



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Green Bay ES Field Office
2661 Scott Tower Drive
New Franken, Wisconsin 54229-9565
Telephone 920/866-1717
FAX 920/866-1710

April 20, 2006

Memorandum

To: Assistant Regional Director-Ecological Services, Fort Snelling, MN (ES/TE)
Attention: Pete Fasbender

From: Field Supervisor, ES Field Office, Green Bay, WI *Louise Clemency*

Subject: Formal Intra-Service Section 7 Consultation: Issuance of a section 10(a)(1)(A) permit for research, monitoring, and depredation abatement activities involving the gray wolf in Wisconsin.

This document responds to your April 7, 2006 request for consultation and transmits the Fish and Wildlife Service's (Service) biological opinion based on our review of the proposed action to issue a section 10(a)(1)(A) permit to the Wisconsin Department of Natural Resources (DNR) to conduct research, monitoring, and depredation abatement activities involving the gray wolf (*Canis lupus*) in Wisconsin. The authority for lethal depredation control under this proposed permit also could be delegated by DNR to the U.S. Department of Agriculture (USDA)- Animal Plant Health Inspection Service (APHIS)-Wildlife Services (WS), and tribal natural resource agencies. The biological opinion addresses the effects of the proposed action on the gray wolf in accordance with section 7 of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.). In sections of the biological opinion, the gray wolf may also be referred to as the eastern timber wolf as it pertains to references from the Service's 1978 and 1992 Eastern Timber Wolf Recovery Plans.

The Service is proposing to issue a section 10(a)(1)(A) permit to the Wisconsin DNR to live-trap wolves for monitoring and research associated with Wisconsin DNR wolf research activities, to harass wolves posing threats to domestic animal or human safety, to lethally take wolves for depredation abatement purposes, and to euthanize wolves affected by mange or other contagious disease, or injured by vehicle collision or other injuries, throughout Wisconsin. Section 10(a)(1)(A) permits are not required for activities carried out by qualified employees or agents of State conservation agencies which are party to Cooperative Agreements with the Service, provided such activities are in accordance with the Cooperative Agreement and do not result in lethal take or permanent disablement of listed species, or removal of specimens from the wild for more than 45 days. The Wisconsin DNR has applied for a section 10(a)(1)(A) permit to allow it and its agent, the USDA-APHIS-WS, to conduct activities that would result in lethal take. Pursuant to section 7(a)(2) of the Act, the Service must ensure that issuance of the permit will not jeopardize the continued existence of the gray wolf. This biological opinion documents the Service's compliance with the section 7(a)(2) mandate and provides a take exemption for any

incidental take which may occur provided it complies with the Terms and Conditions contained in the Incidental Take Statement (see below).

This biological opinion is based on 1) information provided in the Wisconsin DNR's September 6, 2005 permit application for activities involving the capture, handling, monitoring, harassment and control of wolves, 2) electronic mail messages from the Wisconsin DNR wolf biologist Mr. Adrian Wydeven, providing additional information on current wolf population status, 3) biological information provided by the Wisconsin DNR in annual Wisconsin wolf status and monitoring reports, 4) the Draft Environmental Analysis prepared by USDA-APHIS-WS, in cooperation with the Service, Wisconsin DNR, Lac du Flambeau Band of Lake Superior Chippewa Indians and Ho-Chunk Nation of Wisconsin to analyze this action, and 5) telephone conversations with Mr. Wydeven. A complete administrative record of this consultation is on file at the Green Bay, Wisconsin, Ecological Services Field Office.

Consultation History

September 6, 2005 - The Wisconsin DNR submitted a Federal Endangered Species Permit application to request coverage for several activities including 1) continued population monitoring efforts with live-trapped/radio-collared wolves, 2) researching use of shock collars on wolves to alter depredation behavior and avoid areas of conflict such as cattle in pastures, 3) trapping and euthanization of wolves by contracted personnel from the USDA-APHIS-Wildlife Services to remove depredating wolves from areas of wolf/livestock/human use conflict, and 4) harassment with rubber bullets, other projectile non-lethal devices, and other devices to scare wolves, to reduce conflicts with humans and domestic animals.

September 13, 2005 - United States District of Columbia District Court preliminarily enjoined the two section 10(a)(1)(A) subpermits issued in April 2005 to Wisconsin and Michigan DNR, which necessitated the cessation of wolf depredation control in both states.

September 14, 2005 - Publication of *Federal Register* notice announcing receipt of applications from the State of Wisconsin and State of Michigan, for Section 10(a) (1)(A) permits for wolf depredation control, which also announced the opportunity for public comment.

October 6, 2005 - The Wisconsin DNR provided current information on wolf mortalities, depredation trapping, and depredation on hunting dogs in Wisconsin in 2005 via e-mail from Adrian Wydeven.

October 10, 2005 - Wisconsin DNR provided the document *Justification for Lethal Control Authority for Recovery Activity under 10(a) (1)(A) of the Endangered Species Act on Gray Wolves in Wisconsin*, which provided additional rationale justifying their request for permit issuance.

October 14, 2005 - Close of public comment period on applications from the State of Wisconsin and State of Michigan, for Section 10(a) (1)(A) permits.

March 2, 2006 - A draft Environmental Assessment developed by Wildlife Services (WS), a program of the U.S. Department of Agriculture's Animal and Plant Health Inspection Service, in

cooperation with the USFWS, WDNR, and the Ho-Chunk Nation, was available for public review and comment. The Great Lakes Indian Fish and Wildlife Commission (GLIFWC) and the Lac Du Flambeau Tribe of Lake Superior Chippewa Indians were consulting agencies in the production of the EA.

April 3, 2006 - Close of public comment period for the Draft Environmental Assessment.

April 17, 2006 - Issuance of Biological Opinion that analyzes the proposed action.

BIOLOGICAL OPINION

DESCRIPTION OF PROPOSED ACTION

The Wisconsin DNR has requested authority to euthanize wolves at depredation sites and harass wolves that may pose a threat to domestic animals and humans. In addition, the Wisconsin DNR plans to continue live-trapping for purposes of monitoring the Wisconsin wolf population, which could potentially result in the incidental take of wolves. This request for lethal take at depredation sites, and incidental take that may result from research activities and depredation abatement activities, is the subject of this opinion.

The Wisconsin DNR and its agent, the USDA-APHIS-WS, propose to kill wolves involved in depredations on livestock and pets on private land in Wisconsin. Prior to issuance of the special 4(d) rule in April 2003, which allowed for lethal take of depredating wolves, the Wisconsin DNR relocated wolves involved in depredations to other areas of suitable and mostly unoccupied habitat. Problems associated with this approach included wolves returning to their previous location, resuming their depredating habits at the new location, or being killed by resident wolf packs in the release area. As the Wisconsin wolf population expands in number and range, the frequency of depredation incidents is increasing, yet there are no longer any suitable, unoccupied release sites available in the state. In addition, removing an entire pack usually does not work because in highly suitable wolf habitat another pack will quickly move into the unoccupied pack territory and may start depredating livestock at the same site as the previous pack.

The number of livestock depredations in Wisconsin has grown in recent years, with 8 farms experiencing depredations in 2002, 14 in 2003, 22 in 2004 and 25 farms in 2005. Numerous northern Wisconsin Counties have passed resolutions against release of problem wolves. Thus, the Wisconsin DNR has decided to kill wolves at depredation sites.

The Service is proposing to issue a section 10(a)(1)(A) permit to the Wisconsin DNR to take wolves for monitoring, research, depredation abatement, and to harass wolves to reduce conflicts with humans and domestic animals. In their permit application, the Wisconsin DNR has requested that the following activities be authorized under the section 10(a)(1)(A) permit:

1. Conduct live-trapping & re-trapping of wolves in number 4, 14, 7 McBride-Sutton, or CDR 7.5 foot-hold trap, or cable-restraints or self attaching cable transmitter throughout Wisconsin.

2. Chemically immobilize adult, yearling, and pup (> 30 lbs.) wolves and fit with transmitter, ear tags, and pit tags.
3. Collect blood and conduct non-invasive health checks, administer standard medications, and collect non-invasive specimens as necessary.
4. Aerially track collared wolves weekly or 2 to 3 times per month, or more frequently if making rapid moves. Daily radio tracking may be done on some animals if being intensely monitored on the ground, and some may be followed for up to 24 hours from distant locations using tri-angulations.
5. Remove and relocate depredating wolves in response to verified landowner complaints.
6. Attach electronic shock collar to condition potential depredating wolves to avoid areas of livestock concentration or test collars on non-depredating wolves in wildland situations.
7. Harass wolves with rubber bullets, other projectile nonlethal devices or other devices intended to scare wolves and to provide aversive conditioning to bold or habituated wolves that pose threats to domestic animals or human safety
8. Remove through live-capture and euthanizing or shooting, up to 10% of the previous winter wolf population at depredation sites or a total of 43 wolves or more, based upon the total determined after winter surveys are complete in April 2006. The conditions for taking of these wolves would include the following:
 - a. The depredations have occurred during the calendar year.
 - b. The depredation occurred on legally present livestock (as defined by the 1999 Wisconsin Wolf Management Plan), livestock guarding animals, and pets that are near residences, farm buildings, or held in confinement. Taking would not occur for depredations by wolves on pets running at large or used in hunting and training.
 - c. Taking of wolves will be preceded by a verification of wolf depredation by trained persons working for USDA-Wildlife Service, Wisconsin Department of Natural Resources, other agents of the state listed on this permit, U.S. Fish and Wildlife Service, and Tribal natural resource personnel.
 - d. Additional wolf depredations are likely to continue in the immediate future if depredating wolf or wolves are not removed.
 - e. The Taking will be performed in a humane manner.
 - f. Takings of wolves will occur within 1/2-mile of the depredation site.
 - g. Pups of the year will be released back to the wild prior to August 1 and will be marked with ear tags, and/or microchips, and if available and pups are at least 30 pounds may be fitted with radio collars.

h. Taking for more than the current calendar year can only occur in accordance to 8. a. through 8. g., and if the following conditions exist:

- (1) verified depredations occurred at the site in the immediate vicinity during the previous year.
- (2) there is strong evidence that one or more members of the depredating pack have remained in the areas since the verified depredation,
- (3) based on wolf behavior and other factors, depredation is likely to be repeated,
- (4) trapping is conducted in a location and in a manner to minimize the likelihood a wolf or wolves from a non-depredating pack is captured.
- (5) and affected landowners follow proper carcass disposal and other reasonable means to minimize wolf depredation.

9. Conduct wolf depredation control activities on Indian reservations with close coordination with tribal natural resource personnel and provide opportunities for tribal involvement in verification investigation. On private land within reservations, any taking of wolves would be closely coordinated with tribal officials, and if depredating wolves are believed to mainly exist on tribal lands, efforts would be made to use nonlethal controls whenever feasible. USDA- Wildlife Services or Wisconsin Department of Natural Resources would not conduct any lethal control on tribal lands unless specifically requested by affected tribes.

10. Euthanize live-captured wolves severely affected by mange or other contagious disease, when such diseases may further spread to other wolves in the population, or pose disease threats to domestic animals or humans.

11. Euthanize wolves that are severely injured or are in very poor conditions as a result of activities or situations not related to this permit, such as vehicle collisions, other accidents, or highly malnourished pups due to loss of adult pack members.

12. Authority for up to 4 accidental injuries or mortality resulting from trapping activities under this permit.

13. Dead wolves found dead in the field will be presented for necropsies. Wolves that are radio collared and suspected federal legal cases that are found dead in Wisconsin will be sent to the USGS National Wildlife Health Center in Madison for necropsies. Noncollared wolves and state legal cases will be necropsied by Wisconsin DNR, Wildlife Health Lab in Monona.

14. Wolf specimens will be sent to research and scientific collections at museums in the state for future research as well as for educational use by educational organizations, cultural use by tribes, and display by conservation organizations for public outreach. A copy of this

permit will be maintained with all carcasses. Carcasses not suitable for specimens will be discarded.

Wolves captured in the wild for monitoring and research purposes will be radio-collared and released at the capture site. Adults, yearlings, and large pups (30+ pounds) will be immobilized and radio-collared. Blood samples will be collected to determine the relative health and disease status of the wolves. Radio-collared wolves will be located at least once per week. Approximately 30 adult and yearling wolves will be live-trapped annually for monitoring and research activities. All wolf trapping activities will occur under the supervision of the Wisconsin DNR's Wolf Coordinator, and District Supervisors for USDA-APHIS-WS Rhinelander and Waupun Districts, respectively. All Wisconsin DNR personnel and personnel of other agencies listed in the permit will receive formal training in immobilization and handling of wild animals and will follow the Wisconsin DNR's protocol for trapping and immobilizing wolves.

In addition, the Wisconsin DNR proposes to euthanize wolves (up to 10% of the previous winter wolf population) captured at depredation sites where there has been a documented wolf depredation within that calendar year. Pups of the year captured prior to August 1 will be released unharmed. The actual number of wolves captured at depredation sites will also be dependent upon the number of verified complaints received. In calendar year 2005, 35 canids, which included 29 wolves, were trapped and euthanized at 14 farms in Wisconsin.

To minimize adverse effects to wolves captured by the permittee and its agents, the following measures are proposed to be included as conditions of the permit:

- (1) Number 4, 14, or 7 McBride-Sutton, or C.D.R. 7.5 foot hold and cable restraints or self-attaching cable transmitters must be used;
- (2) Pups of the year captured prior to August 1 will be released unharmed;
- (3) Lactating females captured prior to June 1 will be released unharmed, except that lactating females that repeat depredations in the same year may be euthanized;
- (4) A wolf may be euthanized after confirmed depredations on livestock (including poultry) as defined in the Wisconsin Wolf Management Plan (WDNR 1999), livestock guard animals, and pets confined or leashed on private land, have occurred at the site previously within the same calendar year, or during the previous calendar year if certain conditions are met (depredations on bear dogs or other free-roaming dogs do not qualify as depredation events that would trigger lethal control);
- (5) Lethal take in response to depredations shall be confined to within ½ mile of a documented wolf depredation site, and to within Wisconsin State boundaries;
- (6) Wolves may be euthanized at the discretion of the Wisconsin DNR if infected with mange or other serious contagious disease;
- (7) A maximum of 71 wolves per year can be lethally taken, including up to 43 intentionally taken at depredation sites, up to 10 incidentally killed during depredation

abatement activities, up to 3 wolves infected with mange or other disease, up to 10 wolves severely injured to the extent they are not expected to survive, and up to 5 wolves taken incidental to trapping and monitoring activities;

(8) Control actions for depredating wolves in the vicinity of Native American Indian reservation boundaries must be coordinated with the respective Tribe prior to taking action, with the Service acting as decision-maker if the Tribe and the Wisconsin DNR are unable to agree on a course of action;

(9) The Wisconsin DNR is required to report lethal take to the Service's Regional Office, Fort Snelling, Minnesota, and Green Bay, Wisconsin Ecological Services Field Office within 5 days of the action;

(10) Only those individuals identified on the section 10(a)(1)(A) permit, or their designated agent, may lethally take wolves.

STATUS OF THE SPECIES

Species not considered further in this opinion

The gray wolf is expected to be adversely affected by the proposed action. Other federally-listed threatened or endangered species most likely to be affected by the proposed action are those species which occur in the same habitat and areas in Wisconsin that are occupied by the gray wolf and which could be trapped unintentionally. Since the gray wolf population in Wisconsin is increasing and wolves are dispersing into many areas of the state all federally-listed species known to occur in Wisconsin were evaluated as to potential effects from the proposed action.

Species federally-listed as threatened include the bald eagle (*Haliaeetus leucocephalus*), whooping crane (*Grus americana*), Canada lynx (*Lynx canadensis*), northern monkshood (*Aconitum noveboracense*), prairie bush-clover (*Lespedeza leptostachya*), Pitcher's thistle (*Cirsium pitcheri*), Fassett's locoweed (*Oxytropis campestris* var. *chartacea*), dwarf lake iris (*Iris lacustris*), and eastern prairie fringed orchid (*Platanthera leucophaea*); those listed as endangered are the Kirtland's warbler (*Dendroica kirtlandii*), piping plover (*Charadrius melodus*), Higgins eye (*Lampsilis higginsii*), winged mapleleaf (*Quadrula fragosa*), Karner blue butterfly (*Lycaeides melissa samuelis*), and Hine's emerald dragonfly (*Somatochlora hineana*). The eastern massasauga rattlesnake (*Sistrurus catenatus catenatus*), and the mussels sheepsnose (*Plethobasus cyphus*) and spectaclecase (*Cumberlandia monodonta*) are candidate species that may be listed in the future. Areas of critical habitat have been designated for the piping plover at six sites in Ashland, Douglas, Manitowoc, and Marinette counties in Wisconsin.

In addition to the gray wolf, the only federally-listed species that may be affected by activities authorized by the proposed permit are the Canada lynx and bald eagle. Available information including surveys and trapping records indicate that although lynx may occasionally occur in northern forested areas of Wisconsin, no resident Canada lynx populations are currently known from Wisconsin. Further, trapping methods that will be used by the Wisconsin DNR and its agents minimize the potential that lynx might be captured or harmed as a result of the activities

that would be authorized by the proposed permit. Bald eagles could potentially be captured in foot snares and leghold traps which will be utilized as part of the Program. This effect, however, is expected to be discountable as the type of trap sets used are unlikely to attract eagles and traps will be set with pan tension devices which are intended to reduce or eliminate the possibility of capturing non-target birds and animals, including bald eagle. We concur that the proposed action is not likely to adversely affect the bald eagle or Canada lynx.

Gray wolf

Life history

Gray wolves are the largest wild members of the Canidae, or dog family, with adults ranging from 18 to 80 kilograms (kg) depending upon sex and subspecies (Mech 1974). Wolves' fur color is frequently a grizzled gray but it can vary from pure white to coal black. Wolves may appear similar to coyotes (*Canis latrans*) and some domestic dog breeds (*C. familiaris*, such as the German shepherd or Siberian husky). However, wolves' longer legs, larger feet, wider head and snout, and straight tail distinguish them from both coyotes and dogs (USFWS 2003).

Wolves primarily are predators of medium and large mammals. Wild prey species in North America include animals such as white-tailed deer (*Odocoileus virginianus*), moose (*Alces alces*), and elk (*Cervus canadensis*). Small mammals, such as snowshoe hare (*Lepus americanus*) and beaver (*Castor canadensis*), birds, and large invertebrates are sometimes taken. In the Midwest, during the last 22 years, wolves have also killed domestic animals including cattle (*Bos taurus*), sheep (*Ovis aries*), goats (*Capra hircus*), dogs, and cats (*Felis catus*, USFWS 2003).

Wolves are social animals, normally living in packs of two to ten members. Packs are primarily family groups consisting of a breeding pair, their pups from the current year, offspring from the previous year, and occasionally an unrelated wolf. Packs occupy, and defend from other packs and individual wolves, a territory of 20 to 214 square miles. Normally in each pack only the top-ranking male and female breed and produce pups. Litters are born from early April into May; they can range from one to eleven pups, but generally contain four to six pups. Yearling wolves frequently disperse from their natal packs, although some remain with their pack. Dispersers may become nomadic and cover large areas as lone animals, or they may locate suitable unoccupied habitat and a member of the opposite sex and begin their own territorial pack. Dispersal movements of over 500 miles have been documented. (USFWS 2003).

Once thought to need wilderness areas to survive, the expansion of wolf range over the last two decades has shown that wolves can successfully occupy a wide range of habitats, including some with some amounts of human habitation and development. Wolves tend to more readily occupy heavily forested areas and landscapes with low road densities (Mladenoff et al. 1995). Potvin et al. (2005) predicted that wolves would inhabit parts of Upper Michigan with road densities < 0.7 km/km² and with 2.3-5.8 deer/km². Mech (1995) believes that inadequate prey density and a high level of human persecution are the main factors that limit wolf distribution.

For additional detailed information on the biology, ecology, and taxonomy of the species, see USFWS 2003.

Status and distribution

The eastern timber wolf (*Canus lupus lycaon*) was listed as endangered in Minnesota and Michigan, and the northern Rocky Mountain wolf (*C. l. irremotus*) was listed as endangered in Montana and Wyoming in the first list of species that were protected under the 1973 Act, published in May 1974 (USDI 1974). On March 9, 1978, we published a rule (43 FR 9607) relisting the gray wolf at the species level (*Canus lupus*) as endangered throughout the conterminous 48 States and Mexico, except for Minnesota, where the gray wolf was reclassified to threatened.

On July 13, 2000, we published a proposal (USFWS 2000) to revise the listing of the gray wolf across most of the conterminous United States. The Service issued a final rule on April 1, 2003 (USFWS 2003), which changed the classification of the gray wolf under the Act; for the gray wolf in Wisconsin, the status was changed from endangered to threatened. Increases in gray wolf numbers, expansion of the species' occupied range, and progress toward achieving the reclassification and delisting criteria in several approved gray wolf recovery plans indicated that the species' previous classification throughout most of its range was no longer appropriate.

The final rule established three distinct population segments (DPS) for the gray wolf in the United States and Mexico. This rule included establishment of an Eastern DPS which includes the two areas proposed as a Western Great Lakes DPS and a Northeastern DPS, which were combined and expanded in the final rule. Gray wolves in the Eastern DPS and Western DPS were reclassified from endangered to threatened due to their successful recovery. A new special rule under section 4(d) of the Act was promulgated the Eastern DPS. All existing designations of critical habitat areas in Minnesota and Michigan were retained by the reclassification of wolves in Michigan and the continuation of the wolf's threatened status in Minnesota.

The Service's April 1, 2003 final rule to reclassify the wolf was challenged in court through the filing of at least two separate suits by parties objecting to the change in the species' status in areas where they believed populations have yet to recover. A January 31, 2005 court decision in U.S. District Court in Oregon vacated the final reclassification and section 4(d) regulations, reverting the species' status to endangered, which resulted in the loss of Wisconsin DNR authority to lethally take wolves in response to depredation complaints. Because depredation of livestock on private lands by wolves can result in a loss of support for wolf recovery (Wydeven & Jurewicz 2005), the Wisconsin DNR has requested a separate permit to allow for control of depredating wolves.

Reclassification and delisting criteria for the eastern timber wolf

The recovery (delisting) and reclassification (from endangered to threatened) criteria for the eastern timber wolf focus on numbers of wolves, numbers of populations, distribution of populations, and the likelihood of future favorable management and protection. Specifically, the Service's 1992 Eastern Timber Wolf Recovery Plan (Eastern Plan, USFWS, 1992) identifies two delisting criteria for the eastern timber wolf. First, the Eastern Plan requires that the survival of

the wolf in Minnesota must be assured. Although there is no specific numerical criterion for a Minnesota wolf population, the Eastern Plan identifies State subgoals for use by land managers and planners. The Eastern Plan's subgoal for Minnesota is 1,251 to 1,400 wolves. The Service believes that this first delisting criterion identifies a need for reasonable assurances that future State and Tribal wolf management practices and protection would result in a viable recovered population of gray wolves within the borders of Minnesota for the foreseeable future after its removal from the list of endangered and threatened species.

The second delisting criterion in the Eastern Plan requires that at least one viable wolf population must be re-established within the historical range of the eastern timber wolf outside of Minnesota and Michigan's Isle Royale. The Eastern Plan states that a re-established viable wolf population can take either of two forms. If it is located more than 100 miles from the Minnesota wolf population it would be considered "isolated," and there likely would be very low frequency of movement of individuals and genetic material from one population to the other. Such an isolated population would have to consist of at least 200 wolves for at least 5 years (based upon late winter counts). Alternately, if the second population is located within 100 miles of another self-sustaining wolf population (for example, the Minnesota wolf population), a re-established population having a minimum of 100 wolves for at least 5 years would be considered viable. Such a smaller population would be considered to be viable because its proximity would allow frequent immigration of wolves from Minnesota to supplement it numerically and genetically.

The Eastern Plan does not specify where in the eastern United States the second population should be re-established - the second population could be located anywhere within the geographical area covered by the Eastern Plan except on Isle Royale and in Minnesota. The 1992 Eastern Plan also contains criteria for reclassifying wolves in Wisconsin and Michigan to threatened status. The Eastern Plan specifies that wolves in Wisconsin could be reclassified to threatened status if the wolf population within the state remained at or above 80 (late winter counts) for three consecutive years. Because the Michigan wolf population was so small at the time the Eastern Plan was being revised (fewer than 20 wolves outside of Isle Royale), the Eastern Plan does not contain a reclassification criterion for Michigan wolves. Instead, it states that if Wisconsin wolves reach their reclassification criterion, consideration should also be given to reclassifying Michigan wolves.

The Eastern Timber Wolf Recovery Team recently clarified that it will consider the numerical delisting criterion to have been achieved when six successive late winter wolf surveys include five successive years that the wolf population was maintained at the specified level. Because the Wisconsin-Michigan wolf population was first known to have exceeded 100 wolves in the late winter 1993-94 survey, the numerical delisting criterion was satisfied in early 1999 (USFWS 2003).

Recovery progress of the gray wolf in the eastern states of Minnesota, Michigan and Wisconsin

Minnesota

The Minnesota Department of Natural Resources in 2003-2004 estimated the Minnesota wolf population at 3,020 wolves, in an estimated 485 packs (Erb and Benson, 2005). This estimate is

greater than that of the 1997-1998 estimate of 2,445 wolves in 385 packs, but these estimates are not precise enough to clearly state that the number of wolves increased between these surveys (Erb and Benson, 2005). The Minnesota DNR has prepared a Wolf Management Plan with a minimum population goal of 1600 wolves. This plan contains provisions that both Minnesota DNR and the Service has determined would ensure the viability of the Minnesota wolf population for the foreseeable future. (USFWS 2003).

Michigan

The Michigan Department of Natural Resources estimated in 2004 that the Michigan wolf population was at 360 wolves in 77 packs (Beyer, et. al. 2004). Surveys completed in late winter 2005 indicated a minimum of 405 wolves (MI DNR, 2005) in the state. The Michigan DNR has prepared a Final Wolf Management Plan with a minimum population goal of 200 wolves and provisions to protect the viability of their wolf population for the foreseeable future. (Refsnider 2002).

Wisconsin

Wolves are considered to have been extirpated from Wisconsin by 1960. There were no formal attempts made to monitor Wisconsin's wolf population from 1960 until 1979. From 1960 through 1975, there were scattered reports of individual wolves and an occasional wolf pair was reported. However, there was no evidence that there was any wolf reproduction occurring in Wisconsin and the wolves that were reported may have been dispersing animals from Minnesota.

Wolf population monitoring by the Wisconsin DNR began in 1979 and estimated a statewide population of 25 wolves at that time. This population remained relatively stable for several years, then declined to the mid and upper-teens in the mid-1980s. This decline is believed to have been a result of decreased survival of wolf pups due to an epidemic of canine parvovirus (CPV) in the wolf population. During that time an experimental parvovirus vaccine was developed by the Wisconsin DNR with partial Service funding, but it was never administered to wild wolves because CPV-caused mortality decreased after 1987.

In the late 1980s the Wisconsin wolf population began an increase that continues today. The Wisconsin DNR intensively monitors its wolf population, using a combination of aerial, ground and satellite radio telemetry, snow tracking, and wolf sign surveys. During the winter of 2004-2005, 36 of Wisconsin's 108 wolf packs had members carrying active radio transmitters much of the season. Two additional radio-tracked wolves were loners, and one was in an adjacent Minnesota pack. Minimum wolf population estimates (late-winter counts) for 1994 through 2005 are 57, 83, 99, 148, 178, 205, 248, 257, 323, 335, 373 and 425 animals, comprising 14, 18, 28, 35, 47, 57, 66, 70, 81, 94, 108, and 108 packs, respectively (WDNR 2005). Because the monitoring methods focus on wolf packs, it is believed that lone wolves are undercounted in Wisconsin, and that these population estimates are probably slight underestimates of the actual wolf population within the state.

In 1995 wolves were first documented in Jackson County, Wisconsin, an area well to the south of the northern Wisconsin area occupied by other Wisconsin wolf packs. During the winter of

2004-2005, there were at least 48 wolves in 13 packs and at least 1 loner in this central Wisconsin forest region (WDNR 2005).

In combination with Michigan, wolf numbers in Wisconsin have greatly surpassed the second population goal identified in the Eastern Plan and exceeded its reclassification criteria in 1999 (Table 1). Although population growth stalled between 1999-2000 and 2000-2001, the Wisconsin wolf population has continued to increase since that time. Between 2002-2003 and 2003-2004, the wolf population in Wisconsin increased from 335 to 373, or 11.3 percent. Between 2003-2004 and 2004-2005, the wolf population in Wisconsin increased from 373 to 425, or 14 percent. The average annual rate of growth over the past 10 years has been more than 17 percent. The Wisconsin DNR has prepared a Wolf Management Plan with a minimum population goal of 350 wolves (WDNR 1999).

Table 1. Late-Winter Wolf Population Totals for Michigan and Wisconsin 1994-2005

Year	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Wisconsin	57	83	99	148	178	205	248	257	323	335	373	425
Michigan	54	80	116	112	140	174	216	249	278	321	360	405
Total	111	165	217	260	320	371	464	506	601	656	733	830

Summary of recovery progress of gray wolves in the western Great Lakes DPS

Subsequent to the completion of the 1978 Eastern Timber Wolf Recovery Plan, and to some extent prior to the listing of the eastern timber wolf as an endangered species in 1974, a wide variety of conservation actions for the wolf have been undertaken by a broad spectrum of governmental agencies and private organizations. These actions encompass protection of wolves and the important components of their habitat, including dispersal corridors, denning and rendezvous sites; maintenance of habitat conditions that produce healthy prey populations; removal of depredating wolves and wolf packs to reduce illegal killing of wolves; reducing wolf exposure to potentially fatal encounters with humans; curative and prophylactic treatment of live-trapped wolves against diseases and parasites; research on various aspects of wolf biology; and providing factual biological information to the public and decision-makers. These recovery activities have been carried out by Federal, State, Tribal, county, and local units of government, private conservation organizations, academic researchers, private landowners and corporations, and numerous private citizens.

The outcome of these activities has been to reverse the historical downward trend in gray wolf numbers and increase occupied range in the western Great Lakes states. Wolves now occupy nearly half of Minnesota, most of Michigan's Upper Peninsula, and much of the northern quarter of Wisconsin. In addition to this successful reoccupancy of the "north woods," thirteen packs of wolves now occupy central Wisconsin, and dispersing gray wolves from Minnesota sometimes move into North and South Dakota. In the past few years, dispersing wolves from the Great lakes population have been killed in Indiana, Illinois, Missouri and Nebraska. There also have been recently confirmed deaths and sightings of wolves in the Lower Peninsula of Michigan. (Decapita 2004 pers.comm.).

ENVIRONMENTAL BASELINE

Status of the Species in the Action Area

The gray wolf was extirpated from Wisconsin by 1960 as the result of deliberate actions to minimize or eliminate wolf populations. Human-related mortality and disease are the primary factors influencing wolf numbers today. As explained previously, however, the gray wolf population within the action area has been steadily increasing in number and expanding its range since the late 1980s. Specifically, the Wisconsin population has increased at an average annual rate of more than 17 percent over the last 10 years (from 83 in 1995 to 425 in 2005), and in Michigan, the growth rate has also been greater than 17 percent over the same period (from 80 in 1995 to 405 in 2005). Wolf numbers in Wisconsin have greatly surpassed the second population goal identified in the Eastern Plan and exceeded its reclassification criteria several years ago.

Factors Affecting Species Environment within the Action Area

The primary factors influencing wolf recovery today are human-related mortality and disease (Table 4). Leading causes of human-related mortality are illegal shooting and vehicle collision. Mange is the primary natural mortality factor, followed by deaths caused by other wolves. The lethal take of wolves at depredation sites is likely to be an increasing mortality factor as the wolf population continues to increase.

Food can be a limiting factor for predator populations, but there is currently no evidence that wolves are limited by prey availability in Wisconsin. Population levels of white-tailed deer continue to be above management goals in most areas of the state, and various other alternate prey species are also readily available.

As acknowledged in the Eastern Plan, immigration can be important to maintenance of wolf populations. There is currently no evidence that interchange with wolf populations in Minnesota is inhibited in any significant way.

As evidenced by the increasing population, the current levels of mortality, food availability, and interchange with the Minnesota wolf population do not appear to be appreciably hindering the conservation of the gray wolf in Wisconsin.

EFFECTS OF THE PROPOSED ACTION

The anticipated effects of the activities that would be authorized by the proposed permit range from no perceptible effects to mortality of individuals. Monitoring and research will result in some level of incidental take, despite every reasonable effort that will be made to minimize or avoid such take. In the case of depredation abatement activities, most wolves captured at a site with a recent documented wolf depredation event are proposed to be immediately euthanized, resulting in intentional lethal take. For those situations where harassment techniques are utilized in place of lethal methods, some of the proposed harassment techniques have the potential to result in incidental take. As proposed in the draft permit, pups captured at depredation sites prior to August 1, and lactating females captured prior to June 1, would be released. These measures are designed to minimize harm, yet are also expected to result in some level of incidental take.

As part of the proposed permit, the Wisconsin DNR would also be authorized to euthanize a small number of animals that are infected with extreme cases of mange, and an additional number of wolves that are injured as a result of circumstances unrelated to these permitted actions. Each of these categories of take analyzed in this opinion is discussed separately below.

Incidental Take

The proposed action is expected to result in both purposeful and incidental take of gray wolves. Purposeful take is take that is intended as part of the proposed action (e.g. capture and euthanization of target wolves). Incidental take is take that results from, but is not the purpose of an otherwise lawful activity, such as injury or death of pups captured before August 1 as a result of capture and release or from capture of a lactating female, or unintentional injury or death which occurs in the course of capture and handling of wolves for research purposes. Incidental take is quantified here to the extent possible and is further discussed in the incidental take statement.

Research and Monitoring

The Wisconsin DNR has worked diligently to minimize injury or death caused by its trapping and handling of wolves for research and monitoring. Measures taken by DNR include the use of traps modified to cause minimal injury to wolves, formal training of trappers in the chemical immobilization and handling of wild animals, development of a Wisconsin DNR protocol for these activities, and refresher training for all trappers before each trapping season. The training emphasizes: (1) proper trap site selection and trap placement to reduce mechanical injuries to wolves; (2) drugs and dosage rates to use for immobilizing captured wolves; (3) procedures for monitoring vital signs of immobilized wolves including body temperature and respiration and heart rates; and (4) guidelines/procedures to follow if any injuries or emergencies are encountered.

Between 1979 and 2005, capture of Wisconsin wolves for research and monitoring resulted in the death of 7 of the 322 wolves captured (Wydeven 2006 pers. comm.). Thus, overall, capture-related mortality from live trapping since 1979 has averaged less than 2.2 percent. Table 2 lists mortality and severe injury rates for 1993-1998 for live-captured wolves in Wisconsin. The overall mortality and injury rates were 4.6 percent for live-captured related activities for all wolves caught from 1993-1998. Injury rates for live-captured related activities for Wisconsin wolves since 1998 have not yet been summarized, but are thought to be similar, or lower, than rates experienced from 1993 to 1998 (Wydeven 2005 pers. comm.).

Wisconsin DNR has stated that they expect to capture approximately 30 adult or juvenile wolves annually for research and monitoring. Based on the best available data indicating capture-related mortality of approximately 2.2 percent, we expect an average of less than one wolf per year to die as a result of trapping for monitoring and research. Based upon the summarized data from 1993 to 1998 which showed severe injury rates at approximately 4.6 percent, we expect less than two wolves on average to be seriously injured annually.

The Wisconsin DNR has also requested authority to use electronic avoidance (dog shock) collars on livestock depredating wolves to reduce and prevent depredation. This use of electric

avoidance collars and similar devices is experimental and has had limited testing to date in Wisconsin. The Service believes there is low potential for the incidental take of wolves from these electronic devices through injury and death. Dog shock collars are used routinely on domestic dogs without apparent adverse effects. Electronic shock collars appear to be very effective at conditioning dogs to avoid the activities which result in an electric shock and it is believed the collars will work similarly on gray wolves.

Harassment

The Wisconsin DNR proposes to utilize various harassment methods to disperse wolves from areas where their presence may result in conflicts with humans or domestic animals. They have proposed to utilize rubber bullets and/or beanbag projectiles to disperse wolves from areas where conflicts could occur. Use of this method requires that the projectiles be used every time the wolf attempts to prey on the protected resource so the wolf does not identify conditions when they can obtain prey without receiving a negative experience (Shivik 2004). Therefore, this method is most effective when the landowner can assist with the implementation. Anyone using this method would be required to go through a training course on the safe and effective use of this technique. These projectiles can be deadly at very close range or if a vulnerable spot on the body is hit, although the likelihood of this type of injury is very low (Bangs 2005 pers. comm.). However, the Service has issued approximately 200 permits to landowners in the western United States for the use of non-lethal projectiles after the landowner had received special training in the use of the method. In that time, only a few dozen wolves have been shot at and less than 5 have been hit. All of the wolves ran away, and none of the wolves appeared to have been seriously injured (Bangs 2005 pers. comm.). Based on this information, it appears that risks to wolves from this technique are extremely low (<1 wolf death/5 years).

Lethal Control

The trapping methods proposed, including land restraint snares with stops, spring activated foot snares, and leg-hold traps, are all non-lethal techniques intended to capture wolves. Trapping with these methods facilitate lethal wolf control. The advantage of using these techniques is the trapper's ability to release non-target individuals, such as young of the year or lactating females. Incidental take could occur in the form of injury or death if young of year are captured before August 1. According to the draft permit, all young of year wolves must be released prior to August 1 (i.e., young of year can not be purposefully killed before August 1). Injury to paws or legs could be sustained as a result of trapping, and the smaller size of pups makes them more susceptible to injury than adults. The Wisconsin DNR has estimated that with the increasing incidence of depredation, as many as 15 young of the year wolves could be captured, and up to 5 could sustain injury or death annually as a result of capture and release prior to August 1. Incidental take could also occur as a result of capturing or euthanizing a lactating female. Similar to young of year, the capture of a lactating female could result in injury to paws or legs as a result of trapping. 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. Euthanasia of lactating females could result in decreased pup survival or pup mortality, depending on how old the pups are at the time of separation. Permit conditions which address this help ensure pup survival since most lactating females will be released prior to June 1 when pups are most dependent. Therefore, incidental take associated with capture or mortality of lactating females will likely be

small as most lactating females will not be euthanized and if captured will be released in less than 24 hours.

During the past three years of depredation control activities, the incidence of capture of lactating wolves has been an average of one per year. Of those three captures, only one was captured prior to June 1. In normal circumstances, lactating females remain close to the den while pups are young, and so are less likely to be captured at depredation sites during this period. In Wisconsin, the average litter size is 5 pups. Based upon these observations, the level of take of pups per year is expected to be 5 or less. A lactating wolf would only be euthanized if it were involved in a repeat depredation, in which case there would be a likelihood of lethal take of the pups if euthanasia occurred prior to June 1. It is also possible that the capture and release of a lactating female captured prior to June 1 could result in severe injury or death, though the likelihood is low.

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. Incidental take in the form of death is expected if young of year animals are shot prior to August 1. This should occur infrequently as young of year animals should be distinguishable from adults. As discussed above, incidental take in the form of injury or death to pups is expected if lactating females are shot before June 1.

Summary of Incidental Take

The Service anticipates that the level of injury and mortality associated with research and monitoring activities will be similar to past years' rates. That is, under the proposed permit, no more than 5 individuals will be injured or killed during trapping activities for monitoring, research, or the placement of electronic avoidance collars. In addition to these actions, depredation abatement activities may result in the death of up to 5 wolves, including young of the year wolves that may be lethally injured when captured prior to August 1, or lactating females captured and released prior to June 1 of each year. Five wolf pups may also be harmed or killed as a result of the capture of lactating females, even in those instances when the lactating female is subsequently released. Death of a lactating female may cause the death of all pups still nursing, dependant upon the age of the pups and other factors. Some low level of take is also expected to occur in the course of harassment of wolves that pose threats to domestic animals or human safety. As such, we anticipate that up to 5 adult wolves may be incidentally taken (i.e., injured or killed) in the course of trapping for monitoring and research, harassment, and depredation abatement activities over the course of a year, and up to 10 wolves may be injured or killed as a result of capture and release, including capture of both young of the year and lactating females.

Intentional Take

Depredation Abatement

The Wisconsin DNR and its agent, the USDA-APHIS-WS, also propose to kill wolves involved in depredations on livestock and pets on private land in Wisconsin. Lethal depredation control has been successful in reducing conflicts between the recovering wolf population and domestic animals in Minnesota. It appears to resolve the immediate depredation problem without the removal of excessive numbers of wolves, and avoids removing any wolves when the depredation is not verified as being caused by wolves or is not likely to be repeated. It is significantly less expensive, less labor-intensive, and more effective than translocating problem wolves, and thus is more appropriate for the expanding wolf population that now exists in Wisconsin. Based upon the expected incidence of depredation events, the Wisconsin DNR has requested authority to euthanize up to 43 gray wolves at depredation sites per year.

To determine how this level of take would affect the wolf population in Wisconsin, it is possible to examine the long record of depredation abatement activities in the State of Minnesota (Table 3). During the 10-year period from 1993 to 2002, an average of 6.4 percent of the Minnesota winter wolf population was lethally taken by USDA-WS as a result of depredation abatement activities – up to 10 percent was taken in a single year. Despite this level of take, the wolf population in Minnesota has continued to increase from an estimated 1500 wolves in 233 packs in 1988-1989, to 2445 wolves in 385 packs in 1997-1998, to 3020 wolves in an estimated 485 packs in 2004 (Erb and Benson, 2005). Clearly, this level of take (average = 6.4 percent) has not prevented the Minnesota wolf population from continuing to expand.

We can also examine the effects of the previous two years of depredation abatement activities on wolf populations in Wisconsin, after promulgation of the special rule under section 4(d) of the Act in 2003. Lethal take authorized by the special 4(d) rule in Wisconsin beginning in 2003 and continuing through much of 2005 resulted in the lethal take of 17 wolves in 2003, 24 in 2004, and 29 in 2005. This level of take represented approximately 5.1, 6.4, and 6.8 percent of the late-winter Wisconsin wolf population for 2003, 2004, and 2005, respectively – a mean percentage of 6.2 among the three years. Some of the animals killed during this period were young of the year taken after August 1 and were members of an age group not yet in existence at the time of the late winter count. Therefore, these percentages are an over-estimate of the take of the late winter population. The number of young of the year lethally taken at depredation sites relative to the total taken was 8 of 17 in 2003, 4 of 24 in 2004, and 9 of 29 in 2005. Therefore, the number of wolves greater than one year of age lethally taken in 2003 was 9, out of a late-winter population total of 335, or 2.7 percent. In 2004, this number was 20 out of 373, or 5.4 percent, and in 2005, 20 out of 425, or 4.7 percent. For the three years combined, lethal take represented approximately 4 percent of the individuals in the late winter population.

If the average proportion of young of the year to adults is assumed by combining totals for all three years, approximately 49 out of 70, or 70 percent of depredating wolves killed in any one year would be expected to be adults. The current request by the Wisconsin DNR is for an allowable take of up to 10% of the late winter population. Because of the expected proportion of young of the year that would be included in the total wolves killed, approximately 70% of the wolves killed would have been members of the late winter population, with the remainder consisting of young of the year. As discussed above, the actual level of intentional take of depredating wolves in Wisconsin was 5.1, 6.4, and 6.8 percent 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 percent, respectively, or an average of over 9 percent.

For the three years for which there has been lethal take at depredation sites in Wisconsin, we have some indication of the effect on the population in the year following this level of take for 2 of the 3 years (the actual population for the year following the 2005 lethal take season will not be known until numbers are available for the end of the winter 2006). For those two years, 5.1 and 6.4 % of the winter wolf population were removed, and wolf numbers still increased by 11.3 and 13.9% in the following years. Based upon these observations, it appears likely that under the conditions for those two years, the population would have continued to increase even if there had been a higher level of lethal take of the late winter population. In summary, if current levels of mortality and fecundity remain constant, the Wisconsin wolf population would likely continue to increase if the DNR were allowed to take 10% of the late winter population at depredation sites.

To further examine this level of mortality in the context of overall mortality of the population, two separate data sets provided by the Wisconsin DNR were examined. Data on survival of radio-collared wolves monitored by the Wisconsin DNR indicates that from 2000 through 2005 (years for which complete data are available), between 49 and 84 wolves were monitored annually. During this period, annual mortality of radio-collared wolves ranged from approximately 17 to 27 percent, for an average of approximately 23 percent (Table 4). These data also provide another independent measure of the proportion of total mortality resulting from lethal take at depredation sites. Take of depredating wolves by DNR was approximately 5 percent of total mortality in 2003, 8 percent in 2004 and 7 percent in 2005. Although the numbers of animals involved in this set of data are very small and hence not statistically significant, they show an agreement with other estimates of the same statistic.

Another estimate of mortality of the Wisconsin wolf population is derived by examining all known mortalities in relation to the estimated total population. For the year 2005, a total of 76 wolf deaths were recorded in the state, which represents 18 percent of the 2004-2005 late-winter population count of 425 wolves. This figure is certainly a conservative estimate of mortality, since many wolf deaths likely remain undocumented, but it is within the range derived from the sample of radio-collared wolves described above.

Since the advent of the expanded lethal take authorized by the special rule in 2003, the Wisconsin wolf population has continued to grow, increasing by more than 31 percent between 2002 and 2005, or over 10 percent per year. In summary, the total estimated annual mortality of the Wisconsin wolf population is estimated to be approximately 18-23 percent, and in 2003 through 2005, approximately 5 to 7 percent of the population died from lethal take at depredation sites. The Wisconsin wolf population has continued to grow at an average rate of approximately 9 percent under this level of mortality, suggesting that the approximately 10 percent level of take currently proposed for this permit action can be expected to allow the Wisconsin wolf population to remain stable or continue to grow.

With increases in livestock and pet depredation comes an increased possibility of public backlash (Mech 1995). In the revised Eastern Plan (USFWS 1992), the Recovery Team determined that a wolf damage management program including the relocation or removal of depredating wolves is necessary and advisable to minimize negative attitudes toward wolf recovery and facilitate wolf

conservation. 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). Selective removal of depredating wolves, as would occur under the proposed section 10(a)(1)(A) permit, would therefore assist with the conservation of wolves in Wisconsin.

Therefore, because of the anticipated low level of additional mortality that will result from this approach, and the likelihood of a larger increase in illegal wolf killing and loss of public support for wolves which could result from increasing incidence of livestock depredations, the Service believes that limited lethal control will contribute to conservation of the gray wolf in Wisconsin.

Sarcoptic Mange

Sarcoptic mange is a disease that commonly afflicts Wisconsin wolves, and has caused significant mortality of the population in recent years (USFWS 2004). Wolves nearing death from mange generally crawl into dense cover and are difficult to discover if they are not radio-tracked (Shelley and Gehring 2002). Thus, radio-collared wolves provide one of the best measures of actual mortality from mange. During the winter of 2002–03, approximately 36 percent of the radio-collared wolves being tracked by WI DNR died from mange (WDNR 2003, 2004). The prevalence of the disease may have contributed to the relatively small population increase of 2.7 percent in 2003 as compared to the average 18 percent since 1985 (USFWS 2004). Between 2000 and 2005, mange accounted for 22 of 88 deaths of radio-collared wolves in Wisconsin (Table 4), or 25 percent of all confirmed deaths.

Clearly, mange has been shown to be a significant source of mortality in Wisconsin. The Wisconsin DNR’s September 6, 2005 permit application requested authorization to euthanize wolves that are afflicted with mange or other serious contagious disease. As there may be circumstances where it is desirable to euthanize animals severely infected with mange or other disease to avoid the further spread of the disease, the Service believes it appropriate to authorize the Wisconsin DNR to euthanize up to three wolves annually for this purpose. Given the seriousness of mange and the potential to thus reduce the spread of the disease, we believe that this take may result in a net beneficial effect, but is not likely to have any adverse effect, on the Wisconsin wolf population. As this take is likely to be nearly all compensatory, and not additive, we do not believe it will result in any additional level of mortality to the population.

Injured Wolves

According to Wisconsin DNR monitoring reports, the major causes of wolf mortalities in Wisconsin in recent years include illegal shooting, vehicle collision, mange, and death caused by other wolves. Occasionally, Wisconsin DNR employees encounter wolves that have been injured for various reasons, and are unlikely to survive. In 2004, at least 5 wolves were euthanized by DNR personnel in situations unrelated to depredations, including four that had

been mortally injured due to vehicle collision, and one pup that had a pail stuck on its head for a long period of time (WDNR 2004). In all cases, these animals were euthanized to prevent further pain and suffering of animals that were virtually certain to die within a short period. To allow Wisconsin DNR to respond in this fashion to these kinds of situations in the future, the Service will authorize the lethal take of up to 10 animals per year, but only in those situations where in the best judgment of the Wisconsin DNR biologist, the animal was likely to die within a short time period of the injuries sustained. As is the case with animals with mange or other contagious disease, the Service believes that this mortality will be all compensatory, and not additive, and, therefore, would have no adverse affect on the Wisconsin wolf population.

Summary

The Service anticipates that issuance of the section 10(a)(1)(A) permit will result in adverse effects to individual wolves. Pursuant to the permit, a take of up to 71 animals may occur due to injury or death. Specifically, the Service expects no more than 5 wolves to be incidentally injured or killed while conducting research or monitoring activities, no more than 5 pups injured or killed as a result of capture of lactating females, and 5 older young of the year wolves or lactating females to be incidentally injured or killed during depredation abatement trapping. No more than 43 wolves will be intentionally killed for depredation abatement purposes, no more than 3 wolves euthanized that are severely infected with mange or other contagious disease, and no more than 10 wolves euthanized that have sustained various injuries likely to result in death.

CUMULATIVE EFFECTS

Cumulative effects include the effects of future State, Tribal, local or private actions that are reasonably certain to occur in the action area considered in the biological opinion. Future Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the Act. It is anticipated that future State, Tribal, local or private actions combined with this proposed wolf trapping action will contribute to the conservation of the gray wolf in and around the action area of the State of Wisconsin. Also, the Wisconsin DNR has prepared a Wisconsin Wolf Management Plan (October 27, 1999) which will provide for the continued existence and conservation of the gray wolf in Wisconsin. These efforts should contribute to the long-term survival of the gray wolf in Wisconsin. It is not anticipated that any future State, Tribal, local or private actions are to occur in the action area considered in this biological opinion that would adversely impact the gray wolf, beyond those already considered in the mortality factors previously described.

CONCLUSION

After reviewing the current status of the gray wolf, the environmental baseline for the action area, the effects of the proposed trapping of wolves for monitoring, research, and depredation abatement, and the cumulative effects, it is the Service's biological opinion that the trapping of wolves for monitoring, research, and depredation abatement, as proposed, is not likely to

jeopardize the continued existence of the gray wolf in Wisconsin. No critical habitat has been designated for the gray wolf in Wisconsin; therefore, none will be affected.

As previously discussed, the Wisconsin wolf population has been increasing over the past 10 years at an annual rate of approximately 17 percent. The Service anticipates that the issuance of the proposed section 10(a)(1)(A) permit will result in an additional mortality of up to 10 percent of the population. This increased rate of mortality is not likely to measurably slow the recovery of the species in Wisconsin, Minnesota or Michigan, and as such, the conservation status of the gray wolf rangewide will not be appreciably affected. Therefore, the Service believes the proposed actions will not jeopardize the continued existence of the gray wolf.

INCIDENTAL TAKE STATEMENT

Section 9 of the Act and Federal regulation pursuant to section 4(d) of the Act prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or to attempt to engage in any such conduct. Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the Act provided that such taking is in compliance with the terms and conditions of this Incidental Take Statement. The measures described below are non-discretionary, and must be undertaken by the Service so that they become binding conditions of any permit issued to the Wisconsin DNR for the exemption in section 7(o)(2) to apply. The Service has a continuing duty to regulate the activity covered by this incidental take statement. If the Service (1) fails to assume and implement the terms and conditions or (2) fails to require the Wisconsin DNR and its agents to adhere to the terms and conditions of the incidental take statement through enforceable terms that are added to the permit document, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, the permit document must require Wisconsin DNR and its agents to report the progress of the action and its impact on the gray wolf to the Service as specified in the incidental take statement. [50 CFR§402.14(i)(3)]

Amount or Extent of Take

The Service anticipates that up to 15 gray wolves per year may be taken incidentally as a result of this proposed action. The incidental take is expected to be in the form of death or injury.

The Service believes up to five wolves per year could be taken incidental to trapping for purposes of research and monitoring, and incidental to non-lethal depredation abatement activities, including rubber bullets, beanbags and shock collar experiments.

Depredation abatement activities may result in the death of up to five wolves, including young of the year wolves that may be lethally injured when captured and released prior to August 1, or lactating females captured and released prior to June 1 of each year.

Death or injury to young pups could occur as a result of trapping and/or euthanizing lactating females at depredation sites. Although lactating females captured prior to June 1 would be released, repeat depredating females may be euthanized, which could result in injury or death of up to five pups.

Effect of the Take

In the accompanying biological opinion, the Service determined that the levels of anticipated incidental and intentional take analyzed are not likely to result in jeopardy to the species or destruction or adverse modification of critical habitat.

Reasonable and Prudent Measures

The Service believes the following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take on the gray wolf:

1. The Service will ensure that incidental lethal take levels do not exceed the levels anticipated in this biological opinion.
2. The Service will require the permittee and its agents to follow the most current wolf capturing protocols to ensure injury potential is minimized to the fullest extent.
3. The Service will require the permittee and its agents to ensure all who engage in harassment of wolves with rubber bullets or other devices are properly trained in methods that minimize risk of injury or death to wolves.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the Act, the Service must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting/monitoring requirements. These terms and conditions are non-discretionary.

Terms and Conditions associated with RPM # 1

1. The Service will require the permittee and its agents to cease trapping wolves and to contact the Green Bay Ecological Services Field Office promptly if five adult wolves and/or 10 young of the year wolves have been incidentally injured or killed.

2. The Service will require that all wolf injuries or mortalities as a result of trapping activities be reported to the Service's Region 3 Endangered Species Permits Office at (612)713-5343, the Green Bay Ecological Services Field Office at (920) 866-1717, and the Service's nearest Law Enforcement Office within 5 calendar days.

3. The Service will require that any dead radio-collared wolves be transferred to the U.S. Geological Survey's Wildlife Health Laboratory in Madison, Wisconsin, for necropsy. For any dead wolves that are suspected to be Federal legal cases, the disposition of the specimen will be determined by a Federal Law Enforcement agent. Any other dead or moribund wolves will be submitted to the Wisconsin DNR Wildlife Health Lab in Monona, Wisconsin, for non-collared wolves or if State legal cases are involved. Specimens may be retained for further study or educational purposes with the written permission of the Madison Wildlife Health Laboratory; copies of such permission must be submitted annually to the Service's Region 3 Endangered Species Permit Office at Fort Snelling, Minnesota, by January 31.

4. The Service will require that a full report of activities conducted, as well as copies of all data obtained from those activities, be submitted to the Service's Region 3 Endangered Species Permit Office and the Service's Green Bay Ecological Services Field Office by January 31 of each year. In addition, copies of all reports and publications resulting from those data must be submitted to the Service's Region 3 Endangered Species Permits Office and the Service's Green Bay Ecological Services Field Office as they become available. The report should include the following:

- a. the date, location, age, sex, ear tag number, and general description of the physical condition of each wolf captured;
- b. the results of any non-lethal wolf studies;
- c. any administration of medications to captured wolves;
- d. the disposition of any wolves killed, injured, salvaged, and/or transported to the Madison Wildlife Health Laboratory;
- e. the results of any blood analysis;
- f. the results of efforts to address and resolve depredation issues, including repeat depredations by wolves; and
- g. a summary that includes the following for each wolf injury or mortality that has occurred:
 - (1) the date, time, and location of the taking;
 - (2) the names of any persons involved in the taking;
 - (3) the circumstances surrounding any taking, including the stimulus for the taking, and/or human activities involved;

- (4) the behavioral responses of any gray wolves taken; and
 - (5) any actions taken to avoid or minimize taking.
- h. the results of use of rubber bullets or other methods to scare wolves to reduce conflicts with humans and domestic animals.

Terms and Conditions associated with RPM # 2

The Service will require the permittee and its agents to follow the Wisconsin DNR/USDA wolf trapping protocols and receive annual refresher courses in the trapping, chemical immobilization, and medical handling of wild animals (with emphasis on wolves) or, if other procedures are proven to cause fewer injuries or mortalities, those procedures shall be utilized instead.

Terms and Conditions associated with RPM # 3

The Service will require that all individuals authorized by the Wisconsin DNR, USDA-APHIS-WS, or other agent of the permittee, be trained in the safe and humane use of any devices intended to harass and disperse wolves to minimize injury and death to wolves

Summary

The Service believes that no more than five adult and 10 young of the year gray wolves per year will be incidentally taken as a result of the proposed action. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If, during the course of the action, this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measure provided. The Federal agency must immediately provide an explanation of the causes of the taking and review with the Service the need for possible modification of the reasonable and prudent alternative.

REINITIATION NOTICE

This concludes formal consultation on the actions outlined in the request. As provided in 50 CFR §402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if: (1) the amount or extent of incidental take is exceeded; (2) new information reveals effects of the agency action that may affect listed species or critical habitat in a manner or to an extent not considered in this opinion; (3) the agency action is subsequently modified in a manner that causes an effect to the listed species or critical habitat not considered in this opinion; or (4) a new species is listed or critical habitat designated that may be affected by the action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

Questions pertaining to this biological opinion should be directed to Mr. Joel Trick at (920) 866-1737.

Louise Clemency

Literature Cited

- Bangs, E E., S. H. Fritts, D. R. Harms, J. A. Fontaine, M. D. Jimenez, W. G. Brewster, and C. C. Niemeyer. 1995. Control of endangered gray wolves in Montana. Pp. 127-134 *in* Ecology and Conservation of Wolves in a Changing World. L. N. Carbyn, S. H. Fritts, and D. R. Seip, eds., Alberta Canada: Canadian Circumpolar Institute.
- Bangs, E. 2005. Personal Communication. Message to Joel Trick regarding the use of bean bags and rubber bullets in the western U.S. Wildlife Biologist, U.S. Fish and Wildlife Service, Helena, Montana.
- Beyer, D.E. Jr., Roell, B.J. and D H. Lonsway. 2004. 2004 Survey of the Gray Wolf Population in Michigan's Upper Peninsula. Michigan Department of Natural Resources, Unpublished Report.
- Boitani, L. 2003. Wolf conservation and recovery. Pp. 317-40 in L. D. Mech and L. Boitani, eds., *Wolves Behavior, Ecology, and Conservation*. The University of Chicago Press, Chicago and London.
- Decapita, M. 2004. Personal Communication. Message to Joel Trick regarding recent records of wolves in the lower peninsula of Michigan. Endangered Species Coordinator, U.S. Fish and Wildlife Service, East Lansing, Michigan.
- Erb, J. and S.Benson. 2005. Distribution and Abundance of Wolves in Minnesota, 2003-04. Minnesota Department of Natural Resources, Unpublished Report.
- Fritts, S.H. and L.D. Mech. 1981. Dynamics, movements, and feeding ecology of a newly protected wolf population in northwestern Minnesota. *Wildlife Management*. 80:1-79.
- Fritts, S.H., R.O. Stephenson, R.D. Hayes, and L. Boitani. 2003. Chapter Twelve: Wolves and Humans. In L.D. Mech and L. Boitani. *Wolves: behavior, ecology, and conservation*. University of Chicago Press, Chicago, IL. 448pp.
- Mech, D.L. 1974. *Canis lupus*. *Mammalian Species*, no. 37. American Society of Mammalogists. 6 pp.
- Mech, L.D. 1995. The challenge and opportunity of recovering wolf populations. *Conservation Biology* 9:270-78.
- Mech, L. D. and L. Boitani. 2003. Conclusion. Pages 341-344 *in* Mech, L. D. and L. Boitani editors. *Wolves: Behavior, Ecology and Conservation*. Univ. Chicago Press, Chicago.
- Michigan Department of Natural Resources. 2005. Michigan Wolf Population Continues to Grow. Press release dated July 8, 2005, Lansing, Michigan.

- Mladenoff, D.J., T.A. Sickley, R.G. Haight, and A.P. Wydeven. 1995. A regional landscape analysis and prediction of favorable gray wolf habitat in the northern Great Lakes region. *Conserv. Biol.* 9:279-94.
- Peek, J. M., D. E. Brown, S. R. Kellert, L. D. Mech, J. H. Shaw, and V. Van Ballenberghe. 1991. Restoration of wolves in North America. The Wildlife Society, Technical Advisory Committee on Wolf Reintroduction (Ad Hoc), Bethesda, Maryland. Technical Review 91-1.
- Pils, C.M. October 23, 1998. Letter documenting incidental take of wolves in Wisconsin from monitoring, research and depredation abatement activities. Wisconsin Department of Natural Resources.
- Potvin, M.J., T.D. Drummer, J.A. Vucetich, D.E. Beyer, R.O. Peterson, and J.H. Hammill. 2005. Monitoring and Habitat Analysis for Wolves in Upper Michigan. *Journal of Wildlife Management* 69(4):1660-1669.
- Refsnider, R.L. 2000, 2001 and 2002. Region 3 U.S. Fish and Wildlife Service. Memorandums, E-Mails and telephone conversations with Ron Spry of the Green Bay Ecological Services Field Office.
- Shelley, D. P. and T. M. Gehring. 2002. Behavioral Modification of Gray Wolves, *Canis lupus*, Suffering from Sarcoptic Mange: Importance of Sequential Monitoring. *Canadian Field Naturalist [Can. Field Nat.]*. 116:648-650.
- Shivik, John A. 2004. Non-lethal alternatives for predation management. *Sheep & Goat Research Journal* 19:64-71
- United States Department of Agriculture, Animal and Plant Health Inspection Service, Wildlife Services. 2002. Final Environmental Assessment: Management of wolf-livestock conflicts and control of depredating wolves in the State of Minnesota. Grand Rapids, MN.
- U.S. Fish and Wildlife Service. 1992. Recovery Plan for the Eastern Timber Wolf. Twin Cities, MN. 73 pp.
- U.S. Fish and Wildlife Service. 2000. Proposed Rule. Proposal To Reclassify and Remove the Gray Wolf From the List of Endangered and Threatened Wildlife in Portions of the Conterminous United States; Proposal To Establish Three Special Regulations for Threatened Gray Wolves. FR 65:135, 43450-43496.
- U.S. Fish and Wildlife Service. 2003. Final Rule To Reclassify and Remove the Gray Wolf From the List of Endangered and Threatened Wildlife in Portions of the Conterminous United States; Establishment of Two Special Regulations for Threatened Gray Wolves. FR Vol. 68:62, 15804-15875. April 1, 2003.

- U.S. Fish and Wildlife Service. 2004. Proposed Rule To Remove the Eastern Distinct Population Segment of the Gray Wolf From the List of Endangered and Threatened Wildlife. FR Vol. 69:139, 43664-43692. July 21, 2004.
- Wisconsin Department of Natural Resources. 1989. Wisconsin Timber Wolf Recovery Plan. Wisconsin Endangered Resources Rep. 50: 37 pp.
- Wisconsin Department of Natural Resources. October 27, 1999. Wisconsin Wolf Management Plan. 79 pp.
- Wisconsin Department of Natural Resources. May 20, 2002. Final Draft Guidelines for Conducting Depredation Control On Wolves In Wisconsin Following Federal Reclassification To "Threatened Status".6pp,
- Wisconsin Department of Natural Resources. May 22, 2002. Progress Report of Wolf Population Monitoring in Wisconsin for the Period October 2001 to March 2002. 41 pp.
- Wisconsin Department of Natural Resources. 2003. Progress Report of Wolf Population Monitoring in Wisconsin for the Period October 2002 to March 2003.
- Wisconsin Department of Natural Resources. 2004. Progress Report of Wolf Population Monitoring in Wisconsin for the Period April to September 2004.
- Wisconsin Department of Natural Resources. 2005. Progress Report of Wolf Population Monitoring in Wisconsin for the Period October 2004 to March 2005.
- Wydeven, A. 2005 and 2006. Personal Communication. Telephone conversations and E-Mails to Joel Trick regarding wolf mortalities. Mammalian Ecologist, Wisconsin Department of Natural Resources. Park Falls, Wisconsin
- Wydeven 2005. Unpublished data. Wisconsin wolf mortality data. Wisconsin Department of Natural Resources. Park Falls, Wisconsin
- Wydeven, Adrian P. and R. Jurewicz. 2005. Justification for Lethal Control Authority for Recovery Activity under 10(a) (1)(A) of the Endangered Species Act on Gray Wolves in Wisconsin. Wisconsin Department of Natural Resources, Madison, WI. 17 pp.

Table 2. Injury rate and mortality related to live-capture activity on Wisconsin wolves, 1993 -1998. (Pils 1998)

Year	Total Captures	Severe Injuries	Capture-related Deaths
1993	9	0	1
1994	11	0	0
1995	17	2	1
1996	14	0	0
1997	18a	0	0
1998	<u>18b</u>	<u>2</u>	<u>2</u>
Total	87	4 (4.6%)	4 (4.6%)

a One wolf captured twice

b Two wolves captured twice

Table 3. Number of individuals and percentage of wolf population taken from 1993 – 2002 as a result of Minnesota USDA Wildlife Services' wolf depredation control activities (USDA 2002).

Year	Population Estimate	Wolves Taken	Percentage of Population Taken (Estimate)
1993	2000	139	7.0
1994	2000	172	8.6
1995	2000	78	3.9
1996	2200	154	7.0
1997	2300	216	9.8
1998	2400	161	6.7
1999	2500	151	6.0
2000	2600	148	5.7
2001	2750	109	4.0
2002	2750	146	5.3

**Table 4. Mortality of radio collared wolves in Wisconsin 2000-2005
(Wydeven 2005 Unpublished data).**

Mortality Factors	2000	2001	2002	2003	2004	2005	Total
Illegal Shooting/Snaring	2 (17%)	4 (28%)	3 (21%)	4 (20%)	4 (31%)	6 (40%)	23 (26%)
Vehicle Collision	1 (8%)	1 (7%)	2 (14%)	3 (15%)	2 (15%)		9 (10%)
Depredator Euthanized	0	0	0	1 (5%)	1 (8%)	1 (7%)	3 (3%)
Capture Related	0	1 (7%)	1 (7%)	0	2 (15%)		4 (5%)
Euthanized Other						2 (13%)	2 (2%)
Total Human	3 (25%)	6 (43%)	6 (43%)	8 (40%)	9 (69%)	9 (60%)	41(47%)
Mange	4 (33%)	4 (28%)	2 (14%)	6 (30%)	3 (23%)	3 (20%)	22 (25%)
Other Disease	1 (8%)	2 (14%)	0	0	2 (2%)		5 (6%)
Malnutrition	0	0	2 (14%)	0	0		2 (2%)
Other Wolves	3 (25%)	2 (14%)	1 (7%)	1 (5%)	1 (8%)		8 (9%)
Accident	0	0	1 (7%)	0	0		1 (1%)
Total Natural	8	8	7	8	4	3	38 (43%)
Unknown	1		1	4		3	9 (10%)
Total Wolves Dead	12	14	14	20	13	15	88
Total Collared Wolves	49	55	84	78	62	55	
% Increase from Previous Year	21	1	26	2	11	14	
Wolf Population	248	257	327	335	373	425	