see how some girls were apprehensive about wolves in the beginning of the presentation. As they learned more, their fears and misunderstandings dissipated," says Westlund, adding that each presentation allowed students to gain a better understanding of the many career opportunities that involve science and mathematics.

"Young women have a history of limited participation in careers in science and mathematics," says Dr. Julie Larson, a professor of chemistry at Bemidji State University, who assisted in coordinating the conference. "The focus of this conference is on developing career interest in these fields with hands-on and interactive presentations."

The long-term effects of the conference are unknown, but it could well be that Westlund gave a presentation to a future member—or director—of the International Wolf Center. ■

INTERNATIONAL WOLF CENTER

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Tracking the Pack

Watching the Exhibit Pack Sparks Memories of Earlier Times

by Lori Schmidt, Wolf Curator, International Wolf Center

It's an exciting time for the International Wolf Center. Wolf care staff, nannies and volunteers successfully raised Grizzer, Maya and Nyssa, the Center's new pups, in 2004. Their transition into pack life was smooth, and the winter season brought the expected dominance displays between the females. Wolf watchers also saw a change in the dominance of the Center's long-established arctic wolves. Malik was always considered more dominant until the pups were introduced, but Shadow has clearly taken on the role of disciplinarian and leader of this pack.

As the staff recorded the wolves' behavior throughout fall and winter, they began to notice some interesting similarities between the current Exhibit Pack and earlier ones. The obvious similarity is the return of a black wolf, Nyssa, to the Exhibit Pack. Since the retirement of MacKenzie, the Center's previous black wolf, the pack has lacked this color phase. Watching Nyssa has brought back memories of MacKenzie's time in the exhibit. Nyssa, similar to MacKenzie, displays intense dominance behaviors, vying for the top female role.

Another striking reminder of past pack members is Maya's facial characteristics, especially her eyes, which staff noticed are similar to those of Kiana, one of the Center's original wolves, in their piercing yellow color.

Lynn and Donna Rogers/www.bearstudy.org

Sherry Jokinen

Maya (above) with her striking yellow eyes reminds staff members of Kiana, (above left), one of the Center's first wolves.

Also, Maya can be very intense in displaying her dominance over Nyssa, similar to Kiana's aggression toward former packmate Lakota.

Dominance displays are not restricted to the female wolves. Whenever there's a group of wolves, observers are likely to see a pack mobbing. This behavior is best described as the higher-ranking wolves focusing on one individual. The behavior may start out as a game of chase, with a bit of nipping. Before long, an intimidated, lower-ranking wolf may show weakness with a tucked tail and a few yips, leading to more biting, headshaking and grabbing. These displays are more intense during winter but can occur all year long.

Wolf care staff member Sherry Jokinen recently photographed a mobbing of Maya. She recalled a similar scene with Lakota a few years earlier. A search of the photo database revealed not only a similar scene but one occurring in the same area of the pen. Adding pups to the exhibit has certainly sparked memories of the packs from years gone by. ■

Sherry Jokinen

The mobbing of Maya in December 2004 (above) was remarkably similar to a mobbing of Lakota, another former pack member, in December 2001.

Sherry Jokinen

Wolves of the World

WOLVES IN BULGARIA

Research and Conservation

Text and photos by Elena Tsingarska-Sedefcheva

The wolf's eyes tell me so much. They are full of life, full of the wish to roam in the forest and smell every odor. I am happy to have close contact with a wolf named Vucho. He was born in the Varna, Bulgaria, zoo and has been a member of our "pack" since he was 11 days old. The zoo's director kindly consigned him to us for our education project, the Wolf Study and Conservation Program.

I would like to pass on to people everything I saw in Vucho's eyes. I would like to make them understand that without the wolf, the bear, the forest and even the smallest bird, we are nothing. Like many of my colleagues in other countries, I realize that this is not easy, but it is not impossible.

That is why the Wolf Study and Conservation Program in Bulgaria was started: the wolf definitely needs advocates in this country. As a competitor with hunters (as everywhere), the species is accused of severe predation on wild ungulates. The wolves' conflict with farmers is also serious. Bulgaria has always been a livestock-breeding country, and in the countryside people still live as their grandparents did—everyone in a village has at least some sheep, goats and cattle. Present conditions, however, have impoverished livestock breeders, and the number of livestock has sharply decreased. When asked about the past, the old people say, "There was enough for everybody," which means enough livestock for people *and* for predators.

Such tolerance toward predators is not as common as it was in the past. The general public knows little about the wolf and its importance for the ecosystem. The media report almost only negative information about wolves.

The wolf program started in January 1993, when a government order for national wolf control was issued. The Balkani Wildlife Society (then called Green Balkans) and other nongovernmental organizations launched an international campaign against this decision. Thanks to the campaign the order was canceled three months later. Some of us who were biology students started to collect all the available information about wolves in Bulgaria. We found out that there was little scientific information. The idea for a long-term program of wolf studies and conservation was born. The main tasks we set were

- assessing wolf populations in the country and describing local features of the species' biology and ecology,
- raising public awareness and educating people about wolves,

The Pirin Mountains is one of the Wolf Study and Conservation Program's two study areas in Bulgaria.

• solving the exissting conflict between wolves and people living in rural areas,
• lobbying for improvement of the species' legal status.

We started our field analysis in one study area, called Kraishte, but later added the western part of the Pirin Mountains. The two areas have different relief, climate, prey abundance and protection status, so we can compare two different types of wolf habitat. We are researching home range size, pack size, wolf diet, human-caused mortality and wolf predation on livestock.

We already have some data on the home range size of a few wolf packs in Kraishte. It varies from 100 to 150 square kilometers (40 to 60 square miles). We have begun to determine the home range size of wolf packs in Pirin. The pack size varies seasonally more in Kraishte and less in Pirin. The main reason for this difference is that wolf hunters in Kraishte are more successful than those in Pirin. Wolves can be hunted year-round in Bulgaria, but the most intensive and successful hunting occurs from October through January. In Kraishte there is always a sharp drop in pack size in this period. In Pirin wolf hunters are not as successful, mainly because of the rough, difficult terrain. According to our observations, the average pack size is about five to six individuals.

Three years of scat analysis provided significant results about the wolves' diet. We found that wolves in Kraishte have a diverse diet. The most common natural prey were roe deer and hare, and the preferred domestic animals were goats, sheep, cattle and pigs. But some other, not so usual prey species were recorded in the wolf scat remains: martens and badgers were among the wild species, and dogs made up a large percentage of the domestic animals. The wild boar, although abundant in Kraishte, was an insignificant part of the wolves' diet. Intensive collecting of scats in Pirin started in 2003, and after we analyze the material, we will have a clearer idea what wolves there eat.

The Wolf Study and Conservation Program has two study areas in Bulgaria: Kraishte and the Pirin Mountains.

Since the beginning of our project, we have been working with local people. We have collected information about the kind and number of livestock in the area, grazing practices, protection methods used, the frequency of predator attacks and the kind of livestock attacked most often. These inquiries resulted in some interesting findings. For instance, according to local people, goats were the livestock most often killed by wolves. We got the same results from wolf scat analysis. Another interesting finding was the time of the day wolves attack livestock. In both Kraishte and the Pirin Mountains the highest percentage of attacks occurred during the day.

We have been trying to catch wolves to radio-collar them. Unfortunately, we have only trapped one wolf, which escaped before we could reach it. We hope to have better success soon.

In 1999 we started educational activities. In the beginning we thought we would be able to work with many different groups, but we soon realized that we needed to focus on a target group because of our limited funds and capacity. We

Researchers plot the route of a wolf pack they have tracked in the snow.

Three years of scat analysis by the Wolf Study and Conservation Program has provided significant results about the diet of wolves in one area of Bulgaria.

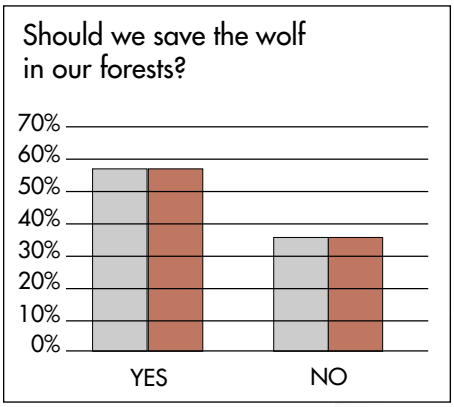
decided to focus on children, who are most open to new information and understanding. We prepared a photo exhibition, a slide show and two activity booklets, one for younger students and one for older. The booklets contain information about the three large carnivore species of Bulgaria, the wolf, the brown bear and the lynx, and are illustrated with many cartoons, maps, puzzles to solve, questions to answer and so on. Our purpose was to make each child a participant in the learning process and to make the information interesting and easy to remember.

Seventy-five schools participated in the program. At the end a competition for the students' work was held. We received excellent stories, poems, paintings, models of large carnivore habitats, posters, collages and even games. All those who participated were prizewinners, but we had several big prizes for the best entrants.

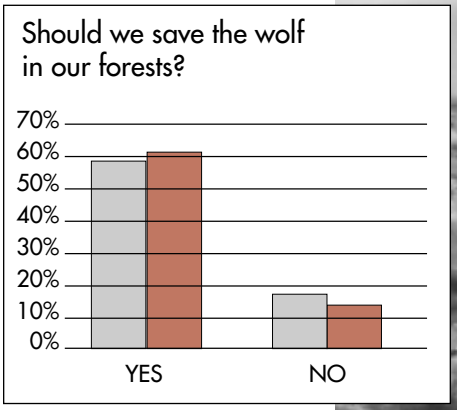
In June 2003, just before the end of the school year, we organized a Large Carnivore Day at the zoo in Sofia and invited many students. The children played and learned new things about large carnivores and other wildlife. The highlight of the day was to see, touch and have a photo taken with a tame wolf pup. Our pup Vucho made his debut as an ambassador wolf. He was even a TV star that day.

The enthusiasm of students and teachers and the results we received from an attitude survey of the children support continuing the educational activities. We asked students questions before and after the activities. All the answers showed better knowledge of and more positive attitudes toward wolves after the activities (see figures on this page).

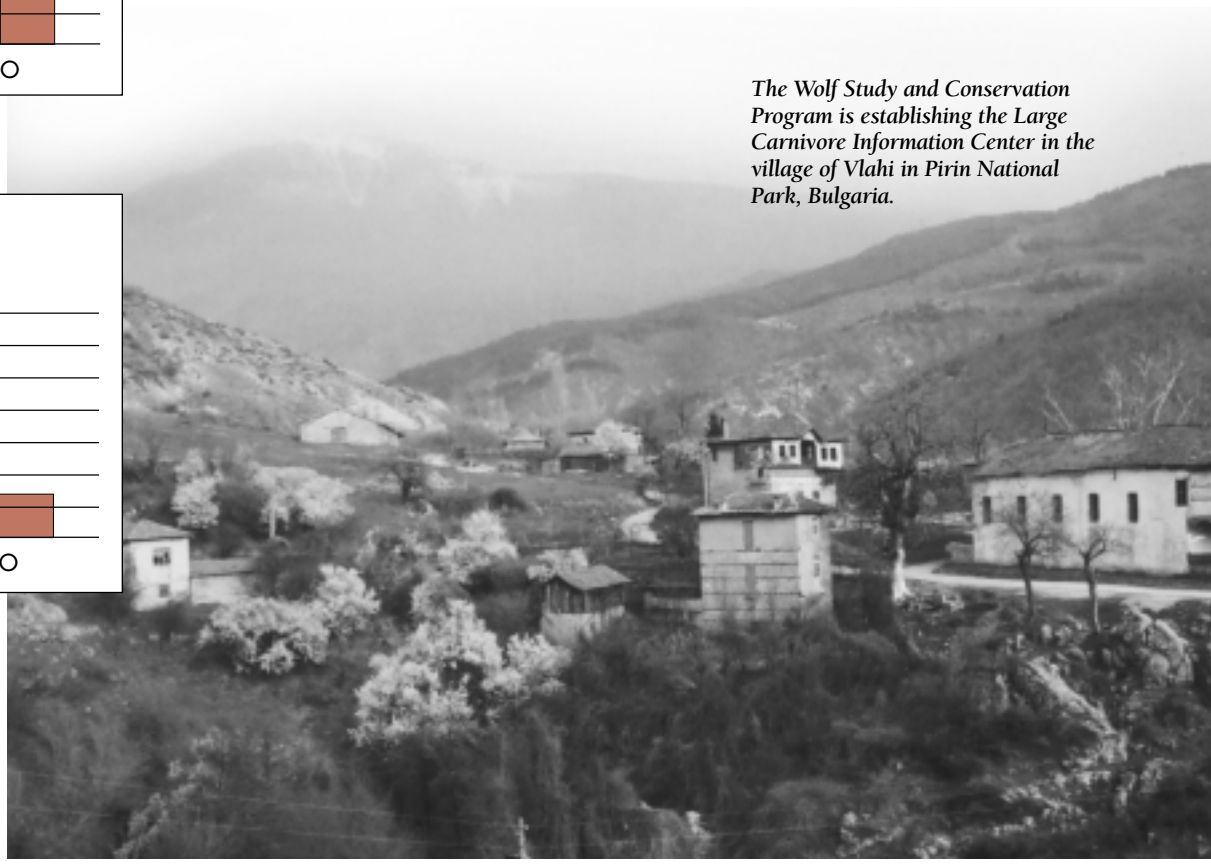
Before the educational activities (divided by regions).



After the educational activities (divided by regions).



Rila & Pirin Mtns
West Stara Planina Mtns.



The Wolf Study and Conservation Program is establishing the Large Carnivore Information Center in the village of Vlahi in Pirin National Park, Bulgaria.

After implementing this educational program, we wanted to change some aspects because it was time-consuming and limited in the region and number of schools included and the diversity of educational materials. My biggest wish was to establish a Large Carnivore Information Center to implement educational tasks. Last year we made progress on deciding where to locate the center and how to organize it. We chose Pirin National Park, a beautiful and a popular area for tourists, and we purchased an old building in Vlahi to refurbish and equip as the center.

Vlahi is a popular village for people who are interested in nature conservation. Our colleagues from SEMPERVIVA society are developing a project there for the conservation of three ancient local breeds of sheep, horses and dogs. Other colleagues who are organizing ecotourism activities have chosen Vlahi to be their base. A national park information center is also being built in the village. The planned infrastructure will bring many mountain tourists to Vlahi, and the Large Carnivore Information Center will be a good complement to the other activities.

Once built, we hope the center will become a popular destination for school groups. The center will house a permanent exhibition, and special programming will be offered to groups of students. Our wolf Vucho (and probably a second one) will be an integral part of the center and of educational activities.

We still must raise funds for the center, but we believe we will be successful and that we will realize our ideas for the long-term education of people about the wolf and its value as a unique component of the natural world.

Elena Tsingarska-Sedefcheva is a biologist pursuing a Ph.D. in the area of wolf ecology. She has coordinated the Wolf Study and Conservation Program since 1997. Her current focus is long-term research of wolves and the establishment of the Large Carnivore Information Center.

WOLVES IN FINLAND

Wolf Population on the Rise in Finland

by Neil Hutt

Growth in the number of wolves in Finland depends exclusively on whether or not people want a sustainable population. There is plenty of room here.

—Riku Lumiaro, Game Researcher, Finnish Association for Nature Conservation

Riku Lumiaro's words have the ring of familiarity. In an increasingly crowded world, the survival of wolves and other large carnivores depends largely on the tolerance of humans. But animosity toward wolves is strong in Finland just as it is elsewhere, and the Parliament is besieged with demands by segments of the Finnish population to increase the number of wolves that can be legally killed. Member of Parliament (MP) and World Conservation Union Wolf Specialist Erkki Pulliainen reports that some people in locales along the eastern border of Finland want to take matters into their own hands and decide how many wolves should be officially removed in their area. Pulliainen points out, however, that this is not an option. Finland is a member of the European Union (EU), and EU legislation regarding wildlife conservation takes precedence over Finnish law.

Ilpo Kojola of the Finnish Games and Fisheries Research Institute (RKTL) suggests that thorough research must be conducted and wolves must be monitored. "Finland has a viable stock of wolves," he says, "as long as it is not regulated too much." The success of this management philosophy is reflected in Pulliainen's recent report (October 2004) that the number of wolves in Finland has increased from an earlier 2004 estimate of perhaps 120 animals to approximately 150.

For wolf fans, that is good news. For people who consider the wolf a menace and a nuisance, it is not. Christian Krogell of the Ministry of Agriculture and Forestry notes that although most Finnish citizens are in favor of viable wolf populations, there is a pervading "but not in *my* village" attitude as well. Anti-wolf sentiment is high in reindeer herding areas. Also, some citizens worry about the number of moose being killed by wolves. Studies, however, reveal an increase in the moose population—even though human hunters and wolves both kill moose.

According to Pulliainen, the main complaint now is that wolves are killing domestic dogs. And despite no recorded wolf attacks on humans there, fears persist that wolves will harm or kill children. "People seem to need symbolic threatening images, which the wolf is, in most cases," says Pulliainen.

Since 1998, the Finnish Game and Fisheries Research Institute (RKTL) has been conducting research on wolf

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News and Notes

WOLVES KILLED at least two cougars, two grizzly bear cubs, six coyotes and a badger in Yellowstone National Park in 2004 along with their usual take of elk, bison, moose, deer and pronghorn antelope, according to the 2004 Rocky Mountain Wolf Recovery Report available at http://westerngraywolf.fws.gov/annualrpt04/index.htm.

IDAHO WOLF INFO is now available on a special Web page that can reached via http://fishandgame.idaho.gov./wildlife/wolves/.

RECORD WOLF DENSITY. A wolf pack, just 4 miles northeast of the International Wolf Center reached the highest density ever recorded. According to an article in the 2004 *Canadian Field Naturalist* (volume 18, no. 1) by L. David Mech and Shawn Tracy, the Farm Lake wolf pack reached a density of 31 wolves/40 square miles in summer 1998, and 18 wolves/40 square miles the following winter. The previous record was held by wolves on Vancouver Island, British Columbia, which reached 14 wolves/40 square miles in the 1970s.

WOLF ATTACKS MAN. In a rare and unusual event, an adult female wolf attacked a mine worker on his way home in northern Alberta. The large, physically fit worker tried to pummel the wolf and then grasped it and held it in a headlock until a busload of co-workers arrived, and the wolf ran off. The animal was later killed and found not to be rabid.

WOLF-KILLED DOGS may decrease in Finland now that a new electric coat has been invented for dogs. Wolves kill 20 to 30 dogs each year in Finland, according to Reuters News Service, and a local invention has produced a protective coat that shocks any killing wolf with 1,000 volts of electricity.

WOLVES and other carnivores are the subject of Carnivore Damage Prevention News. It is available at www.cie.org or www.kora.unibe.ch.

ILLINOIS WOLF. A wolf was found dead in Illinois on February 18, probably having dispersed from Wisconsin, and having been hit by a vehicle. The animal was found near Chain O'Lakes State Park in extreme northeastern Illinois. That is the second wolf recorded for the state in the past two and a half years (see Summer 2004 *International Wolf*).

TWO WOLF SYMPOSIA will be held in early October 2005. The International Wolf Center's symposium at Colorado Springs (see ad in this issue), and one hosted by The Wildlife Society's 12th annual conference in Madison, Wisconsin. See www.wildlife.org. ■

Wolves in Finland

continued from page 19

populations, pack size and mobility, territories and diet (70 percent moose, 25 percent wild reindeer, and 5 percent hares, rodents and birds). RKTL researchers use GPS collars and other tracking systems to monitor the locations and movements of wolves.

Additionally, the Ministry of Agriculture and Forestry is implementing a plan that combines conservation measures, legislation, hunting and methods to prevent damage to domestic animals. Says Christian Krogell, "It is especially important to inform the people about preventative measures. Openness and listening to the views of the local population help in getting approval for increasing the wolf population." ■

The author acknowledges the following sources of information:

- Anna Seppanen, "More Money and Changed Attitudes Needed If Endangered Wolves Are to Flourish," *Helsingin Sanomat* (International Edition), February 2, 2002 (online archives www2.helsinginsanomat.fi/english/archive/news.asp?id=200220219IE3).
- Erkki Pulliainen, e-mail to L. David Mech, October 5, 2004, used by permission of the author.
- Ilpo Kojola, "GPS Collars on Wolves: The Finnish Wolf Research Project 2004," Head Predator Researcher, Finnish Game and Fisheries Research Institute (RKTL), Finland, www.environmental-studies,de/projects/20/body_wolves-2.html.

Neil Hutt is an educator and International Wolf Center board member who lives in Purcellville, Virginia.

Book Review

by Jakki Harbolick

Decade of the Wolf: Returning the Wild to Yellowstone

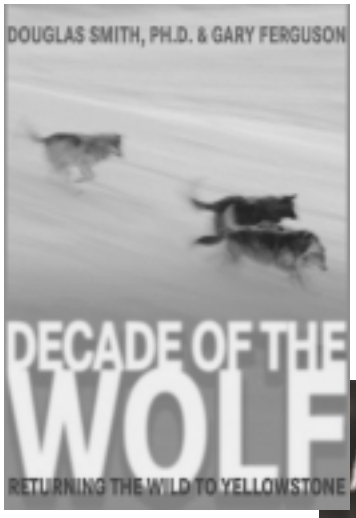
Douglas Smith and Gary Ferguson

The Lyons Press, 2005

Wolf recovery in the West began in 1995 when 14 gray wolves from Canada were reintroduced into Yellowstone National Park. Here is a fascinating firsthand account of this landmark recovery project from its inception through today. *Decade of the Wolf: Returning the Wild to Yellowstone,* by Douglas Smith and Gary Ferguson, deserves highest praise.

A generous, candid sharing of incredible experiences and unexpected discoveries, this book reveals the gritty, raw realities of daily life for both Yellowstone's wolves and the field scientists who study and manage them. Funny, inspiring, heartbreaking and pragmatic, it brims with unique stories and vibrant personalities (both human *and* lupine) and addresses, in a frank and even-handed way, the many issues and controversies that surround this magnificent predator.

In recounting the return of wolves to Yellowstone, Smith and Ferguson reveal a number of surprises regarding exactly what worked and why, and they share the most up-to-date information on wolf biology and behavior available anywhere. They describe the intensive wolf management techniques used in this unprecedented conservation effort and examine the effects of wolf pack presence on the ecology of Yellowstone and on the human population that surrounds the park. Frank discussions of future management issues conclude this exceptional book. *Decade of the Wolf* belongs at the top of the list for all readers interested in wolves—no matter what side of the wolf debate they are on.



Return of the Wolf

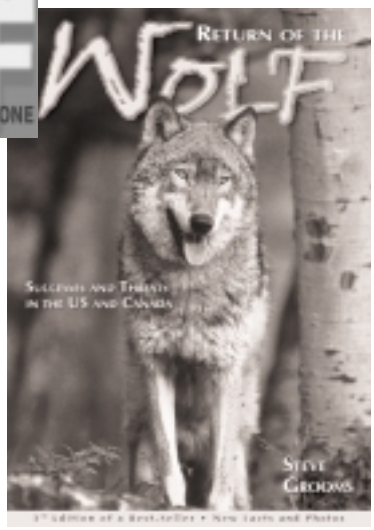
Steve Grooms

Nova Vista, 2005

Return of the Wolf is superb. In the eloquent, highly readable style that has become his trademark, Steve Grooms revisits the unpredictable, often controversial, always fascinating world of the wolf. Now in its third edition, *Return of the Wolf* is fresh and better than ever before.

The entire work has been completely updated, containing the latest research, numerous anecdotal illustrations and all-new photography and graphics. In addition to excellent information about wolf biology and behavior, Grooms discusses the evolution of the relationship between humans and wolves, from prehistory through vilification and extirpation to today's numerous reintroduction efforts. His examination of our changing attitudes toward the wolf—and what those changes mean—is both thoughtful and thought provoking. Grooms further examines the many wolf management issues and controversies that accompany reintroduction efforts. His skill in summarizing and interpreting these complex issues and areas of contention is exceptional.

The photography that accompanies this body of work is varied, plentiful and truly captivating. These photos, many of them full-page, are remarkable works of art. *Return of the Wolf* is an excellent general resource that will appeal to new audiences as well as to those who have enjoyed the first two editions. Bravo! (Encore!) ■



Jakki Harbolick is a language arts and writing teacher. She lives in Leesburg, Virginia, with her husband, Pete, and their two children.

Personal Encounter

So Close and Yet So Far: An Ellesmere Experience

Text and photos by Dean Cluff

The October day unfolded like any other that fall in 2003, but late in the evening I checked my e-mail and saw one from Dave Mech. While that was not unusual, the offer it contained was a pleasant surprise. Dave had asked me to accompany him to Canada's Ellesmere Island in the High Arctic the following summer. I resisted the urge to reply immediately with a resounding "yes," waiting until the next day, so as to not appear overly ecstatic. So began my journey to Ellesmere in July 2004.

I had traveled before to Canada's High Arctic including southern Ellesmere but not to this particular area. Of course I was keenly aware of the area and its wolves made famous by Dave. Since 1986 he has documented the presence of wolves and the raising of pups there most summers until 1999. Pack size has varied from the breeding pair to seven adults plus pups. Although a pair of wolves was present in 1998 and 2000, no pups were observed. Furthermore, in 2001 and 2002 no wolves were sighted. But in 2003 a pack of one male and two females without pups frequented the area. So while there were no guarantees, there might again be wolves to see and experience up close in 2004.

Dave and I arrived on Ellesmere late on July 8. In a stroke of good fortune, we learned that wolves had been seen in the area almost everyday during the past week. We unloaded our gear at Dave's "shack" and retired for the night. Tomorrow would be a big day.

The First Day: Getting Close

Once the all-terrain vehicles (ATVs) were loaded, we embarked on our journey to find wolves. First stop was the beautiful den outcrop made famous by Dave's wonderfully illustrated books and *National Geographic* article. We got to within a few hundred meters of the den site, scanned the area for sign, but finding none, hiked over to it. While hopeful, we didn't expect to see wolves here this year. Word was that foxes were occupying the den. Sure enough we could see fresh scats around the den that looked like arctic foxes', and we could hear the unmistakable growling and hissing of a fox inside.

Dave and I visited a number of dens wolves have used over the years, but we found no wolves and returned to camp. In a twist of irony, soon

The male wolf wandered into camp and was remarkably tolerant of people.

Cluff and Mech found arctic foxes occupying a den once used by wolves.

Dean Cluff

While searching for wolves, Cluff and Mech also did a survey of arctic hares.

after, a lone wolf arrived in camp. I was struck at how bold it was and how close it came to our ATVs. While cautious, the wolf checked us out repeatedly and even sniffed our gloved hands. Although I had been in contact with wolves before, in the Northwest Territories, this was the closest encounter I had had with an unrestrained wolf. And I sensed this was not going to be the last.

Dave and I followed this wolf around. An observer might have thought it odd to see two men puttering around on ATVs, apparently following someone's white dog. I snapped photos often—who would believe we were this close to a wild wolf, sniffing our handlebars? The scene didn't seem to fit people's perceptions of wolves. We continued to follow the wolf for another couple of hours. It seemed to tolerate us, which was remarkable for us because we could learn so much from direct observation.

Following the Female

The next day we had just completed a survey of arctic hares when we encountered a fresh wolf scat on the road close to camp. As we crested a hill, there was the wolf. However, this wolf was different. It was more nervous than the first one, also a bit smaller and more delicate in build. Was this the female? We saw her teeth, all white and sharp—sure signs of a young wolf. Then we both thought we saw evidence of nursing. We were elated—a female wolf and a nursing one too! That meant we had pups to find. We needed to follow this wolf and see if she would lead us to her den.

It was now midnight but far from calling it a day. The female wolf soon left but traveled a course suggesting she was returning to her den. We followed for a couple miles but then had difficulty keeping her in sight. She crossed gullies and outcrops easily where we had to go around. We stopped at a high point and watched with our binoculars as she coursed over the ridges. When she disappeared, we trained our eyes on the last ridge on the horizon. Would she cross this one too? After watching for over half an hour, we thought probably not. We made a mental map of where she disappeared, and Dave also sketched it out, for tomorrow we would go den hunting.

Finding the Den: Seeing Pups

The next day we took the ATVs to the ridge where we last saw the female wolf. We scouted for possible den sites but saw none. Perhaps the next ridge, we mused. Abandoning the ATVs, we descended to a creek bed and explored upstream. We were delighted to see a wolf track in the sand. As we turned a corner, we were startled by a wolf about 50 meters ahead. The wolf disappeared, so we climbed the ridge on the side of the creek bed for a better look. There was the wolf on the opposite side, watching our every move. It looked like the female we had seen at camp. The wolf seemed to accept our presence and lay down, watching us. We snuggled into the gravel slope and scanned for pups.

After a half hour or so, Dave saw a bit of white moving upstream. We trained our binoculars on it and realized it was a wolf. We got the occasional glimpse of a pup, then another, then a third, and maybe a fourth. We were elated—maybe this was the den. To confirm it but avoid a direct approach meant we would have to look down from the opposite ridge, where the female wolf was watching us. As we moved toward the ridge, she backed off but kept us in view. Then, another wolf appeared and approached us from behind. This second wolf appeared to be the male

Since 1986 Dave Mech has documented the presence of wolves and the raising of pups on Ellesmere Island.

we had seen earlier. He showed no fear but approached cautiously.

I had never had a wolf approach me this close. What's more, we were unarmed, far from our ATVs, and close to their den. The male wolf continued his approach, and we sat down so as to not appear threatening. What transpired next was amazing. The male came up and sniffed my boot. He then came over to my side, forcing me to say "no" a couple of times to scare him off. The wolf went to Dave's side, and he also had to say "no." We stood up, and the wolf lay down in front of us, no more than 5 meters away. Then he howled several times. Dave and I shared looks, appreciative of this wonderful experience.

We still needed to determine if the mound we saw upstream was the den, and count the pups. The female soon left us, then the male did, and we peered over the edge and saw four pups, about 4 to 5 weeks of age—a wonderful sight. The pups greeted the female, then the male, but then were promptly led away by the female. We took that as our cue to leave too. Dave and I smiled—once again wolves had produced pups in the study area.

We revisited the den a couple days later and saw the two adults and four

pups nestled nearby. In the days following, we watched the adults and pups nurse and play at the den. On the last day we decided to walk along the ridge opposite the den to see when we would be noticed. This would be an important exercise for next year to condition the wolves to our presence.

We got as close as we could directly across from the den along the ridge while the wolves slept. We sat down and waited, but now only our upper torsos were visible. Eventually the female wolf looked up and gazed at us. She studied us and then got up to investigate. We watched as she crossed the creek but then lost sight of her. About 10 minutes later we could see a pair of ears to our right and occasionally her head, but she kept her distance.

Meanwhile, the male awoke and noticed the female was gone. He arose, stretched, and followed the female's trail. A few minutes later we saw him. He came within 10 meters and sat down. While I was taking pictures, the male got up and came over to me. He sniffed my camera, and I said, "no," so he would keep his distance. Dave had to do likewise. The wolf lay down about 3 meters away and watched us. Then he began howling. For about 8 minutes he howled periodically, and the pups and his mate occasionally answered back. Finally, the male arose, gave a shake, and went down to the den and greeted the pups. We decided it was time to leave and say our goodbyes. Looking back, we caught a glimpse of the female sniffing where we had been sitting.

Next year now had so much promise. Dave was confident these wolves were the same ones he had seen last year. Next summer probably couldn't come soon enough for Dave. And me? I needed to figure out a way to get back there. ■

Dean Cluff is the Regional Biologist for the North Slave Region, Department of Environment and Natural Resources, Government of the Northwest Territories in Yellowknife, and the project leader for the NWT Wolf Project. His other research includes studying the population dynamics of barren-ground grizzly bears, tracking the abundance of moose and black bears in the region, and indexing wolverine population trends on the tundra.

Above: At the den were four pups, 4 to 5 weeks of age.

Left: Cluff and Mech followed the female wolf and eventually found the den.

Wolf Research: So Many Ways to Learn About Wolves

by Erin Albers, International Wolf Center Intern

Anyone can pick up a book and learn about wolves. But how did biologists discover this information in the first place? In this article we will learn about the different tools and methods researchers use to learn about wolves.

One of the most valuable tools biologists use is interpreting the different tracks and signs made by wolves. Analyzing tracks and their patterns is like reading a story. From looking at tracks, researchers are able to determine whether the wolf was walking, trotting, running or even hunting. This is particularly important for biologists investigating wolf behavior. For instance, from tracks researchers may be able to determine how often wolves hunt prey and how far the chase lasts.

Another tool used by many researchers involves examining scent marks. What are "scent marks," you ask? Well, you have probably already guessed, but scent marks are places where wolves have urinated or left scats. Although it may seem like an unpleasant task, examining scent marks can provide researchers with a variety of information about wolves. For instance, by analyzing scats researchers can get a good idea of what a wolf's diet is, and by recording the areas where wolves have urinated, biologists can investigate how often wolves must maintain their territory boundaries.

One of the most important technological advances for wolf research was the introduction of radio telemetry in the 1960s. Radio telemetry enables researchers to follow the movements of a wolf that has been fitted with a radio collar. The collar does not interfere with the wolf's daily life, but it emits a specific signal that researchers are able to follow with a receiver. With radio telemetry, researchers confirmed that wolves travel in packs and live in territories. Before the use of radio telemetry, not only were wolves were hard to find, there was also no way to distinguish one wolf from another. More recently, collars using a Global Positioning System (GPS) have provided researchers with many new options. Some GPS collars can record the location of a wolf every 15 minutes!

To examine tracks and signs left by wolves, biologists must travel over large areas. In most places, the best time of year to do this is winter because tracks and signs are easier to spot in the snow. However, no matter the season or the location, researchers travel in various ways to collect information. One of the best ways is to fly in an airplane during winter. From the air, biologists can locate radio-collared wolves and find kill sites, which are areas where wolves have brought down large prey animals, like deer, elk or moose. By using airplanes, researchers have been able to search large areas of land in a short time to find signs of wolves.

The methods and techniques researchers choose to gather information about wolves depends on a number of factors. One factor is the type of study. For example, genetic studies usually require analyzing scats, blood or hair. However, researchers investi-

Lisa Hall

Radio telemetry enables researchers to follow the movements of a wolf that has been fitted with a radio collar, which emits a specific signal that researchers are able to follow with a receiver, like the one shown here.

gating hunting behavior may not gain useful information from taking hair samples. It may be more beneficial for them to examine tracks and signs left by wolf packs and their prey.

Another factor is the location and terrain of the area being studied. For example, if researchers want to study wolf behavior, it may be more beneficial to observe wolves using a spotting scope than it would be to observe them from an airplane. In this case, it would be wise to choose a place like Yellowstone National Park, where the vast open valleys enable biologists to view wolves from a distance for long periods of time.

From years of studying wolves all over the world, researchers have gathered much of the information that is now found in books and movies and on the Internet. Even so, biologists have not discovered all they need to know about wolves. New research is still needed to investigate unexplored areas involving wolves. ■

Try this!

In the activity below, use the knowledge you have gained about wolf research. Read the research scenarios and make suggestions for the biologists conducting the studies. Given each situation, what methods and tools would you suggest and why?

Word bank: airplane, hiking, snowshoe, floatplane, motion-activated camera, scats, spotting scope, and radio telemetry

	Study description	Method of travel	Tools and observations	Why did you choose these suggestions?
EXAMPLE	Biologists want to find out what a wolf pack's diet is during the winter. Usually, there is a lot of snow on the ground, and the weather is too unpredictable to fly a small airplane.	snowshoes	scats	
1.	Researchers want to monitor pup behavior near a den. It's a wide-open area with few trees; however, getting too close might disturb the wolves.			
2.	Biologists want to determine if there is a population of wolves on an island. It's summer, and the area is densely covered by trees.			
3.	Researchers are monitoring a wolf pack with a large territory, and they want to determine the average distance they travel per day. It is winter, and the pack has one wolf with a radio collar.			

Suggested answers (other answers are possible):
1. hiking, spotting scope; 2. floatplane, motion-activated camera; 3. airplane, radio telemetry

A Look Beyond

Fear Factor

by Nancy jo Tubbs

The summer I was 12 my friends and I savored evenings around the campfire telling ghost stories, then walked each other home in the dark and twitched every time a twig snapped nearby. Since then I've known the power of story and imagination to influence what we believe.

For David Williams, a 38-year-old man hunting in the Paradise Valley in Montana in October 2004, scary stories about wolves set the stage for an unfortunate scenario. He sat at an overlook until dark, waiting for his guide, when he heard a noise. Peering through his rifle scope, he thought he saw a pack of wolves running at him. He fired the .300-caliber Magnum and shattered the arm of his hunting guide, J.C. Davis, blowing him off his horse. A sheriff's detective said that earlier in the hunt people had been talking about wolves, and Williams got scared.

In 2002, Mark McNay, wildlife biologist with the Alaska Department of Fish and Game, compiled a report of 80 documented wolf-human interactions in Canada, Alaska and northeastern Minnesota over the past 100 years. He found that while there is no record of a human being killed by a healthy wild wolf in North America, instances of attacks or approaches by wolves do rarely happen. *Rarely* is the key word.

In these encounters the wolves were known or strongly suspected to be rabid in 12 instances. In 39 cases healthy wolves showed aggressive behavior, and in 29 cases their behavior was only curious or investigative.

What were contributing factors to human encounters with healthy wolves? In several cases, people fed wild wolves, habituating them to human contact, putting themselves and others at risk. In six cases, wolves attacked sled dogs or dogs walking with people, and twice those wolves bit people. Children, who may look like prey to wolves, were seriously bitten in four instances.

To put the 39 encounters with aggressive wolves in perspective, note that in Canada and Alaska wolf populations are currently estimated at 59,000 to 70,000, and the report covers 100 years. The numbers show that wolf aggression toward humans is truly rare.

The fear factor heavily influences human behavior, however. Ed Bangs, gray wolf recovery coordinator based in Helena, Montana, says it best: "While it's fun and almost a tradition to tell tales of terror in hunting camp, please don't frighten people into being irrational. Deer and horses have wounded and killed hundreds of times more people than have wolves." ■

Nancy jo Tubbs runs a summer resort in Ely, Minnesota. She chairs the International Wolf Center's board of directors and is a member of the team that cares for the Center's ambassador wolves.

Mike Possis/www.wildthingphoto.com