Policy Issues Regarding Wolves in the Great Lakes Region

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History and Status of the Wolf in the Great Lakes Region

Though native to the region, by 1970 the gray wolf (*Canis lupus*) was nearly extirpated from the Great Lakes states (Michigan, Wisconsin and Minnesota), with breeding populations largely relegated to portions of the Superior National Forest in northern Minnesota (Hendrickson et al. 1975; Thiel 1993; Thiel and Hammill 1988). A failed reintroduction effort in Michigan in 1974 concluded that public sentiment was so overwhelmingly antiwolf that recovery through translocation was likely to fail unless public attitudes changed significantly (Weise et al. 1975). However, shortly after being federally listed as an endangered species in 1974, wolves began to expand their range in Minnesota, and they were known to breed in Wisconsin by 1975 and to breed in Michigan by 1989 (Michigan Department of Natural Resources 1997). By 2005, these naturally recovering populations grew to estimated overwinter numbers of 405 in Michigan, between 435 and 465 in Wisconsin and of 3,000 in Minnesota, without the aid of reintroduction. Michigan and Wisconsin have typically had a 15-percent annual rate of increase in the number of wolves since 1977. The Minnesota population has also continued to grow but at a slower rate of roughly 4 percent annually (Wydeven et al., 2008). Figures 1 and 2 illustrate wolf population growth in the Great Lakes states.

The Great Lakes states all had a similar history of wolf persecution, with government-sponsored bounties enacted in the 19th century ending in the later part of the 20th century. These early policies resulted in the near extirpation of wolves in the region. Currently, wolves are protected by state statutes in all three states. As a result of the numerical recovery and of the existence of state recovery and management plans, the U.S. Fish and Wildlife Service (USFWS) announced on February 29, 2007, its intent to delist gray wolves as a federally endangered species in the western Great Lakes area. The western Great Lakes distinct population segment proposed for delisting is shown in Figure 3. When delisted, states within the recovery area will have primary responsibility for wolf

Figure 1. Wolf population growth in Michigan and Wisconsin, 1980 to 2005. (Wydeven et al., 2008)

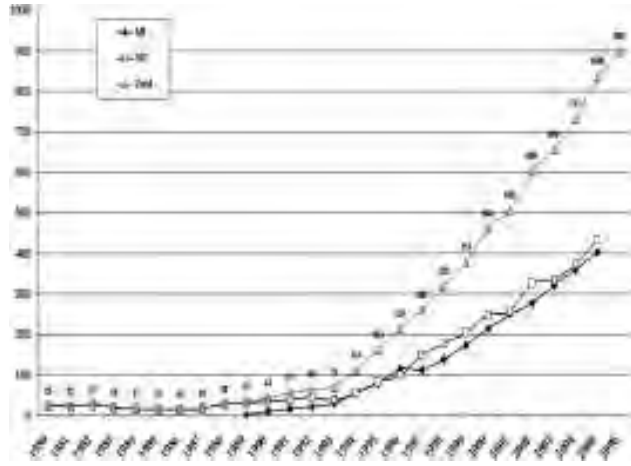

Figure 2. Wolf population growth in Minnesota, 1980 to 2005. (Wydeven et al., 2008)

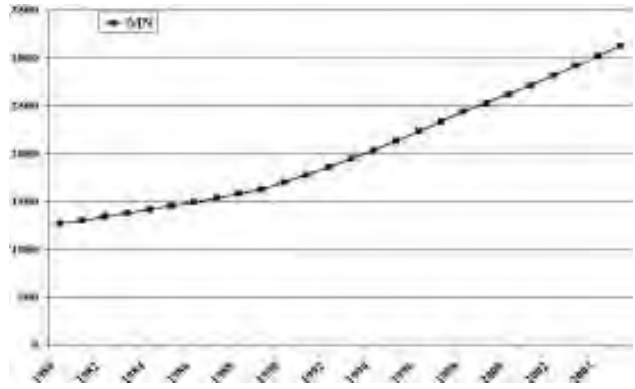

Figure 3. Distinct Population Segment boundary. (U. S. Fish and Wildlife Service 2007)

management. In all three states where core wolf populations currently reside, that authority will rest with each state's department of natural resources. This change in administrative responsibility for wolves takes place as habitat changes are occurring, as the societal costs for maintaining an increasing wolf population are mounting and as public support for wolves in wolf country is eroding. Further, public value for wolves is becoming increasingly polarized.

Wolf Habitat

The Great Lakes states wolf population is thriving in close proximity to major metropolitan areas like Minneapolis-St. Paul and Duluth (Minnesota), Milwaukee (Wisconsin), and Chicago (Illinois), with a combined population of nearly 9 million people. The combined, total population of the Upper Peninsula of Michigan and of Chicago, Wisconsin and Minnesota is nearly 18 million people. The forested landscapes of these states are major outdoor recreation destinations for people from these states, and most of these forests are actively managed for a variety of amenities. Wolves in the Midwest do not have access to large, designated wilderness areas where human contact is limited or can be avoided.

Gray wolves are thought to be habitat generalists that, historically, survive best in areas with relatively low road densities (Thiel 1985). In recent years however, wolves have demonstrated much higher tolerance to road densities that are significantly above a threshold of 1 lineal mile per square mile, previously thought to represent the upper limit of wolf tolerance for roads. Midwest forests are a major woodshed for a variety of forest-product industries. Accessing this raw material for industrial use has resulted in forests that are roaded and very accessible to people. In addition, the universal use of all-terrain vehicles has increased accessibility on most forest ownerships. Today, wolves thrive in many areas of the Great Lakes states that are easily accessed by people, which has resulted in increased wolf-human contact.

Private industrial forestlands exist on more than 5 million acres (2,023,500 ha), which are well distributed across current wolf range in the Great Lakes states. This acreage represents 13 percent of the entire forested land base. The previous model for managing these lands was based on industrial landowning firms growing and harvesting trees for their own consumption from their holdings. Industrial firms now purchase most of their wood from the open market. Ownership of these lands is undergoing major changes and the rate of ownership

turnover of industrial forestland has increased in recent years. Since 2002, 1.6 million acres (647,520 ha) have been sold to real estate investment trusts or to closely related landholding businesses (Davies 2007). These new owners, in turn, manage the areas not only as a source of wood but, primarily, as real estate. Portions of these lands that are most suitable and profitable for real estate development will be subdivided and sold.

In addition to the change in ownership of forestland, a substantial portion of currently occupied wolf range in the Great Lakes states is located in watersheds where private lands are projected to experience housing density increases of up to 20 percent by the year 2030. Figure 4 illustrates the areas where these projected changes are likely to occur within currently occupied wolf range (Stein et al. 2005). Note that the northern lower peninsula of Michigan is likely to experience these changes across much of its land base. This is also one of the areas thought to be a likely area of wolf population expansion.

Figure 4. Projected housing density change (Stein et al. 2005).

The direct effects of these large-scale land changes to wolves is difficult to predict. However, both forest fragmentation in wolf range for real estate development purposes and increases in housing densities are likely to result in more human-wolf interactions and conflict. An efficient system is needed for dealing with likely increasing human-wolf conflicts in newly fragmented wolf range and settled but newly occupied wolf range.

Social Costs

The Great Lakes wolf population began to expand naturally shortly after being listed as an endangered species. With this increase, depredation losses to livestock and pets have increased. Livestock operators and some pet owners feel that they are carrying the burden of wolf recovery for the remainder of society. Since 1978, 2,590 wolves have been killed in the Great Lakes states in response to livestock or pet depredation complaints by the public. These wolf removals have been accomplished primarily by U.S. Department of Agriculture (USDA) Wildlife Services employees or state department of natural resources employees under permit from USFWS. These removals have normally represented a low percentage of the total estimated state wolf population in any one year (average 4.09 percent). However, in 1997, agents in Minnesota removed 216 wolves, which was 9.2 percent of the estimated total population (Wydevan et al., 2008). One of the often publicized effects of wolf impact on humans is their depredation on livestock and pets. All Great Lakes states have a compensation program available to indemnify livestock owners for verified losses due to wolf depredation. Wisconsin also indemnifies owners for pet losses. Through 2004, Minnesota has paid $1,072,725 to livestock owners for wolf depredation compensation (J. Erb, personal communication 2007); Wisconsin has paid $581,463.90 (A. P. Wydeven, personal communication 2007); Michigan payments have totaled $21,746 (B. Rowell, personal communication 2007). Historical data of chronic wolf depredation on farms and on predictive modeling of farm-wildland interface has helped managers anticipate the areas that depredation on livestock is likely to occur (Treves et al. 2004). In many cases, removing wolves from depredation sites creates a void soon filled by other wolves and is only a short-term solution to the problem.

As the wolf population has increased, time and personnel necessary to address the wolf-livestock depredation issue has increased in the Great Lakes states. USDA Wildlife Services agents assist all three states with handling wolf-human conflicts. Also, state agency personnel in occupied wolf habitat have been devoting an increased amount of time to dealing with wolf-related issues. Wolf depredation reports require immediate attention and action to alleviate the problem. Besides the actual budgetary implications of this, other important resource management activities are receiving less attention as a result of the need to handle depredation events. Typically, other equally deserving issues are prioritized below handling wolf depredation complaints. Further, several thousand

wolves have been killed in the process, resulting in little direct public benefit as a result of the loss of these animals.

With the combined wolf population in the Great Lakes states currently at nearly 4,000 animals, societal costs are mounting. Wolf conflicts with pets have been increasing and have proven to be a very difficult issue to deal with in Wisconsin and Michigan. Both states have a strong tradition of bear hunting with hounds, and most wolf-dog conflicts in these two states involve bear dogs. However other dogs attacked by wolves include upland bird hunting breeds, hounds used for raccoon hunting and household pets. Minnesota does not allow the hunting of bears with dogs, but it has not been immune to loss of pets by wolf depredation. Wolves have attacked and killed pets in the immediate vicinity of homes and within city limits of rural communities in all three Great Lakes states.

Public Attitudes

Since 1989, public surveys of people's attitudes toward wolves have indicated strong support for wolf recovery. In 1990, a survey indicated that 80 percent of upper Michigan deer hunters favored a reintroduction of wolves to Michigan (Kellert 1990). In 1993, as part of the wolf-planning process in Michigan, 15 public forums were held throughout the state. At that time there were fewer than a dozen wolves known to live in the Upper Peninsula of Michigan. Eight-hundred and twelve people either attended one of these meetings or provided written comments. All comments were categorized as supportive, nonsupportive or undetermined of having wolves in Michigan. Ninety percent of written and oral comments were supportive. In contrast, a dozen public meetings were held in 2005. The wolf population in Michigan at the time of the 2005 survey was estimated to be 405 animals. Three-hundred thirty-four people attended meetings in the Upper Peninsula during this survey and were asked how many wolves they would prefer in the Upper Peninsula. Twenty-two percent indicated they preferred that no wolves exist in the Upper Peninsula, and 36 percent said that they preferred some but less than there are now. Neither of these surveys represented a cross section of the general public, but they are comparable because they represent people who attended similar informational meetings about wolves. The results reflect a decline in tolerance for wolves.

A 2002 study of attitudes toward wolf recovery in the Upper Peninsula is revealing (Mertig 2004). Parts of this survey were directly comparable to Kellert's 1990 study. The surveys reflect Michigan citizens as a whole. During

the Kellert study period, wolves were newly discovered as a recovering species in the Upper Peninsula, with fewer than 10 animals present. The Mertig study was conducted when the population of wolves in the Upper Peninsula had risen to about 250 animals. Mertig found that support for wolf recovery by Upper Peninsula residents had significantly declined. Whereas, support for Upper Peninsula wolf recovery had increased among persons who reside in the Lower Peninsula of Michigan, where wolves were known not to be present (Figure 5). Further, in direct comparison to the Kellert study, people in Michigan had become more supportive of management options, such as the need to control wolves. Also, support for wolf recovery in the Upper Peninsula for the purpose of harvesting pelts or for hunting increased between the two survey periods. The study also revealed that people in wolf range prefer to have occasional sightings of wolves rather than regular contact with them.

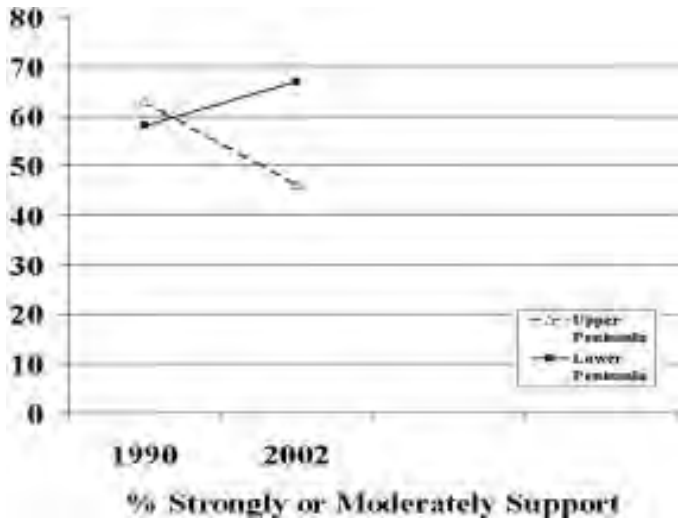

Figure 5. Change in support for wolves in Michigan from 1990 to 2002 (Mertig 2004).

Although no survey data exist, Wisconsin Department of Natural Resources personnel working with wolves believe there has also been an erosion of support for wolves among the public in that state (A. P. Wydeven, personal communication 2007). In Minnesota, no recent public surveys gauging wolf support exist, but wolf program personnel there feel that there has not been a significant change in public support (J. Erb, personal communication 2007). As wolf populations have increased in the Great Lakes states and elsewhere, the

number and frequency of articles concerning wolves in popular sporting magazines has also increased. Most of the articles reflect an antiwolf sentiment and focus on concern for predation effects on cervids, primarily white-tailed deer (*Odocoileus virginianus*). Hundreds of thousands of periodicals carrying these articles are sold monthly. It is not known to what extent this literature helps to form public opinion. However, with the volume of antiwolf articles being produced, it is likely that public demand for treatment of this topic is high. The long-term prospects for the wolf's persistence on Great Lakes states landscapes will be tied to the public's tolerance of wolves and to developing a larger segment of the public who value having wolves present. The current trajectory of public attitudes, especially in Michigan and Wisconsin, is not favorable to sustaining wolves in those states. After delisting, wolf monitoring plans of Great Lakes states do not require the states to monitor public attitudes toward wolves. Public education about wolves in the Great Lakes states is primarily handled by nongovernmental organizations, despite the fact that public outreach is identified in the states' plans as being important. It seems unlikely that current efforts in wolf education alone will be enough to change public attitudes about wolves.

As wolf populations continue to grow and expand in the western Great Lakes states, the management paradigm for wolves may need to shift from near-complete protection to active management, including the general reduction of wolf numbers to protect societal interests. If this major shift in management direction does occur, extensive public input will likely be necessary. Wolf-management policy that incorporates human-dimensions research findings and appropriate scientific knowledge of the species will need to be developed. Midwest wolf policy will need to be developed with consideration given to societal costs of maintaining wolf numbers, to changes in wolf habitat and to people's attitudes toward this predator.

North American Model

Management of wolves in the continental United States where the wolf is delisted or is under consideration for delisting has been or may soon be transferred to the states within the affected, distinct population segment. Except for postdelisting monitoring requirements, the USFWS (under authority of the Federal Endangered Species Act) will no longer be responsible for wolf populations in delisted areas. As such, there is a broad spectrum of options before us regarding wolf management at this critical juncture. We're now in a

position to ponder what management paradigm may be the best for wolves and for future generations of North Americans. The answer may lie within the philosophical framework of the North American model of wildlife conservation, the most successful wildlife management philosophy in the world. The basic tenants of the North American model are that wild animals belong to all of us, that future generations are deserving of wildlife undiminished by our actions and that they should be managed using the best science available (Mahoney 2004). Indeed, with the help of this philosophical framework, wolves have rebounded from near-total extirpation in the continental United States, as have elk (*Cervus canadensis*), pronghorn (*Antilocapra americana*), white-tailed deer, wild turkeys (*Meleagris gallopavo*), wood ducks (*Aix sponsa*), and bald eagles (*Haliaeetus leucocephalus*). We have witnessed an incredible recovery and the evolution of our collective thinking about wolves—from conquerors to custodians. As with many other species that benefited by the North American model, wolves have now become a species in which many people see personal identity and relevance. At one time, our nation was at war with the wolf. As wolves were driven nearer to extirpation, new knowledge about wolves offered the opportunity to see wolves in a new way, where facts slowly replaced myths, the descendents of generations of hate and fear. Wolf research has benefited this transition greatly. This metamorphosis of thought was also a necessary component of early conservation efforts to save many other species we have in great abundance today.

Conclusion

The recovery and delisting of the Great Lakes states wolf population represents a significant accomplishment for the Endangered Species Act and is a milestone for wildlife management. Wolves in the Great Lakes states have demonstrated that they are adaptive to the presence of people and numerically have increased to a metapopulation of approximately 4,000 animals occupying 42,607 square miles (110,352 km^2). The management of this newly recovered population is now the responsibility of the states of Minnesota, Wisconsin and Michigan. Policy for management of wolves within these states is the responsibility of each state's department of natural resources. Although people living in wolf country are significantly less supportive of wolf recovery now than they were in the earlier days of recovery, the support for a regulated wolf population is still strong. Survey data suggests that the public is more supportive of wolf-control

measures to help farmers avoid livestock depredation and to maintain wolves within social carrying capacity. Further, support is shown to be increasing for population control using time-honored methods, like hunting and trapping.

At this important juncture in wolf management, it may be enlightening to reflect on what has worked historically for North American wildlife. The North American model has laid the foundation of recovery for many of our economically important species and for hundreds of other species that share the same habitat. Indeed, the North American model has been so successful that some of our greatest challenges in wildlife management exist not because of a failure to produce wildlife, but in our inability to control wildlife populations. This failure to regulate numbers has resulted in great social cost and environmental degradation. A well-documented example of this can be seen with white-tailed deer. In many states, white-tailed deer populations are at unprecedented highs. As a result, direct social costs have been high, and environmental degradation is becoming increasingly apparent. Over 1 million car-deer crashes occur yearly in the United States. Research data that implicates white-tailed deer herbivory in ecosystem damage is mounting. One of the key tenets of the North American model is its dependence on science to guide management decisions. Although the wolf is among the world's most studied animals, there will always be the need for additional research. However, many of the basic questions for managing wolves have been answered, setting the stage for a new paradigm of wolf management.

If current population trajectories continue, wolf numbers may double in Wisconsin and Michigan to approximately 1,700 animals by the end of the postdelisting monitoring period in 2012. Assuming a slower, 4-percent rate of increase for Minnesota, populations there could top 4,000 animals in the same time frame. The western Great Lakes states wolf population in 2012 could be 5,700 animals, i.e., 44 percent above current population levels. Social costs associated with this projected population would likely be significantly higher than present levels. It is unknown how a population increase such as this would affect public attitudes about wolves. We do know, however, that public tolerance for wolves has declined as the population of wolves has increased.

During the past 50 years, attitudes toward many predators in the Great Lakes states have undergone a significant evolution. Bounties were paid by states for coyotes, wolves, foxes and bobcats. Black bears, for most of the past five decades, were considered vermin. The repeal of bounties on all predators and the elevation of the black bear to trophy big-game status happened in recent

times. This change has elevated the status and value of these species in the public eye. Now, a segment of the public (consumptive users) places a high value on the wellbeing of these predators and takes keen interest in their protection and management. Because of this interest, populations of these predators now are managed by regulated seasons. Established through the use of best available science, this has resulted in sustainable populations and an annual harvest through hunting and trapping. Predator hunting is becoming an increasingly popular outdoor activity, and demand for black bear harvest permits far exceeds supply in several Great Lakes states. Human attitudes toward wolves, it seems, have also undergone great transformations. Once despised and slated for extirpation by both public attitude and government policy, the wolf's fortunes improved as bounty systems were eliminated. The pendulum then swung to complete protection by federal law. Now, with expanding populations, society needs to redefine a place for wolves. Fortunately, wildlife management success in North America has identified a template that may serve wolves and people equally well.

The story of wolf recovery represents the first great wildlife success story of the new millennium. Wolves have been saved from extirpation in this country in spite of their low economic value, high social intolerance and government-sponsored programs to eliminate them. The fact that wolves are either delisted or in the process of being delisted in significant portions of their former range is testimony to a management philosophy—the North American model—that has worked again. Now, it seems appropriate that the model be allowed to proceed to its next logical and time-tested step, which is to allow control of wolf numbers by allowing a public take of wolves while we apply the best wildlife science and human-dimensions science to the process. This critical step has been part of the success of many wildlife recovery programs in the past and a template for ensuring that wolves will be present for generations to come. Allowing a public harvest of wolves could create a new opportunity for many people to find new value in wolves, thus gaining support for wolves from a critical segment of the public in wolf range. Such a strategy would also create an efficient, cost-effective way to control wolf populations that currently does not exist, reducing financial burdens on society. In addition, a message would be sent to U.S. citizens that we have learned the difficult lessons that wildlife overabundance and its associated social costs have taught.

Kellert (1996) notes that a common problem of many endangered species programs is that value differences among critical stakeholders is not

adequately incorporated into recovery efforts. Wolves have recovered or in the process of meeting numerical recovery standards in significant parts of suitable habitat. As a result, many people who have a wide range of values for wolves presumably have already been served. Clearly, wolves generate strong expressions from people. This makes policy decisions concerning wolves more difficult because there are likely to be more strongly held values being expressed and demanding equal consideration. Wolves have strong opponents as well as supporters. Consensus decision-making for policy makers in such an environment may not be possible. Except for the most ardent antiwolf element, a common thread among other stakeholders is that wolves should be allowed to exist in sustainable numbers for this and future generations. With this nearly universal value in mind, states will need to make policy for wolf management that is sensitive to the values of their citizens and that assures the sustainability of wolf populations. Most importantly, it is imperative that gridlock be avoided and that a new era of wolf-management leadership become a reality. Wolf population, available habitat for wolves and human attitudes about wolves are rapidly changing. The decision-making process must be sensitive to the trajectory of these factors and to the speed at which changes are occurring.

The recovery of wolves in the Great Lakes states is truly a success story. We have protected wolves, which has allowed them to return to the Midwest. Now, it is up to us, as their stewards, to manage the recovered population from overabundance and within social carrying capacity. While we show respect for people's values, unless we are successful in this effort, history may repeat itself. Negative, adversarial attitudes towards wolves are likely to grow, and we may again be struggling to assure the wolf's survival.

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