



***"Ranchers can't make good management decisions based on myth."***

- Andrew Anderson, Montana land-owner and producer

Wolves operate in an annual cycle. Each season means a different stage in a wolf's biological cycle and encompasses different behaviors and travel patterns. Becoming knowledgeable about these behaviors and corresponding changes in behavior is helpful for ranchers to understand so that they may make good management decisions and successfully work around wolves on shared landscapes.

**Winter:** Wolves have thick, insulated winter coats and paws designed to travel easily on snow. When they travel, wolves will travel single file, creating paths of least resistance. Winter is often when wolves are most active and successful in hunting, taking advantage of ungulates' more vulnerable state due to less feed available and poorly designed hooves for running across the snow. This is the season wolves go into heat and breed.

**Spring:** Pack coherence is the strongest in spring when wolf pups are born around mid-April. Female wolves generally dig their den or prepare the previous den two weeks before giving birth. The rest of the pack is responsible for protecting the breeding female, hunting, and bringing her food. Pups generally start to emerge from the den around mid-May. The

mother and pups stay close to the den while the other pack members provide food and protection. The male may roam far to avoid attracting threats, including other wolves, to the den. Wolf packs are often quieter this time of year, howling less to avoid attracting predators or non-wolf pack members who could pose a threat to their pups. As wolves follow prey migration, they may transition to their summer range or follow a different summer travel pattern as they survey their territory.

**Summer:** The wolves' thick winter coats are replaced by short summer coats. Pups are moved to a “rendezvous” site away from the den in early summer. As the pups start to require more resources in terms of solid food, hunting activities increase to provide for the expanded family. Wolves are corpuscular, meaning that they are more active at dawn and dusk, often napping in the middle of the day. Hunting may occur during these times or any time during the day if the opportunity arises. While most of the pack is out hunting, at least one older or “nanny” wolf cares for and watches over the pups at the rendezvous site.

**Fall:** Pack coherence is lessened this time of year, and often, packs will split up over periods of time before coming back together. This is also the time of year that young wolves will disperse, hopefully allowing enough time to find a mate and new territory of their own. Wolves' coats start to become deep and dense. Wolf pups get their first experience with snow, which they explore with exuberance. Wolves will begin to transition to their winter range, following the prey migration, or transition to their winter travel pattern as they survey their territory.



## Wolf Hunting Behavior

Understanding how wolves hunt is key to helping prevent wolf-livestock conflict. As wolves circulate around their territory and encounter and test prey under various conditions, they gain information about prey's vulnerability to hunting (finding, catching, killing). Through trial and error, wolves end up with whichever prey they can capture.

Wolves have a strong sense of self-preservation. As such, they are continually weighing vulnerability against risk – this leads to testing prey's vulnerability. Unlike bears and lions, wolves are not ambush predators. Wolves are not physically equipped to take down prey like bears and lions. Wolves generally attack from behind, weakening their target and minimizing their risk of injury or death from a hoof or antler. Thus, wolves will pressure prey to entice them to flee. Getting their prey to run also allows the wolves to evaluate which animal is the most vulnerable, allowing them to single out and put their collective energy toward taking the weakest animal.

If the prey, however, turns and faces the wolves, standing its' ground, the risk to the wolf increases. If the wolves are unsuccessful in getting a flight response, in most cases, the wolves will back down and seek more vulnerable options.

There are other factors that can lead to vulnerability in prey and result in a successful hunt. Wolves are capable of taking healthy, full-grown elk bulls hindered by challenging terrain. When prey becomes trapped or hampered by a landscape feature like deep snow, downfall, fencing, or steep draw, wolves don't need to take the weakest or slowest animal. As long as the vulnerability outweighs the risk, wolves will take advantage of the circumstances.



Wolves pursuing fleeing Elk



Bison in a herd standing their ground

## Prey Vulnerability and Surplus Killing

As with all predators, wolves kill to obtain the food needed to survive. Hunting takes a tremendous amount of energy for wolves, and most hunting attempts are unsuccessful. Thus, wolves take advantage of prey vulnerability to procure sufficient food with minimal effort and risk.

Like many predators, wolves can occasionally take more than can be immediately consumed. Though “surplus” killing is uncommon, it does happen, and generally, this is seen in late winter months when ungulates are more physically compromised. As with any predation event, there always exists a set of circumstances that led to the successful kill. It is no different in the case of surplus killing; sufficient vulnerability existed in a group of animals that allowed for multiple kills. Prey in a weakened state due to winter severity, deep snow, challenging terrain, herd illness, or prey behavior are some factors that can play into a surplus killing event.

If the carcasses are left on the landscape, wolves will generally return to a kill site for several days to continue consuming the remains. Surplus kills also provide valuable food resources to other animals via scavenging during the time of year when other carnivores need these resources the most.

## Livestock Vulnerability

To reiterate, prey vulnerability is a highly influential factor in determining wolf hunting success. As wolves circulate around their territory and encounter and test prey under various conditions, they gain information about the prey's vulnerability to hunting. Through trial and error, wolves end up with whichever prey they can capture.

Many factors lead to livestock vulnerability. For more details, please see: [Understanding Wolf-Livestock Conflict Risk](#).

Wolves learn and remember the information gained about prey behavior, terrain, locations, and any other physical factors that will help them in their quest for food.

## Vulnerability vs. Chronic Depredation

Repeated depredations by wolves on livestock are often referred to as “chronic” depredation. However, more often than not, it is a case of vulnerability that may be addressed rather than actual chronic behavior. If you have one ranch experiencing repeated loss due to wolves while the neighbor has had no issues, this leads to the question of why wolves are killing cattle on one ranch and not the neighbor's ranch.

This illustrates a classic vulnerability scenario with a specific ranch operation or cattle. There is a window of time, which can vary greatly, in which the vulnerability must be addressed, and most likely can be addressed, to avoid the potential of wolves becoming *chronic* depredators. If not addressed, this can grow into a community-wide challenge, leading to a chronic depredation scenario that is very difficult to reverse. Thus, Working Circle works closely with ranchers to identify conflict risks and support ranchers in minimizing these risks, thus protecting the lives of cattle and wolves.

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## Common Wolf Myths Addressed

*With thanks to Carter Niemeyer*

### **Was the reintroduction of gray wolves into Yellowstone National Park and central Idaho legal?**

**YES. The reintroduction of wolves to the West in the mid-1990s was legal.**

After Congress directed the U. S. Fish and Wildlife Service (Service) to reintroduce gray wolves into Yellowstone National Park and the central Idaho Wilderness in 1991, the Service prepared a Draft Environmental Impact Statement (DEIS). 160,254 agencies, organizations, and individuals commented on the DEIS. A review and analysis of the comments resulted in a Final Environmental Impact Statement (The Reintroduction of Gray Wolves to Yellowstone National Park and Central Idaho) in 1994.

Gray wolf reintroduction efforts began in the fall of 1994, and the first wolves were captured in Canada in the winter of 1995. The Wyoming Farm Bureau first filed for a preliminary injunction but was denied. Shortly after the first wolves were released into Yellowstone National Park, the Wyoming Farm Bureau, and several other plaintiffs filed a lawsuit to stop it.

Not until December 1997 did Judge William Downes of the Wyoming district court order that the defendants “must remove reintroduced non-native wolves and their offspring from the Yellowstone and central Idaho experimental population areas.” The judge later stayed the execution of his order pending appeal.

Subsequently, the 10th Circuit Court of Appeals in Denver, Colorado, heard the defendant's appeal and issued an opinion on January 13, 2000, unanimously

overturning the Wyoming district court's decision and ordering that the reintroduced wolves be allowed to remain in Yellowstone (and central Idaho). The 10th Circuit Court of Appeals upheld the wolf reintroduction rules as lawful under the Endangered Species Act and the National Environmental Policy Act allowing the wolves to remain in the West.

*Citation:*

<http://www.cnn.com/NATURE/9907/30/wolf.enn/>

## **Are the wolves reintroduced into YNP and central Idaho the same size and species that lived in the lower 48 states before extirpation?**

**YES. The gray wolf is considered one species.**

Although a few subspecies also are recognized. While scientists once identified as many as 24 subspecies of wolves in North America based on morphology (skull measurements, pelt color), wolves now are separated using genetic testing. Today scientists recognize four or five subspecies.

Before European settlement in North America, wolves ranged from coast to coast and from Canada to Mexico. We know through modern-day research and radio-collaring that wolves travel tremendous distances, dispersing between states and countries. Even highways and rivers don't stop wolves from dispersing into new territories. It's naive to think that adjacent wolf packs and populations didn't intermix.

By the middle of the 20th century, wolves had been exterminated in most of the lower 48 states, except for a few hundred wolves in Minnesota. Canada and Alaska remained home to thousands of wolves. No other source of wolves remained to re-inhabit the western U.S. except wolves still living in Alaska or Canada. Anecdotal stories persist today that the "original wolves in Idaho, Montana, Wyoming, and other western states were smaller, friendlier, and less problematic" than the "larger, meaner, bloodthirsty wolves" that lived in Alaska and Canada. **Still, there is no factual basis for this.**

Few people today know intimately about the wolves that once inhabited the West. Author, biologist, and trapper Stanley P. Young in *Last of the Loners* documented the demise of the last gray wolves at the behest of the federal government around 1940, indicating that the physical attributes of wolves back then were much the same as wolves now. **The average gray wolf weighs 100-110 pounds based on current research and historical documentation.** Male wolves can weigh more and females less. The largest wolf reintroduced from Canada weighed 130 pounds. Scientists in Alaska consider a

wolf weighing more than 140 pounds “huge.” The largest reintroduced wolves captured and weighed after wolf reintroduction weighed 141, 143, and 148 pounds – all within Yellowstone National Park.

Wolf reintroduction happened to speed up the recovery of the wolf population in the Northern Rocky Mountain region of the U.S. Wolves from Canada. Specifically, British Columbia and Alberta were selected as the source population to ensure good genetic diversity. A few wolves from Canada were documented to have tried re-colonizing areas along the Canada/U.S. border in Montana in the 1980s. They occasionally moved further south only to be killed. **Wolves from Canada were the logical choice for re-introduction because they occupied similar habitats and hunted the same prey that would be available in the West: elk, moose, and deer.**

Wolves hunt individually or in packs. Research in Yellowstone indicates that wolves can run at speeds up to 35 mph. Being a large wolf can compromise speed but be advantageous for bringing down large prey or winning fights. Female wolves, because they tend to be smaller (and therefore faster), are generally the ones to run down and overtake prey, then the males help subdue it. Pups don't assist in the hunt. While genetics significantly affect how large a wolf can become, nutrition may be more important. Wolves can reach their greatest size, where they have an abundance of prey readily available. Wolf biologists recognize that wolf weights can vary considerably from region to region, state to state, probably the result of prey abundance and availability. Yellowstone wolves are perhaps bigger due to the abundant biomass of deer, elk, moose, and bison.

*Citations:*

1. <https://www.nps.gov/yell/learn/ys-24-1-yellowstone-wolf-facts.htm>
2. [http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view\\_article&articles\\_id=503](http://www.adfg.alaska.gov/index.cfm?adfg=wildlifeneews.view_article&articles_id=503)

## **How many species of gray wolves are there?**

**There is only one gray wolf species (Canis lupus). The classification of subspecies has evolved as more sophisticated testing is available.**

Historically the number of North American wolf subspecies was thought to be as many as 24, based mainly on morphological measures (skull dimensions, etc.). More recent data analysis suggests there are as few as four sub-species.

Wolves vary in color, size, and weight and, based on radio collar data, are known to disperse over large distances. Modern research also has determined that gray wolves and coyotes have interbred throughout history, creating more debate

about the number of subspecies of wolf that may exist.

Wolves throughout the world are pretty much the same in basic appearance and behavior.

According to the International Wolf Center in Minnesota:

*“these different types are so subjective that over the years scientists have disagreed as to whether in North America alone there are 24 such subspecies or only four. Current workers generally accept five, but a recent article lumped those into four. Subspecies of gray wolves in North America include the Arctic wolf (*Canis lupus arctos*), northwestern wolf (*Canis lupus occidentalis*), Great Plains wolf (*Canis lupus nubilus*), Mexican wolf (*Canis lupus baileyi*) and the eastern timber wolf (*Canis lupus lycaon*), which is debated by some as a distinct species, the eastern wolf (*Canis lycaon*). **In reality, any differences among all these proposed types are so minor as to be meaningless except to a few specialists.**”* (WC bold emphasis).

The 4-5 subspecies include:

- *Canis lupus baileyi* – the Mexican Wolf or lobo.
- *Canis lupus nubilus* – the Great Plains or Buffalo Wolf.
- *Canis lupus occidentalis* – the Rocky Mountain or MacKenzie Valley Wolf.
- *Canis lupus lycaon* – the Eastern Timber Wolf. Some scientists maintain that this wolf is a separate species, *Canis lycaon*.
- *Canis lupus arctos*– the Arctic Wolf.

Citations:

1. <http://www.wolf.org/wolf-info/basic-wolf-info/types-of-wolves/>
2. JOURNAL: B. vonHoldt et al. [“Whole-genome sequence analysis shows that two endemic species of North American wolf are admixtures of the coyote and gray wolf.”](#) Science Advances. July 27, 2016. doi: 10.1126/sciadv.1501714
3. Jimenez et al. 2017. Wolf Dispersal in the Northern Rocky Mountains. The Journal of Wildlife Management 81(4): 581-592

## **Are wolves dangerous to people?**

**NO**

Wolves typically avoid people and are not dangerous. Since gray wolf reintroduction into Yellowstone National Park and the central Idaho Wilderness in 1995 and 1996, wild wolves have not killed any humans in the lower 48 states. In 2010 wolves killed a young woman in Alaska while jogging with her headphones. There was an additional report of a human death attributed to



wolves in 2005 in Saskatchewan, Canada, although experts disagreed on whether the death resulted from bears or wolves. Approximately 60 to 65 thousand wolves live in Canada and Alaska.

There are; however, well-documented accounts of wild wolves attacking people in North America. When wild animals become habituated to people, they may lose their fear of humans, especially if they are fed or associate humans with providing food. Like any large predator, wolves are capable of killing people. No one should ever encourage a wolf or any other wild animal to approach, and hikers and campers should take all necessary precautions to prevent mishaps involving any wildlife. Common sense is key.

*Citations:*

1. [https://en.wikipedia.org/wiki/Death\\_of\\_Kenton\\_Joel\\_Carnegie](https://en.wikipedia.org/wiki/Death_of_Kenton_Joel_Carnegie)
2. <https://www.adn.com/outdoors/article/wolves-killed-alaska-teacher-2010-state-says/2011/12/07/>
3. <https://www.adfg.alaska.gov/static/home/news/pdfs/wolfattackfatality.pdf>

## **Is the Echinococcus tapeworm found in wolves a serious threat to human health and safety?**

### **NO**

Human exposure to and infection by Echinococcus is possible, although rare. Transition to humans would be the result of ingesting tapeworm eggs shed in carnivore feces and contaminated vegetation. Good sanitation and hygiene are paramount to avoiding infectious diseases. Since interactions between humans and wolves are rare, scientists who study and handle wolves would be at the highest risk of ingesting the eggs of tapeworms. No wolf scientists have ever been diagnosed with an Echinococcus infection. To avoid exposure, wear protective gloves, wash your hands, and keep your hands away from your mouth.

Echinococcus is a tapeworm found in dogs and other wild carnivore species with worldwide distribution. Although well studied globally, the current presence, prevalence, and transmission dynamics of Echinococcus species in the contiguous United States are unknown. Echinococcosis is not reportable in either animals or humans in the United States – surveillance is recommended but not mandatory in the US, probably due to the rare occurrence in humans.

The Echinococcus tapeworm lifecycle requires two hosts, one being the definitive (wild or domestic) host, including canines (dogs/fox/coyotes/wolves), and an intermediate (wild or domestic) host that can range from mice to moose. Echinococcus was identified in the lower 48 states in the early 1900s, and well-documented lifecycles studied in many states in the United States often

occurred between domestic dogs and sheep.

Recent surveillance studies conducted in Idaho confirm the presence of Echinococcus in mule deer, elk, a mountain goat, and 62 percent of the intestinal tracts of gray wolves tested with similar results in Montana. Although Echinococcus is endemic to the United States, there was unconfirmed speculation that the reintroduction of gray wolves from Canada may be a factor in the recent documentation of the parasite. **Droncit, a de-wormer, was twice given to the wolves before their release.** Control of parasite infections in wild animals is deemed unfeasible to impossible.

*Citations:*

- Foreyt, W. J., M. L. Drew, M. Atkinson, and D. McCauley. 2009. Echinococcus granulosus in gray wolves and ungulates in Idaho and Montana, USA. *Journal of Wildlife Diseases* 45: 1208-1212.
- Mech, L.D. 2010. Reality check: western wolves and parasites. International Wolf Center. <http://howlcolorado.org/2010/03/15/reality-check-western-wolves-and-parasites/> Thompson, R.C.A. 2008. The taxonomy, phylogeny, and transmission of Echinococcus. *Experimental Parasitology* 119:439- 446.
- Cerda, J., Buttke, D., & Ballweber, L. (2018). Echinococcus spp. Tapeworms in North America. *Emerging Infectious Diseases*, 24(2), 230-235. <https://dx.doi.org/10.3201/eid2402.16112>



## **How have wolves affected big game species?**

**Since gray wolf reintroduction and recovery in the Northern Rocky Mountain Region, including Idaho, Montana, Wyoming, and surrounding states, all indications are that big game herds are thriving.**

A combination of annual state wildlife population counts and surveys coupled with hunter success in recent reveal a positive picture.

Each state manages big game herds by setting management objectives and goals for various herd and management zones. Objectives are usually political in nature and the result of a compromise between how much the range will support and how many deer and elk private landowners will tolerate. Viewpoints of hunters, wildlife viewers, ranchers, and farmers are all considered.

**Since management objectives are man-made, some are achievable, and others are not. Habitat quality is of primary concern. Forage, drought, fire suppression, habitat loss, and winter severity also factor in.**

In Idaho in 2017, elk populations were estimated to be in 22 of 29 elk management zones. In the remaining 7 zones, aerial surveys for estimating elk are either impractical due to forest cover or too expensive given the low density of elk. Most Idaho elk zones meet or exceed cow and bull elk objectives. The annual predation rates on elk calves by wolves would rank behind that of both cougars and black bears in Idaho.

Idaho's 2015 whitetail deer harvest set an all-time record, with 30,568 deer killed for a 45 percent success rate.

Despite the reintroduction of wolves in 1995 and 1996, Montana's elk herd has grown from an estimated 90,000 elk in 1992 to over 160,000 elk in 2017. Because of the large number of elk, reported crop damage, and reduced hunter access, some reports say Montana has too many elk.

Seventy percent of the elk in Montana are found on private lands, and hunter access is often a problem. First approved by the Montana Fish and Wildlife Commission in October 2015, shoulder seasons are an opportunity for hunters in hunting districts where elk populations are over an objective. As a result, Montana hunters killed a record number of elk in 2015. A master's study in 2012 from Montana State University concluded that wolves do not significantly affect elk harvests in Montana.

Wyoming hunters killed the second-highest number of elk in recent memory in 2016. A record elk harvest in 2012 resulted in 57,000 hunters killing 26,385 elk, which resulted in a 46 percent success rate. Most Wyoming elk herds are at or

above management objectives in many areas, with elk numbers growing.

*Citations:*

1. [http://billingsgazette.com/lifestyles/recreation/montana-hunters-killed-record-number-of-elk-in/article\\_d08059bc-e947-52ed-90a0-5149d38a4cd9.html](http://billingsgazette.com/lifestyles/recreation/montana-hunters-killed-record-number-of-elk-in/article_d08059bc-e947-52ed-90a0-5149d38a4cd9.html)
2. <https://scholarworks.montana.edu/xmlui/bitstream/handle/1/1450/HazenSO512.pdf?sequence=1>

## **Have wolves decimated the Yellowstone elk herd?**

### **NO**

Thirty-one wolves were reintroduced into Yellowstone National Park in 1995-96. The wolf population increased steadily and peaked at approximately 174 wolves in 2003 before declining and stabilizing at close to 100 wolves annually in 2018.

The elk population in Yellowstone numbered 20,000 in 1992 and began a steady decline over the next two decades to fewer than 4,000 head in 2013. Factors including winter severity, drought, large predators (bears, mountain lions, wolves), and human hunters contributed to the decline.

Fast forwarding to 2017, biologists from Montana Fish, Wildlife and Parks and Yellowstone National Park counted 7,579 elk in what's known as the northern range, an area stretching from the Lamar Valley north to Six Mile Creek. The total is 42 percent higher than 2017's count of 5,349. It's the fourth consecutive year that the number has increased.

This puts the northern elk herd at the highest level in over a decade. The number is still below the long-term average of roughly 10,000 for the area, but it's much closer than it has been in over a decade. The last time the count surpassed 7,500 was in 2005, when 9,545 elk were counted.

No matter how much science tells us about what drives northern Yellowstone elk population dynamics, science alone is unlikely to resolve stakeholder concerns about too few or too many elk. This is because these concerns are less about science and more about competing visions of how northern Yellowstone should look. Nonetheless, Yellowstone's elk are increasing, and wolf numbers are steady.

*Citations:*

1. *The Challenge of Understanding Northern Yellowstone Elk Dynamics after Wolf Reintroduction* Daniel R. MacNulty, Daniel R. Stahler, C. Travis Wyman, Joel Ruprecht, & Douglas W. Smith
2. *Jackson Hole News & Guide, Opinion: There's More To The Elk Killing Story*, Tim Preso, April 16, 2016

## Frequently Asked Questions

### **ARE ALL GRAY WOLVES GRAY IN COLOR?**

No, Gray wolves can be white, cream, black, tan, brown, or grizzled, which is a combination of tans, browns, and black. The term gray wolf is a species name and comes from all gray wolves having a grey-colored undercoat.



### **HOW LONG DO WOLVES LIVE?**

The average is seven years in the wild and twelve years in captivity.

### **HOW MUCH DO ADULT WOLVES WEIGH?**

Adult female gray wolves in northern Minnesota weigh between 50 and 85 pounds, and adult males between 70 and 110 pounds. Gray wolves are larger in the northwestern United States, Canada, and Alaska and in Russia, where adult males weigh 85 to 115 pounds and occasionally reach 130 pounds. Males generally weigh about 20 percent more than females. Wolves attain their adult height, length, and weight in the first one to two years. Most look like adults by late autumn of their first year.

The largest (heaviest) male gray wolf reintroduced into Yellowstone National Park weighed 130 pounds. All other wolves reintroduced into Yellowstone and central Idaho were smaller and of lighter weight. Though genetics plays an important role, nutrition is probably more important in determining what weight a wolf can achieve.

The average height of a gray wolf is 26-32 inches.

### **HOW FAST CAN WOLVES RUN, AND HOW FAR DO THEY TRAVEL?**

Wolves trot at an average of 5 miles per hour, but they can run in short bursts at up to 35 miles per hour. They can travel as much as 30 miles daily (sometimes more!) as they survey their territory and hunt for food.

### **WHAT IS THE MAIN CAUSE OF WOLF MORTALITY?**

Human activity, including lethal management, is the number one cause of wolf mortality in areas with people. Territorial disputes are the second cause of mortality (wolves killing wolves). Canine parvo, distemper, and mange are also responsible for some mortality.

### **HOW LONG IS THEIR GESTATION PERIOD?**

The gestation period is approximately 63 days.

### **HOW MANY PUPS ARE USUALLY BORN?**

The average litter is five pups. It can vary depending on the abundance of prey, wolf population density, and the size of available territory.



### **HOW MUCH DO PUPS WEIGH WHEN THEY ARE BORN?**

Newborn wolves weigh about one pound. They are born deaf and blind.



## **WHAT IS THE MAIN PREY OF WOLVES?**

Their primary prey is elk, followed by deer. Caribou in Alaska are common. Wolves also take moose and bison but much more infrequently.

## **WHAT IS THE SOCIAL STRUCTURE OF THE PACK?**

A pack is generally one related family unit consisting of two breeding adults, a male and a female, who are the pack's leaders. They are also the most likely pair to breed. The beta wolves are in the second position, and the omega wolf is in the lowest position within the pack. A pack commonly consists of the breeding pair, yearlings, and pups. When wolves reach maturity at approximately two years old, they may disperse (lone wolves) to mate and establish their own territory.

Other wolves choose to remain with the pack for safety and hunting security. Wolves that don't disperse cannot breed unless an unrelated wolf joins the pack. If the breeding male is killed and an outsider takes his place, the new wolf may mate with the alpha female and one of her daughters, as they are unrelated. In this case, a pack can have two or more litters.

## **WHAT IS THE SIZE OF A TYPICAL WOLF PACK?**







A typical pack, which includes the parents, pups, and possibly one to several wolves from previous litters, is six to eight wolves. There have been instances, however, where packs have been much larger. Wolf packs typically form by two adults pair bonding during fall and winter dispersal, breeding once a year in late winter or early spring and giving birth to 4-6 pups in March or April. Calling wolves "alphas" can be misleading since they usually pair and mate without needing to establish dominance; therefore, "breeding pair" is a preferred term.

## **WHAT IS A LONE WOLF?**

A lone wolf can be a member of a pack that happens to be traveling alone temporarily, which often occurs in the summer. More typically, the phrase is used to describe a wolf that has dispersed from its natal (birth) pack. Wolves often disperse to seek a mate or new territory to call home. Dispersing usually occurs at two years of age during the breeding season, but if resources are low, wolves may leave the pack at one year. Lone wolves have been documented to travel hundreds of miles over multiple years.



# Gray Wolf or Coyote?

	Gray Wolf	Coyote
		
Length	4.5 - 6.5 feet (nose to tail)	3.6 - 4.4 feet (nose to tail)
Shoulder Height	26 to 32 inches 	21 to 24 inches 
Track Size	4 - 5 long x 3 3/4 - 5 wide 	2 1/4 - 2 3/4 long x 1 3/4 - 2 3/8 wide 
Weight	60 - 154 pounds	20 - 50 pounds
Coat	Grizzled gray is the most common, but they range in color from black to white	Gray or reddish brown with rusty legs, feet & ears with a whitish belly & throat
Muzzle	Large and squared	Smaller and pointed
Ears	Rounded, relatively short	Pointed, relatively long
Diet	Elk, deer, caribou, moose, bison, beaver	Rabbits, rodents, deer, elk, carrion
Locomotion	Wolves trot at 5 miles per hour, but they can run in short bursts at up to 35 miles per hour.	Coyotes can run up to 25-30 mph
Habitat	Forest and tundra. Presently limited to areas of extensive wilderness. Wolves do not do well near human settlements.	They can be found in any variety of habitats including forests, deserts, prairies, mountains, agricultural areas, and urban areas. Most common in mixed habitats. They have adapted well to living in urban environments.
Range	Gray wolves once ranged over almost all of North America north of Mexico City, except parts of California. Extirpation of wolf populations began after European settlement. In the United States the range, population and legal status of wolves varies by state and region.	Alaska, much of mainland Canada, throughout the U.S., south through Mexico to western Panama. Not found in Hawaii.





## More Information

For more information, please visit our partner's wolf education pages:

- [Oakland Zoo](#)
- [The National Wildlife Federation](#)
- [Colorado Wolf and Wildlife Center](#)
- [Southwest Colorado Wolf Cooperative](#)
- [International Wolf Center](#)

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