Howling about Wolf Control in Minnesota

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Introduction

At one time gray wolves were near extinction in the lower 48 United States. However, from a single small population in Minnesota they expanded their range into Wisconsin and Michigan. It is estimated that the Minnesota wolf population is now more than 2,400 and the Wisconsin/Michigan population is near 400. In the northern US Rocky Mountains, wolves emigrated from Canada into northwest Montana where there are currently about 75 wolves. The reintroduction of wolves into Yellowstone National Park and central Idaho has led to a population that is increasing faster than expected and numbers about 200 in those areas. Due to these increases in gray wolf numbers and range in the continental United States, the US Fish and Wildlife Service (USFWS) is reviewing potential changes to the Endangered Species Act of 1973 (ESA) protection for gray wolves.

In the western Great Lakes region, the Service is contemplating removing gray wolves in Minnesota, Wisconsin and Michigan from the endangered species list. With this action, wolves in these states would no longer receive federal protection. The pending delisting of the western Great Lakes gray wolf (Canis lupus) by the federal government poses a considerable dilemma throughout the entire Great Lakes region. Future wolf management in the

28 The opinions of the authors do not necessarily reflect the views or opinions of the agencies for which they work.
state of Minnesota is a central focus in this debate because Minnesota currently has the largest number of wolves in the lower 48 states. In the near future, this state may be faced with the burden of reconciling at least two contradictory historic commitments: 1) to ensure the long-term survival of the gray wolf in Minnesota and 2) to resolve conflicts between wolves and humans.

The horns of this dilemma reach back and forth from the early 1800s to sometime in the year 2000. This rubbery time warp concerning at least two centuries of gray wolf history can be broken into three phases: eradication, protection and recovery, and proposed delisting of the species. Needless to say, we now stand at the beginning of what is surely a unique era for the gray wolf and wildlife managers poised to deal with its reemergence in the twenty-first century.

Between 1838 and 1865, bounties for the gray wolf were instituted in Wisconsin, Michigan, and Minnesota. By the turn of the century, wolves were rare in southern and western Minnesota, southern Wisconsin and Michigan, and the rest of the eastern US. In 1914, the US government began a widespread predator control program in which it provided poison and personnel in an attempt to rid the country of its remaining wolves. By 1960, this goal was largely accomplished and wolves were considered extirpated from all of the lower 48 States except in extreme northeastern Minnesota, on Isle Royale, Michigan and in the West, where there were a few non-breeding individuals.

The tide had begun turning in 1956, however, when the Minnesota Department of Natural Resources (DNR) ended its bounty program. The next year, Wisconsin ended its bounty system and became the first of the three states to protect wolves under state law (this action came too late, however, and wolves were considered extirpated from the state by 1960). In 1965, Michigan was the second of the three states to give the wolf complete protection under state law. It was not until 1974, the year after the wolf was listed as a federally endangered species, that Minnesota finally ended its public harvest of wolves (which included hunting and trapping of wolves on private and state lands) and granted the species full protection.
In 1975, the first documented reproducing pack of wolves in Wisconsin since the 1950s prompted the state to list the gray wolf as a state endangered species. In that same year, the U.S. Fish and Wildlife Service initiated a program to control wolf depredations in Minnesota. In 1978, the Minnesota Legislature enacted a compensation program to pay livestock owners for losses from wolf depredation. In this same year, the Eastern Timber Wolf Recovery Plan was published. In Minnesota, it called for five wolf management zones, reclassification from endangered to threatened (which allowed the United States Department of Agriculture Wildlife Services unit to kill depredating wolves), and the re-establishment of wolves elsewhere in the state. By 1988, Minnesota DNR estimated that there were between 1,500 and 1,750 wolves in the state. The following year, the DNR announced its long-term management goals for the wolf. The plan called for maintaining at least 1,000-2,000 wolves through 1992, expanding public understanding of wolves and assisting other states in establishing wolf populations. By 1992, the original Federal recovery plan was updated, and wolf populations were increasing. At that time, population estimates were 1,500-1,750 wolves in Minnesota, at least 20 in Michigan, and 45 in Wisconsin.

The conditions for delisting were mapped out in the 1992 recovery plan which said that delisting could be considered when at least two viable populations within the lower 48 States satisfy the following conditions: (1) the Minnesota population must be stable or growing and its continued survival be assured—with minimum population numbers of 1,251 to 1,400, and (2) a second population outside of Minnesota and Isle Royale, Michigan must be established, having at least 100 wolves in late winter if located within 100 miles of the Minnesota wolf population, or having at least 200 wolves if located beyond that distance. These population levels must be maintained for five consecutive years before delisting can occur.

Delisting discourse began in 1994 as both Wisconsin's and Michigan's populations reached 57 wolves. Their combined

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estimates of more than 100 wolves outside of Minnesota prompted the five-year countdown to delisting the gray wolf as suggested in the 1992 recovery plan. By 1995, Wisconsin and Michigan estimated their populations at 83 and 80, respectively. Both states then started the three-year countdown towards reclassification from endangered to threatened status as suggested in the 1992 recovery plan. In 1998, Minnesota’s wolf population was estimated at 2,455 wolves, Michigan’s at 199 (174 in the Upper Peninsula and 25 on Isle Royale), and Wisconsin’s at 197-203. With these numbers, the population criteria for recovery were met.

In addition to the population standards, the US Fish and Wildlife Service is requesting that state wolf management plans be developed so that future threats to the wolf may be better evaluated. If the gray wolf is delisted, complete management authority will rest with the States. The overall strategy of the DNR’s management plan is causing a great deal of controversy in Minnesota. At the root of the controversy is whether wolf numbers should be controlled, and if so, how this should be accomplished. In keeping with its historical commitments, the DNR held a series of public information meetings in early 1998 to scope the issues. Following these meetings, the DNR appointed a ‘Wolf Management Roundtable’ to guide the agency in addressing the controversial wolf management issues. The Roundtable included representatives from state agencies, Native American tribes, environmental, agricultural, hunting and trapping groups and wolf advocacy groups. The Roundtable’s objective was to develop consensus recommendations for wolf management in Minnesota.

The following sections examine the contentious issues the Roundtable had to consider as well as the positions of various interest groups on these issues.

Issues in the Wolf Debate

White-tailed Deer Harvest and Wolf Predation

The goal of the DNR’s white-tailed deer management program is to maintain a specified deer density. A number of factors, including both natural and human-induced,
influence white-tailed deer densities. Severe winter weather is a significant factor affecting white-tailed deer populations in Minnesota.\textsuperscript{30} Additionally, human harvest through hunting substantially influences deer numbers, therefore enabling DNR to control population levels. Other important factors that affect deer numbers include disease, predation, and automobile collisions. In Minnesota, the primary predators include coyotes, bears, bobcats, fishers and wolves, with more than 100,000 deer taken by natural predators annually.\textsuperscript{31}

From 1983 to 1989, the statewide firearm white-tailed deer harvest rates were relatively stable. Harvest levels varied from a high of 139,000 kills (1985 & 1988) to a low of 132,000 kills (1986 & 1989). During the early 1990s, white-tailed deer numbers exploded as a result of two extraordinarily mild winters. In response to this population increase, the DNR allowed greater harvest rates - with a record high of 229,000 kills occurring in 1992. These elevated harvest rates continued over the next few years. In 1996 and 1997, severe winter weather coupled with high harvest rates caused the white-tailed deer population to decline. Consequently, the harvest rates in subsequent years more closely resembled those of the 1980s. Although deer densities and harvest rates were well within the DNR’s white-tailed deer management objectives, the lower deer harvests in 1996 and 1997 alarmed some Minnesota residents, many of whom attributed the decline in white-tailed deer densities to the concurrently increasing wolf population. Moreover, some believe that the continued increase in wolf numbers and corresponding decline in white-tailed deer numbers will decimate northern Minnesota’s economy. Conversely, other Minnesota residents indicate a preference for limiting human harvest rates rather than wolf numbers to increase deer densities.

Wolf Depredation on Livestock in Minnesota

Although natural prey comprise most of their diet, wolves will kill and eat domestic livestock. The domestic prey of wolves includes cattle, sheep, turkeys, horses, geese, goats, chickens, ducks, and pigs. Most depredations occur in summer when livestock are released to graze in open and wooded pastures. Husbandry practices such as calving in forested or brushy pastures and disposal of livestock carcasses in or near pastures contribute to increased incidences of depredation.

To minimize economic loss to ranchers in Minnesota, a program is in place that compensates livestock owners for depredation losses. To initiate the claim process, the producer reports a livestock kill to a conservation officer or county extension agent. The conservation officer is charged with verifying the loss as wolf-caused. This is often done with the assistance of US Department of Agriculture (USDA), Wildlife Services Program. The county extension officer determines the value of the livestock and the Minnesota Department of Agriculture processes the payment. The number of complaints and verifications, as well as funds paid in compensation, has been recorded since the program’s inception. The total compensation paid in Minnesota since 1977 has ranged from $14,444 to $42,739 annually.

As the wolf population and range expands, so do the number of livestock depredations (from 29 complaints and 15 verifications in 1979 to 201 complaints and 113 verifications in 1998). Although a small fraction of the farms (1% of 8,000 farms) within wolf range are affected by depredation, for some producers the monetary loss is substantial. The recent increase in livestock depredations caused alarm among livestock growers in Minnesota.\[32\] Some go as far as implicating the increasing wolf population as the primary cause of the loss of many small family-farms in Minnesota.

Many livestock producers argue that the compensation program is not adequate. First, they assert that the actual number of depredations is much higher than the statistics show. The president of the Minnesota Cattleman’s Association believes that more than 90% of the depredations go unreported because of missing carcasses. At present, farmers are reimbursed up to $750, minus the amount received from insurance, for lost livestock. According to a University of Minnesota study, $750 is adequate to fully compensate for loss of sheep and turkeys, but loss of cattle is only partially compensated. Some believe that 100% compensation as implemented in Wisconsin is warranted. (Wisconsin ranchers are required to implement various preventive measures before compensation is paid).

The second assertion is that, even if a carcass is available, the verification process is too exacting, as demonstrated by the few verifications relative to the number of complaints. Currently, verification requires a wounded animal or the remains of a dead animal (or, if a carcass is missing, evidence of a kill such as blood and rumen) and evidence of wolf involvement. According to the USDA’s Wildlife Services program, the cause of the discrepancy between the number of complaints reported and the number of verified incidences is twofold. In addition to wolf depredation, other species (such as coyote, black bear and domestic dogs) prey on livestock. William Paul the District Supervisor for USDA’s Wildlife Services,\(^{33}\) estimates that at least 20 to 25% of the complaints reported to Wildlife Services are coyote kills. As a result, the severity of the wolf depredation problem issue is often exaggerated. Also, wolves scavenge, and thus ranchers sometimes mistake natural mortality or non-wolf kills as wolf-caused. Of the depredation complaints received in 1998, 58% were verified as wolf kills. While acknowledging that the actual number of depredations is higher than what is verified, Wildlife Services believes that wolf depredation is problematic for less than 5% of Minnesota farms in wolf range.

In addition to the compensation mentioned above, farmers also receive assistance from Wildlife Services to remove

\(^{33}\) personal communication, 1998.
depredating animals. The primary method of control is trapping and removal of problem wolves. Since 1979, the number of wolves trapped has ranged from 15 to 227 annually, and the number of wolves lethally removed has ranged from 6 to 216 annually - up to 10% of the wolf population but far fewer than the farmers believe is necessary. Paul agrees that currently the Wildlife Services program is not adequately addressing wolf depredations in Minnesota but maintains that Wildlife Services could at least keep pace with the increasing trends if the program had more resources.

Some argue that livestock growers need to take some responsibility, such as exploring non-lethal methods for deterring depredation. There are numerous techniques proven effective under various scenarios, particularly when used in combination. However, Paul asserts that many of these techniques have been tried with limited success in Minnesota. For example, net wire and electric fences with anti-predator designs can be effective in smaller areas near the barn but in larger, forested pastures, the costs of acquiring and maintaining such structures are prohibitive. Similarly, flashing lights and sirens are most useful for reducing depredation in small pastures, but without a physical deterrent, their effectiveness wanes even in small areas. Lastly, guard dogs have been used for centuries in Europe and Asia and have proven successful in the western US. In addition to requiring time to bond with the livestock - and thus not providing an immediate solution - their effectiveness in Minnesota is questioned because of the difficulties in protecting livestock in forested pastures. Despite these shortcomings, Paul believes that guard dogs are the most viable option, especially for deterring coyote depredation.

Others have suggested using a trapping and firearms season as a potential control method. Although shooting alone is unlikely to be effective, hunting - in combination with

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34 Kellert, 'The public and the timber wolf in Minnesota'.
trapping - could be a viable option. The success of trapping in controlling wolves is well documented but so too is the public’s antipathy towards trapping. Anti-trapping campaigns in the 1930s and again in the 1970s were successful in effecting leg-hold trap restrictions in several states. Despite technological advancements in trap design (such as offset jaws, padded jaws, and tranquillizing tabs), public acceptance of trapping remains low. In two distinct studies of attitudes and behaviors toward the gray wolf in Minnesota, a substantial proportion of respondents stated they were ethically opposed to harvesting wolves for their fur or for sport. (Currently, toothed jaws are prohibited in the US but are used for research and removal of depredating wolves). Most feared a legal harvest would result in excessive and unsustainable mortality.

Human and Pet Safety

Personal safety is a key concern in the conflict between humans and wolves. Wolves appear to be more tolerant of humans and human settlement than they were in the past. This tolerance is likely due to the influx of humans living in greater proximity to wolf habitat. Also, because of the protected status and increased awareness and knowledge about wolves, harassment of the animal has decreased in recent times. Thus, where wolves may once have been wary because of predator control programs and other human disturbance, they are now less threatened by humans. Despite the wolf’s increased tolerance of humans, there are no accounts of human attacks in the lower 48 States.

There was a documented wolf attack on an 11-year old child in Algonquin Provincial Park, Canada in 1996. When the wolf approached the boy (who was sleeping out under the stars) it first tugged at the sides of his sleeping bag. The wolf then tried to get another hold on the bag, grabbing the end of it and thus, grabbing the boy’s head. The boy’s parents

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managed to scare the wolf away and park officials later removed the wolf. The circumstances surrounding this attack are suspect. The wolf in question had been visiting campsites in the park for some time prior to the incident. There is indication that the wolf had been habituated to people and had prior exposure to human articles. After the wolf was killed, its stomach contents revealed strange items such as string, carrots, and other foreign objects. It is postulated that this could have led to the animal’s erratic behavior. Finally, Algonquin Park has a history of wolves displaying bold behavior. This fact has led to speculation that some of the so-called wolves in the park may in fact be wolf-dog hybrids or released captive wolves. Four similar incidents have occurred in the Park since 1987. Minor injuries occurred in each event but there were no mortalities.

In comparison to wolves, domestic dogs may pose more of a threat to humans as evidenced by statistics from the Center for Disease Control, which reported 12.5 deaths/year in the US caused by various breeds of domestic dogs in the years 1979-1994. Further, there are 4.5 million dog bites reported annually in the US and 334,000 victims of dog bites visit the emergency room annually.

Similar to human safety concerns, pet safety is a key consideration in the human conflict with wolves. In 1998, USDA’s Wildlife Services program verified 25 instances of domestic dogs being killed by wolves. It is believed that wolf attacks on domestic dogs are under-reported. However, wolf predation on dogs still appears uncommon, considering that only a small percentage of the estimated 68,000 households to have dogs in 1997 were affected.

The main reason wolves attack domestic dogs is usually territorial and rarely predatory. Wolves view dogs as competitors, resulting in interspecific strife between domestic dogs and wolves. While some pet owners react traumatically to wolf attacks, others accept unfortunate incidents as a part of living in wolf country.

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40 Cook, personal communication.
41 Route, personal communication.
Spiritual connection

For many American Indians the wolf holds a spiritual and cultural significance. This is especially true for tribes that live in proximity to wolves and where wolves and wolf stories are encountered. The wolf plays a central role in much of Native American cosmology. The animal represents the eastern direction and the season of summer in several tribes. Clans often are distinguished from each other by animals to which their members look for guidance and inspiration. The wolf is often chosen by individuals to represent their clan. Some tribes believe that upon death the spirit returns to the body of their clan animal therefore, ancestors may be embodied in a living wolf. (In Minnesota, many members of the Chippewa band belong to the wolf clan). Individuals may also choose the wolf as their personal totem animal, an animal with which they feel their life to be closely connected. A person is prohibited from killing or harming his or her totem 'lest the animal take offense and abandon the mortal'.

Many American Indians have long recognized the resemblance between their life and history and that of the wolf. The wolf is held in high regard by many tribes because it is a good hunter and provides for its family - skills and attributes required of them to survive. The connection between wolves and Native Americans is felt even more strongly today by those who relate the plight of the wolf to that of themselves and their ancestors. Many feel that, just as they were, the wolf has been pushed to the brink of extinction and is now recovering, only to be faced with more persecution.

Public Attitudes

Human attitudes toward wolves have formed as a result of historic connections to the animal as well as ideas of its

44 Ibid.
nature. Since European settlement in North America, the wolf has been viewed mainly in negativistic and utilitarian terms. These attitudes stemmed from a pioneering view of the wolf as ‘the essence of wildness and cruel predation, the ally of barbaric Indians, a creature of twilight’.\(^{45}\) The wolf was despised because it represented a perceived threat to personal safety and livestock and an ‘impediment in the march of progress and civilization’.\(^{46}\)

The perceived need to conquer the wolf began to change during the second half of the 20th century. During this time, many began to view the wolf as a symbol of human persecution of animals and nature. It was one of the first species listed as endangered under the Endangered Species Act. Negative attitudes persisted, however, perhaps due to the generally hostile depiction of this animal in literature, children’s stories, and various myths.\(^{47}\)

A diversity of values and attitudes toward the wolf exists in the United States today. In 1985 and 1999, Kellert conducted a study of public attitudes of Minnesota residents towards the wolf. The author of these studies stated that ‘The Minnesota public clearly values wolves, viewing this animal as ecologically important, scientifically fascinating, aesthetically attractive, recreationally appealing, and significant for future generations.’\(^{48}\) In both studies, the majority of respondents favored protection of the wolf, provided that private property rights were not compromised. Most respondents also supported the right to protect livestock and pets but focused on control methods that target only the problem wolf.

Among the respondents that were not farmers, most in the 1985 survey viewed the wolf in favorable and positive terms and expressed an appreciation for the wildness of the animal as well as a desire to see a wolf. Most also believed wolves are

\(^{47}\) Ibid and Boitani, ‘Ecological and cultural diversities in the evolution of wolf-human relations’.
an important part of Minnesota's environment and saw wolves as a symbol of nature. Although many expressed a moderate degree of fear of this animal, most people disagreed that wolves pose a threat to human lives or that the animal is inherently cruel. These sentiments do not appear to have changed in 1999.

A noticeable difference between the predominant attitude of those from northern counties who live in proximity to wolves and those living outside of wolf range persists. Non-northern Minnesota residents hold a highly protectionist attitude toward the timber wolf and express a strong affection toward the animal. However, these residents have a limited understanding of wolf biology. Northern county residents are more knowledgeable about wolf ecology, and in general held a much more utilitarian and authoritarian view toward them.

Positions of Interest Groups

Minnesota Deer Hunters Association

The Minnesota Deer Hunters Association (MDHA) believes that Minnesota wolf population objectives should be considered and set in coordination with the traditions of deer hunting. The MDHA maintains that a reduction in allowable deer harvest by humans will have economic and social implications. Joe Wood (Executive Director of MDHA in 1998) explains that in addition to the revenue generated by license sales and deer hunting paraphernalia, peripheral expenses such as gas, lodging, and food greatly increase the total deer-related economic expenditure. He further asserts that the viability of many local communities depends on this annual income. The MDHA further argues that for ecological integrity, deer populations must be controlled, and that hunting is the most economical and humane method of accomplishing this. The MDHA recognizes the ecological role of wolves and does not support the elimination of the wolf. However, they believe that wolf densities need to be kept within a certain limit and that without control, adverse social and economic impacts will occur. Thus, the MDHA supports
maintaining a wolf population between 1,251 to 1,400 as required by the 1992 recovery plan.

**Minnesota State Cattleman's Association**

The Minnesota State Cattleman's Association (MSCA) supports control of the wolf by regions within the state. In particular, MSCA believes that wolves should be managed within the state's wilderness areas and controlled in areas where livestock production is occurring. They also support regulations that allow ranchers to protect their cattle before a kill occurs - specifically, that cattleman have the right to kill wolves that stalk their herds. Further, MSCA believes that Minnesota cattleman have had to endure the senseless killing and maiming of valuable livestock without just compensation. The MSCA also contends that the USDA verification process is problematic because the reporting requirements are difficult to adhere to and often the carcass is not available for verification.

Dick Lecocq, the president-elect of the MSCA, asserts that the depredation problem is far worse than what is perceived. He believes based on the number of cattle missing from his herd and the loss of aborted calves induced by wolf harassment, that 90% of the depredations that occur go unreported. MSCA further contends that minimizing the risk of wolf depredation requires ranchers to employ unsound management practices. Lecocq explains that the practice of confining cattle close to the barn might be feasible with a handful of cattle, but is troublesome for ranchers with large herds because of manure build-up and the consequential disease problem for calves. The best husbandry practice, according to Lecocq, is to confine cows to the cleanest area near the barn, and two to three days following birth, move cows and calves to the pasture (where disease is less likely to infect calves). Lecocq views other preventive methods such as guard dogs as very impractical. He insists that wolves and livestock are not compatible. Thus, the only equitable remedy is to remove wolves from livestock production areas.

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Minnesota Conservation Federation (A Sport Hunting Group)

The Minnesota Conservation Federation supports returning management of the gray wolf in Minnesota to the DNR if US Fish and Wildlife Service removes the wolf from the endangered species list. It is in favor of regulated and monitored public hunting and trapping of wolves, and further, believes that these actions will assure continued public support to maintain the population and range of the wolf in Minnesota. The Minnesota Conservation Federation bases its position on the following beliefs: 1) that the wolf population and range has expanded beyond the goals of the 1992 recovery plan, 2) that the wolf is a significant threat to deer populations and a serious hazard to domestic livestock and pets, and 3) that there is seriously decreased human tolerance of wolves within Minnesota’s wolf range.

Minnesota Trapper’s Association

The Minnesota Trapper’s Association believes the recovery of the timber wolf is one of the ‘greatest success stories of the Endangered Species Act’. They contend that once the wolf is delisted, the State, rather than Mother Nature, will need to manage and control the wolf. They believe that wolf control will be best accomplished by: 1) allowing citizens to protect their family, pets and livestock; 2) providing fair compensation for loss of livestock and pets; and 3) permitting hunting and trapping by qualified or certified personnel who have attended an orientation seminar.

American Indian Community

Because of the intense connection many Native Americans in Minnesota feel toward the wolf, they would like to see this spiritual animal remain protected by the Endangered Species Act. The main reason Native people do not want the wolf delisted is because they fear the control that state government will then have over the wolf. Also, they feel the reason control is sought is a selfish one because hunters and farmers feel threatened by the wolf. The Native concept is that hunters and farmers threaten the wolves. Wolves are
considered a very sacred animal to Native people - an animal that should not be killed for sport.

Environmental Organizations: Sierra Club, Help Our Wolves Live (HOWL), and Friends of Animals and their Environment (FATE)

These organizations feel that immediate delisting of the gray wolf is premature - that more scientific research is necessary before any decision can be safely made. They believe that population estimates may not be accurate and that the present increase in population is the result only of the wolf's protected status. Their concern lies in subsequent effects on population numbers if the wolf is removed from protection.

Because of the conflict between wolves and humans, these organizations do not oppose some form of wolf control if the wolves in Minnesota are found to be a stable and growing population. Their specific position on control is as follows:

- Oppose public hunting and trapping of wolves. Arbitrary killing of wolves for sport is not an effective or reasonable method of depredation control nor does it encourage public respect for this species.
- Favor a restricted wolf depredation control program subject to regulations that favor the wolf, and occurring only after scientific verification that the loss was caused by wolves. The target of control should be the depredating wolf, not all wolves in the area or wolves in general. There should be promotion of non-lethal predator control techniques including the use of guard dogs and fencing.
- Oppose preventative control trapping (killing wolves before losses have occurred).

Finally, they stress that the protection and control of the timber wolf is not just a Minnesota issue. The wolf still remains extirpated throughout most of its former range. Decisions made in Minnesota will likely effect the entire species. As stated in their position paper, these organizations believe 'The ESA was not designed to bring back populations so states could propagate species for recreation revenue but
rather to maintain species and enrich the biodiversity of our nation'.

Minnesota Wolf Management Roundtable Recommendations

In September 1998, after eight meetings of the Minnesota wolf management Roundtable, consensus on a package of wolf management recommendations was reached. Under this consensus, wolves in Minnesota would be allowed to expand statewide with population management measures to be considered no sooner than 5-years post-delisting. The Roundtable further recommends a minimum statewide population of 1,600 wolves.

Wolf Depredation Management: Wolf depredation management remains a high priority under the Roundtable recommendations. The Roundtable supports the continuation of a compensation program for wolf depredation on livestock and recommends expanding this program to include dogs and livestock guard animals. Killing of wolves in defense of human life will continue to be allowed and with the new recommendations, livestock owners may kill wolves that pose an immediate threat to their animals on their property. The Roundtable further recommends that the current cap of $750 paid to farmers with verified wolf kills be increased to better reflect the fair market value of the animal. Compensation for the loss of livestock guard animals and pet dogs is also included in the recommendations.

Strong emphasis is placed on livestock owners using Best Management Practices to deter wolf depredations. The Roundtable urges the Minnesota Legislature to appropriate funds for the research, development and implementation of non-lethal means of wolf control to minimize wolf depredation on livestock.

Habitat Management: The DNR will be responsible for identifying current and potential wolf habitat in the state with the objective of managing it to benefit wolves and their

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prey. Wolf habitat considerations include human accessibility, disturbance at den and rendezvous sites and availability of suitable corridors and linkages.

**Population Monitoring:** The Roundtable accepts the current monitoring methods used by the DNR to estimate wolf populations in the state but suggests that future monitoring move toward an actual census. This move will require standardized training for data collectors and more continuous tracking and verification of data.

**Other Recommendations:** The Roundtable also made recommendations on education, enforcement, eco-tourism, wolf-dog hybrids/captive wolves and monitoring of the management plan.

After conclusion of the Roundtable process, the DNR drafted a wolf management plan that incorporated the recommendations of the Roundtable. The final draft of Minnesota’s wolf management plan was finished in February 1999 and underwent legislative review. The 1999 legislative session closed without adopting a wolf management plan, although, the issue will be examined again in the next legislative session. The lack of an approved Minnesota wolf management plan could affect plans to delist the gray wolf in the western Great Lakes region.

**Conclusion**

Biologically, the gray wolf is doing very well in Minnesota and the surrounding area. Since they were protected under the ESA in 1974, their numbers and range have steadily increased. Minnesota’s wolves now number more than 2,400 and occupy over half of the state. Some scientists even contend that wolves in Minnesota have saturated the suitable habitat and are now moving into marginal territory.

Socially, this animal still has a lot of obstacles to overcome. Public attitudes toward the wolf seem to be generally positive in areas where there are no wolves but, negative attitudes continue to prevail among people who live in wolf country. The future of wolves and their management in Minnesota has yet to be determined.
Devising a state wolf management plan is not simply a scientific task. Social beliefs and personal values are inherent in making any biological decision. In fact, the three authors of this paper, who all have similar educational training and a related conservation ethic, found it difficult to agree on a single best management strategy. However, we did agree with the DNR’s resolution to involve stakeholders in the decision process. This procedure enabled the DNR to create a plan that incorporated the diverse values and beliefs of Minnesotans. Although we do not necessarily agree with all of the Roundtable’s recommendations, we believe that the state legislature should have acknowledged the value of this consensus agreement and adopted the recommended plan.

Biographies

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