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IN REPLY REFER TO:

FWS/AES-TE

Memorandum

To: Assistant Regional Director

Through: Chief, Endangered Species

From: Regional Endangered Species Permits Coordinator

Subject: Set of Findings: Michigan Department of Natural Resources Wolf Depredation Permit (TE111357)

BACKGROUND

The Michigan Department of Natural Resources (MDNR) submitted an application for a permit to take gray wolves in order to conduct various recovery activities for the species. A notice of the application was published in the Federal Register on September 14, 2005. That notice opened a 30-day comment period on the application. The U.S. Fish and Wildlife Service (USFWS) requested written comments on the permit application by October 14, 2005. A draft Environmental Assessment (EA) was developed by Wildlife Services (WS), a program of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service. The USFWS was a cooperating agency, while the MDNR and the Great Lakes Indian Fish and Wildlife Commission were consulting agencies in the development of the EA. The EA was made available for public review and comment on January 19, 2006. The draft Environmental Assessment examined a range of options for addressing the problem of wolf damage in Michigan, including a preferred alternative that would allow control of wolves that kill or attack livestock and pets. Under the preferred alternative, a permit would be needed to implement an integrated wildlife damage management program allowing removal of depredating wolves. There were numerous comments received during the comment period for the EA which closed on February 21, 2006. This memorandum constitutes a Set of Findings for processing the application and describes the Service's rationale for making its recommendation to issue a Section 10(a)(1)(A) permit to the applicant. This set of findings is organized, first by the requirements of section 10 of the Endangered Species Act; second by the proposed action and response to comments from the EA; and finally by the issuance criteria of 50 CFR 17.22 (a)(2). Much of the information used in this document is described in detail in the Environmental Assessment and Biological Opinion.

I. DESCRIPTION OF PROPOSAL

Under the preferred alternative, damage management would be conducted on private or public property in Michigan when the resource owners/managers request assistance to alleviate wolf damage, wolf damage is verified, and agreements have been completed specifying the details of the damage management action. The proposed action anticipates the USFWS issuing a permit for take of wolves under Section 10(a)(1)(A) of the Endangered Species Act. WS would act as agents of the MDNR which is the agency requesting a permit for the take of depredating wolves from the USFWS. The types of wolf conflicts that could be addressed include: 1) depredation on livestock, 2) depredation on pets, and 3) potential threats to human health and safety.

Under the preferred alternative, the Integrated Wildlife Damage Management strategy would encompass the use of the full range of legal, practical and effective methods of preventing or reducing damage while minimizing harmful effects of damage management measures on humans, wolves, other species, and the environment. Under this action, WS and the MDNR would provide technical assistance and operational damage management, including non-lethal and lethal management methods selected after applying the WS Decision Model (Slate et al. 1992). When appropriate, best management practices (animal husbandry), frightening devices, and livestock guarding animals could be recommended and utilized to reduce wolf damage. In situations where non-lethal methods are ineffective or when the damage situation and landowner practices meet USFWS and MDNR requirements, wolves would be removed as humanely as possible using foot-hold traps, foot snares, neck snares, and shooting. In determining the damage management strategy, preference would be given to non-lethal methods when they are deemed practical and effective. Lethal methods would be used to reduce damage after practical and appropriate non-lethal methods have been considered and determined to be ineffective or inappropriate in reducing damage to acceptable levels. The most appropriate initial response to a wolf damage problem could be a combination of non-lethal and lethal methods, or there could be instances where application of lethal methods alone would be the most appropriate strategy. WS would only use lethal WDM methods with the consent of the MDNR. Under the Michigan Gray Wolf Recovery and Management Plan (MDNR 1997), lethal control can be used when: 1) there have been documented, confirmed losses at a site, 2) the producer/owner has a signed depredation management plan for the property which includes damage abatement recommendations (exact logistical details of this agreement are currently being reviewed by MDNR). 3) WS Specialists recommend euthanizing, and the MDNR approves. All wolf damage management would be conducted in compliance with appropriate federal, state, and local laws and court-mandated restrictions.

II. SECTION 10 CRITERIA - ANALYSIS AND FINDINGS

1. The activity is for scientific purposes or to enhance the propagation or survival of the affected species.

European colonists brought negative views of wolves to North America. While these views were largely based on myth and folklore, wolf depredation of livestock posed a valid threat to early settlements (Fritts et al. 2003). These negative views and threats to livestock resulted in severe persecution which led to the nearly complete extirpation of wolves from the contiguous U.S. (Bangs and Shivik 2001). In the U.S. today, farmers and ranchers frequently hold a negative view of wolves (Fritts et al. 2003). When wolves prey on livestock, some form of wolf control usually follows (Fritts et al. 2003). If the State or Federal government does not act, livestock owners likely will act and their actions could lead to the indiscriminate killing of wolves (Fritts et al. 2003). Because of this, livestock depredation continues to be a major challenge in wolf conservation.

With an increased wolf population, depredation of livestock and domestic animals has increased along with

control of the depredating wolves (USFWS 2003). In Minnesota, the estimated wolf population increased by 15% from 1988 to 1993 and the number of depredating wolves killed, as a result, increased by 223% (Paul and Gibson 1994). In Michigan a similar trend has begun to emerge. Of all the depredation events confirmed since 1996, approximately 60% occurred since 2003 (MDNR 2005) when the late winter wolf population surpassed 300 individuals.

With increases in livestock and pet depredation comes an increased possibility of public backlash (Mech 1995). In the revised Eastern Timber Wolf Recovery Plan (USFWS 1992) and the Michigan Gray Wolf Recovery and Management Plan (MDNR 1997), the Service and MDNR anticipated that a wolf damage management program including the relocation or removal of depredating wolves would be necessary and advisable to minimize negative attitudes toward wolf recovery and facilitate wolf conservation. The MDNR has identified social tolerance of wolves as one of the primary factors that will limit expansion of the Michigan wolf population (MDNR 1997). This determination is consistent with the opinion of wolf experts who have asserted that wolf distributions could be expanded if some form of wolf damage management were implemented (Bangs et al. 1995, Mech 1995, Boitani 2003, Fritts et al. 2003, Mech and Boitani 2003). Mech (1995) noted that wolf conservation at the local level may become more socially acceptable if some form of localized wolf control is allowed. The Wildlife Society, a North America based international organization of professional wildlife biologists, has stated that “control of wolves preying on livestock and pets is imperative and should be prompt and efficient if illegal killing is to be prevented and human tolerance of the presence of wolves is to be maintained” (Peek et al. 1991). Issuance of an enhancement of survival permit under section 10 (a)(1)(A) to allow selective removal of depredating wolves, will therefore assist with the conservation of wolves in Michigan.

2. The permit was applied for in good faith.

The USFWS received a permit application from the MDNR on September 7, 2005 (MDNR 2005b). The permit application was found to be complete and its notice of receipt was published in the Federal Register on September 14, 2005 for a 30-day public comment period. The USFWS has determined the MDNR submitted the permit application in good faith.

3. The activity will not operate to the disadvantage to the species.

Although future State, Tribal, local or private actions could adversely impact gray wolves, it is anticipated that future State, Tribal, local or private actions combined with this proposed program will also contribute to the conservation of the gray wolf in the Upper Peninsula of Michigan. The MDNR has prepared a Michigan Gray Wolf Management and Recovery Plan (1997) and developed guidelines for managing depredating wolves, which will provide for the continued existence and conservation of gray wolves in Michigan. These efforts should contribute to the long-term survival of the gray wolf in Michigan.

A wolf depredation control program, similar to the one proposed for Michigan, has been conducted in Minnesota since 1978 when wolves were reclassified as threatened and a 4(d) regulation was promulgated. In 2004 Minnesota Department of Natural Resources estimated the wolf population had reached approximately 3,020 individuals. The previous estimate (for the winter of 1997-98) of the Minnesota wolf population was 2,445 wolves. As discussed above, for the period of 1993 to 2002 intentional take for WDM ranged from 3.9 to 9.4% (average 6.4%) of the estimated state population. During 25 years of lethal wolf control, the Minnesota wolf population continued to increase. This level of take did not hinder the recovery of the gray wolf in Minnesota nor did it prevent Minnesota wolves from emigrating and establishing a population in Wisconsin and subsequently Michigan.

In Wisconsin, the wolf population has also been increasing. For most of the period from early 2003 until the court order in September 2005, the Wisconsin Department of Natural Resources (WDNR) operated a wolf damage management program under the authority of a special 4(d) rule or a 10(a)(1)(A) permit. The level of intentional take of wolves at depredation sites in Wisconsin has been 5.1, 6.4, and 6.8% of the late-winter Wisconsin wolf population for 2003, 2004, and 2005, respectively. During this same period, the Wisconsin wolf population has experienced annual growth rates of 3.7%, 11.3% and 13.9%, respectively. The observed increase occurred despite all known and unknown (cumulative) impacts on the wolf populations in these states.

Like MDNR, the WDNR has also sent the USFWS a request for permission to use non-lethal projectiles, aversive conditioning and lethal WDM methods. If the Integrated WDM Alternative (both non-lethal and lethal control) is selected for both states, management of the respective wolf populations would be similar to the management that has occurred in Minnesota for the past 25 years. Existing data strongly indicates that the wolf population in all three states would continue to increase. At the same time, it is believed that if these permits are issued in both Michigan and Wisconsin, public acceptance of the wolf population would be greater than for any of the other alternatives identified in the EA because there would be an effective legal recourse to depredation problems and assurance that management agencies would be able to protect human safety and domestic livestock.

Although this permit issuance is not anticipated to result in a reduction in the state wolf population, it could result in a localized decrease in the numbers of wolves at the specific site where the damage management occurs. New wolves would recolonize these locations as long as suitable habitat exists at the site. Dispersing wolves can establish new territories if suitable areas and mates are available. Such areas are either unoccupied spaces or sections at the edge of existing territories. The amount of time until new wolves move into the area would vary depending on the habitat type, time of year, and the population density of wolves in nearby areas. Local control of wolf numbers as the result of depredation control activities would not result in a decline in the overall Michigan wolf population.

Wolf populations in Michigan, Wisconsin and Minnesota have exceeded state and federal recovery goals and are expected to continue to increase until suitable habitat has been saturated. Recovery criteria in the Federal Wolf Recovery Plan require that at least two viable wolf populations exist within the eastern United States. Furthermore, these two populations must satisfy the following conditions. First, the survival of the wolf in Minnesota must be stable or growing, and its continued survival must be assured. Second, another population must be reestablished outside of Minnesota and Isle Royale. The Plan provides two alternatives for reestablishing this second viable wolf population. If the population is beyond 100 miles from the Minnesota population, it must contain 200 wolves for at least 5 consecutive years (USFWS 1992). If the population is within 100 miles of the Minnesota population, it must contain at least 100 wolves for at least 5 consecutive years (USFWS 1992). While the Plan identifies no numerical recovery criterion for Minnesota, the Plan does identify State subgoals for use by land managers and planners. For Minnesota, the Plan's subgoal is 1,251 to 1,400 wolves. The Minnesota wolf population currently is estimated to be more than double that numerical goal. The Michigan/Wisconsin wolf population is less than 100 miles from Minnesota and recent surveys indicate more than 800 wolves in these two states. The combined Michigan/Wisconsin population has contained over 100 wolves for 12 years. Also, while no numerical individual state recovery criteria for Michigan and Wisconsin are listed in the Plan, State subgoals were incorporated. For Wisconsin and Michigan, the Plan's subgoals are 80 and 80 – 90 wolves, respectively (USFWS 1992). Current populations in both these States are more than four times these numerical subgoals.

Wolves in Michigan and Wisconsin have the same Federal recovery status; the wolf populations in both

states have exceeded State and Federal recovery goals; and both States have requested permits for WDM. Management decisions made in one State will have impacts on public reaction to management decisions in the other State.

All indications from the literature and the analysis above indicate that, the WDM would allow for continued gray wolf recovery. The depredation program will be conducted in accordance with all permit conditions and regulations established by the USFWS for the protection of wolves. Additionally, it will follow Reasonable and Prudent measures proposed by the USFWS in the associated Biological Opinion. Based on the rate of increase for the Michigan and Wisconsin wolf populations, the wolf population is large enough and resilient enough that while the proposed action will have adverse affects on individuals, the proposed action will not result in a reduction in the state wolf population. The following factors were of primary importance in this determination:

- 1) The wolf population in Michigan, Wisconsin, and Minnesota has surpassed recovery goals and the wolf population continues to increase in all three States.
- 2) The average annual rate of increase for the Michigan and Wisconsin wolf population over the last 5 years is approximately 12%.
- 3) Compensatory mortality mechanisms will mitigate the proposed action. The total allowable mortality from the proposed action is 11% of the late winter count. The wolf population in the Upper Peninsula is increasing by an average of 14% annually over the last 5 years.
- 4) Based on literature and experiences from the Minnesota wolf depredation control program, purposeful and incidental take of up to 11% is not expected to cause a decline in the wolf population. At most, the expectation is that the current rate of increase in the Michigan population may slow as a result of the proposed action.
- 5) In 2003 and 2004, MDNR employed the same lethal methods discussed here to resolve selected wolf depredations. Those measures did not limit the growth of the Michigan wolf population.
- 6) Implementation of the proposed action will help to maintain current levels of human tolerance for the species in Michigan. This tolerance is expected to prevent an increase in illegal take of wolves that may otherwise occur without options for legal lethal control of depredating wolves. This action is expected to stabilize or reduce the illegal component of the current mortality rate, which will partially off-set the additional mortality that will occur as a result of the proposed action.
- 7) The proposed action will not cause a substantial decline in annual recruitment and will not appreciably reduce the survival or recovery of the wolf in Michigan.

4. The activity permitted will be consistent to the purposes and policy of the Act.

The proposed action is part of the recovery of the gray wolf as envisioned by the recovery team and memorialized in the Eastern Timber Wolf Recovery Plan as well in the state management plan. There are financial and emotional losses resulting from livestock and pet predations due to wolves. The intent of depredation control is to maintain public support for a recovering wolf population.

Considerable information from prominent social theory and research shows that tolerance toward a wildlife species is influenced by the value of losses attributable to that species, the benefits attributable to the species by the affected individual, and by the perception of the risk of losses as controlled or voluntary (Slovic 1987).

Risks considered involuntary by an individual are less likely to be viewed as acceptable whereas risks that can be controlled are generally considered to be more acceptable. Risk theory and associated research (e.g., Slovic 1987) suggest that a government which simultaneously imposes the risk of wolf depredation (i.e.,

supports wolf recovery) and prohibits individuals from effectively reducing those risks (i.e., no chance for removal of problem wolves) is creating an intolerance of the wolf presence. In effect, this situation lowers the social carrying capacity for wolves and could threaten the well being of the population, both presently and in the future if the situation persists.

The number of animals is not the most influential factor determining the social carrying capacity for wolves in Michigan. Rather, it is the nature and frequency of positive and negative interactions between wolves and stakeholders. However, the public often focuses on the number of wolves when positive interactions (e.g., sightings by wolf enthusiasts) are too low or negative interactions (e.g., livestock depredations) are too high. Negative interactions associated with livestock depredation do not necessarily increase proportionately with wolf abundance per se; rather, they are localized events. While the wolf population in the Upper Peninsula increased by an average of approximately 19 percent per year between 1996 and 2004, the annual rate of confirmed depredation cases was variable, ranging from 0 cases per 100 wolves in 1996 and 1997 to 4 cases per 100 wolves in 2003. An appropriate management response to depredation is to address the negative interactions and target problem wolves in a local area rather than implement broad population-level controls focusing on reducing overall numbers of wolves. Removing problem wolves is an attempt to mitigate for the negative interactions that create intolerance for wolves among livestock producers. Livestock producers have the capability to resolve their own depredation problems with or without assistance from the government (Dorrance 1983). If no government-sanctioned relief from the loss of livestock is expected, intolerant stakeholders will likely adopt anti-wolf behaviors including illegal killing and have indicated such (Fuller et al. 2003). In this scenario, social carrying capacity will be effectively lowered because stakeholders ordinarily do not possess the specialized skills to target only offending wolves and erroneously turn their attention to lowering the wolf population at large.

Studies demonstrate public support for the presence of large carnivores largely depends on confidence that problems caused by individual animals will be resolved effectively. A public attitude survey of residents in Ninemile Valley, Montana found that 65 percent of wolf supporters might change their support for the presence of the population if wolves that kill livestock were not controlled quickly or effectively (Wolstenholme 1996). In a study that examined which factors would encourage residents of the Flathead Indian Reservation to support protection of grizzly bear habitat on private lands, Frost (1985) found that rapid assistance to bear-related problems was the most important factor, with 76 percent of respondents desiring that assurance. By contrast, only 42 percent of respondents felt that compensation for livestock losses was a valid incentive for supporting protection.

Additional studies from other parts of the world show the frequency of livestock depredation by wolves can be a predictor of the attitudes toward wolves held by local human populations. A study by Huber et al. (1992) found that all surveyed Macedonia residents agreed that wolves cause far more damage to livestock than does any other wildlife species, whereas surveyed Croatia residents indicated that multiple species, including bear, wild boar, and fox cause more livestock damage than wolves. One hundred percent of surveyed Macedonia residents indicated that the wolf was a 'harmful species' and that the wolf population was too large. By contrast, only 26 percent of surveyed Croatians felt the wolf was a 'harmful species' and only four percent felt the wolf population was too large. The authors concluded the extent of regional livestock damage was the principal factor which determined these differing attitudes. This study indicates the ability to minimize livestock losses may be able to modify or minimize the development of negative attitudes toward wolves.

Another global example of how livestock losses and ensuing public attitudes can adversely impact wolf populations comes from India. In response to livestock depredation in the trans-Himalaya region, villagers routinely kill adult wolves and destroy wolf dens and litters, despite recently increased legal protection of wild

carnivores (Mishra 1997). Targeting of wolves occurs despite the belief of villagers that most livestock kills are committed by snow leopards. This behavior indicates that certain people will retaliate against wolf populations at large, even when depredations are caused by other species altogether.

The relationship between preventing wildlife damage and maintaining public support for wildlife populations has been documented not only for carnivores but for other species as well. With deer, for example, depredation permits to allow culling have become a standard practice in most States where crop depredation by deer occurs. Sufficient evaluations of this and other practices have been conducted in Michigan (e.g., Fritzell 1998) and elsewhere to establish that they prevent intolerance from leading to anti-wildlife attitudes and behaviors, whether or not they increase tolerances for the wildlife species in question.

As an example of the attitudes that may be addressed by an effective, professional WDM program; the agencies are aware of a web site existence that provides instructions for the broadcast poisoning of wolves. The following quotes are from the prelude to the instructions for poisoning wolves located at <http://www.libertypost.org/cgi-bin/readart.cgi?ArtNum=78928>. This information was posted on that website on December 19, 2004 and accessed by the agencies while preparing the draft environmental assessment. The sentiments expressed in the article are neither unique nor are they exclusive to a particular area of the country.

“Poison causes an agonizing, violent death. I think every animal on earth deserves better, but under the circumstances, in the U. S., if these federally dumped and federally protected wolves populate further out of control, we will lose our hunting heritage, hunting/outfitting revenues, gun ownership, ranching industry and many other blessings we derive from proper management of our resources....Poisoning wolves is illegal in the U. S. and Canada. I am only passing on information that was sent to me. People will have to decide for themselves just how much they will allow an out of control federal agency (USFWS) to destroy their rights, hobbies, businesses and misuse the supposed “public trust”...

...Wolves will continue to breed and expand while the bureaucrats argue about wolves, so if “we the people” do nothing, the wolves will destroy our game herds and businesses all on their own. Throughout the history of this country, civil disobedience has set the government straight when they were out of control--prohibition comes to mind. It is our choice, although our only viable timely options to control wolf numbers are currently illegal....Each rocky mountain state has only a few federal (USFWS) law enforcement personnel...If a sufficient number of wolf killings took place, they would be over loaded in very short order.”

III. SECTION 10(a)(1)(A) PERMIT ISSUANCE CRITERIA - ANALYSIS AND FINDINGS

1. The purpose for which the permit is required is adequate to justify removing from the wild or otherwise changing the status of the wildlife sought to be covered by the permit.

The purpose of this permit is to further the recovery of wolf populations in Michigan by authorizing management activities to protect agricultural resources, pets, and human health and safety in Michigan, thus maintaining the public’s support of wolf recovery.

The ability of wolves to kill cattle, sheep, poultry, game farm animals and other livestock is well documented (Young and Goldman 1944, Fritts 1982, Carbyn 1983a, Fritts et al. 1992, USDA 2005). For individual producers, the economic impact of wolf depredation on livestock can be substantial. Further, when wolves come into contact with people (Linnel et al. 2002) and kill or injure their pets, there is both an economic and an emotional loss. As explained previously, these losses can negatively affect public support for expanding wolf populations.

The number of wolf depredation events reported to the MDNR has shown a general increase at the same time that the State wolf population has increased. In 1996 one depredation was reported to the MDNR, but since that time, the MDNR and WS have verified up to 22 depredations per year. During 1996-2004, the MDNR and WS have verified wolf depredation complaints involving 67 different properties. As the wolf population expands in Michigan, the need for management (WDM) to reduce damages will increase as will efforts to monitor and maintain public support and acceptance of wolves (MDNR 1997).

2. The probable direct and indirect effect which issuing the permit would have on the wild populations of the wildlife sought to be covered by the permit.

The MDNR and WDNR operated a wolf damage management program under the authority of a special 4(d) rule and a previous 10(a)(1)(A) permit in 2003, 2004, and 2005. Although only approximately three years of data were collected, the information indicates that a maximum of 2% of the population was removed annually. The wolf population in 2005, after operation of the depredation control program for nearly two years, increased by 13.4% in Michigan and Wisconsin combined. The data indicate that there will be no negative direct or indirect effect on the wild populations of gray wolf in Michigan.

The permitted action will result in both purposeful take and the possibility of incidental take for gray wolves.

Purposeful take is take that is intended as part of the proposed action (e.g. non-lethal conditioning and possible lethal removal of wolves preying on domestic animals). The purposeful take quantified in the Biological Opinion is based on the maximum take, including lethal take expected to occur as part of this proposed action. The incidental take occurs unintentionally during the conduct of an otherwise lawful activity (e.g., injury or death of pups as a result of the capture of a lactating female). Incidental take is also quantified in the Biological Opinion to the extent possible and is further discussed in the incidental take statement.

Non-lethal injurious harassment techniques such as the use of bean bag projectiles, rubber bullets, or other non-lethal projectiles could be used to prevent a depredation event. This method requires a person to “guard” the livestock or other domestic animals and initiate injurious harassment if a wolf approaches the guarded area. Non-lethal injurious harassment could be deadly at very close range if a vulnerable spot on the body is hit by a non-lethal projectile, although the likelihood of this type of injury is very low (Bangs et al. 2004). In the western U.S. the USFWS has issued approximately 200 permits to landowners for the use of non-lethal projectiles to help deter wolf depredation. The permits resulted in only a few dozen wolves being shot at with less than 5 actually being hit by a projectile. All of the wolves ran away, and none of the wolves appeared to have been seriously injured. Mortality or serious injury is not expected to result from non-lethal injurious harassment. Incidental take in the form of injury to eyes or other body parts could occur if rubber bullets or other techniques are utilized at close range. According to the Conservation Measures (see Section 1.b.iii. Conservation Measures) all private individuals receiving depredation technical assistance will be trained in the appropriate and safe use of non-lethal injurious harassment techniques.

Trapping methods including land restraint snares with stops, spring activated foot snares, and leg-hold traps

are all non-lethal techniques to capture wolves. When paired with killing, trapping facilitates lethal wolf control. The advantage of utilizing these techniques is the trapper's ability to release non-target individuals, such as young-of-year, lactating females, or non-target species. Purposeful take in the form of death is expected as a result of trapping and euthanasia. Incidental take could occur in the form of injury or death if young-of-year are captured before August 1. According to the Conservation Measures (Biological Opinion 1.b.iii. Conservation Measures) all young-of-year wolves captured alive must be released prior to August 1 (i.e. young-of-year can not be purposefully killed before August 1).

Incidental take in the form of serious injury or death could occur if a lactating female was trapped prior to July 1. Similar to young of year, the capture of a lactating female could result in injury to paws or legs, as well as death. In addition, capture and release of a lactating female could result in harm to pups depending on how long the female is held before release. Lethal control of lactating females could result in decreased pup survival, depending on how old the pups are at the time of separation. Conservation Measures will help ensure pup survival since most lactating females will be released prior to July 1 when pups are most dependent. Therefore, incidental take of pups associated with capture or mortality of lactating females will be infrequent because most lactating females will not be euthanized and, if captured, will be released in less than 24 hours (Conservation measures 4 and 6 of the BO).

Other techniques which are lethal or facilitate lethal control include day or night-time shooting, aerial gunning, and darting. These techniques are virtually 100% selective for removing target animals as positive identification is made before the animal is shot. Purposeful take in the form of death is a result of these techniques. As discussed above, incidental take in the form of injury or death to pups is expected if lactating females are shot prior to July 1.

The USFWS previously estimated, based on Minnesota wolf depredation control data from the early 1980s when the wolf population was around 1,500 individuals, 2 to 3 percent of Michigan's wolf population would be taken annually as a result of depredation control under a proposed special regulation (USFWS 2003a). However, based upon more recent data from the Minnesota wolf depredation program and estimates based on recent Michigan and Wisconsin experiences, we believe that purposeful take may exceed this estimate.

WS has conducted a wolf damage management program in Minnesota since 1986 (USFWS 2003a). In spite of over 15 years of lethal wolf control, Minnesota's wolf population has met and exceeded recovery goals (USFWS 1992). The number of wolves killed annually from 1979 to 2005 as a result of depredation control activities ranged from 6 to 216. Since the wolf population is much larger in Minnesota than in Michigan it is appropriate to look at these numbers as a percentage of the wolf population. The estimated percentage of the wolf population taken each year in Minnesota ranged from 0.5% to 9%. This level of take has not prevented the recovery of the gray wolf in Minnesota or the establishment and recovery of the gray wolf populations in Wisconsin and Michigan.

Based on recent data collected by WS in Minnesota and limited depredation data in Michigan and Wisconsin, we estimate that between 1 and 10% of the wolf population may be purposefully taken as a result of depredation abatement program. The purposeful take will include both adult wolves and young of year wolves (killed after August 1). In Michigan, at the late winter 2005 population level of 406 wolves, this would equate to 4 to 40 wolves. As depredation events will likely increase with an increase in wolf population, it is appropriate to utilize percentage of the population versus absolute numbers of individuals. We anticipate purposeful take as a result of issuing the 10(a)(1)(A) permit to range from 1 to 10% of the wolf population annually. Also, we anticipate incidental take will be less than 1% of the adult wolf population annually. Therefore, we anticipate a combined incidental and purposeful take from 1 to 11% (incidental take up to 1% and purposeful take up to 10%) of the adult wolf population annually in Michigan.

Many studies have examined various levels of mortality and harvest and the impacts these mortality levels have on gray wolf populations:

- Mech (1970) suggests that over 50% of wolves older than 5-10 months must be killed to “control” the wolf population. Control in this instance means keeping the wolf population below the level to which it would rise without human caused mortality.
- Gasaway et al. (1983) recorded stable wolf populations after early winter harvests of 16 to 24%, and wolf population declines of 20 – 52% after harvests of 42 - 61%.
- Ballard et al. (1997) suggests that the wolf population remained stable at 53% winter mortality, which included some natural mortality.
- Fuller (1989b) observed stable or slight increases in the wolf population at an annual mortality rate of 29%.
- Haber (1996) reported that wolf populations may not be able to withstand repeated annual reductions of 25-50%. He believes these removals, in the form of hunting, trapping, and government control efforts, may have impacts on wolf population dynamics, social interactions, and the long-term health of the population. Haber also reported that it is difficult to fully understand the impacts of wolf exploitation because detailed comparative information on behavior from both exploited and protected wolf populations is scarce.
- USDA WS (2002) in Minnesota has taken between 4 and 10% of the wolf population for many years as a result of implementing a depredation control program in Minnesota, and the Minnesota wolf population increased during that period. Further, while the WS control program occurred, and while other natural and human caused mortality occurred, this population provided most, if not all, of the source wolves for Wisconsin and Michigan.

There is considerable variation in what researchers have found to be sustainable levels of human caused wolf mortality. Productivity is likely the most important factor in determining the annual percentage of a wolf population that can be killed by humans without causing a population decline (Fuller et al. 2003). The higher the population’s productivity, the higher the level of mortality the population may sustain. Currently, the Michigan wolf population is highly productive, resulting in an average annual increase of 14% over the past 5 years.

As discussed previously, compensatory mortality operates within the wolf population. Compensatory mortality means that if more wolves are killed for depredation control purposes, fewer wolves would die from starvation, interspecific strife, or other natural causes. So, the removal of 11% of the population prior to winter should not greatly influence gray wolf numbers in Michigan. Even if a portion of the 11% take is additive mortality, this additional mortality might result in a slightly decreased rate of population growth, but compensatory mechanisms will mitigate this additional mortality.

Furthermore, illegal killing of wolves may decrease with the implementation of the depredation abatement program. In the absence of an abatement program, it is more likely that wolves perceived to be causing depredation would be illegally killed. Illegal killing would be less selective and may remove more individuals than is necessary, or the wrong individuals, to curtail depredation activities. Hence, a reduction in illegal killing may off-set some of the mortality associated with the depredation control program.

Eastern timber wolf packs are currently established in Michigan, Wisconsin, and Minnesota. All three states have established wolf populations which no longer rely solely on wolf immigration from other states for their survival. As Wisconsin and Minnesota both have gray wolf populations which do not depend on Michigan's population for survival, and Michigan's population is unlikely to change as a result of this program, we expect the proposed project will have no impact on Wisconsin or Minnesota wolf populations. We believe implementation of the Michigan wolf depredation abatement program will enhance the recovery of the gray wolf in Michigan.

3. Whether the permit, if issued, would in any way, directly or indirectly, conflict with any known program intended to enhance the survival probabilities of the population from which the wildlife sought to be covered by the permit was or would be removed.

Issuance of this permit allows implementation of a recovery action anticipated in the Eastern Timber Wolf Recovery Plan (USFWS 1992) and the Michigan management plan (MDNR 1997). All recovery actions in Michigan are conducted under the authority of the USFWS or the state of Michigan so no conflicts exist.

4. Whether the purpose for which the permit is required would be likely to reduce the threat of extinction facing the species of wildlife sought to be covered by the permit.

The specific premise for the proposed depredation control is to further the recovery of the gray wolf in Michigan and data from similar programs have demonstrated no adverse effects on the expansion of gray wolf populations in the Midwest. Therefore the proposed action by definition will reduce the threat of extinction for the gray wolf in Michigan.

The following factors were of primary importance in our assessment:

- 1) The wolf population in Michigan, Wisconsin, and Minnesota has surpassed recovery goals and the wolf population continues to increase in Michigan and Wisconsin.
- 2) The current rate of increase for the Michigan and Wisconsin wolf population is approximately 13% annually.
- 3) Mortality as a result of the proposed action would likely be partially compensatory. However, the proposed action could increase the annual mortality rate for the U.P. wolf population by up to 11%. Currently, the wolf population in the U.P. is increasing by 14% annually.
- 4) Based on scientific literature and information obtained from the Minnesota wolf depredation control program, purposeful and incidental take of up to 11% will not cause a decline in the wolf population. The wolf population in Minnesota increased during approximately two decades when control of depredating wolves resulted in the death of approximately 0.5 to 9% of the population. We expect purposeful mortality in MI to be between 4-10% annually.
- 5) In 2003, 2004, and 2005 MDNR employed a similar program employing the same lethal techniques discussed here to resolve selected wolf depredations. Those measures did not prevent the Michigan wolf population from during those years.
- 6) Implementation of the proposed action may decrease illegal take of wolves, so that component of the current mortality rate may be reduced and partially off-set the additional mortality that will occur as a result of the proposed action.
- 7) We believe that the proposed action will not cause a noticeable decline in annual recruitment and will not reduce the survival or recovery of the wolf in Michigan.

5. The opinions or views of scientists or other permits or organizations having expertise concerning the wildlife or other matters germane to the application.

On November 9, 2006 the USFWS received a letter from Rolf O. Peterson, Team Leader of the Gray wolf eastern population recovery team. This letter was a summary of a conference call among 9 of the 13 members of the recovery team to discuss the use of lethal control in cases of depredation. The following is the consensus statement that resulted from that conference:

The Recovery Team (Gray Wolf – Eastern Population) supports the use of lethal control of wolves in areas of confirmed depredation on livestock and pets on private lands. It is our judgment that lethal depredation control as proposed by the two state agencies will not jeopardize wolf populations in either Wisconsin or Michigan, as it is very local in scope, involves only local wolf packs, and affects <10% of the wolf population in each state. Such activity has already been a positive aspect of wolf management in Minnesota, Wisconsin, and Michigan, states where wolves met recovery targets in 1999. Indeed, as a means to increase public support for a recovered wolf population, we consider it to be a vital part of wolf recovery that is recognized in the recovery plan. We believe that lethal control helps to reduce illegal killing of wolves and builds public tolerance for wolves, thereby enhancing wolf recovery. The Recovery Team recognizes the unique significance and relationship of wolves to native tribes in the Great Lakes area, and thus recommends that the Service consult with tribes in Michigan and Wisconsin regarding their interests in this matter.

Other studies have found public support for the presence of large carnivores largely depends upon their confidence that problems caused by individual animals will be resolved effectively. Lethal control of depredating individuals is one aspect of wolf population management as populations expand and increase into agricultural areas, and is conducted to maintain tolerance and acceptance of wolves in rural areas. The concept of lethal controls on wolves preying on livestock is strongly supported by wolf managers and biologists/scientists throughout wolf range, even in recovering populations. An appropriate management response to depredation is to address the negative interactions and target problem wolves in a local area. Removing wolves responsible for depredations can reduce the negative interactions that create intolerance for wolves.

The Wildlife Society, an international organization of professional wildlife biologists, especially focused on North America, states that “Control of wolves preying on livestock and pets is imperative and should be prompt and efficient if illegal killing is to be prevented and human tolerance of the presence of wolves is to be maintained (Peek et al.1991). The International Union of Nature and Natural Resources or World Conservation Union has established a “Manifesto on Wolf Conservation”. The “Manifesto” was published in International Wolf Magazine in 1994 (Anonymous 1994). The 7th Principle for wolf conservation stated “It is recognized that occasionally there may be a scientific established need to reduce non-endangered wolf populations; further it may become scientifically established that in certain endangered wolf populations specific individuals must be removed by appropriate conservation authority for the benefit of the wolf population.” In an extensive literature review of strategies for reducing carnivore/ livestock conflict by Norwegian biologists, it was concluded that lethal control should be considered on endangered carnivores such as wolves to prevent expansion into areas of high conflict (Linnell et al. 1997). Lethal control activities by government agents have been authorized on wolves in Minnesota since 1978, when they were downlisted to a threatened population (Fritts et al 1992). This selective removal of problem wolves resulted in the capture of 2430 wolves, and killing of 2261 wolves between 1979 and 2003 (Paul 2003). Annual number of captured and killed wolves ranged from 6 in 1979 to 216 in 1997, but declined to 125 in 2003 (Paul 2003).

Despite these lethal controls, the Minnesota wolf population increased from an estimated 1235 in 1979 to 3020 in 2004 (Erb and Benson 2004).

6. Whether the expertise, facilities, or other resources available to the applicant appear adequate to successfully accomplish the objectives stated in the application.

Both the Michigan Department of Natural Resources and the Wildlife Services possess the expertise and authority to accomplish the Integrated Wildlife Damage Management program. The Michigan Department of Natural Resources authority in wildlife management is given under Article I, Part 5, Regulation 324.503 of Public Act 451 of 1994. This section states in part;

“The department shall protect and conserve the natural resources of this state; provide and develop facilities for outdoor recreation; prevent the destruction of timber and other forest growth by fire or otherwise; promote the reforestation of forest lands belonging to the state; prevent and guard against the pollution of lakes and streams within the state and enforce all laws provided for that purpose with all authority granted by law; and foster and encourage the protecting and propagation of game and fish.”

The mission of the USDA/APHIS/WS program is to provide federal leadership in managing conflicts with wildlife. Wildlife Services’ mission, developed through its strategic planning process (USDA 1999), is: 1) *“to provide leadership in wildlife damage management in the protection of America's agricultural, industrial and natural resources, and 2) to safeguard public health and safety.”* Wildlife Services’ Policy Manual reflects this mission and provides guidance for engaging in wildlife damage management through:

- Training wildlife damage management professionals;
- Research, development and improvement of strategies to reduce losses and threats from wildlife;
- Collection, evaluation, and dissemination of management information;
- Informing and educating the public on how to reduce wildlife damage; and
- Providing a source for limited-use management materials and equipment, including pesticides.

WS recognizes that wildlife is an important public resource greatly valued by the American people. By its very nature, however, wildlife is a highly dynamic and mobile resource that can cause damage to agriculture and property, pose risks to human health and safety, and affect industrial and natural resources. WS conducts programs of research, technical assistance and applied management to resolve problems that occur when human activity and wildlife conflict. WS has limited Federal authority in controlling wolf damage in Michigan, and must acquire State issued permits in order to collect, trap, or otherwise take wildlife in the State of Michigan.

V. GENERAL CRITERIA AND DISQUALIFYING FACTORS

The USFWS has no evidence the permit application should be denied on the basis of criteria and conditions set forth in 50 CFR § 13.21(b) and (c). MDNR has met the criteria for the issuance of the permit and does not have any disqualifying factor that would prevent the permit from being issued under current regulations.

VI. RECOMMENDATIONS ON ISSUANCE OF PERMIT

Based on the findings of the Regional Office and the East Lansing, Michigan Field Office staff, and with respect to the Section 10(a)(1)(A) permit application, EA, and biological opinion, we concur the issuance of the section 10(a)(1)(A) permit to Michigan Department of Natural Resources proposing the Management of wolf conflicts and depredating wolves in Michigan is recommended.



Peter Fasbender
Regional Endangered Species Permit Coordinator

5 May 2006
Date

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