



Gray Wolf Biology

Questions and Answers

1) Why was the gray wolf listed as endangered?

Wolves became nearly extinct in the conterminous 48 states in the early part of the 20th century. Predator-control programs targeted wolves, and wolf habitat was altered and destroyed as eastern forests were logged and then converted to farms. Woodland caribou, bison, and beaver, the wolves' prey base, were also brought to near-extinction by settlers and market hunters. Predator-control programs, loss of habitat, and loss of prey resulted in the elimination of wolves throughout most of the conterminous U.S. except in northeastern Minnesota and Isle Royale, Michigan. A few individuals also remained in the northern Rocky Mountains.

2) What types of habitat do wolves use?

Gray wolves use so many different habitat types that they are equally at home in the deserts of Israel, the deciduous forests of Wisconsin, and the frozen arctic of Siberia. Within North America, gray wolves formerly ranged from coast to coast with the exception of the mid-Atlantic states, the Southeast, and perhaps parts of California. They were found in almost all habitat types; prairie, forest, mountains, and wetlands. In the conterminous 48 states today, they are found in mostly forested lands in Minnesota, Wisconsin, Michigan, Montana, Idaho, Oregon, Washington, and Wyoming. Although wolves in the western Great Lakes area primarily use northern woodlands, they have expanded their range into areas that are a mix of forest and agriculture in Minnesota and Wisconsin. The Mexican gray wolf has been reintroduced into the mountains of the Apache National Forest in Arizona and translocated into the Gila National Forest in New Mexico.

3) Do wolves need wilderness areas to survive? Can they survive near urban areas?

It was thought that gray wolves were a wilderness species, but wolf range has expanded into areas that we once thought could not support them. In Minnesota and Wisconsin, wolves have shown that they can tolerate more human disturbance than we previously thought. Consequently, it appears that wolves can survive anywhere there is sufficient food and human tolerance to allow their existence.

From a biological standpoint, we know that wolves can and do survive near urban areas. But whether wolves survive near cities and towns will depend on people. There are areas near large cities that have sufficient wild prey to support wolves. Wolves are predators, however, and conflicts arise when they kill livestock and domestic animals, including pets. These conflicts, along with urban hazards such as vehicle traffic, will likely limit the establishment of wolf populations near urban areas.

4) How far do wolves travel?

Wolf packs usually hunt within a specific territory. It is not uncommon for territories to be as large as 50 square miles but they may even extend up to 1,000 square miles in areas where prey is scarce. Wolves often cover large areas to hunt, traveling as far as 30 miles a day. Although they trot along at 5 m.p.h., wolves can attain speeds as high as 40 m.p.h. Most wolves disperse from the pack they were born into by age three. Dispersing wolves have traveled as far as 600 miles.

5) What do wolves eat?

In the Midwest, wolves eat mainly white-tailed deer but they also eat moose, beaver, and snowshoe hare. In the Rocky Mountains, wolves feed on elk, deer, moose, bison, and beaver. Wolves even eat some insects, small mammals, nuts, and berries. They may not eat for a week or more but are capable of eating 20 pounds of meat in a single meal.

6) If wolf numbers get too high, will deer and elk be eliminated?

Wolves have lived with their prey for many thousands of years, and the health of wolf populations is dependent on the health of their prey base. Under certain conditions wolves can cause local decreases in prey numbers. But if deer and elk numbers were to decline over an extended period of time, due to severe winter conditions or habitat changes, wolves would have less food available and their health would decline. They would then produce fewer pups and fewer pups would survive to adulthood. Also, more adult wolves would die because of poor health or in conflicts with other wolves. Thus, wolf numbers would decline before their prey could be eliminated.

Isle Royale, Michigan, serves as a living laboratory to illustrate this point. One female gray wolf naturally immigrated to this island (about 132,000 acres) more than 50 years ago and eventually three packs were established. Their primary prey is moose. Through the years the numbers of moose and wolves have fluctuated, but after 50 years a moose population continues to survive on Isle Royale.

7) Do wolves really take the old, young, sick, starving, or injured animals?

It is well-documented that wolves tend to do this. Hunting and bringing down big game is dangerous work and wolves are sometimes killed by elk, moose, and even deer. In the wild, they cannot afford to be injured; therefore, they go after the safest animals to kill and often leave strong animals alone. A recent study of wolf predation on elk in Yellowstone National Park, for example, found that wolves tend to kill calves and older animals – adult elk killed by wolves were about 7 years older than elk killed by hunters. If weather or other conditions make prey unusually vulnerable, wolves can and do kill prime-aged animals but wolf predation tends to be selective.

8) How do wolves in an area affect deer hunting?

Wolves survive by preying primarily on the most vulnerable individuals in the deer population (the very young, old, sick, injured, or nutritionally compromised) thus under certain conditions their impacts on the deer population are most likely compensatory rather than additive. That is, many of the deer that wolves kill likely would have died from other causes such as starvation or disease.

However, when weather events occur, such as deep snowfalls or drought, wolves can be a factor that reduces deer numbers further. For example, since wolves became protected in northern Minnesota in 1978, there has been a high and even increasing harvest of deer by hunters. But two consecutive hard winters (1995-96 and 1996-97) reduced the size of the state's northern deer herd, which in turn resulted in much lower deer harvests. Wolves likely were accountable for a portion of the lower deer numbers and, in turn, the lower deer harvest. Subsequent mild winters resulted in a rebounding of the deer herd, despite the increasing wolf population. The years 2005 through 2007 produced the highest deer harvests ever, with Minnesota deer hunters harvesting over 250,000 white-tailed deer during each of those hunting seasons – an approximate five-fold increase in hunter deer harvest since wolves were listed under the ESA in 1978.

Locally, the presence of wolves can reduce hunter success. The presence of wolves changes deer movements and behavior. Also some wolves hunt around bait piles that attract and concentrate deer, which may reduce the chances that deer will frequent the bait sites.

Here is some additional information about the affect of wolves on white-tailed deer populations and the affect on deer hunting.

Axelsson, G. 2009. Bounce Back. Article in Minnesota Conservation Volunteer magazine about Minnesota DNR deer reproduction study.
http://www.dnr.state.mn.us/volunteer/sepoct09/bounce_back.html

Stark, Dan. 2010. The Impact of Wolves on White-tailed Deer in Minnesota. Minnesota DNR Report.
http://files.dnr.state.mn.us/fish_wildlife/roundtable/2010/wildlife/wolf_deer_impacts.pdf

Wisconsin DNR. 2009. Wolves and Deer in Wisconsin.
<http://dnr.wi.gov/org/land/er/mammals/wolf/pdfs/wolvesdeer2009.pdf>

Michigan DNR. The Impacts of Wolves on Deer in the Upper Peninsula.
http://www.michigan.gov/dnr/0,1607,7-153-10363_10856_10905-150249--,00.html

9) Do wolves kill more than they can eat?

Sometimes, but rarely. The few times that wolves have been documented killing more than they could eat were when conditions such as deep snow or other unusual circumstances made it easy for them to kill their prey. Even then, they returned to those kills and continued to use them.

10) Does the presence of wolves affect the numbers of animals other than their prey?

As one of the top predators in the food chain, wolves have a definite impact on their ecosystem. Studies at Yellowstone are finding that the effect of wolves cascades throughout the Park's ecosystems. Ravens, foxes, wolverines, coyotes, bald eagles, and even bears benefit because they feed on carcasses of animals killed by wolves. Coyotes declined because wolves view them as competition and keep them out of their territories; which may be responsible, in part, for an increase in small rodents. Elk changed their behavior to avoid wolf predation, which allowed willow, aspen, and cottonwood regrowth. This, in turn, provided food for beavers and habitat for

songbirds. The ecosystem changes and cascading effects continue and are expected to do so for some time.

11) What is a wolf pack?

The wolf pack is an extended family unit that includes a dominant male and female, referred to as the alpha pair. In each pack, the alpha animals are usually the only ones to breed, preventing subordinate adults from mating by physically harassing them. Thus, most packs produce only one litter of four to six pups each year. A pack typically includes the alpha pair, the young wolves born that year, perhaps last year's young, and sometimes a few older wolves that may or may not be related to the alpha pair.

12) How many wolves are in a pack?

Pack sizes vary considerably, depending on the size of the wolf population in a particular area, whether they are feeding pups and the amount of prey available. Average pack size in the Midwest varies from 4 to 8 wolves during winter with records of up to 16. In the northern Rocky Mountains, packs average about 10 wolves, but one pack in Yellowstone had 37 members. That pack then formed several smaller packs. Pack size can temporarily be as high as 30 or more in parts of Canada and Alaska but most packs are much smaller.

13) Do wolves mate for life?

Usually, a wolf pair may mate until one dies and then the living mate will find another mate.

14) What happens to a pack when the alpha male or female is killed?

In a Yellowstone wolf study, which is a study of a population that is not hunted or trapped, the death of one or both members of the alpha pair usually resulted in another adult wolf coming in to replace the one that died. Sometimes it led to dissolution of the pack. Packs sometimes adopt unrelated dispersing wolves that could also become alpha members of the pack. When packs dissolved after the death of an alpha animal, new packs formed in those areas.

15) How does a non-breeding wolf attain breeding status?

A wolf can stay with the pack into which it was born and bide its time until it works its way up the dominance hierarchy or it can disperse. A dispersing wolf leaves the pack to find a mate and a vacant area in which to start its own pack. Both strategies involve risk. A wolf that bides its time may be out-competed by another wolf and never achieve dominance. Dispersers must hunt on their own until they form or join a new pack, and they may be killed when they invade the territory of other wolves.

Dispersers can leave a pack at any time of year but usually leave the pack in autumn or winter, during hunting and trapping season and prior to the February breeding season. They must be alert to entering other wolf packs' territories and they must keep a constant vigil to avoid encounters with people, their major enemy. Dispersers have been known to travel great distances in a short time. One radio-collared Wisconsin wolf traveled 23 miles in one day. In ten months, one Minnesota wolf traveled 550 miles to Saskatchewan, Canada. In 2001, a wolf trapped in the western portion of Michigan's Upper Peninsula was killed in north-central Missouri, about 600 miles from its home territory, by a farmer who stated that he thought it was a coyote.

16) When do wolves mate?

The breeding season for wolves is from late January through March; the further south, the earlier the breeding season. Females are pregnant for about 63 days before they give birth to four to six pups.

17) Where do wolves give birth to their young?

Pups are usually born in a den excavated as much as 10 feet into well-drained soil. Sometimes the female selects a hollow log, cave, tree with overhanging branches, or abandoned beaver lodge instead of making a den. At birth, wolf pups are deaf and blind, have dark fuzzy fur and weigh about one pound. They begin to see when two weeks old and can hear after three weeks. At this time, they become very active and playful.

18) At what age are wolf pups weaned?

Wolf pups are weaned at about six weeks old, and then the adults begin to bring them meat. Most adult wolves center their activities on dens while traveling as far as 20 miles away in search of food, which is regularly brought back to the den. Adults eat the meat at a kill site, often miles away from the pups, and then they return and regurgitate the food for the pups to eat. The hungry pups jump and nip at the adults' muzzles to stimulate regurgitation.

19) How long do wolf pups stay in the den?

By mid- to late summer, when the pups are six to eight weeks old, they are usually moved some distance away from the den. The female carries the pups in her mouth to the first of a series of rendezvous sites or nursery areas. These sites are the focus of the pack's social activities for the summer months and are usually near water. By August, the pups wander up to two to three miles from the rendezvous sites and use them less often. The pack abandons the sites in September or October, and the pups, now almost full-grown, follow the adults.

20) How long do wolves live?

Gray wolves are known to live up to 13 years in the wild and 15 years in captivity.

21) In protected populations, what kills wolves?

In natural situations pups die from starvation and adults die from being killed by members of neighboring packs. Adults can also starve to death if the prey base is not adequate. Diseases, such as canine parvovirus and mange, also kill wolves, especially pups. Sometimes adult wolves are killed by animals on which they intended to prey.

22) Are wolves a threat to humans, in particular small children?

Aggressive behavior from wild wolves towards humans is rare. Mark McNay of the Alaska Department of Fish and Game compiled information about documented wolf-human encounters in "A Case History of Wolf-Human Encounters in Alaska and Canada" which was published in 2002. There are 59,000 to 70,000 gray wolves in Alaska and Canada, and since 1970 there were 16 cases of non-rabid wolves biting people. Six of those cases were severe. Since that report was written, wolves killed a man in Saskatchewan, Canada in 2005. It appears to have been a situation where wolves were feeding in an unregulated garbage dump and became habituated to people. In 2010 a woman jogging outside a remote village in Alaska was killed by wolves.

Wild wolves generally are shy of people and avoid contact with them whenever possible. However, any wild animal can be dangerous if it is cornered, injured or sick, or has become habituated to people through activities such as artificial feeding. People should avoid actions that encourage wolves to spend time near people or become dependent on them for food.

Where the wolf remains listed as endangered, the Endangered Species Act allows take of any endangered or threatened species if there is an immediate threat to human safety. If someone is in a situation where they feel they or someone else is in immediate danger from a wolf, they can kill the wolf. Additionally, state and federal land management agencies can remove or kill a wolf that presents a demonstrable, non-immediate threat to human safety. In areas where the wolf is no longer protected by the Endangered Species Act, state regulations define the actions that people can take to protect themselves if they feel threatened by a wolf.

23) Is there any danger from wolves to my pets?

Yes, in some situations. Attacks on dogs in residential areas are uncommon but have been on the increase as wolf numbers and range are increasing. The Wisconsin DNR has guidance on their website for dog owners who live in wolf country:

<http://dnr.wi.gov/org/land/er/mammals/wolf/guidance.htm>. When walking dogs in wolf country, to protect both pets and wildlife, pets should always be carefully monitored by their owners. Unsupervised dogs that stray from their owner's homes or from their handlers into wolf territories are definitely at risk. Wolves will treat dogs as interlopers on their territories and may attack and kill them, especially if the wolves have pups nearby.

The majority of documented pet dogs killed by wolves have been hounds used for hunting bear in Wisconsin and Michigan and used for hunting bear and mountain lion in the northern Rocky Mountains. Hunting dogs are killed by wolves while the dogs are trailing game for training purposes during off-season times and while hunting during regulated seasons. The Wisconsin DNR has "A Guide for Reducing Conflict Between Wolves and Hunting Dogs" on their website at <http://dnr.wi.gov/org/land/er/mammals/wolf/wolfhounddog.htm>.

24) Do wolves make good pets?

No, wolves or wolf-dog hybrids do not make good pets. The idea of owning a wolf or a wolf-dog cross is appealing to many people, but the reality of owning one of these animals is often very different. While wolf puppies might be as cute as dog puppies, they will grow up to be wolves, not dogs, no matter how much they are treated like dogs. With wolf-dog crosses, or hybrids, the higher the percentage of wolf genes, the more wolf-like behavior the hybrid will exhibit. There is no way of knowing the percentage of wolf genes in a cross that is an offspring of a hybrid.

Many an unsuspecting wolf lover has purchased a wolf pup, only to find that it is largely untrainable, because it does not care much about pleasing its owner. As it grows into adulthood it becomes unpredictable, if not downright dangerous, especially around children and small animals. Such animals often live miserable lives on the end of a chain after a frustrated owner gives up trying to train the animal. Wolf or hybrid owners who are unable to cope with their "pet" may elect to either pass the animal along to another unsuspecting wolf lover or sentence the animal to life at a sanctuary (many such facilities exist, but most are already overcrowded).

Some may release the animal to the wild, where it will most likely starve to death or because of its familiarity with people, be involved in depredation incidents resulting in wild wolves being unfairly blamed. Releasing wolf-dog hybrids is prohibited in some states.

25) How big are wolves?

The size of a wolf varies depending on where it is found. Smaller sizes tend to be found in the southern portion of wolf range and larger sizes in the northern portion. Females tend to be slightly smaller than males. The average size of males is 5 to 6.5 feet long (tip of nose to tip of tail), 26 to 32 inches high at the shoulder, and 70 to 115 pounds in weight (in Alaska they occasionally reach 145 pounds). The average size of females is 4.5 to 6 feet long, 26 to 32 inches high at the shoulder, and 60 to 100 pounds in weight. Wolves reach adult size by 1 year of age.

26) How can you tell the difference between a gray wolf and a coyote or a large dog?

Size is a key difference between coyotes and wolves. Coyotes range from 3.5 to 4.5 feet long, 16 to 20 inches high at the shoulder and 20 to 50 pounds. This is about half the size of a wolf. Coyotes tend to have gray or reddish brown fur with rusty colored legs, feet, and ears, and whitish fur on the throat and belly. Their ears are pointed and relatively long, and the muzzle is pointed and petite. The track size is about 2.5 inches long and 1.5 inches wide. Coyotes tend to carry their tail held below the back line. The tail may or may not be black tipped and is less than 18 inches long. In contrast, wolves have many color variations but tend to be buff-colored tans grizzled with gray and black (although they can also be black or white). Their ears are rounded and relatively short, and the muzzle is large and blocky. Wolves generally hold their tail straight out from the body or down. The tail is black tipped and over 18 inches long. A wolf track size is about 4.5 inches long and 3.5 inches wide.

Wolves and other wild canids usually place their hind foot in the track left by the front foot, whereas a dog's front and hind foot tracks usually do not overlap each other. Only a few breeds of dogs leave tracks longer than 4 inches (Great Danes, St. Bernards, and some bloodhounds). Although the tails of many dogs are curled; coyote and wolf tails are never seen curled.

27) How can I learn more about wolves and the things that are going on right now that will affect their future?

Information about wolves in the western Great Lakes states is on the Service's Website at <http://www.fws.gov/midwest/wolf>, information about wolves in the northern Rocky Mountains is on the Service's Website at <http://www.fws.gov/mountain-prairie/species/mammals/wolf/> and information about wolves in the Southwest (Mexican gray wolf) is on the Service's Website at <http://www.fws.gov/southwest/es/mexicanwolf/>. Mailing addresses for information about gray wolves are:

For the western Great Lakes:

U.S. Fish and Wildlife Service
5600 American Blvd. West, Suite 990
Bloomington, MN 55437

For the northern Rocky Mountains:
U.S. Fish and Wildlife Service
Western Gray Wolf Recovery Coordinator
100 N. Park, #320
Helena, Montana 59601

For the Southwest:
U.S. Fish and Wildlife Service
Mexican Wolf Recovery Coordinator
2105 Osuna Road NE
Albuquerque, NM 87113