WOLVES

IN THE SOUTHERN ROCKIES

Principles, Problems, and Prospects

NATIONAL WILDLIFE FEDERATION®
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Colorado Wildlife FEDERATION

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INTRODUCTION

No other North American mammal inspires such a wide range of human emotions as the gray wolf (*Canis lupus*). Feared and admired, cursed and revered, wolves are the stuff of legends and a symbol of America's vanishing wilderness. Their reputation is larger than life; their role in the restoration of America's wildlife heritage is bigger still. The passionate positive and negative responses that wolves inspire in people have left the issue of their restoration throughout their historic range both contentious and undecided.

Wolves have been present in North America for tens of thousands of years, co-evolving with the muskox, bison, elk, and moose. After the decimation of elk and bison herds during the 19th century, wolf populations nosedived. This situation worsened when wolves turned to livestock to replace their native prey. Resulting conflicts with humans led to the elimination of wolves from the Southern Rockies by the early 1940's.

Luckily, education and common sense management have helped to erase many of the myths and misconceptions that turned wolves into perceived public enemies. After years of exhaustive efforts by the National Wildlife Federation and other conservation groups, most people have a better understanding of the key role that wolves play in ecosystems. Today, the gray wolf is making a comeback in the Great Lakes region and the Northern Rockies. The Southern Rockies Wolf Restoration Project and other groups are working toward the goal of a similar comeback in the Southern Rockies.

Therefore, this booklet was prepared to provide information to the public and to encourage discussion on the issues that surround wolf restoration in the Southern Rocky Mountain Ecoregion—Colorado and adjacent areas of northern New Mexico and southern Wyoming. While there are definite wildlife management issues that warrant discussion, this booklet is focused on the social, philosophical and political implications of large predator recovery. Hopefully, it will provide the knowledge and understanding necessary to spark the informed discussion that is critical to any successful wolf recovery effort.

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The mission of the National Wildlife Federation (NWF) is to educate, inspire and assist individuals and organizations of diverse cultures to conserve wildlife and other natural resources and to protect the Earth's environment in order to achieve a peaceful, equitable and sustainable future. NWF has long been a leader in the restoration of gray wolves in the Great Lakes region and the Northern Rockies.

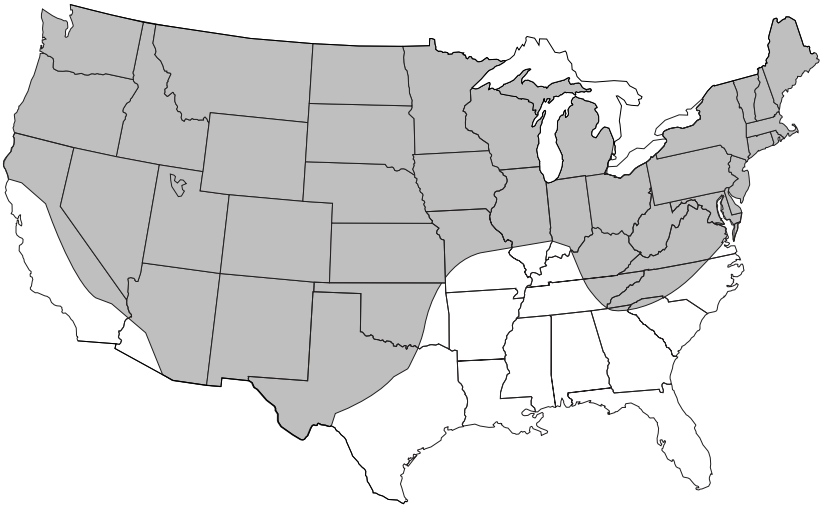
The Colorado Wildlife Federation (CWF) is an affiliate of NWF. Its mission is to promote the conservation, sound management, and sustainable use of Colorado's wildlife and wildlife habitat through education and advocacy. CWF has become actively involved in the issue of wolf restoration more recently, addressing its mission through education of its membership and the general public.

STATUS OF WOLVES IN THE UNITED STATES

Where Are The Wolves?

Wolves once ranged from coast to coast in the United States – and from the Arctic tundra to southern Mexico. (The closely related red wolf—*Canis rufus*—occurred in the Southeast, from central Texas to Florida and north to Chesapeake Bay and perhaps well beyond.) Wolves inhabited almost every conceivable habitat, including grasslands, desert shrublands, forests, and tundra – where they co-evolved with native ungulates. With the demise of bison, elk, and deer, the fortunes of the gray wolf waned.

Historic Range of the Gray Wolf
in the Contiguous United States



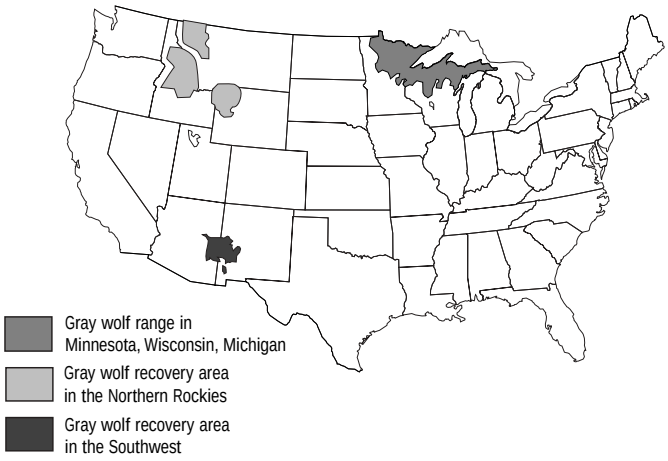
By the 1930s, virtually no wolves remained in the lower 48 states outside of Minnesota because they had been systematically poisoned and trapped by ranchers, farmers, and government agents. In the 25-year period from 1883 to 1918, more than 80,000 wolves were bountied in Montana alone. Over the next 50 years, wolf sightings were reported on a regular basis in the Northern Rockies and a few wolves were killed. Most of these were thought to be young wolves from Canadian populations that were searching for territory and mates, or perhaps wolves that had escaped from captivity. Wolves received legal protection with the passage of the Endangered Species Act (ESA) in 1973.

Gray Wolf Range at Time of Listing Under the ESA (1974)

In the early 1980s, things began to turn around in the Northern Rockies, when a pack of wolves began hunting in the northwestern part of Glacier National Park in Montana. In 1986, wolves denned in the Park, the first documented wolf den in the U.S. Rockies in 50 years.

Active wolf restoration in Yellowstone Park and Central Idaho began in January of 1995, when 29 wolves were relocated from Canada. A second relocation of 37 wolves occurred in 1996. Because of abundant prey and few conflicts with humans, both of these restored populations have expanded rapidly. Today, more than 500 wolves reside in the western United States, but none occur in the Southern Rockies.

Current Gray Wolf Range and Recovery Areas

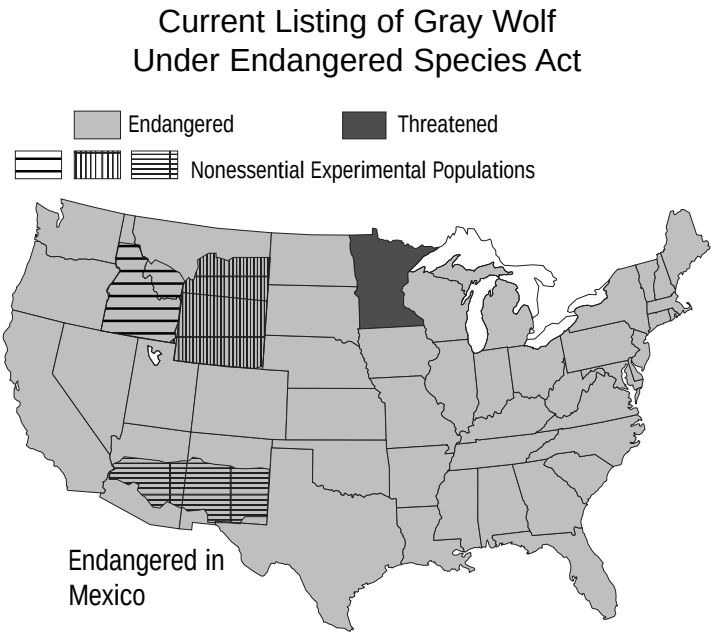


Endangered, Threatened or Other: A Legal Primer

Currently, the gray wolf is listed under the Endangered Species Act (ESA) as an endangered species throughout the United States, except in Minnesota and Alaska. In Minnesota, wolves inhabit the northern third of the state and are listed as a threatened species. In Alaska, healthy wolf populations are found throughout the state and federal protection is unnecessary. In Canada, wolves are numerous and distributed throughout much of their historic range.

The ESA defines a species as "endangered" if it is in danger of extinction throughout all or a significant portion of its range. A "threatened" species is defined as one that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range. Congress provides federal funding and the ESA provides protection so that listed species can be recovered to the point where they can be taken off the list. However, such funding has been inadequate to address fully the many species that have been listed.

Under the law, it is illegal to kill or harass endangered species, except under certain circumstances. Rules for threatened species can be less restrictive. Even more flexible is the special classification that governs wolf management for the restored populations in Idaho and Yellowstone. Because Congress wanted to promote "introduction" as a recovery tool, the ESA allows "introduced" populations to be designated as "experimental, non-essential" with a customized set of management regulations. ("Introduction" is a term used in the ESA, and "reintroduction" is a term used commonly for one step in the process of restoring native wildlife populations. However, if native, a species is not literally "introduced." Elsewhere in this document the term "restoration" is used to describe more accurately the goal of a recovery effort.) Because wolves are abundant in some parts of their range, in the US and elsewhere, the Yellowstone and central Idaho populations were given this more flexible ”experimental, non-essential" designation. As a result, federal agencies like the Forest Service need not consult with the U.S. Fish and Wildlife Service (USFWS) for proposed actions that may affect the experimental wolf population, as they normally would for a threatened or endangered species. Also, state, federal, and tribal authorities are permitted to move or kill wolves that prey on domestic animal or prey excessively on big-game populations. Under some circumstances, private individuals may also harass or kill depredating wolves.



Setting Recovery Goals

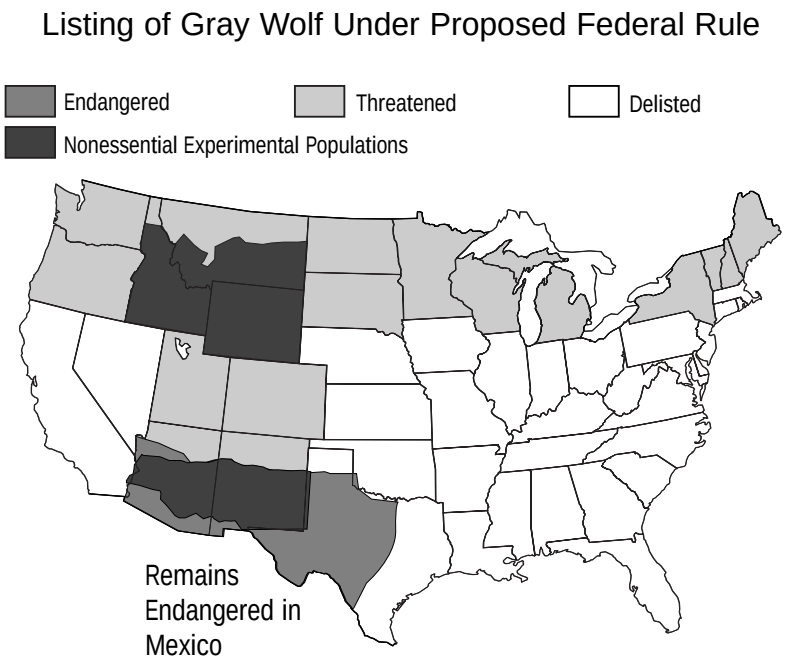
Just as separate wolf populations may have different classifications under the ESA, they may also require different recovery strategies. Minnesota and the Northern Rockies, for example, are governed by separate wolf recovery plans. The same wolf species inhabits both regions, but the ESA allows recovery actions to be governed through the establishment of "distinct population segments" (DPS). In other words, recovery criteria can differ according to conditions in different geographic areas.

The Northern Rocky Mountain Wolf Recovery Plan calls for "delisting" the wolf (removing it from the federal list of endangered and threatened species) when ten breeding pairs exist for three successive years in each of the three recovery areas: Yellowstone, Central Idaho, and Northwestern Montana. Biologists believe that ten breeding pairs represent the minimum number of wolves necessary to maintain a population in a given area. A population must be large enough to sustain minimal numbers of animals through disease episodes and other adverse periods. The Northern Rockies plan also specifies three recovery areas in order to prevent short-term genetic problems. Since the plan was adopted in 1987, however, biologists have come to recognize the importance of establishing larger, connected, populations. Many biologists today would argue that a single population of at least 30 pairs makes better biological sense than three smaller populations.

Southern Rockies on Hold

The USFWS has moved forward with wolf recovery programs in the Great Lakes, the Northern Rockies and the Southwest, but the agency has not developed a recovery plan for the Southern Rockies. Private studies and polls have demonstrated strong public support for such a program, and habitat surveys have demonstrated that wolves could prosper. But both federal and state agencies have declined to take the initiative for promoting gray wolf restoration in Colorado and northern New Mexico.

Due to the apparent success of the Northern Rockies' wolf efforts, the USFWS has proposed to reclassify the gray wolf (though not the Mexican wolf) from "endangered" to "threatened." The effect of this proposal would be to assume that wolves are well on their way to full recovery in the Interior West before wolves are re-established in the Southern Rockies. Many individuals and conservation groups (including the National Wildlife Federation) have opposed this proposal vigorously, insisting that wolves should be restored the length of the Rockies, from Alaska to Mexico, to reflect the historic north-south range of wolves in North America. However, reclassifying the wolf population to "threatened" does not by itself preclude restoration in the Southern Rockies, which could take the form of a State or Federal recovery plan despite the changed status.



The Southern Rocky Mountain Ecoregion

Technically speaking, the Southern Rocky Mountain Ecoregion is comprised of the central mountains of Colorado, plus the Sangre de Cristo Range, the southern San Juans, the Jemez Mountains of north-central New Mexico, and the Laramie and Medicine Bow Mountains and Sierra Madre of south-central Wyoming. Most of the ecoregion lies in Colorado, and Colorado is the focus of this booklet. Some suitable habitat for wolves exists in ecoregions adjacent to the Southern Rockies, especially the Colorado Plateau and the Wyoming Basin. Wolves restored in the Southern Rockies might range eastward in suitable habitat onto parts of the Great Plains (especially the extensive, rugged mesa and canyon country along the Colorado-New Mexico border).

The Southern Rockies Ecoregion

Wolves in the Southern Rockies: Yesterday and Today

Gray wolves once ranged throughout the Southern Rockies. Prior to the extermination of free-roaming bison and decimation of other native ungulates—a process hastened by the construction of the Transcontinental Railway in the 1860s—wolves were most abundant on the Great Plains.

However, the wolf's last stand in the Southern Rockies took place in the remote mountains, especially in the National Forests. Apparently the last free-ranging wolf in Colorado was killed in the San Luis Valley, in the mid-1940s. The animals were eliminated from northern New Mexico and southern Wyoming by 1940.

Today there are no documented packs of gray wolves in the Southern Rockies. There are occasional reports of wolves, but on investigation most turn out to be large coyotes. There are also free-roaming domestic dogs in the Southern Rockies, as well as reports of escapes or releases of wolf-dog hybrids from captivity. Some of these releases have occurred because owners quickly discover that wolves and wolf hybrids are difficult to train, are not good as pets, and can be dangerous if not handled properly. Private ownership of such animals is strongly discouraged by the Colorado Division of Wildlife and wolf experts. There are several private, licensed wolf sanctuaries in the Southern Rockies, but no releases or escapes of captive wolves are known to have occurred from these facilities.

Potential Wolf Habitat

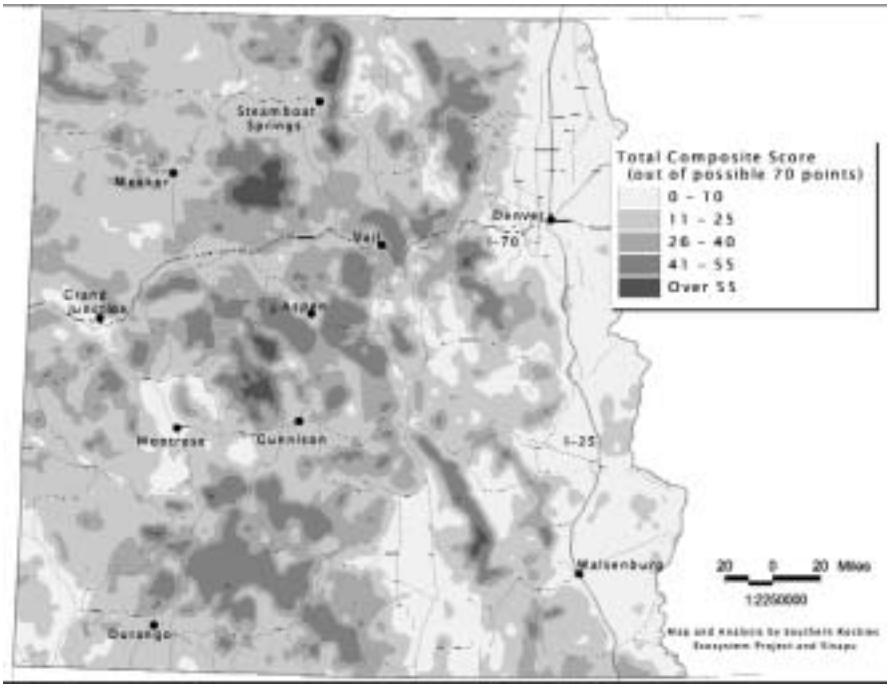
Proposals to restore wolves to the Southern Rockies focus on public lands. A literature-based "biological feasibility study" commissioned by the USFWS (Bennett, 1994) noted that Colorado has some 38,000 square miles of federal lands, including more than 9,500 square miles of roadless area. That area could support an estimated 1,128 gray wolves. Interestingly, that is roughly the number of gray wolves estimated to have inhabited Colorado in 1915, about the time the final campaign began to eradicate the gray wolf from the state. A more recent study also concluded that sufficient habitat and prey exist in the Southern Rockies to support a viable wolf population (Phillips et al. 2000).

Getting Wolves Back

Currently there is no plan to restore wolves to the Southern Rockies. In the future, wolves could be returned through active recovery efforts by transplanting wolves from healthy populations elsewhere, such as the Northern Rockies of Montana or Idaho, or the Greater Yellowstone Ecosystem.

Alternatively, wolves might arrive in the Southern Rockies by natural dispersal from existing populations, across western Wyoming to Utah and northwestern Colorado, for example (although some wolf biologists believe that this is unlikely in the forseeable future).

Potential Wolf Habitat Ranking in Colorado



Public Opinion

Public support for wolf restoration is strong. An independent poll conducted in March 2001 in Arizona, New Mexico, and Colorado indicated support for restoration of wolves to wilderness areas, by a margin of 68 to 28 percent in Arizona and Colorado, and 59 to 38 percent in New Mexico. The more people understood about wolves, the more likely they were to support science-based efforts to restore them to native ecosystems.

The results of this study parallel an earlier survey ordered by Congress and commissioned by USFWS (Manfredo, 1994) which found that approximately 71 percent of Colorado residents supported wolf restoration. The idea was somewhat more popular among residents of the Eastern Slope (74 percent) than among those from the Western Slope (65 percent). Wolf restoration was seen to be as important as protecting other familiar threatened and endangered native species such as peregrine falcons, greenbacked cutthroat trout, and river otters, but somewhat less important than protecting bald eagles. Wolf restoration was rated as more important than providing hunting activities, but less important than most of the other

major wildlife management activities of the Colorado Division of Wildlife (such as providing fishing and wildlife viewing opportunities, wildlife education in the schools, and protecting and improving wildlife habitat).

Numerous organizations and individuals are actively promoting restoration of wolves in the Southern Rockies. In February 2000, some 20 local, regional, and national organizations banded together to form the Southern Rockies Wolf Restoration Project, a coalition "dedicated to restoring wolves to their full ecological role throughout the Southern Rockies."

Despite documented public support for restoration, existing laws and regulations present major obstacles to wolf restoration in the Southern Rockies. For example, in Colorado, both the Wildlife Commission and the General Assembly are on record as opposing wolf restoration. However, state law does not supercede the protection and recovery mandate of the ESA.

Why Restore Wolves to the Southern Rockies?

There are many reasons why USFWS, state wildlife agencies, and the general public might consider a wolf restoration program for the Southern Rockies.

First, there are ecological reasons. When large predators are present, ecosystems are healthier, more resilient, and more complete than where predators are absent. As a dominant predator, wolves play a critical role in the way that many wildlife species interact with each other and the habitat in which they live. All species of wildlife in the West evolved in the presence of wolves. Wolves have many effects on species such as elk, deer and bighorn sheep, including how they use their summer and winter ranges and the age structure and composition of big game herds. Wolves also impact other predators and scavengers, including coyotes, bobcats and mountain lions. The removal of wolves from the West interrupted many natural processes, including the basic evolutionary and behavioral relationships of predators and prey. The restoration of wolves would help to restore these processes.

Also, there are legal reasons to restore wolves—federal agencies are required under the Endangered Species Act to work toward recovering species that are listed as threatened or endangered where suitable habitat exists, on behalf of all U.S. citizens. The re-establishment of wolves in the Southern Rockies is important to re-creating a continuous wolf population from Alaska to Mexico, thus increasing the likelihood for the long-term sur-

vival of the species in the western United States, and all that it represents. In addition, for some people there are ethical, aesthetic, and spiritual reasons "to do right by the wolf" after centuries of fear and hatred led to its near extinction in the lower 48 states. Some Native Americans and others believe that wolves were put on Earth for a reason, and that we should honor and protect them even if we do not fully understand their purpose. Many people believe that wolves add richness to their lives in the form of beauty, grace, and the pure exhilaration of hearing wolves calling in the wild as they have for thousands of years.

Why Should We Not Restore Wolves to the Southern Rockies?

Various groups and individuals are concerned about potential negative impacts of wolves in the Southern Rockies in the 21st Century. There may be detrimental effects on ranching and other uses of private property. Minor restrictions on recreational activities taking place on public land may be necessary during the restoration process. Wolves prey on big game animals and may compete with human hunters for these resources. Wolves may present a danger to pets. The direct and indirect economic costs of restoration could be great. Restoration and management of wolves could drain scarce funds from other wildlife programs, harming other native species and perhaps decreasing recreational opportunities. Costs and benefits of wolf restoration are addressed in greater detail later in this booklet.

WOLVES ON THE GROUND: RECOVERY PLANS THAT ARE WORKING

A Success Story: Wolves in the Northern Rockies

Wolves were listed as an endangered species in the lower 48 states in 1973. In 1987, the USFWS adopted the Northern Rocky Mountain Wolf Recovery Plan. That plan only considered wolf restoration in the Rockies of Montana, Wyoming and Idaho. The plan, which NWF played a key role in developing, called for wolves to be translocated to Yellowstone National Park and central Idaho, while natural re-colonization was fostered in northwestern Montana as wolves moved southward from Canada.

The plan established a recovery goal of ten breeding pairs of wolves in each of the three recovery areas in three consecutive years. Wolf populations in the Northern Rockies are now approaching these goals and USFWS may consider "delisting" wolves from the Endangered Species Act within the next few years.

As of 2001, there were an estimated 84 wolves in up to 12 groups with at least seven breeding pairs in northwestern Montana. In the Greater Yellowstone area there were about 218 wolves in 16 groups with at least 13 breeding pairs. Central Idaho had approximately 261 wolves in 17 groups with at least 14 breeding pairs. As many as 200 pups were born in Montana, Idaho, and Wyoming in April 2000. Wolves are also ranging in other areas, as far afield as eastern Oregon.

A Success Story: Wolves in the Great Lakes Region

In the upper Great Lakes region, different recovery criteria apply. The Eastern Timber Wolf Recovery Plan calls for a population of 1,250 to 1,400 animals in Minnesota and another 100 total in Michigan and Wisconsin, for five years. In the case of the Great Lakes, wolves have already surpassed their recovery targets. Minnesota's gray wolf population is at least 2,500 animals, and there are an estimated 500 gray wolves in Michigan's Upper Peninsula and Wisconsin.

So, why are wolves in the Great Lakes region still listed under the ESA? They may not be for long. In 1998, the Department of Interior initiated efforts to delist wolves in the western Great Lakes. As part of this process, each state has had to develop a wolf management plan. Both Michigan and Wisconsin have adopted wolf management plans, and early in 2001, the Minnesota Department of Natural Resources delivered Minnesota's plan to the USFWS. The USFWS Wolf Recovery Team is now reviewing the plan to see how well it ensures the species' sur-

vival in Minnesota. Afterwards, the agency will determine whether to remove the gray wolf in Minnesota from the federal endangered species list, and thus return control and management of the animal to the state.

A Success Story in Progress: Mexican Gray Wolves

In 1998, Mexican gray wolves were restored to eastern Arizona. This is the most challenging of the three wolf restoration programs that the USFWS has undertaken. As in the Northern Rockies, Mexican wolf recovery involves restoring and managing wolves in an area with a significant livestock industry; like the red wolf program, it involves "re-wilding" captive-born wolves. In spite of these hurdles, the Mexican wolf program is succeeding. As of May 2002, there are at least 17 wolves, including seven known breeding pairs. Of those, two pairs formed on their own and one is expected to produce second generation, wild-conceived offspring in 2002. These developments represent key steps toward a naturally functioning and growing population of Mexican gray wolves. Of 69 captive born wolves released since 1998, at least 16 survive in the wild. This success exceeds that of any other effort ever undertaken to re-wild a captive born canid. Future efforts will focus on documenting natural recruitment to the population. Also, the Mexican Wolf Recovery Plan will be revised to identify overall down-listing and de-listing goals.

But What About the Southern Rockies?

The Great Lakes and the Northern Rockies provide great success stories, but they must not distract from discussion of wolf recovery elsewhere. The intent of the ESA is not solely to prevent the species from going extinct in the wild or to maintain wild populations in a few discrete locations. The ESA also requires restoring populations where they existed in significant numbers historically and where such restoration is practicable. The law speaks to the protection not only of species but also of the ecosystems upon which they depend.

In 1999, USFWS issued a comprehensive set of draft regulations for wolf management across the country. These regulations did not propose expanding wolf recovery beyond the efforts now underway in the Northern Rockies and the Southwest. Most conservation organizations, including NWF, criticized USFWS for this omission. It is unknown when the agency will issue a final set of regulations.

MANAGING WOLVES

The presence of wolves has a major impact on other wildlife and humans, so managing wolves is critical once they have been reestablished in an area.

In today's fragmented ecosystems, well-planned management programs are necessary to ensure the maintenance of healthy prey and predator populations. Although it is rare for wolves to eliminate a species from an area, wolves can, in conjunction with other factors, reduce a prey population to low levels. Wolf/prey interactions have been studied in many places. The effect of wolves on prey populations depends on the number and variety of prey species in the area, weather conditions, habitat changes, land use and the effects of other predators, including humans. There is little evidence that wolves are solely responsible for prey declines when no other factors are involved.

Nonetheless, unmanaged wolves, coupled with hard weather or heavy human harvests, could lead to prey declines. This is a matter for concern, because big game is harvested heavily in many areas in the Rockies. Also, movements of big game animals are seriously constrained by human development, roads, fences, and the desire to minimize damage to crops. Unmanaged wolf populations could cause additional mortality in isolated big-game populations, resulting in their decline. Were this to happen, wolf populations would also decline. At that point, low numbers of prey and low wolf populations would remain, and it might take several years for populations of either to increase.

Good management plans can help to reduce the likelihood that prey populations will decline. For instance, experience in Minnesota demonstrates that big game herds can be managed to provide adequate numbers for both human hunters and wolves. Hunters have long known that protecting winter range can increase big game populations, as can a variety of other management tools such as selected road closures, revegetation, grazing management, and controlled burning. Such measures will be needed to ensure the vigor of big game populations in the future, with or without wolves.

Well-planned management programs can provide the tools to intervene in potential wolf/human conflicts, as is commonly done with other wildlife species, such as beaver, elk, mountain lions, or black bears. Colorado's constitutional ban on leg-hold traps and snares could complicate management. However, improvements in livetraps and rifles, more efficient methods of transportation like helicopters, advanced monitoring and communications, and increased access to wild areas make wolf management easier than it

was a century ago. Wolf packs are fairly easy to locate and fresh wolf kills are often easy to identify, so remedial action can be taken by biologists if the need arises. Where wolf-caused livestock deaths have occurred in the Northern Rockies, individual wolves have been trapped and relocated or killed.

Who Manages Wolves?

As long as the wolf is listed as an endangered or threatened species, the USFWS, in cooperation with state and tribal wildlife agencies, is responsible for managing wolves. Both state and federal courts have held that the states have the authority to manage all game and non-game wildlife not protected by federal law. Therefore, after the wolf is delisted, state wildlife agencies will assume responsibility for managing wolves.

HOW WILL WOLVES AFFECT ME?

Wolves and Humans

The impact of wolves on humans is mostly indirect. There are no documented reports of human deaths caused by wild, non-rabid wolves in North America. Wild wolves are normally shy and avoid contact with humans. Considering their wary nature and their low numbers, one would not expect wild wolves ever to present a danger to humans anywhere near that of such hazards as lightning or bee-stings, let alone domestic dogs.

Wolves and Livestock

Wolves normally do not hunt livestock. Where natural prey is abundant, problems with livestock have been minor. Because most wolves do not prey on domestic stock, control can be targeted at offending individuals rather than at the entire population. Agency personnel can remove those few wolves that learn that livestock can be prey (so that the behavior is not learned by other wolves). Sometimes entire packs are responsible and must be controlled. Although the overall livestock depredation rate is low, some individual operators may suffer the bulk of the problems, due to the aberrant behavior of particular individual wolves. Defenders of Wildlife, a private, non-profit conservation organization, has established a compensation program to reimburse ranchers and farmers for bona fide losses to wolves in the West, and has repeated that offer recently for the Southern Rockies. The states of Minnesota and Wisconsin have also established compensation programs.

Although wolf depredation on livestock is relatively uncommon, when problems do arise the public demands immediate and certain action. From 1987 through November 2001 almost 100 wolves have been killed in control actions in the Northern Rockies. The frequency of wolf control belies the actual magnitude of the wolf-livestock problem. For example, in the Northern Rockies average annual confirmed losses have been minor: four cattle, 28 sheep, and four dogs in the Greater Yellowstone Ecosystem, and nine cattle, 29 sheep, and two dogs in Idaho. These rates are one-third to one-half of the rates predicted in the original Environmental Impact Statement. For perspective, nearly 150,000 cattle, over 250,000 sheep, and some 1,300 horses are grazed seasonally on National Forest lands in the Yellowstone Recovery Area. In 1992, 304,100 cattle and 51,500 sheep were distributed across the Central Idaho Recovery Area.

Of course, more livestock are lost to wolves than are verified, but it is also true that wolf depredation has little effect on the overall economics of the livestock industry. However, if it is not addressed quickly, wolf depredation can lead to significant losses for individual producers and animosity toward wolf recovery. Many ranchers have cooperated with recovery because they believe that wolf-induced problems will be resolved equitably. Compensation for livestock losses has proved useful in promoting cooperation.

Wolf recovery has been complicated by a tension between promoting wolf survival and population expansion, and managing wolves to resolve conflicts with humans. Lethal control has proved to be the most effective, cost-effective, and logistically feasible method for dealing with problem wolves. Many wolf biologists would agree with wolf expert David Mech: if wolf advocates could accept effective control, wolves could live in far more places.

Wolves and Hunters

Both hunters and non-hunters favor wolf restoration. Hunters surveyed in the area of northwestern Montana currently inhabited by wolves responded, by a 3-to-1 margin, that they hoped wolves would continue to live there. A similar majority thought that wolves should be allowed to expand to other areas. Non-hunters shared similar views.

In the West, hunters harvest big game in every state, and studies are underway to determine the effects of wolves on western game populations. Many factors affect prey populations. In the western Great Lakes states, for exam-

ple, wolf populations have more than doubled in the 1990s, but white-tailed deer populations and hunter harvest have also grown substantially. In Minnesota, white-tailed deer populations have continued their strong recovery and have returned to levels seen prior to the severe winters of 1995-96 and 1996-97. Experience there suggests that wolves do not suppress deer numbers, except locally and in the short-term.

The survival of the wolf in the West depends on cooperation among many groups with varying interests. As issues surrounding wolves are debated, it is important to keep in mind the common goal of maintaining or reestablishing the integrity of native ecosystems. Hunters must realize that non-hunters have legitimate concerns and interests in how wildlife is managed. At the same time, non-hunters must understand that the majority of hunters do not want the wolf exterminated. Hunters may want the number of wolves reduced at some times and in some places if they are contributing to the decline of game populations, but this is very different from wanting wolves eliminated.

For fur trappers, there will probably be no added restrictions during wolf recovery. State wildlife agencies are responsible for setting trapping and hunting seasons. These agencies regularly adjust seasons in response to changing conditions. As is currently the case, state agencies would limit seasons only if such a step were in the best interests of the resource. (Currently a wolf caught incidentally must be reported and turned over to wildlife authorities.)

Wolves and the Economy

Efforts to bring back wolves have not necessitated closing areas to recreation, timber cutting, or other commercial activities important to the economies of local communities. Wolf recovery depends on healthy populations of native prey and human tolerance. Activities that do not affect prey populations usually will not affect wolves. Thus, there is little biological need for restrictions.

Detailed accountings of direct and indirect costs and benefits of wolf restoration are not available, although studies are planned in the Yellowstone Region. Anecdotal reports indicate some negative impact on guided big game hunting in that area, which may be more than balanced by an increase in wildlife viewing. In 1995 there was one workshop on wolves in Yellowstone; in the first half of 2000, there were over 50 workshops and classes on wolves in Yellowstone's Lamar Valley alone, offered by 11 different organizations. A thorough economic projection of costs and benefits of wolf restoration in Yellowstone indicated that costs (in terms of foregone value to hunters and guides of ungulates killed by wolves, value of livestock losses, and costs of wolf management) would total $0.7 to $0.9 million per year. Benefits were estimated between $6.7 to $9.9 million annually. Costs of wolf management in the 3-state Greater Yellowstone Ecosystem are estimated at approximately $441,000 annually, which includes capturing and moving (or eliminating) problem wolves. (The total cost of wolf recovery work in the Northern Rockies for the period 1973-1994, which included preliminary research and planning phases for restoration in Yellowstone and Idaho, was $5.5 million.)

THE GRAY WOLF: A TOP PREDATOR

What Do Wolves Eat?

Wolves obtain the majority of their food from large mammals such as deer, moose and elk. They also eat smaller mammals, including mice, ground squirrels, and birds, but larger mammals are their staple fare.

A wolf needs 5 to 12 pounds of meat per day throughout the year. Consumption is usually higher in winter because prey is more easily captured then, and energy demands are high. Not all portions of a kill are always consumed. This carrion is not wasted, however, as it is an important food source for magpies, ravens, and other scavengers, as demonstrated by studies in Yellowstone.

How often a pack kills depends on the size of the pack, the hunting skill of the pack, the size of the predominant prey species, the density and condition of prey animals, and the availability of carrion. Wolf packs preying mostly on deer and elk kill one big-game animal every two to eight days during winter. This averages out to one prey animal per wolf every 23 days, or the equivalent of about 12 adult cow elk per wolf per year.

Prey Selection

Wolves kill those animals that are easiest and safest for them to capture, so the majority of the prey are individuals at some disadvantage because of age or diminished health. Young animals and old animals are preyed upon, as are diseased or deformed animals. Such culling of old and sick animals helps to maintain healthy prey populations. Nonetheless, wolves are capable of killing healthy adult animals, and do so if the opportunity arises.

Are Wolves Wasteful or Cruel?

It is difficult and dangerous for wolves to kill large animals. Because of this, they often eat nearly the entire prey animal, including smaller bones. If conditions make hunting easier (for example, when crusted snow supports the wolf but not the prey), wolves may become more selective in what they consume and leave the less palatable parts of the animal such as the hooves and hide. Occasionally, the opportunity arises for wolves to kill several animals at once. In that event, large amounts of the prey may be left unconsumed. Wolves may revisit these sites later and clean up anything that scavengers have not already eaten.

The wolf's reputation for "cruelty" may come from its occasional inability to make a swift kill. The flailing hooves of an elk or deer can easily break a wolf's bones. Most wolf chases are short, less than 100 meters, and wolves kill prey as quickly as they can. However, occasionally wolves wound formidable prey such as moose or elk and then retreat to a safe distance until the animal weakens and is safer to kill.

Occasionally, wolves may begin to feed before their prey is dead. Kills are often days apart, so hunger and competition with other pack members might cause them to start feeding immediately. Some have labeled such behavior as "cruel," but cruelty is a human term for an occasional human trait. Wolves are not cruel; they are simply hungry. A wolf is no more cruel than is a songbird picking apart an insect.

WOLF POPULATIONS

Pack Size

The size of a wolf pack varies, depending largely on the size and abundance of the principal prey. In Montana, Idaho, and Wyoming, where elk is the most frequent prey species, packs average 10 individuals, with one breeding pair per pack, and five pups in an average litter. Biologists debate whether a larger pack facilitates the killing of larger animals or whether larger animals can feed more wolves. Wolves work together in their hunts, but even single wolves can kill a deer or an elk.

Wolf Populations and Other Wildlife

Some have wondered whether wolf and prey populations are naturally balanced at some constant number, in ecosystems unaltered by humans. The answer is probably "no." It is natural for animal numbers to fluctuate. Populations of both predator and prey change continually, responding to each other and to other environmental variables. Occasionally the predator is favored and prey populations decline. At other times, the prey species is favored and their numbers increase.

Wolves and Bighorn Sheep

Studies in Canada and Alaska show that wolves have not seriously impacted healthy bands of bighorn sheep located near rocky, steep terrain. Wolf biologists have no record of predation by wolves on bighorn sheep in Yellowstone. Hypothetically, sheep may be vulnerable if they are not near escape terrain, especially if disease or parasites have weakened them or if they live in marginal habitat. Management provisions can be developed to protect these populations should wolf predation cause undesirable declines.

Wolves and Coyotes

Wolves harass and kill coyotes. When wolves were exterminated from the West, populations of coyotes—which are quite tolerant of humans—rose dramatically. With restoration of wolves, local populations of coyotes have declined. For example, wolves have eliminated 50 to 80 percent of coyotes from portions of Yellowstone, either because the coyotes were killed or were driven out of the area by wolves. That situation may be exceptional, however. Biologists suspect that over most of their restored range, wolves

will never be sufficiently abundant, or territories close enough together, to significantly affect numbers of coyotes over their range.

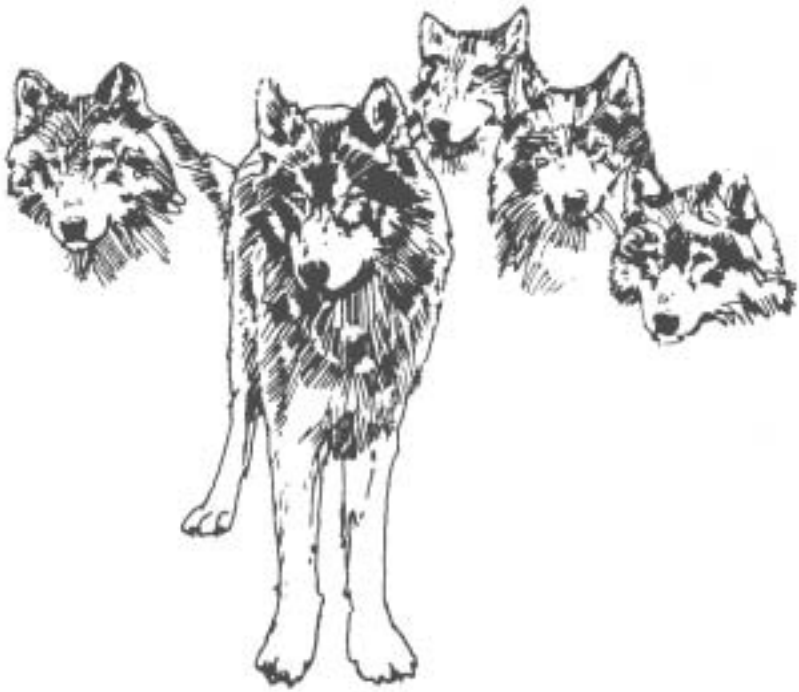
Limits on Wolf Numbers

Food availability restricts wolf density in a given area. A limited food supply can be caused by weather conditions or other factors favoring the prey, as well as by low prey populations. Decreases in food availability—whatever the cause—result in less frequent breeding by females, fewer pups per litter, survival of fewer pups, and even starvation.

It is rare to have more than one wolf per 10 square miles, because wolf packs regulate each other when prey availability is low. Packs require large territories (50 to 1000 square miles, depending on pack size and prey density) and often kill individual wolves that intrude from neighboring territories.

In addition, diseases such as distemper and parvovirus can take a heavy toll on wolf populations. Rabies is rarely reported in wolves.

Today in North America, it is people who ultimately control the number of wolves, just as we do elk, deer, bears, and mountain lions.



RESOURCES FOR FURTHER EXPLORATION

Agencies and organizations:

U.S. FISH & WILDLIFE SERVICE

Northern Rockies Wolf Recovery
Ecological Services—U.S. Fish & Wildlife Service
100 North Park—Suite 320
Helena, MT 59601
406-449-5225
Ed_Bangs@USF&WS.gov
http://mountain-prairie.fws.gov/wolf/annualrpt00/

Gray Wolf Recovery
Bishop Henry Whipple Federal Building
1 Federal Drive
Fort Snelling, Minnesota 55111
Fax: 612-713-5292
E-mail: http://graywolfmail@fws.gov
http://midwest.fws.gov/wolf/west/index.htm
http://www.r6.fws.gov/wolf/index.htm

Mexican Wolf Recovery
Southwest Mexican Wolf Recovery
Ecological Services Regional Office
Southwest Region US Fish & Wildlife Service
P.O. Box 1306, Room 4012
Albuquerque, New Mexico 87103-1306
(505)-248-6920
Email: http://fw2eswol@fws.gov
http://midwest.fws.gov/wolf/

NATIONAL WILDLIFE FEDERATION

11100 Wildlife Center Drive
Reston, VA 20190
www.nwf.org/wolves/

Northern Rockies Project Office
240 N. Higgins
Missoula, MT 59802
(406) 721-6705

Rocky Mountain Natural Resource Center
2260 Baseline Road, Suite 100
Boulder, CO 80302
(303) 786-8001

COLORADO WILDLIFE FEDERATION

445 Union Boulevard—Suite 302
Lakewood, CO 80228
(303)-987-0400
www.coloradowildlife.org

THE WOLF FORUM FOR THE SOUTHERN ROCKIES
(www.wolfforum.org) provides the communities of the Southern Rockies with scientific information and a diverse public forum about wolf restoration to our region. This non-advocacy group's scientific advisory team endorses information on wolves in the Southern Rockies which it has deemed to be scientifically accurate and fairly represented.

The forum consists of these educational institutions:

Cheyenne Mountain Zoo www.cmzoo.org
Denver Zoo www.denverzoo.org
Pueblo Zoo www.pueblozoo.org
Albuquerque Biological Park www.cabq.gov/biopark
International Wolf Center www.wolf.org

Suggestions for Further Reading:

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Acknowledgments:

This booklet was based on the National Wildlife Federation (NWF) publication "Wolves in the Northern Rockies: Commonly Asked Questions," developed by Pat Tucker and Bruce Weide of Wild Sentry. That booklet was re-written by Dave Armstrong of Colorado Wildlife Federation (CWF) and John Amoroso of NWF, with technical review by Tom France and Steve Torbit of NWF, Mike Phillips of Turner Endangered Species Fund, and Ed Bangs, Steve Fritts and Brian Kelly of U.S. Fish and Wildlife Service (USFWS). Critical review was provided by the CWF Wolf Committee including Dennis Buechler, Colleen Gadd, Jim Goddard, Suzanne O'Neill, and the Board of CWF, as well as the Wolf Forum for the Southern Rockies. Special thanks to USFWS and Bill Martin of Southern Rockies Ecosystem Project for maps, Sarah Cooley for proofreading, and Jesse Ratliff for design and layout.

NOTES