INTERNATIONAL WOLF

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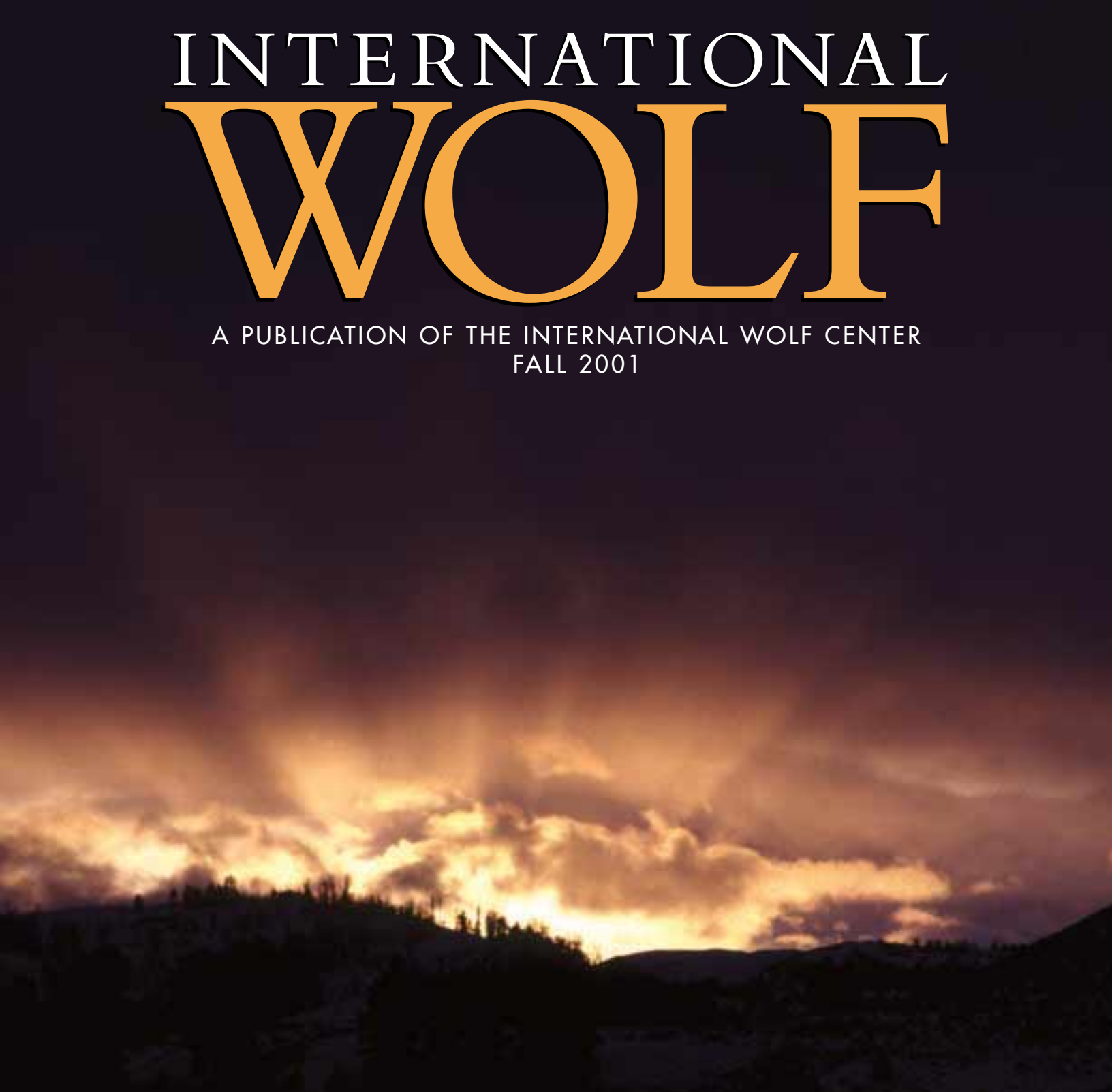
FALL 2001



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International Wolf Center
Teaching the World About Wolves

INTERNATIONAL
WOLF
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Features

THE GLOBAL CHALLENGE OF LIVING WITH WOLVES

3 Introduction
Joel Helfrich

4 Wolves of the World
U.S.A.
Tom Meier
Spain
Juan Carlos Blanco
Romania
Christoph Promberger and Annette Mertens
India
Satish Kumar
Mongolia
Tungalagtuya Khuukhenduu and Bidbayasakh E.

11 Wolf Depredation Control in Minnesota
Bill Paul

12 Non-lethal Wolf Depredation Control Methods
Liz Harper

14 Personal Encounter
John Baden

16 Wolf Debate Focuses on the Use of Public Lands for Livestock Grazing
Tom France

17 The Benefits of Livestock Ranching in the Rocky Mountain West
Tom Compton

Restoring Wildness to the West
George Wuerthner

20 The Value of Wild Lands for Wolf Restoration
Nina Fascione

21 Wolf Management by Zoning
Ed Bangs

22 Final Comments
Walter Medwid

Departments

24 Notes from Home

27 Tracking the Pack

28 News and Notes

30 Wild Kids

32 A Look Beyond

On The Cover

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International Wolf welcomes submissions of personal adventures with wolves and wolf photographs (especially black and white). Prior to submission of other types of manuscripts, address queries to Mary Ortiz, publications director.

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The Global Challenge of Living With Wolves

This special issue explores the persistent, global challenge of living with wolves. It also examines the significance of a topic that threatens wolf restoration around the world: wolf depredations on livestock and the consequent poisoning and extirpation of wolves. This issue of *International Wolf* covers nearly every aspect concerning the topic. Our contributors have done an outstanding job exploring controversial issues regarding wolf depredations around the world: current methods of controlling wolves; alternative methods studied for minimizing wolf depredations; how a wolf kill is determined; the use of public lands; the need for wild, uninhabited places; and the role that zoning plays in wolf management.

We attempted to represent all viewpoints. Biologists in Europe, Asia, and the United States show what is happening in the field by offering specific examples of wolf-livestock interactions. The statistics presented by scientists are real, but we must bear in mind that their data focuses on individual, "problem" wolves and is not representative of the larger wolf population in each country. We also have a personal encounter, written by Montana sheep rancher John Baden, and a passionate debate between Tom Compton and George Wuerthner regarding why subsidizing grazing on public lands may or may not be appropriate.

International Wolf looks a little different. Although the order has changed for this issue (the Wolves of the World section is up-front and our director's comments are in the back), we are still *International Wolf*, full of intelligent and thought-provoking articles, stunning photographs and illustrations. As you have told us countless times, you enjoy reading about personal encounters with wolves and the Wolves of the World section. You will not be disappointed.

Nonetheless, huge questions surround the topic of wolf depredation. As the earth's population grows, will we leave room for wolves? If so, where? Although India, for example, will soon surpass China as the world's most populated nation, what does it mean that America or Europe, with far smaller human populations, account for far more pollution, wasteful habits, and energy use? Will wolves and other wildlife continue to take the backseat to globalization and other human actions?

While such questions are daunting, one approach is to start with individuals. What can you do for wolves? Work to make small improvements in your local surroundings and promote sustainable living, but always bear in mind that we—nature and humans—are interdependent. This is an eco-systemic reality! If the extirpation of wolves continues unchecked, we will harm both nature and ourselves, and affect future generations. This idea of interdependency is so basic and obvious that it cannot be dismissed.

Be kind to the earth and the wolf. Please share and recycle this magazine. ■

Joel T. Helfrich

Joel T. Helfrich, member of International Wolf Center's magazine committee, is a PhD student in American history at the University of Minnesota, where he teaches English Composition courses.

Don Zippert

Funding for this special publication was provided by Mary Lee and Wallace Dayton and an anonymous donor represented by the United States Trust Company of New York.

Wolves of the World

WOLVES IN THE UNITED STATES

Wolf Depredation Remains a Controversial Issue

by Tom Meier

Wolf depredation on livestock in the United States continues to be a controversial issue. Although the numbers of livestock killed are small, depredation can be a great economic hardship to individual farmers and ranchers. Wolf control and compensation programs represent a large and increasing share of the cost of wolf recovery.

Gray wolves in the United States outside of Alaska are found in three distinct areas. In the Midwest, wolves in northern Minnesota multiplied under protection of the Endangered Species Act (ESA), and now occupy nearly half of that state and are listed as threatened. Wolves expanded into Wisconsin and Michigan, where they are listed as endangered. These populations have met recovery goals and may be delisted during the next few years.

In the northern Rocky Mountain states, wolves began recolonizing northwest Montana from Canada 20 years ago. In neighboring Wyoming and Idaho, wolves from Canada were released into Yellowstone and Central Idaho in 1995 and 1996. In those areas, wolves are classified by the U.S. Fish & Wildlife Service as nonessential experimental populations, subject to more flexible management than the endangered Northwest Montana population. In Arizona and New Mexico, an experimental population of the Mexican Wolf is being returned to the wild from captive stocks.

Bill Ratcliffe

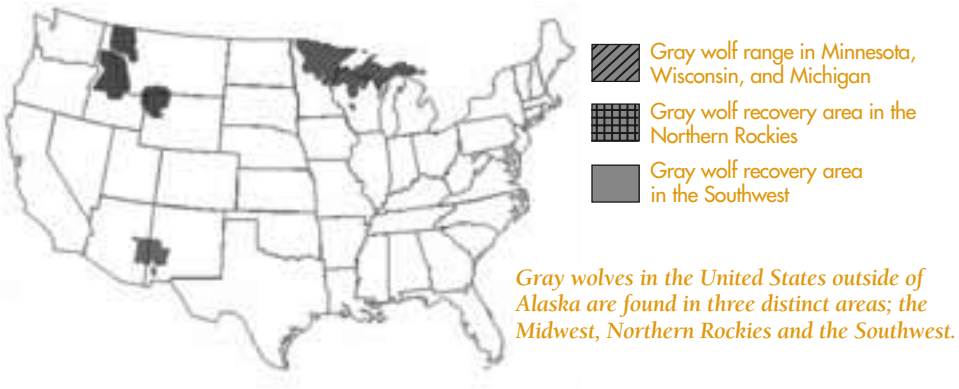
In parts of the United States where endangered species status does not allow lethal control–for example, Michigan and Wisconsin, repeated depredations are dealt with by translocating wolves to an area away from livestock.

About 17 percent of cattle and 30 percent of sheep in the United States live in states with wolf populations. Most livestock is raised in parts of those states where wolves do not live. Depredations commonly occur when wolf populations expand into agricultural areas. Nearly all wolf depredations in the midwestern states and in Montana have occurred on private land, while more than 80 percent of depredations in Idaho, and about half of those in Wyoming, have been on federal lands.

Losses to wolves represent a small fraction of total livestock deaths. In the northern Rocky Mountains from 1997 to 1999, verified wolf losses amounted to .01 percent (1 in 10,000) of all sheep losses, and .03 percent (3 in 10,000) of all cattle losses. Most sheep losses are due to coyote depredation, disease, weather and lambing problems; most cattle losses are due to disease, calving problems and weather.

Many other species of domestic animals may be preyed upon by wolves. Turkey farmers in Minnesota have had depredations numbering thousands of birds in some years. Valuable white-tailed deer on game farms have been killed by wolves in Wisconsin. Wolves have killed many dogs and a few horses, species that can have great emotional as well as economic value to their owners. In addition to verified

Current Gray Wolf Range and Recovery Areas



Gray wolves in the United States outside of Alaska are found in three distinct areas; the Midwest, Northern Rockies and the Southwest.

wolf kills, many producers report missing stock that they suspect were taken by wolves. Injured and stressed livestock are also cited as related damage when wolves are present.

Most depredation control is carried out by the U.S. Department of Agriculture's division of Wildlife Services (WS). Where recovery plans do not allow lethal control (Michigan and Wisconsin), repeated depredations are dealt with by translocating wolves to an area away from livestock. Where lethal control is allowed, 168 wolves (5.5 percent of known wolves in those areas) were lethally removed in 2000. In the northern Rocky Mountains, roughly equal numbers of wolves are translocated and lethally removed for control annually.

The cost of wolf control, as measured by WS budgets, totaled nearly $700,000 in 2000. Michigan, Minnesota, Arizona and New Mexico have WS personnel exclusively dedicated to wolf work. In the other states, local WS agents spend part of their time dealing with wolf depredations.

The activities of WS agents go beyond wolf control, as they capture wolves for research and population monitoring, test non-lethal methods of depredation control, and counsel livestock producers on better husbandry practices. In all states with wolves, some form of compensation is available to livestock producers who suffer depredations. In Minnesota, compensation of up to $750 per animal is paid by the Minnesota Department of Agriculture. Michigan's compensation program is also administered by the Department of Agriculture, but they pay one hundred percent of the current value for the lost animal. Wisconsin's compensation program also pays one hundred percent, but it is administered by the Wisconsin Department of Natural Resources. These three states paid more than $100,000 in compensation to farmers in 2000.

In the Northern Rocky Mountains and Mexican Wolf Recovery Areas, compensation is paid by Defenders of Wildlife. Defenders pays farmers one hundred percent of the current value for the lost animal, and have granted more than $160,000 in compensation since 1987.

A variety of non-lethal techniques have been tried to help prevent the killing of livestock and the killing of wolves. (See Liz Harper's article on page 12 of this issue). No "magic bullet" has been found, but these techniques can have social as well as management benefits. Where wolves are protected, ranchers may be happy to have even these limited tools at their disposal. Those who oppose the killing of wolves are encouraged by attempts to solve problems in other ways.

As wolf populations have persisted and expanded, it has become clear that wolf depredation is not a catastrophic problem, but neither is it an easy one to solve. The most encouraging sign is the willingness of those on different sides of the issue to discuss the problems, and to compromise on solutions.

Tom Meier is a wolf recovery biologist for the U.S. Fish & Wildlife Service in Kalispell, MT. He has worked on wolf research and wolf management for 25 years, in Minnesota, Alaska, and Montana.

Gray Wolf Depredation Statistics, year 2000

	MN, WI, MI	MT, ID, WY	AZ, NM
Wolf Population, winter 2000-01	3100	432	30
Verified Cattle Losses in 2000	103	32	1
Verified Sheep Losses in 2000	20	80	1
Compensation paid in 2000	$102,375	$47,045	$3,400
Yearly cost of control program	$350,570	$238,634	$100,000
Wolves killed in control actions	148	20	0
Wolves translocated	2	16	2
Wolves captured, released on site	5	7	0
Wolves removed from the wild	0	0	8

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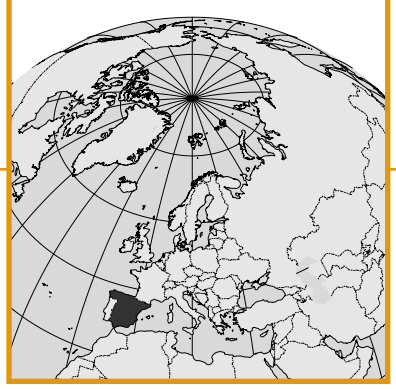


WOLVES IN SPAIN

Coping With Depredation Where Wilderness is no More

by Juan Carlos Blanco

Unlike North America, Spain has no wild, uninhabited places, and wolves cause damage to livestock throughout their range. In 1988, we calculated that the 1,500-2,000 wolves then found in Spain killed around 5,200 head of sheep and goats, some 450 cattle and about 1,200 horses per year, costing approximately $660,000. Over the last ten years, the number of wolves has risen slightly, as has damage to livestock, which at present reaches an annual figure of $825,000-$1,100,000.

The damages are, however, unequally distributed, most occurring in well-conserved mountain areas with high numbers of wild ungulates. Only 20 percent of wolves live in such areas, but cause almost 75 percent of the damage in the country as a whole, each wolf costing about $1,375 per year.

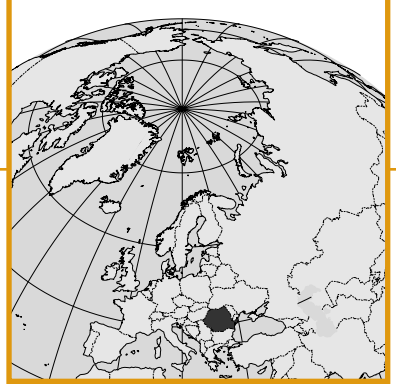
On the other hand, in agricultural areas, with hardly any wild prey and where wolves feed on livestock carrion, the damage caused by each wolf is almost one-tenth as much. This disproportion is due to the fact that the mountain livestock graze for several months of the year with hardly any surveillance by shepherds, whereas most sheep in agricultural areas are watched over by day and locked up at night. Livestock vulnerability, not scarcity of wild prey, is the reason behind the damage the wolves cause. The only way to avoid this damage, therefore, is by means of ongoing guarding by shepherds. When this is not possible, the only way of reducing damages is to control the wolves.

Wolves can be hunted throughout most of Spain. Control is the responsibility of hunters via quotas set by the regional governments. But in recent years, great polarization has separated the urban public, who reject wolf culling, from rural society, which supports it. The urban public maintain that wolves only kill between 0.04 and 1.8 percent of livestock in an area, while natural losses usually account for 5-10 percent. But, in the areas with the greatest damage, up to 12 percent of livestock farmers are affected every year, and each one suffers annual average losses amounting to $440 (4 percent of average family income).

In several regions, the regional governments pay damage compensation or promote insurance for livestock owners; however, unlike in the United States, these tasks never fall to non-government organizations. Despite the

Juan Carlos Blanco

A shepherds' hut in northern Spain. In the summer, free-grazing livestock are severely preyed upon by wolves.

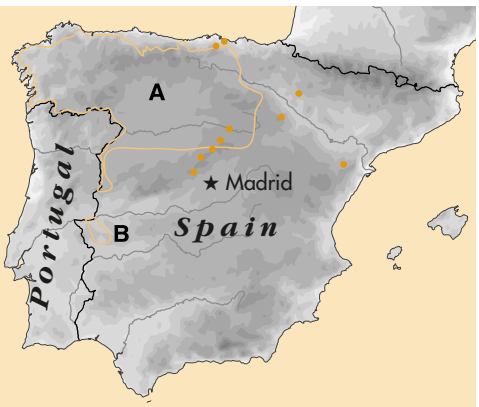


Juan Carlos Blanco

The Iberian wolf population consists of 400 individuals in Portugal and over 2,000 in Spain.

difficulties, with suitable management, it is possible to have a stable wolf population with few conflicts. ■

Juan Carlos Blanco is a biologist with a Ph.D. in Animal Ecology and has been studying wolves in Spain since 1987. He is an advisor to the Ministry of the Environment on the Coordinated Plan for Wolf Conservation in Spain.



Disjunct wolf distribution in Spain. Area A is where a strong increase in density of wolves has occurred from 1988 to the present. In area B, wolves have become extinct. Dots represent records of single wolves.

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WOLVES IN ROMANIA

Wolf-Livestock Conflicts in Romania

by Christoph Promberger and Annette Mertens

The Carpathian Mountains in Romania are home to more than 3,000 wolves and some 5,500 brown bears. At the same time, more than five million sheep graze during summer on the alpine meadows within the carnivore range. Flocks are intensively protected by livestock guarding dogs and shepherds, however, there are neither subsidies nor compensation for livestock losses. Hence, it is the only place in Europe where carnivores and livestock share the same environment in high densities.

The Carpathian Large Carnivore Project (CLCP, the largest research and conservation project in central and eastern Europe) has investigated large carnivore-livestock conflicts and their economic dimension in the southeastern Carpathians from 1998 to 2000.

Losses varied considerably from camp to camp (Tab. 1, on next page). Our results show that it is the quality of dogs and shepherds and the way the sheep are kept that determines the amount of damage.

There is no direct livestock depredation control in Romania. However, if complaints about losses get too high, the holder of the hunting rights for the area might apply to kill a higher number of wolves during the winter hunting season. Poaching of carnivores occurs to some degree by means of traps, snares, or poison.

The CLCP has initiated the use of electric fences as an additional tool for

continued on next page

B. & C. Promberger

Romania is the only place in Europe where carnivores and livestock share the same environment in high densities.

B. & C. Promberger

The Carpathian Mountains in Romania are home to over 3,000 wolves.

Tab. 1: Characteristics per individual camp

Characteristics	Range 1998	Range 1999	Range 2000	Average 1998	Average 1999	Average 2000
Sheep	50-1,200	22-1,200	100-1,000	530	407	468
Total losses	0-33	0-49	0-16	8.6	9.2	2.9
Losses to wolves	0-32	0-31	0-16	7.0	3.4	1.8
Losses to bears	0-11	0-26	0-5	1.6	5.8	1.1
Number of guarding dogs	2-14	4-17	3-13	7	9	8
Number of shepherds	2-9	3-15	2-12	5	6	5

overnight livestock protection. The first tests have been very encouraging, with no losses of livestock at all.

Direct losses through depredation made up for 243 Euros per camp in 2000, whereas guarding costs reached 1,932 Euros per camp. Given an average salary of around 100 Euros (equivalent to $85 US dollars), this is a substantial amount of money. Since people are used to living with carnivores, they accept these costs as part of the business. An eco-tourism program developed by the CLCP attracts enough visitors to the area that there is an overall benefit to having large carnivores there. ■

Christoph Promberger is a wildlife biologist who originates from Germany but has worked in Romania since 1993 on the Large Carnivore Project. He has been a consultant on many other projects over central and eastern Europe and is a core group member of the Large Carnivore Initiative for Europe. Annette Mertens is responsible for bear management at the CLCP. She is a biologist who studies wolves, wolf depredations, and ecotourism in Romania.

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WOLVES IN INDIA

Compensation Policies Complicate Wolf Depredation Conflicts

by Satish Kumar

The Indian wolf, one of the smallest wolves in the world, survives in densely populated areas in India. Wolf-human conflict is common, arising mainly due to livestock depredation. The conflict is a serious and complicated issue that cannot be resolved completely, but can be reduced by compensating farmers and shepherds for their livestock losses.

Presently, farmers are not compensated for wolf depredations, and there are no control programs for wolves. The situation in India is entirely different from that in North America, and it is extremely difficult to initiate such programs.

One reason for this difficulty is that livestock depredation in India frequently results from attacks by other endangered species, such as the Indian tiger and Asiatic lion. Populations of these species have declined markedly. If a control program were enacted, these species would also be subject to it.

Because of their endangered status (there are currently between 1,500 and 2,000 wolves in India), shooting of wolves is not allowed.

I conducted a study to quantify the magnitude of livestock depredation in the Great Indian Bustard Sanctuary in Maharashtra State. It is impossible to obtain reliable statistics on

livestock depredation because many farmers and shepherds count losses resulting from other factors, such as disease and accidents. Between 1991 and 1995, farmers and shepherds suffered livestock losses worth $3,246 in the area. The average annual income of those affected was less than $300. They are poor, and every loss of livestock is substantial to them. The conflict is serious in the northern, central, western, and peninsula portions of the country that are inhabited by shepherd communities, locally known as "dhangars" (ranchers).

Affected people said they were opposed to wolf conservation because they are not compensated even partially for their livestock losses like they are for depredations by tigers and lions.

Individual families are given a mere $110 if a wolf kills one of their children. "Child lifting" is not common in India, but it has occurred. Between 1996 and 1999, 65-70 children were killed or attacked by wolves in the Uttar Pradesh, a state in northern India. The natural prey of the wolves in the area, antelope, had been hunted to extinction, and the wolves were subsisting primarily on livestock.

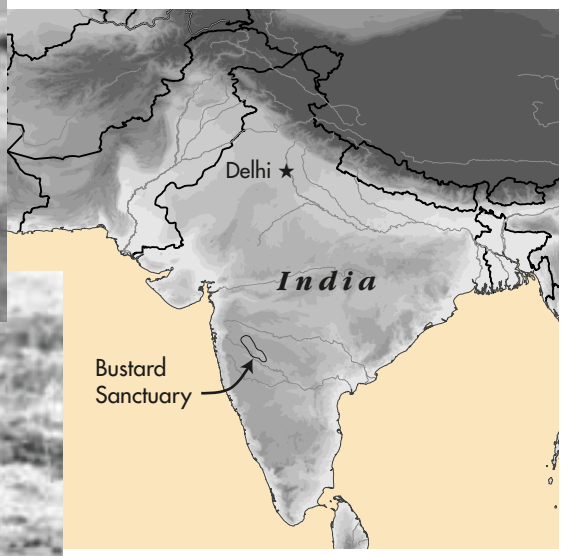
There is pressure on the government to allow shooting of wolves in the dhangar areas as well as other species, such as blackbuck, nilgai (antelope), and wild boar, for crop depredation. In February of 2001 it was decided to issue permits to local people for shooting nilgai and wild boar.

The situation pertaining to livestock depredation by wolves remains the same in other states of wolf range in India. The use of guard dogs has also been unsuccessful.

When livestock depredation by wolves cannot be resolved, compensation of affected people is the only alternative. We are also exploring the possibility of raising private funds for such compensation.

Dr. Satish Kumar is a Wildlife Research Biologist and lecturer in the Department of Wildlife Sciences at the Aligarh Muslim University in India.

Photos by Satish Kumar



Above: Approximate location of the Bustard Sanctuary of Maharashtra

Left: Shooting of wolves in India is not allowed, because of their endangered status. There are currently between 1,500 and 2,000 wolves in India."

WOLVES IN MONGOLIA

Wolf Depredation in Mongolian Park is a Fact of Life

by Tungalagtuya Khuukhenduu and Bidbayasakh E.

Gobi Gurvan Saikhan National Park is one of Mongolia's 35 protected areas. In 2000 and 2001, we conducted a survey in the park to gather information about the relationship between wolves and livestock owned by the park's herding families.

The park was established in 1993 and has a territory of about 2.8 million hectares (11,000 square miles). "Gobi Gurvan Saikhan" means "Three Beautiful Mountains of the Gobi." These mountains, which belong to the Gobi-Altai mountain range, are characterized by dry steppes and semi-desert and sandy desert landscapes. The climate is dry, with cold winters (-30°C or -23°F), windy springs and hot summers (+40°C or +104°F).

The study included interviews, field observations, recordings of wolf kills and wolf scat analysis. There are 1,100 herding households with more than 218,000 livestock living in the park. We randomly selected and questioned 150 households. Herders within the park generally have four to five types of livestock, although most raise sheep and goats, and the animals provide basic income in the form of meat, various milk products, hides, wool and cashmere.

We examined about 10 percent of the surveyed area along transects (survey lines running across the park). Transects were covered by walking, horseback riding, camel riding, and driving. We collected 37 scats far away from gers (homes) and livestock. Of the hair found in scats, about 60 percent was from livestock, about a third from wild ungulates and the rest from small mammals.

Mongolians herd their livestock primarily during the reproductive season because young horses, baby camels and calves are more vulnerable to wolves in spring. These types of livestock are mostly free ranging.

There were 52,142 head of livestock belonging to interviewed families. Of them, 1,224 were killed by wolves. In one part of the park in 2000-2001, 6,624 livestock were lost, 658 of them (10 percent) to wolves.

Sixteen new carcasses were found in the surveyed area along transects. Of those, 62 percent were livestock and 37 percent were wild ungulates (Mongolian gazelle, black-tailed gazelle, and ibex). Loss of livestock to wolves occurs primarily during summer and autumn; foals, young horses and baby camels were most often killed.

For all livestock, the percentage of wolf kills was 2.3 percent between 2000 and 2001. This is a high percentage compared with other areas. High annual livestock losses in other north Asiatic areas amounted to 1.5 percent (Kazakhstan), 1.6 percent (Siberia) and 2.2 percent (Volga).

The total cost of livestock lost to wolves is estimated at $27,455 for interviewed families, which translates into $183.03 per family, a high proportion of their annual income. At present, Mongolia pays no compensation for wolf depredations. Thus rural people hate wolves when they lose animals to them. Probably a compensation program would help improve attitudes of herders toward wolves. ■

Tungalagtuya Khuukhenduu and Bidbayasakh E. work for the Mongolian Gray Wolf Center, in Mongolia. The survey was initiated by Southern Gobi Protected Area's Administration and the Mongolian Gray Wolf Center, and was supported by Nature Conservation and the Bufferzone Development Project of GTZ (German Technical Cooperation).

Photos by Nancy Gibson

The mountains of the Gobi-Altai mountain range are characterized by dry steppes and semi-desert and sandy desert landscapes.

Left: Herders in Mongolia guard their livestock primarily during the reproductive season because young horses, baby camels and calves are more vulnerable to wolves in spring.

Wolf Depredation

Wolf Depredation Control in Minnesota

by Bill Paul

Minnesota's wolves are currently listed by the federal government as threatened, which allows authorized federal personnel to kill wolves that have killed domestic animals. Since 1986, the U.S. Department of Agriculture's Wildlife Services (USDA-WS) program has been the federal agency responsible for managing wolf-livestock conflicts in Minnesota.

Livestock producers or pet owners who suspect that wolves have killed or injured their animals contact their local Minnesota Department of Natural Resources (MDNR) conservation officer or USDA-WS for assistance. MDNR or USDA-WS personnel try to investigate wolf depredation complaints within 24-48 hours to minimize loss of evidence needed for verification of wolf damage. Carcasses can deteriorate rapidly during the summer or be consumed quickly by wolves.

USDA-WS personnel differentiate wolf depredation from depredation by other predators or natural mortality and scavenging, by using the following criteria:

- Wolf tracks at kill sites are easily distinguishable from those of most other predators, except large dogs.
- Wolf attacks on large livestock are characterized by bites and large, ragged wounds on the hind quarters, flanks, and sometimes the upper shoulders. Attacks on young calves or sheep are characterized by bites on the throat, head, neck, back, or hind legs.
- Wolves usually begin feeding on the viscera and hindquarters. Much of the carcass may be eaten, and large bones chewed and broken. The carcass is usually torn apart and scattered with subsequent feedings.
- Wolves and coyotes may show similar killing and feeding patterns on small livestock. Where wounds are present, the area is skinned so that the size and spacing of the tooth holes can be examined. Wolf canine tooth holes are about a quarter of an inch in diameter, while those of a coyote are about an eighth of an inch.
- Wolves will scavenge carcasses of livestock that have died of natural causes. It is important to distinguish between predation and scavenging. Evidence of predation includes signs of a struggle, and hemorrhaging beneath the livestock's skin in the throat, neck, back, or hindquarter area.

Once personnel verify that wolves have killed livestock, control measures can be initiated. The livestock producer is also then eligible for compensation of up to $750 per animal killed, administered by the Minnesota Department of Agriculture.

USDA-WS uses both non-lethal and lethal methods to resolve wolf-livestock conflicts. Non-lethal methods include anti-predator fencing, strobe light and siren devices, livestock guarding animals

continued on next page

USDA.

Bill Paul investigating a possible wolf depredation.

(guard dogs, llamas, and donkeys), and improvements in animal husbandry practices, such as proper disposal of dead livestock carcasses. Lethal control measures include foothold traps, neck snares and shooting.

Trapping is usually conducted for 10-15 days and is restricted to within a half mile of the farm's boundaries. Control devices are checked daily, and captured wolves are shot. Selective removal of livestock-depredating wolves in Minnesota has helped resolve wolf-livestock conflicts while facilitating wolf recovery. ■

Bill Paul is the Assistant State Director for the USDA Wildlife Services program in Minnesota, U.S.A., where he coordinates federal wolf depredation control activities. He has been involved with wolf research and control programs in Minnesota for 25 years under both the U.S. Fish & Wildlife Service and USDA and has helped train American and foreign wolf researchers and control personnel in wolf capture techniques and management of wolf-livestock conflicts.

USDA

A trap set in the ground to catch depredating wolves.

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Non-lethal Wolf Depredation Control Methods: How Well Do They Work?

by Liz Harper

Wolf depredation is a concern wherever wolves co-exist with livestock.

Lethal methods are most often used in response to depredation, but several alternative methods have also been tried. These methods include the use of guard animals, electric fences, sirens and strobe lights, improved animal husbandry practices, wolf translocation, electronic training collars, sterilization, diversionary feeding, taste aversion and flagging ("fladry").

Guard animals, such as dogs and llamas, can be useful predator deterrents, because they bond with livestock and help protect them by either chasing away predators, or by deterring predators with their presence. For example, llamas have an inherent dislike of canids and will attempt to chase them away. They can also provide passive protection by being alert to predators. A predator that has been detected may leave the area. Although this may work well for coyotes and foxes, because of the size and pack nature of wolves, llamas (as well as guard dogs) are at risk of being killed by wolves.

Guard dogs have long been used in Europe, but their success depends on the shepherding techniques in those countries. Shepherds remain with the flocks and work with the dogs to protect the stock. In the United States, where livestock often move unattended, guard dogs have not been shown to reduce depredation by wolves.

USDA

Bill Paul installs a lighting and siren device in an attempt to scare away depredating wolves.

Electric fences can be used to exclude predators; however, 6-7-foot-tall woven-wire fences with electrically charged wires along the top and bottom are required to keep wolves out. This may work well for small barnyards or chicken coops, but for larger pastures, these are costly to build and maintain. They also interfere with movement of other animals such as deer and pronghorn.

Sirens and strobe lights may be placed around a pasture and set to act at regular or irregular intervals or when a radio-collared wolf is in the area (Radio Activated Guard box). They may reduce depredations temporarily by scaring the wolves from the area, but wolves can become habituated to these deterrents and ignore them, or avoid them to enter a pasture. Once habituation occurs, depredations may recur.

There has long been a belief that wolves prey on livestock because of poor husbandry practices. However, a recent study in Minnesota could find no changes in animal husbandry practices that were certain to prevent wolf depredations.

John Shivik

Above: Llamas are guard animals that are sometimes tried in non-lethal depredation control. However, wolves have killed some llamas, so it is not clear whether llamas will be effective.

USDA

Right: Guard dogs may be useful predator deterrents, because they bond with livestock and help protect them from predators by either physically chasing away predators, or by passively deterring predators with their presence. However their success depends on the presence of shepherds too.

Moving wolves from areas where they are depredating is a technique that is often useful in areas of low wolf populations. When wolf numbers are high in an area, however, the depredating wolf may be moved into another pack's territory and be killed as a trespasser. Even in areas of low wolf numbers, translocation is often unsuccessful, as depredating wolves often find their way home, or begin depredating in their new territory.

The use of electronic training collars to teach predators to avoid livestock has shown some success during preliminary studies in Wisconsin and Montana. Researchers have used these collars to deliver a shock to captive wolves when they approach cattle, in hopes that when the wolves are released again, they will no longer kill livestock. There may be a limit to the length of time this training keeps wolves from depredating. Furthermore, this method is logistically difficult.

Sterilizing wolves may reduce livestock depredation by retarding local wolf population growth and eliminating pups. (Providing for pups is believed to be an important motivation for livestock depredations.) Because tested sterilization requires surgery, this technique is not viable as a widespread method. If sterilization were to be used as a technique in the future, nonsurgical sterilization methods would need to be developed.

Diversionary feeding, or providing an alternate food source for predators, has been tested as a method to reduce predation in wild prey. Diversionary feeding has shown limited success in increasing calf-to-cow ratios and is expensive and time-consuming. This method has not been tested to see if it could decrease livestock depredations by wolves, and in fact, is discouraged.

Taste aversion conditioning, a technique involving baits laced with lithium chloride, has been used on several species to limit consumption of food. It has been tested on wolves, but shows no promise as a depredation control technique. The reason for this is that wolves are trained to avoid the baits, but they are not trained to avoid attacking and killing live animals.

The use of "fladry" or flagging, is an old European hunting technique of hanging long rows of closely spaced flags to direct wolf movements. It may hold some promise in reducing wolf depredations as wolves may be deterred by the flagging. To be successful, flags must be less than 20 inches apart and must touch the ground. When it was tried around cows in Minnesota, the cows ate the flags! This technique may be difficult to maintain on a large scale, and habituation by wolves is probable.

Many of these methods show promise in reducing livestock depredations under some circumstances, but none has been shown to consistently prevent wolf depredations. On the other hand, most have not been extensively tested on wolves. Perhaps combinations of several types of deterrents or new techniques may prove beneficial in the future. ■

Liz Harper is the information specialist for the International Wolf Center, and is finishing her master's degree on wolf depredations in Minnesota, U.S.A. For the last decade, she has worked on a variety of projects, including the black-footed ferret reintroduction in Wyoming, the Minnesota wolf project, and various projects for Minnesota's County Biological Survey, the Smithsonian, and Moorhead State University, U.S.A.

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Personal Encounter

By John Baden

REPRINTED FROM HEADWATERS NEWS

Here's a fundamental truth of ecological and economic systems: Not all good things go together. A neighboring rancher, an old-timer I've liked and admired for more than 30 years, called my attention to a Bozeman Chronicle article of May 26th, "Canadians consider wolf kill to save caribou."

I'm a guy who, with my wife Ramona, ran 500 ewes for years. Yet we publicly support the return of the wolf to wild areas. Hence, my friend hectored me:

"As time goes on we will find out what our forefathers learned the hard way, kill the dammed things! The wolves also like dogs, chicken, beef, horse foals, pigs, elk, deer, moose calves, antelope, all small nesting game birds, and small children. The list has no end!"

There's a lesson here. And the critical part isn't this predator's menu. Rather, it's cultural conflict and the West's changing political economy.

The reintroduction of wolves into Yellowstone illustrates the radical changes in the West. In the 1920's, the National Park Service exterminated them from Yellowstone. Until 1995, the wolf population in Yellowstone was zero.

Those insulated from rural traditions see wolves not as a threat, but as a keystone species providing ecological balance for the region. The wolf is an icon combining their romantic vision of an untamed past with a feel-good mission to set things aright. Conversely, many rural westerners view wolf reintroduction as ethnic cleansing that threatens ranching and the traditional culture.

The reintroduction of wolves necessarily means that more livestock and pets will be prey. Not all good things go together. Given their tough economic situation and the strong ethical obligation to husband one's livestock, "the only good wolf is a dead wolf" principle still prevails among some ranchers.

Equity and ethical conflicts are evident when stockgrowers suffer the losses from wolf reintroduction while benefits go to the public at large. Further, a system creating incentives to kill wolves on sight undermines recovery. When we ignore the forces of economic incentives and rural culture, we have unsuccessful or unnecessarily costly attempts at recovering a lost world.

The Defenders of Wildlife established a program to compensate losses. It has been successful because it recognizes this elementary but commonly neglected principle. Through this program, the cost of restoring wolves has significantly declined—as has resistance to wolves.

In 1987, Defenders established a $100,000 fund to compensate ranchers for the value of livestock killed by wolves. Through private donations this fund has grown to $200,000. The efforts, to reduce the economic incentive for ranchers to kill wolves, have helped the wolf population recover. The fund now includes projects aimed at reducing future livestock losses. These include buying guard dogs and scare devices.

If a rancher believes a wolf has killed his livestock, he notifies the proper agency in the area. The carcass is examined to determine if the death was caused by a wolf. If so, a report is sent to the Defenders of Wildlife, and one of their staff contacts the rancher. In more than 90 percent of the cases, they agree on fair compensation for the lost livestock and the rancher receives a check within two weeks.

The Defenders' program has several benefits. Ranchers are compensated for their wolf losses, resulting in fewer wolves killed. More wolves generate more people visiting the park hoping to see them. Witness the spectacle of a hundred people waiting with high-powered

J. & K. Hollingsworth

"The wolf is an icon combining their

scopes in the Lamar Valley for a glimpse of wolves. Defenders estimates that communities surrounding Yellowstone have enjoyed a $10 million increase in tourist spending.

The cultural tectonic plates have shifted from 70 years ago when westerners demanded wolf extermination and the government complied. Defenders' compensation fund recognizes this. Their actions moderate rural values from undergoing a process geologists call "subduction," where one tectonic plate submerges below another and quietly heats up. The process produces volcanic eruptions, such as my neighbor's harangue.

Soon sheep will return to our ranch for summer pasture. And wolves are reportedly in our area. Our guard dog Thor, a 150-pound Sharplanitz, was bred for centuries to ward off wolves. However, he is old and lame.

The burden is ours, not only Defenders'. Wolves were reintroduced as an experimental population, so shooting is permitted when wolves are attacking stock. The surviving wolves may inadvertently learn that while they have their place, it's not with our sheep on private lands.

Not all good things go together, but with intelligent and sensitive arrangements, we can make progress. I believe Defenders has. ■

John A. Baden is chairman of the Foundation for Research on Economics and the Environment (FREE) and Gallatin Writers. Both are based in Bozeman, Montana, U.S.A. Thanks to four recent Whitman College graduates who contributed to this column: Sara Bidstrup, Amy Green, Dustin Lane, and Leslie Whitten.

Serle Chapman

In the 1920's the National Park Service exterminated wolves from Yellowstone.

romantic vision of an untamed past
with a feel-good mission to set things right."

Public Lands

Wolf Debate Focuses on the Use of Public Lands for Livestock Grazing

by Tom France

Wolf recovery in the Northern Rockies is one of the century's great conservation successes. Since wolves were reintroduced to Yellowstone Park and Idaho in 1995, they have increased to about 600 animals. Central to this success has been a vast habitat base of publicly owned lands that have provided wolves with both the space and the prey necessary for biological success.

While wolf restoration in the Northern Rockies has been a great achievement, it has also added yet another point of controversy to the long-running debate over how and for whom public lands should be managed. Although depredation incidents have been modest, wolves have killed both cattle and sheep on public lands and will continue to do so. These incidents, which draw fierce complaints from ranchers and politicians, come against a backdrop of other controversial public-land issues ranging from logging and mining, to off-road vehicle use and fire policies.

The West's public lands offer conservation opportunities on a scale that probably cannot be realized on privately owned lands; this has led some environmentalists to call for an end to grazing and other commodity uses of the public lands. But the laws require public lands management for multiple uses, including grazing, and there is no prospect for changing this mandate in the foreseeable future. Ranchers, like wolves, have a powerful hold on the public imagination, and a West without cowboys is as unthinkable to many as one without wildlife.

The wolf debate will continue in the West and will focus on public lands. Already, wolf advocates are calling for re-establishing wolves along the length of the Rockies, from Canada to Mexico. The key to this vision is the mix of national forests, national parks and Bureau of Land Management lands which form much of the land base in every western state. This vision will be sharply challenged by the livestock industry, and bitter public battles can be expected.

Underlying the debate, however, both wolf advocates and opponents are slowly recognizing that they must coexist on the same public lands. Some tools for accommodation, such as the Defenders of Wildlife compensation program, are well established. Others, including more formal political and institutional accommodations, are slowly emerging.

Conservationists know how to argue for strong wildlife policies on public lands, and they must surely continue this work. But they must also realize that other legal and legitimate uses of public lands must coexist with wolf populations in much of the West. In many instances, collaborative problem solving and real dialogue can expand the range of wolves as surely as policy initiatives can. The art of wildlife advocacy is knowing the difference.

Tom Brakefield

The wolf recovery effort in the Northern Rockies is widely recognized as one of the great conservation success stories of the century.

Tom France directs the National Wildlife Federation's Northern Rockies office in Missoula, Montana, U.S.A. France was a leading advocate for wolf reintroduction in Yellowstone Park and Idaho, and was a lead attorney in the case that upheld the reintroduction program.

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The Benefits of Livestock Ranching in the Rocky Mountain West

by Tom Compton

Last year, the Sierra Club developed a policy committed to eliminating livestock grazing on most federal lands. Another group, Rangenet 2000, was formed solely to remove all livestock from federal grazing permits. Should these agendas succeed, the law of unintended consequences may become fully operational. These activities pose a serious threat to livestock ranching in the West and to the many benefits ranching families provide to society.

Professors Gerhard Rostvold and Thomas Dudley made an interesting report to Congress in 1992: "One of the leading myths surrounding the management of the natural resources on public lands is that the public grazing lands in the western states are overgrazed and on the edge of extinction. This myth denies (1) the efficacy of U.S. Forest Service and Bureau of Land Management [BLM] public lands policies and programs of the past several decades and (2) the commitment of the western livestock industry in the areas of soil and water conservation, year-to-year rotations in the use of grazing lands, improvements of wildlife habitat, and ongoing cooperation with the Forest Service and BLM in the management and utilization of the public land resources for multiple use."

Nearly 75 years ago the ranching industry requested, and was granted, changes in federal land management policies. The result was the Taylor Grazing Act of 1934. From that day on, we have experienced a slow but steady improvement in the ecological health of most federal range lands, because the ranching community made the commitment to improve conditions.

In 1993, range scientists such as Thad Box of New Mexico State University and John Malacheck of Utah State University stated, "It is our professional opinion that American range lands are in the best condition of any time in the past 100 years and that, on an average, they are improving."

This information evidences the commitment of ranching families as good stewards of the land on which they live and work. I believe the loss of this stewardship commitment and expertise would have serious conse-

continued on next page

Restoring Wildness to the West

By George Wuerthner

Livestock production, particularly on public lands, severely compromises the full recovery of wolves across the West. Wolf recovery is more than merely sustaining viable populations of wolves in a few token areas such as Yellowstone National Park. Wolves, as the top carnivore, have affected everything from the fleetness of antelope and elk to the condition of wildlife habitat. We need to restore more than a few wolves to the West—we need to restore the evolutionary influence of predation.

This simply will not happen if livestock production continues to dominate the majority of the West. With the few exceptions of some national parks and rugged large wilderness areas, livestock production dominates most of our public lands, including 90 percent of all Bureau of Land Management (BLM) lands, 69 percent of all Forest Service lands and even a large percentage of western national parks, monuments,

continued on next page

Walter Medwid

The natural aridity of the West places real limits on plant productivity. It often takes as much as 250 acres to sustain one cow in the West compared to a single acre in places like Wisconsin or Missouri.

The Benefits of Livestock Ranching in the Rocky Mountain West

continued from page 17

Mike Phillips

The 1990 End of the Year Report by the Colorado Bureau of Land Management indicates that 89% of federal lands are either improving or in a steady state trend.

quences to the overall health of many western ecosystems.

A testimony to the improvement of the range lands is the increase in big game between 1960 and 1990, including a 30 percent increase in deer, a 682 percent increase in elk, and a 376 percent increase in moose, according to BLM statistics. Based on a 1992 study by New Mexico State University, the average Colorado ranch supports 193 deer, 155 elk and 96 antelope. Although many of these animals occupy federal lands during summer, private ranchlands are essential to their survival during the critical winter season when forage is in short supply.

In the Rocky Mountain West, most ranches rely on federal grazing permits for their existence. A great patchwork of intermingled lands under different ownership (federal, state, county, tribal and private) exists in the West.

Restoring Wildness to the West

continued from page 17

and wildlife refuges. In short, there are almost no public lands that can sustain a cow that do not have cows on them.

The pervasiveness of livestock production has been and will continue to be a major obstacle for the full restoration of wolves across the West. Much of the problem is due to natural aridity that places real limits on plant productivity. It often takes as many as 250 acres of land to sustain one cow in the West, compared to a single acre in places like Wisconsin or Missouri. As a consequence, cows must wander widely to get enough to eat. This places them at far greater risk of predation than animals that can graze close to farmhouses in Minnesota and be in a barn at night. In the West, most cows are dumped out on the range and at times are not even checked on again until they are rounded up in the fall. As a consequence, opportunities for predators are greatly enhanced, and sooner or later, most wolves cannot resist that opportunity, often with lethal consequences.

But even so called "predator friendly" beef production negatively affects wolves, whether a rancher or a government agent kills the wolves or not. Many prey species such as elk are socially displaced by the presence of cattle. When cows move on to a pasture, the elk move out. This has two potentially negative effects. If the wolves are denning and cannot readily follow the elk to new pastures, they may resort to killing livestock to make up for the local absence of prey, particularly if they are feeding pups. This "trains" wolves to eat cows and even if one or two ranchers tolerate the losses to wolves, these cow-killing wolves will sooner or later prey on an animal owned by a less sympathetic rancher.

Even if wolves avoid killing stock, their prey base is still negatively affected. The displacement of elk and other prey species ultimately reduces their overall populations. After ranching was eliminated from most of Jackson Hole with the creation of Grand Teton National Park, elk populations and density in the valley doubled. Even if a rancher does not kill wolves, his cows are literally taking food out of the mouth of the wolf—or at least out of the mouth of wolf prey.

Should we allow commercial business to supplant native wildlife on our public lands? That is a philosophical question, but in my mind, the

Without access to federal grazing leases, many ranches would not be economically viable. A New Mexico State University study indicates that the loss of federal grazing lands in western states would result in the loss of 48 percent of current ranches, with the remaining 52 percent continuing on a smaller scale.

It would be shortsighted to cause the loss of nearly half the ranches in the Rocky Mountain West and the commensurate loss of the open space, wildlife habitat and scenic viewsheds. Opponents claim that grazing is subsidized on federal lands, I suggest otherwise. Public grazing is a quid pro quo arrangement, whereby society not only receives a fee from the rancher but also a great deal of public service in the form of environmental stewardship activities.

Tom Compton is President of the Colorado Cattlemen's Association. He holds a Ph.D. degree in zoology from the University of Wyoming, U.S.A. He and wife own and operate a cattle ranch in Southwest Colorado. They do not currently utilize any federal grazing permits.

public lands are about the only place where wolves can potentially be wolves and sustain the evolutionary influences upon the land that are necessary for healthy ecosystems. If wolves cannot roam unfettered on public lands, where can they roam? ■

George Wuerthner works as a consulting biologist, writer and photographer. He has written 24 books on natural history topics, and has been involved in wolf issues in the Rocky Mountains, U.S.A. for more than 20 years.

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Jarle Chapman

If wolves are denning and cannot readily follow elk to new pastures, they may resort to killing livestock to make up for the local absence of prey, particularly if they are feeding pups.

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Wild Lands

The Value of Wild Lands for Wolf Restoration

Nina Fascione

Federal protection of wolves and active reintroduction programs have worked to increase wolf populations in the contiguous 48 states in recent years. Achieving true long-term recovery of the gray wolf and red wolf, however, will require not just continued protection and expansion of current populations, but also active restoration to additional areas.

With much of the United States developed to the point that reintroduction of a large carnivore is no longer a viable option, it is imperative to restore wolves to suitable areas of our remaining wild lands. Vast tracts of Oregon, northern California, Washington, Utah, Colorado, northern New Mexico and the northeastern states of Maine, New Hampshire, Vermont and New York, for example, show potential for wolf recovery—combined they could support 4,000 or more wolves, according to biologists. Every effort should be made to restore wolves to these areas wherever there is sufficient habitat for a population of several hundred or more. Even smaller areas should be considered where restoration is necessary to maintain the environmental, ecological or geographical representation of the species, or to provide the multiple populations that successful conservation demands.

Wild lands, particularly large tracts of public land, play a key role in ongoing wolf recovery and long-term survival. Large wild areas with low human density can act as core population bases, where wolves are free from human persecution and pack social structure is relatively unaffected by human disturbance. These populations serve as a source for surrounding areas, with dispersing wolves establishing populations in adjacent managed lands when biologically and sociologically feasible.

However, we must also ask not only what wild lands can do for wolves, but what wolves can do for wild lands. Restoring wolves to national parks and other large tracts of public land is crucial for maintaining the long-term viability of ecosystems. As witnessed in Yellowstone National Park since the reintroduction of wolves, restoring a top carnivore can benefit the full spectrum of an ecosystem's flora and fauna. We have every reason to believe this will be the case in all wolf recovery areas.

Protecting wild lands and fostering long-term wolf survival can ensure environmental health well into the future. Restoring multiple, resilient populations of red and gray wolves across as much of their full, original geographical distribution as possible should be the standard by which wolf recovery is judged, not only for the sake of these species, but to preserve America's ecological integrity. ■

Nina Fascione has a Master's degree in Conservation Anthropology from the University of Maryland, U.S.A. Fascione is currently Director of Carnivore Conservation at Defenders of Wildlife, where she manages recovery programs for endangered species.

www.
For maps associated with this article, visit: http://www.wolf.org.

Walter Medwid

Wolf Management Zoning: Something for Everyone

by Ed Bangs

Wolves are one of the most adaptable mammals on earth, but human beings are the most dominant. For wolves to exist, we have to accept both the "good" and "bad" of having them as neighbors. Wolves can only act like wolves, so our society will determine where wolves will live by deciding how people will act towards them. However, humans hold a wide variety of opinions about how wolves should be managed. Some people want wolves protected; other people want them exterminated. Still others merely want them controlled.

Geographic zoning is a method that can help society deal with all these differences of opinion. For example, wolves can be protected in national parks or in large blocks of land with few domestic animals, controlled where agriculture and wolves intermingle, or kept out of areas so modified by human development that their presence is untenable. Zoning can be tailored to many situations, allowing different treatment of wolves depending on whether they live on private or public lands. In Wyoming, Montana, and Idaho, where there are legally designated "experimental populations" of wolves, individual wolves perceived as "problems" can be shot or harassed for repeated depredations on livestock or pets.

In zones with chronic conflicts near large wolf populations, wolves can be removed under regulations allowing very liberal human involvement, including the harassing and killing of wolves. This approach saves management agencies time, funding, and effort; increases public tolerance by involving local residents in management solutions; and reduces conflict so the wolf does not reacquire its negative public image once so common. Such negative perceptions are what led to the widespread and often irrational persecution of wolves, and could do so again.

On the other hand, national parks were legally designated as areas where natural ecosystems, processes and features should be preserved. Thus, such parks already constitute protected zones for wolves. Yellowstone, Glacier, Grand Teton, Isles Royale, Voyageurs, Denali and other national parks are some of the main places where wolves are completely protected, but even the largest is not large enough to support a viable wolf population by itself. Wolves and people will have to learn to coexist for wolf populations to persist.

Wolves have made a remarkable recovery in North America because of the historic restoration of prey animals by sportsmen and state fish and game agencies, because of shifts in public opinion about wolves, and because of widely shared knowledge obtained through scientific research and professional wolf management programs. Only 50 years ago, our society believed that wolves should be persecuted everywhere they lived, even in Yellowstone National Park. Today, a growing portion of society values wolves, and we are struggling to weigh the costs and the benefits of coexisting with these controversial creatures.

Zoning is an important tool to help people understand the trade-offs involved in restoring populations of large predators. By making deliberate public decisions about zones where wolves should live and how they should be managed, we can encourage public discussion, interject fact into this highly emotional debate, and allow for a mix of management strategies that address the wide diversity of opinions that people have about wolves. This approach should foster continued public respect for the wolf and ensure the animal's long term survival. ■

Serle Chapman

For wolves to exist, we have to accept both the "good" and "bad" of having them as neighbors.

Ed Bangs is the Wolf Recovery Coordinator for the U.S. Fish and Wildlife Service in Helena, Montana. He has worked on wolf reintroduction and recovery efforts in Montana, Idaho and Wyoming since 1988.

www.
For maps associated with this article, visit: http://www.wolf.org.

Final Comments

By Walter Medwid
Executive Director, International Wolf Center

The wolf success stories of Yellowstone and the western Great Lakes region have provided benefits far beyond their borders. One of those benefits is the change in a fundamental premise about how we think about wolves—no longer is the discussion about whether we will live with wolves, but rather where and how. This special issue explores the where and how from a variety of distinctive perspectives.

A common theme in many of the articles is the reality of the negative impacts of wolves on livestock around the world. The proponents of wolf recovery are often portrayed as being cavalier about livestock concerns. However, as this issue of *International Wolf* demonstrates, research on minimizing wolf-livestock interactions, education work done by nonprofit organizations, the creation of private depredation compensation funds, and the efforts of state and federal wildlife management agencies attest to a serious commitment to make wolf recovery "work" for the stakeholders.

At the same time, we cannot gloss over the wolf's tendency to kill livestock or pets, nor can we treat depredation on livestock like some extraordinary event that suggests wolves are the only animals that have negative impacts on humans. Society has come to treat deer and car collisions (even when someone is killed) as a conventional occurrence. And, in California, where mountain lions have killed people, the public has not called for the elimination of the species. Bears break into cabins and destroy property in many areas. Deer and elk certainly take advantage of crops and reduce yields to farmers.

If society starts viewing the wolf less as an icon and more as a "mainstream" animal (despite the animal's remarkable characteristics), wolf recovery will be that much more successful. The public needs to recognize that wolves, like dozens of other variables (weather, energy availability, global-economic conditions, or even the changing diets of consumers), have become part of the cost of doing business. As society mainstreams this understanding, remedies to wolf predation, such as livestock insurance and a greater search for non-lethal methods of alleviating wolf depredation, will come to the forefront.

Even if the various battles being waged on behalf of wolf recovery are won, wolves and a host of other species reach a crossroads whenever humans decide the future of our landscape. These questions arise: how much open space will we preserve? Which plant and animal species will we protect? And when will we stop development that infringes on critical habitat? The wolf is just one species, but it does have a strong and important constituency that can help answer these questions and provide a model for the world, just as our national parks did more than a century ago. ■

Mary Ann Phelan

Wolves and a host of other species reach a crossroads whenever humans decide the future of our landscape.

The International Wolf Center partners with the Minnesota Zoo for Wolf Week, October 14-20, 2001.

Dr. L. David Mech to speak.

The event is hosted by the Minnesota Zoo in Apple Valley. Wolf conservation will be promoted on both local and national levels. Booth displays, education programs, storytelling and other wolf-focused activities for kids are to be held October 18, 19 and 20. Dr. L. David Mech delivers a special presentation Thursday evening, October 18 at 7:30 p.m. in the Zoo Theater. For more information, call the Minnesota Zoo at 952-431-9500, or visit the Minnesota Zoo website at www.mnzoo.org.

J. Henry Fair

Dr. L. David Mech

New Assistant Director Steps in at Ely Center

Last spring marked a new beginning for the International Wolf Center in Ely, Minnesota when Gretchen Diessner stepped into her new role as the Assistant Director of our flagship education center there. Diessner, who will manage the staff in Ely, is filling in the spot vacated when Tim Cook resigned recently to become a pastor.

Walter Medwid

Gretchen Diessner is the new Assistant Director of the International Wolf Center's flagship site in Ely, Minnesota.

According to Walter Medwid, the Center's Executive Director, "Gretchen brings the Center strong organizational skills, experience as an educator and an interest in wolves and the environment." Gretchen has moved to Ely from Plymouth, Minnesota, and has a background in marketing, curriculum and team leadership from Simon and Schuster and McGraw-Hill publishers and from PLATO, Learning Inc., Educational Technology.

"I spent 12 summers on Bear Island Lake with my children listening to the wolves on summer evenings," Gretchen said. "After a wolf ecology workshop at Vermilion Community college, I returned to school and developed a curriculum involving research, reading, writing and drama on the myths and reality of the wolf."

Diessner holds a bachelor's degree in education from the University of Minnesota and has done graduate work in curriculum and instruction at St. Cloud State University. Diessner says her new position at the Center "is an absolute dream." She is welcomed by the Center's staff.

Walter Medwid

Jim Schwartz Speaks For Wolves

Every year, the International Wolf Center presents a "Who Speaks For Wolves" award. This year, the award went to volunteer Jim Schwartz of Ely, Minnesota. Jim, who is originally from North St. Paul, has lived in Ely for the past 20 years.

Jim has been taking people on howling trips for nearly 18 years, and for the past four years, has taken groups out weekly for the International Wolf Center. Jim has always had a passion for wolves and enjoys the howling trips, because it gives him the rare opportunity to communicate with wolves.

Jim and his wife Nancy started their adventures years ago by packing up the kids in the car and going out howling in search of wolves. It took two years for them to get a response, but once they did, Jim was hooked. Soon, people were hearing about him by word-of-mouth and wanted to participate in one of his infamous trips. To this day, Jim searches for wolf packs by instinct, without the use of telemetry equipment.

Jim is quick to say that not every trip has good luck. There are times when people come home disappointed that they didn't get to hear the beautiful sound of wolves howling, but that is not for lack of trying on Jim's part. He does all he can to find a pack willing to communicate with him, and visitors are sure to hear some of Jim's exciting stories about his wolf encounters.

"Being with and being recognized by the people that I have admired for years was very memorable, and meant a lot," Jim said.

Congratulations, Jim!

Young Wolf Expert Learns From First-Hand Experience

Kahsha Mackenzie Hyde is a nine-year-old who can tell you a lot about wolves and nature. Kahsha has grown up home-schooled in a remote area outside of Ely that in winter is inaccessible to cars. Her family relies on dogsleds to get into town.

Kahsha's mother Johnnie, who took Kahsha on a 10-day canoe trip when Kahsha was only five weeks old, encourages people to take their kids into the wilderness at a very young age. Kahsha knows a lot about nature—for example, what to eat in the wilderness, what to avoid, and of course, what a wolf track looks like. Her mother always made sure that Kahsha knew the distinction between domestic and wild animals.

Kahsha and her family have lived in an area with a wolf pack near by. Even though she hasn't seen a wolf in person, she says, "The wolves are always around, you just can't see them." Kahsha learns from the clues her dogs give them, like when they speed up on the trail because they can smell the wolves near by. She has also seen a lot of remnants, such as wolf scat, paw prints, and the remains of animals the wolves have eaten.

As a young girl, Kahsha's parents brought her to the International Wolf Center once or twice a year. For her birthday two years ago, she decided to use the money she received for presents to join the Center.

Kahsha is a wonderful example of youth who are inspired to learn about nature.

Johnnie Hyde

Left: Kahsha MacKenzie Hyde has grown up home-schooled in a remote area outside of Ely that is inaccessible to cars in the winter. Kahsha spent her birthday money several years ago to purchase a membership at the International Wolf Cener.

Finnish Art Student Experiences Center Programs

Laura Pikarla, an art student from Veikkola, Finland, is chair of a Finnish wolf group. Last year, Laura's adventurous spirit and affinity for wolves led her all the way from her native land to the edge of the then frozen Boundary Waters Canoe Area Wilderness in Ely, Minnesota. There, in northern Minnesota, Laura embarked on two Learning Adventure programs through the International Wolf Center.

In February, she participated in "Wolves and Wilderness by Dogsled", in which she learned about the similarities and differences between sled dogs and their wild relatives, wolves. She not only went dog sledding, she also snow shoed in the north woods, observing the ecology of the area. In March, Laura embarked on another Learning Adventure, "Tracking the Pack". Through this program, she discovered how to spot signs of wolves through kill sites and other evidence, and studied how wolf biologists find wolves through radio telemetry. ■

This snow sculpture of a wolf was created by Laura Pikarla.

Top: Laura Pikarla of Finland "tracks the pack" in northern Minnesota.

INTERNATIONAL WOLF CENTER

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Tracking the Pack

Center Wolves Check Out in Excellent Health

by Lori Schmidt, Wolf Curator

The ambassador wolf pack is the centerpiece of the International Wolf Center's educational facility in Ely. It is important to Center staff that we maintain the wolves in their best physical condition. To meet that goal, wolf care staff check the wolves daily for any signs of illness, injury, or ectoparasites, such as ticks. In addition, the pack underwent a thorough physical exam on April 20, 2001, as required by the U.S. Department of Agriculture Veterinary Care Plan.

The plan calls for a complete physical exam, including extensive blood work, physical measurements and dental inspection. This intensive exam requires drugging the wolves to reduce their stress levels and keep them from injuring themselves or staff during the exam. Since there is always risk associated with anesthesia, we perform the complete medical exam on an as-needed basis, with a minimum of three years between medical exams.

Mackenzie, Lucas, and Lakota turned eight in April of this year and had two previous medical exams on April 27, 1995 and September 25, 1998. Mackenzie had emergency medical treatment on May 11, 2000 to remove foreign debris from her left eye, likely a result of an intensive chase through the wooded enclosure. The newest additions to the ambassador pack, Shadow and Malik, turned one in May of this year, and were included in this year's medical exam.

The exam in April followed a detailed plan written to ensure that each wolf had the necessary care or tests. Dr. Chip Hanson, the Center's lead veterinarian, directed the exam and was assisted by Dr. Larry Anderson, a veterinarian and International Wolf Center board member, as well as nine other International Wolf Center staff, board members and volunteers. In addition to the routine exam, the older pack members' hips were evaluated (including X-rays), Malik and Shadow were neutered, Lucas had a tissue biopsy to determine a cause of the pigmentation loss on his nose, and Mackenzie had a small fatty cyst on her abdomen inspected.

The exam went extremely well and revealed that all the wolves are in excellent physical condition. The Center's veterinarians are still testing the cause of Lucas' pigmentation loss, but since the exam, he has completely regained the coloration on his nose. Mackenzie's cyst was benign, had no indication of growth or change, and did not require surgery.

Our thanks to everyone who donated time or money to the medical exams, especially Shannon Stehman (a former Wolf Center nanny) and the Twin Spruce Foundation. ■

Above: Dr. Chip Hanson and Dr. Larry Anderson draw blood from Malik.

Right: Dr. Larry Anderson (left), Paul Frame, Center volunteer (middle), and Liz Harper, Information Specialist (right), take measurements of Lakota.

International Wolf Center

News and Notes

MICHIGAN'S WOLVES have increased to about 250 according to Jim Hammill, Michigan Department of Natural Resources. In a testimony to the species' high reproductive potential, the population has increased at an average annual rate of about 24% since 1989. The animals now inhabit every county of Michigan's northern peninsula, according to Hammill. Other information including unverified but suspicious looking scats suggest that some wolves may have made it across the Mackinac Straits to the lower peninsula, according to Dave Mech.

MANAGING MINNESOTA'S RECOVERED WOLF POPULATION" is the title of an article by L. David Mech that appeared in the Spring 2001 Wildlife Society Bulletin (Volume 29:70-77). The article examines various types of wolf population control and estimates the number of wolves that would have to be taken annually to assert such control.

WOLVES ON ISLE ROYALE will have their scats micro-scrutinized in a study by Rolf Peterson of the genetic relatedness of the island's famous carnivores. Cells from the intestinal lining slough off each time an animal defecates, leaving DNA in the end product. A small dab of feces can thus provide the identity of its maker when processed and analyzed by a molecular genetics lab. Although it is already known that Isle Royale wolves form the most inbred population in the world, hopes are that the new analyses will further refine the genetic information.

OWNERS OF CAPTIVE WOLVES AND HYBRIDS are disappointed in a recent move by the U. S. Department of Agriculture (USDA). The Department had been considering including wolves and hybrids in their definition of dogs so far as usage of canine vaccines (including rabies vaccine) is concerned.

This would have allowed wolves and hybrids vaccinated with dog vaccines to be considered legally safe. However, the USDA has now withdrawn its proposal according to an April 18 notice in the Federal Register.

WOLF BIOLOGISTS IN ALASKA were vindicated by a panel of scientists who studied the deaths of three Denali Park and Preserve wolves darted for studies. Mortality rate of 317 wolves darted was 1-2%, but any such death is a concern. However, animal rights activists had publicized the deaths to the point at which a special panel was appointed. The unusual deaths were attributed to heart valve abnormalities and malnutrition that had predisposed the wolves to extra risk of anesthesia.

WOLVES AND THEIR RELATIVES will be the subject of a Conference to be held September 17-21, 2001 at Oxford University, England. Speakers include Luigi Boitani and Mike Phillips, and a wide variety of topics will be covered. For further information, contact Canid Biology and Conservation Conference, Zoology Department, South Parks Rd., Oxford OX1 3PS, United Kingdom. Website: www.canids.org/conference/ ■

lynn and Donna Rogers

Lynn and Donna Rogers

A wolf can eat 25 percent of its weight at one meal. Most wolves weigh about 80 pounds, and can usually take in 20 pounds of meat in one meal.

Wild Kids

Dinner is Served—Carnivore Style!

by Kelly Burns, International Wolf Center Intern

Does everyone in your house help out at mealtime? A whole wolf pack usually gets involved with big meals, too. Most of the time, the meal wolves eat is meat. Wolves are called carnivores, because they eat meat such as deer or moose. A predator must hunt for its food, which is called prey—so when a wolf goes out hunting, that's its way of preparing for a meal.

A lot of hard work is involved in a hunt before any eating takes place. A wolf gets more energy from food in return for the energy it uses when it kills a moose, but it's dangerous for a wolf pack to hunt something so much bigger than itself. Sometimes the prey is just too strong or quick, and gets away from the pack.

A wolf can eat 25 percent of it's weight at one meal. Most wolves weigh about 80 pounds. Of course, these numbers will depend on the age of the wolf, the pack size, or the

Fun Fact:
Wolves have a hunting success rate of about 5-25 percent. That would be like going to the refrigerator 10 times and only finding food there two times!

time of year, but roughly translated, that's like a 100-pound person ordering 80 quarter-pounders and eating them in one sitting!

Try it on for size.
If you were a wolf how much could you eat at one sitting?
(your weight) _____
Multiply by .25
= _____
what you could eat at one time as a wolf!

Scientists estimate that a wolf would eat about 1,800 pounds of food in a year. Most of this would be meat from animals that would have to be hunted. Using the chart at right with animal weights, see how many animals would be eaten in one year.

Think About this:

Be a researcher! Use an encyclopedia or the Internet to answer the following questions:

? Do you think a wolf would eat only one kind of animal all year long? Why not?

? If three moose would provide a wolf with more than enough pounds of meat for the year, why doesn't a wolf just catch three and eat them for the rest of the year?

? Can you name some scavenges and decomposers who would share a wolf's meal?

Fill in this Chart

Estimated pounds of meat for one year:	Divided by:		Average weight of animal:	Equals:	Number of animals wolf would have to eat in one year:
1,800 pounds	÷		Snowshoe Hare 3 pounds	=	
1,800 pounds	÷		Beaver 40 pounds	=	
1,800 pounds	÷		Deer 100 pounds	=	
1,800 pounds	÷		Moose 800 pounds	=	

A Look Beyond

The Southern Rockies: Next Step in Wolf Recovery

by Mike Phillips

For years, nongovernmental conservation organizations have promoted restoring wolves to the Southern Rockies Ecoregion (SRE). Several studies lend credence to the claim that the Southern Rockies is the mother lode for wolf recovery.

The SRE stretches from northcentral Wyoming, through western Colorado, into northcentral New Mexico (Figure 1). The Ecoregion includes 25 million acres of public land that support unnaturally large populations of native prey. This amount of land is twice as large as that available to wolves in Yellowstone and central Idaho, and five times as large as that available to Mexican wolves currently being reintroduced in the Southwest. This massive extent of public land and its robust populations of native ungulates justifies serious consideration of the ecoregion for wolf restoration.

Two studies have estimated the carrying capacity of the ecoregion for wolves. The first, conducted in 1994, concluded that the Colorado portion of the area alone could support more than 1,000 wolves. The second study concluded, after application of sophisticated modeling of variables that affect wolf survival (e.g., distribution/abundance of native prey), that the SRE could support 2,000 wolves.

Fortunately, the public is broadly supportive of restoring wolves to the SRE. A public opinion poll conducted in 1994 revealed that 71 percent of Coloradoans supported wolf restoration. More recently, Decision Research, a national polling firm, determined that 66 percent of registered voters in Colorado, New Mexico, and Arizona favored the wolf's return. Majority support was widespread among various demographic groups.

The appropriateness and importance of the Southern Rockies is not lost on the conservation community. Recently, 17 conservation organizations launched the Southern Rockies Wolf Restoration Project. The project has a simple mission: restore wolves to their full ecological role in the Southern Rockies (information about the project can be obtained from http://www.rockywolf.org).

Despite the improved conservation status of Canis lupus, the job of recovery is incomplete. No convincing argument concerning wolf recovery in the western United States can be put forth until there has been a serious discussion about restoring the species to the Southern Rockies. Such discussion is justified because of widespread and persistent public support, and because no other region in the U.S. offers the same potential to support a population of wolves on a vast expanse of public land that is currently unoccupied by them.

Restoring wolves to the Southern Rockies would provide nature with grist for recreating a wolf population that stretches from the Arctic to Mexico. Nowhere else in the world does such a viable opportunity exist to achieve conservation of a carnivore over such an extensive landscape.

Mike Phillips is executive director of the Turner Endangered Species Fund in Bozeman, Montana, and an International Wolf Center board member.

www.
For more information visit:
http://www.wolf.org

For years consideration has been given to restoring wolves to the Southern Rockies Ecoregion.

William Rideg, Kishenehn Wildlife Works

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