

Michigan Department of Natural Resources Wildlife Division Procedure

Guidelines for Management and Lethal Control of Wolves Following Confirmed Depredation Events

Background

The eastern timber wolf or gray wolf is protected under both the federal Endangered Species Act and Michigan's Endangered Species Protection law. The U.S. Fish and Wildlife Service (USFWS) and the Michigan Department of Natural Resources (DNR), respectively, are responsible for ensuring compliance with these statutes.

During development of both Federal and State Recovery Plans, numerical recovery targets (population levels) were identified. The Federal Plan, which was approved in 1992 when there were very few wolves in Michigan, did not contain a population objective for reclassifying wolves in Michigan from endangered to threatened. The plan did specify that wolves in Wisconsin could be reclassified when the population was maintained at 80 or more wolves for three consecutive years. Unofficially, the Eastern Timber Wolf Recovery Team made the assumption that the same criteria would apply for Michigan (68 FR 15804). For federal delisting (*i.e.*, removal from the list of threatened and endangered species (50 CFR 17.11)), the number of wolves in Michigan and Wisconsin combined must be greater than 100 for five consecutive years.

The State Plan, signed by the Director of the DNR in 1997, calls for reclassification from endangered to threatened when there are more than 100 wolves in Michigan for five consecutive years (same as the Federal delisting criteria). The State delisting criteria will be met when there is a minimum sustainable population of 200 wolves in Michigan for five consecutive years. All population level recovery targets have been met except for State delisting. As of March 2003, the population in Michigan's Upper Peninsula was approximately 320 animals, and there have been greater than 200 animals in the Upper Peninsula for four consecutive years.

The USFWS published a proposed rule to reclassify wolves in Michigan from endangered to threatened on July 13, 2000 (65 FR 43450). A final rule was published on April 1, 2003 (68 FR 15804) and became effective immediately. In general, species listed as threatened retain the same protections as endangered species under the federal act. However, section 4(d) of the act allows special regulations, deemed necessary and advisable for the conservation of threatened species, to be issued. The final rule reclassifying wolves in Michigan includes a 4(d) rule allowing lethal control of depredating wolves in situations where management authorities deem these actions are warranted. A similar rule in Minnesota has played an important role in managing wolves where livestock depredation has occurred, has provided economic relief to livestock producers, and has reduced wolf/livestock conflicts.

Application of the 4(d) rule has several restrictions (68 FR 15804, page 15868)

- 1) Wolf depredation on lawfully present domestic animals must be verified.
- 2) Depredation is likely to be repeated.
- 3) The taking must occur within one mile of the depredation site.
- 4) Taking, wolf handling, and euthanizing must be carried out in a humane manner, which includes the use of steel foothold traps.
- 5) Young of the year trapped before August 1 must be released.
- 6) Lethal control can be carried out only by the DNR, USFWS, and Tribes within Michigan, or their designated agents. Personnel from U.S. Department of Agriculture-Wildlife Services (USDA-WS) will become designated agents of the DNR through a cooperative agreement signed by the DNR Wildlife Division Chief and the State Director of USDA-WS.
- 7) Private citizens are not allowed to kill a wolf during or after an attack on livestock or pets. The only time citizens are allowed to kill a wolf is in defense of human life (50 CFR 17.21). The 4(d) rule applies only to wolf depredation and does not address other nuisance wolf issues (*e.g.*, wolves exhibiting fearless behavior). Wolves exhibiting fearless behavior or those becoming habituated to humans and posing a non-immediate but demonstrable threat to human safety can be harassed or humanely dispatched by the USFWS, other federal land management agencies, state or tribal conservation agencies, or designated agents of any of these agencies under other regulations (50 CFR 17.21). A summary of federal regulations for taking gray wolves can be found in Appendix A.

The USFWS defines depredation as the injury or killing of domestic animals which includes livestock (R. Refsnider, USFWS, personal communication). Livestock are defined by the Michigan Department of Agriculture (Animal Industry Act, Public Act 466 of 1988) and include, but are not limited to, cattle, sheep, new world camelids, goats, bison, privately owned cervids, ratites, swine, equine, poultry, aquaculture, and rabbits. Livestock does not include dogs and cats.

This procedure details how the State, in cooperation with its designated agents and other affected parties, will manage wolves following confirmed depredation events, including the use of lethal means of control. **However, in all cases, every MDNR employee, in consultation with their supervisors or others if so directed, has the discretion to make management decisions on a case by case basis in the exercise of his or her judgment.** This procedure will be reviewed periodically and will be revised to reflect the changing ecological and social situations impacting wolves in Michigan.

Wolf Depredation on Livestock

Verifying Wolf Depredation

Before lethal control methods can be used, DNR or USDA-WS personnel trained on depredation investigation techniques must verify depredation during a site visit. Appendix B outlines wolf depredation investigative criteria used successfully in Minnesota (W.J. Paul, USDA-WS, pers. comm.).

Verified wolf depredation means that the event was recorded as **confirmed** or **probable** on the *Report of Livestock Depredation* form filled out by investigating personnel. Confirmed depredation is defined as clear evidence that a wolf or wolves were responsible for the depredation, such as a carcass present with bite marks and associated hemorrhaging and wolf tracks and/or scat in the immediate vicinity. Probable depredation is defined as cases where the majority of a carcass was consumed eliminating evidence of an attack, but there is good evidence that depredation occurred, such as a kill site or blood trails with wolf tracks and/or scat in the immediate vicinity. Cases where livestock are missing and additional evidence such as a kill site is absent usually will not be considered probable depredation. The only scenario where an on-site depredation investigator might consider a “missing animal” as a probable wolf depredation would be if the investigator finds fresh wolf sign in the pasture coinciding with the time of loss and/or fresh wolf droppings containing livestock hair (with no livestock carcass dump present). Because wolf depredation must be verified before lethal control can be considered, harassment of livestock by wolves will not constitute verified depredation and lethal control will not be applied.

Depredation events are complicated to investigate, available evidence is often incomplete, and there will be varying levels of difficulty in confirming wolf kills. Whenever possible, individuals with the most experience investigating depredation incidents should conduct the site visit. However, because it is critical to initiate an investigation as soon as possible, there will be times when experienced investigators are not available. In those instances, other personnel that have received training should travel to the site, meet with the livestock producer, and begin the investigation. However, if the evidence is not clearcut, a more experienced investigator should investigate. In all cases, the final determination will be at the discretion of the Management Unit Supervisor.

Use of Non-Lethal Means to Resolve Wolf-Livestock Conflicts

Available non-lethal methods to resolve wolf-livestock conflicts include improving animal husbandry practices, protection of livestock (*e.g.*, fencing, livestock guarding animals), harassment (*e.g.*, strobe light/siren devices), and translocation (trapping and relocation of depredating wolves). Non-lethal methods will be offered to livestock producers when wolves are known to be in an area where livestock are being housed or pastured, and there is a legitimate complaint that wolves are harassing, injuring or killing livestock. The legitimacy of these complaints will be evaluated in the field by DNR or USDA-WS personnel. A credible observation of wolves in an area frequented by livestock does not constitute enough of a threat to initiate the use of harassment techniques or translocation. All of these measures are detailed in the information pamphlet *How to Live With Wolves in Michigan*. This pamphlet is being developed and will be made available through the Farm Bureau, Michigan State University Extension, and the DNR.

Trapping and translocating depredating wolves is a non-lethal management option that can be used if it is verified that wolves have injured or killed livestock. All wolves trapped and relocated will be radio-collared.

Unfortunately, trapping and relocating wolves has become increasingly problematic. The *Michigan Gray Wolf Recovery and Management Plan* requires selected relocation sites to be on

public land in areas that will minimize the likelihood that the wolves will cause additional problems. None of the 24 wolves trapped and relocated from 5 depredation sites (1998-2002) have remained in the vicinity of the release site. Thus, the selection of a release site has no bearing on where translocated wolves will eventually settle. In addition, as the wolf population increases there are fewer suitable places to release wolves where a resident pack doesn't already exist. Also, trapping and relocating only should occur during periods of the year when ambient conditions help reduce potential for injury. Trapping during periods of extreme cold or heat may increase the potential for stress or injury. Human social factors also must be considered before relocating depredating animals. The public has expressed concern about moving depredation wolves into "their" area. There is also a widespread misconception in the Upper Peninsula that the DNR has been engaged in a wolf reintroduction project and the observation of personnel moving animals in cages or releasing animals from cages fuels that misconception.

Use of Lethal Control to Resolve Wolf Depredation on Livestock

Available lethal control methods to resolve wolf depredation on livestock include foothold traps and euthanasia, snares and euthanasia, and shooting. Wolves will be euthanized by shooting or lethal injection. Before lethal control can be considered as a management option, the first two requirements of the 4(d) rule must be met. These requirements are: (1) wolf depredation must be verified, and (2) wolf depredation is likely to be repeated. Requirements for verification of depredation have already been described. The evaluation of whether depredation is likely to occur again will be based on a field review by DNR or USDA-WS personnel, past history of depredations in the area, known pack locations and movement patterns, and consultation with Management Unit Supervisors. Once these two requirements have been met, lethal control can be used.

On farms that have suffered their first verified wolf depredation, livestock producers will be given the option of using non-lethal or lethal control techniques to be carried out by DNR or USDA-WS personnel. However, lethal control will be recommended on first time farms in the following circumstances:

1. On farms known to be frequented by a radio-collared wolf that has previously been associated (usually a translocated animal) with a depredation incident.
2. When control trapping would have to be conducted during periods of extreme cold or heat and these conditions would increase the likelihood of serious injury to a captured wolf.

Lethal control will be recommended on farms that have previously had one or more verified wolf depredations in the last five years. Non-lethal control measures usually will not be recommended on farms with chronic depredation problems.

Additional **requirements** for the use of lethal control include:

1. Field personnel will consult with the Management Unit Supervisor before using lethal control. Management Unit Supervisors will be responsible for the final judgment on the likelihood of repeated depredation.

2. Permission from the landowner must be obtained. This permission will be documented in writing on a standard *Landowner Permission Form* (currently under development).
3. The taking must occur within one mile of the depredation site. If lethal control is being used at a captive cervid facility, all trapping, snaring, or shooting will take place inside of the fence.
4. Snaring can be used only on the farm that suffered the depredation.
5. If trapping or shooting is going to be attempted on adjacent state, federal or commercial forest lands, the owner or managing authority must be contacted for permission, unless prior arrangements have been made.
6. Control on Tribal lands will only be done if requested by the Tribe.
7. Taking, wolf handling, and euthanizing must be carried out in a humane manner using accepted practices reviewed by DNR veterinarians.
8. Young of the year trapped before August 1 must be released near the point of capture.
9. Lactating females trapped before July 1 must be released near the point of capture unless there have been chronic depredation problems on a farm (three or more depredation events over two years). In this case, lactating females can be captured and euthanized with permission from the Management Unit Supervisor.
10. Traps and snares must be checked at least every 24 hours.
11. Snares must have a “deer stop” to prevent the loop from closing smaller than 2.5 inches.
12. Carcasses of wolves euthanized will be shipped to Rose Lake Wildlife Disease Laboratory for necropsy.
13. Disposal of carcasses and parts will follow the DNR *Disposal of Wildlife Carcasses and Parts* procedure.

Additional **guidelines** on the use of lethal control include:

1. Snares should be set for a non-lethal capture (*e.g.*, avoid entanglement of the captured animal).
2. DNR or USDA-WS personnel are responsible for checking traps and snares. In most instances, this will be the person that set the traps or snares.
3. Radio-collared or tagged wolves will be treated as any other depredating wolf.
4. Control efforts (trapping and snaring) normally will be carried out for 10 to 15 days, however the duration of control efforts will vary and be determined by the DNR.
5. If trapping is going to be attempted on adjacent state, federal or commercial forest lands, the area should be signed to alert the public that trapping is occurring. Signs should be placed on all roads that provide access to the area being trapped. If needed, signs can also be placed every ½ mile along the roads that are being trapped.
6. On farms that suffer their first loss, control efforts will usually be stopped after two wolves have been captured.
7. Technical assistance will be provided to the extent practical to help address animal husbandry practices that may be contributing to wolf depredation. The DNR will cooperate with Michigan State University Extension (MSUE), Michigan Farm Bureau (MFB), Michigan Cattleman’s Association (MCA) and other interested organizations to develop and distribute materials detailing appropriate management practices to be

- used on farms where wolves occur in the vicinity. It is hoped that the livestock producers will agree to a minimum set of animal husbandry standards. All technical assistance advised or given to producers prior to or after a depredation incident will be recorded.
8. Lethal control efforts will not be implemented at livestock operations or on other private lands with previous wolf depredations that fail to follow technical assistance guidelines in a timely manner. For example, it is well known that wolves will scavenge in uncovered carcass pits. If a producer continues to use an uncovered pit for livestock carcass disposal, repeated lethal control of wolves on such a farm will not occur.
 9. Dogs captured at depredation sites will be turned over to the owner or local animal control officer.
 10. Wolf-dog hybrids captured at depredation sites will be dispatched by DNR or USDA-WS personnel.

Wolf Depredation on Dogs

Wolf depredation on dogs will be investigated using the same techniques that are used for livestock depredations. The use of lethal control for wolf depredation on dogs is subject to the 4(d) restrictions. If wolf depredation is verified and it is likely that depredation will be repeated, lethal control can be used when wolves have killed dogs that were leashed, confined, or under the owners control on the owner's land. Lethal control will not be used when wolves kill dogs that are free-roaming, hunting, or training on public lands. Dogs used as livestock guard animals will be treated as livestock for verification and control purposes.

Documentation and Information Transfer

1. Personnel investigating a depredation complaint will fill out *Report of Livestock Depredation* form (Form R- 2566E, Rev. 12/2000). This form will be forwarded to the Management Unit Supervisor.
2. The Management Unit Supervisor will forward the form to appropriate Michigan Department of Agriculture personnel to review for indemnification payment. The Management Unit Supervisor will send copies to Lansing and Research.
3. If the Management Unit Supervisor authorizes lethal control, field personnel will obtain the landowners permission on a standard *Landowner Permission Form* (currently under development).
4. If DNR, MSUE, MFB, MCA or other organizations provide technical assistance, document that assistance and whether or not the measures were successful.
5. If trapping or shooting is going to be attempted on adjacent state, federal or commercial forestlands, the owner or managing authority must be contacted for permission, unless prior arrangements have been agreed upon. Permission can be documented by email.
6. Non-lethal and lethal control activities should be documented in detail by DNR or USDA-WS personnel. For example, time spent, miles driven, types of technical assistance, and numbers of traps set are all important factors to document.
7. If wolves are captured and euthanized, background information on the incident should be forwarded along with the animal to the Rose Lake Wildlife Disease Laboratory.

8. If wolves are euthanized during control efforts, field personnel will inform the Management Unit Supervisor as soon as possible. Management Unit Supervisors will notify the Endangered Species Program Coordinator who will notify the USFWS Law Enforcement (must be notified within 15 days) and appropriate DNR staff.

Required Training of Personnel

All DNR and USDA-WS personnel making field evaluations to determine if an incident constitutes a verified wolf depredation event will have undergone the depredation training provided by DNR Wildlife Division.

Appendix A

Summary of Federal Regulations for Taking Gray Wolves in Michigan, April 1, 2003

Gray wolves throughout the Eastern DPS are classified as “threatened” under the federal Endangered Species Act (ESA). However, different regulations apply to these threatened wolves, depending on the location of the animals within the Eastern DPS. Special regulations for Minnesota wolves have been in effect since 1978. Special regulations for the other Midwestern states took effect on April 1, 2003. The following situations and associated regulations apply to Michigan.

Situation	Special regulations
In defense of human life	Any person can kill or injure a wolf in defense of his/her life or the life of others
A. Protecting human safety	Wolves that are a “demonstrable but nonimmediate threat to human life or safety” may be removed by FWS, other federal land management agencies, state or tribal conservation agencies, or designated agents ¹ of any of these agencies
B. Aiding a sick, injured, or orphaned wolf; disposing of a dead wolf; or salvaging for scientific study	May be done by FWS, other federal land management agencies, state or tribal conservation agencies, or their agents ¹
C. Salvaging a dead wolf for traditional cultural purposes by Native American tribes	May be done by FWS, other federal land management agencies, state or tribal conservation agencies, or their agents ¹
D. Removing wolves attacking lawfully present domestic animals	May be done by employees of FWS, state or tribal natural resource management agencies, or their agents ¹
E. Taking wolves for research or conservation programs under ESA section 6 cooperative agreements	State conservation agencies which have approved section 6 cooperative agreements with FWS have full authority for such taking
F. Other forms of take may be carried out for various purposes under specific FWS permits, as authorized by 50 CFR 17.32	By various parties, if the take is for: <ul style="list-style-type: none"> • scientific purposes • enhancement of propagation or survival • zoological exhibition • educational purposes • incidental taking (with an HCP) special purposes consistent with ESA

¹ Personnel from U.S. Department of Agriculture-Wildlife Services (USDA-WS) will become designated agents of the DNR through a cooperative agreement signed by the DNR Wildlife Division Chief and the State Director of USDA-WS.

Appendix B

Investigative Criteria to Differentiate Wolf Depredation from Depredation by Other Predators or Natural Mortality/Scavenging of Livestock.

The following investigative criteria were provided by William J. Paul, Assistant State Director, USDA Wildlife Services, Grand Rapids, Minnesota.

- The livestock carcass must be reasonably fresh (not more than a few days old). A determination can not be made on carcasses that are already rotted down to bare bones.
- Tracks left by wolves at kill sites are easily distinguishable from those of most other predators except large dogs.
- Wolf attacks on large livestock are characterized by bites and large ragged wounds on the hindquarters, flanks, and sometimes the upper shoulders. Attacks on young calves or sheep are characterized by bites on the throat, head, neck, back, or hind legs. Wolves and coyotes may cause extensive trauma to underlying tissues, but don't always penetrate the skin with their canines.
- Wolves usually begin feeding on the viscera and hindquarters. Much of the carcass may be eaten with large bones chewed and broken. The carcass is usually torn apart and scattered with subsequent feedings.
- Coyotes also eat the viscera and hindquarters first, but the feeding pattern is not as heavy as for a wolf. Coyotes tend to eat the meat from a carcass rather neatly leaving most of the skeleton intact in the early stages. They tend to chew just the tips of the ribs off (eat the cartilage). Coyotes (unlike wolves) may also chew the ears or nose off a calf carcass. Coyotes are an important predator on newborn and small calves up to a month old.
- Wolves and coyotes may show similar killing and feeding patterns on small livestock. Where wounds are present, the area should be skinned out so that the size and spacing of the tooth holes can be examined. Wolf canine tooth holes are about ¼ inch (0.6 cm) in diameter while those of a coyote are about 1/8 inch (0.3 cm) in diameter. Spacing of wolf canines ranges from 37.3 to 48.2 mm (n = 22) and spacing of coyote canines ranges from 22.3 to 35.8 mm (n = 30).
- Wolves are attracted to and will scavenge carcasses of livestock that have died of natural causes. It is important to distinguish between predation and scavenging. Evidence of predation includes signs of a struggle, and hemorrhaging beneath the skin in the throat, neck, back, or hindquarter area.
- Animals that have died of natural mortality do not exhibit any obvious wounds and may not be fed upon or may be fed upon very lightly. Skin out appropriate areas of the intact carcass to look for any signs of attack (not all predator bites produce canine punctures). Wolves do not kill livestock animals without feeding upon them—they also do not run animals to death where they just tip over.
- A depredation investigation should include examining all possible clues such as the presence of tracks, feeding pattern, nature of wounds, size of canine tooth holes, and possible mortality factors. Look for all of these factors before giving the livestock-

producer a determination. Show the livestock producer any evidence that eliminates wolves but implicates another predator.

- Remember that at most farms in the wolf range, wolves, coyotes, and black bears are all present and could be involved in a depredation. Even at farms with chronic wolf problems, other predators such as coyotes may kill livestock or natural mortality may occur. Look at every depredation on a case-by-case basis even though the farm may have a history of wolf damage.
- Missing livestock: The only scenario where an on-site depredation investigator might consider a “missing animal” as a probable wolf depredation would be if the investigator finds fresh wolf sign in the pasture coinciding with the time of loss and/or fresh wolf droppings containing livestock hair (with no livestock carcass dump present) or a cow with a full bag and bellowing and obviously searching for a missing calf in a particular spot where wolf sign is present. These would be the only situations where physical evidence suggests an animal was killed but no carcass can be found.