# Mexican Gray Wolf
## *Canis lupus baileyi*


General characteristics of Order **Carnivora:** are mainly meat-eaters, including the wolf. Name an omnivore and a herbivore??

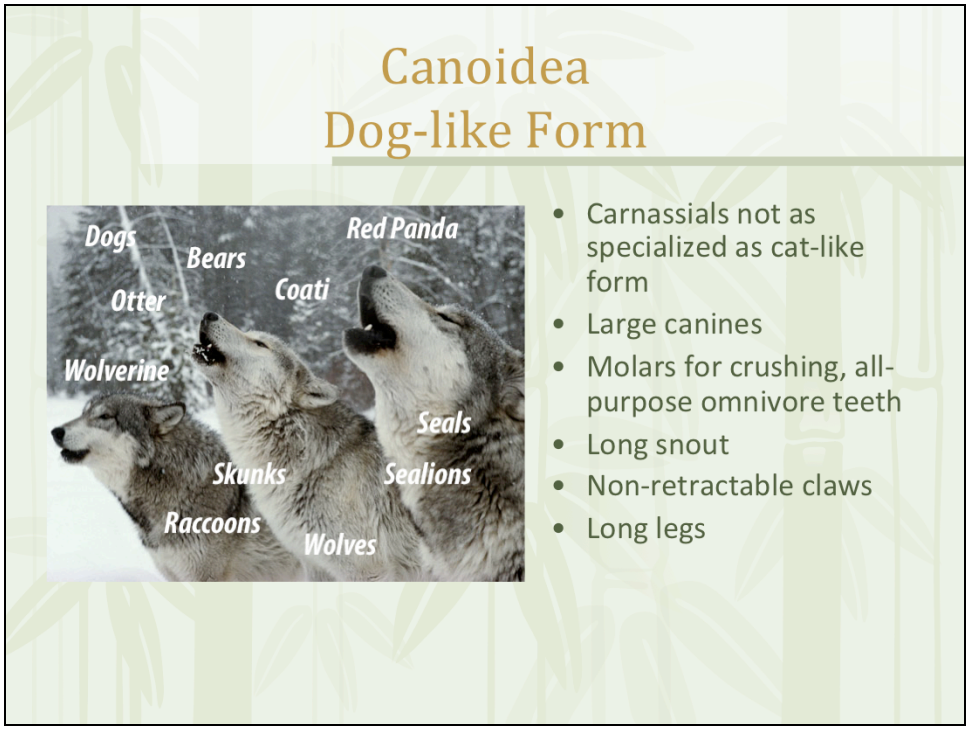
Species in order share long canines and have **carnassial teeth**, with a cutting edge that act like scissors against each other. The carnassials are the modified fourth upper premolar and the first lower molar. They have become modified in the omniovores and herbivores.

Carnivores have simple stomachs and undeveloped cecums as meat is easy to digest. They have restricted vertical motion of the jaw; they don't need grinding motion of the herbivores.

Most characteristics of Carnivores involve adaptations for pursuing & consuming prey; they are efficient hunters. Along with the large canines and carnassials, most have acute vision with forward facing eyes and a well developed sense of smell and acute hearing. Forward facing eyes provides binocular vision which helps with determining depth of field and an increase in judgment in capturing prey.

Fused wrist bones and locked radius/ulna, which prevents rotation in the limb and are typical of carnivores, providing speed and an increased stride.

The reproductive strategies of delayed implantation and induced ovulation are typical of solitary animals. These strategies do not apply to the wolf as they are a pack animal.




The Carnivora Order split early in the evolution process into the dog-like and cat-like forms about 50 million years ago. The split began with a change in dentition. Canines are not as long and the carnassials are less specialized, as in the cat-like form. Their teeth are adapted for cracking bones and slicing flesh.

The **Canoidea** or dog-like forms typically possess a long snout as they hunt by smell.

They have many adaptations that help them run swiftly after prey, including: long legs, digitigrade feet (on toes), non-retractable claws and fused wrist and locked radius and ulna which gives unidirectional strength to the limb and doesn't rotate.

They social carnivores, like the wolf have more robust, less flexible bodies built for stamina to tire prey over long distances, but lack the cat's solitary killing prowess.

## Family Canidae
## Mexican Gray Wolf

- Smallest species of gray wolf, distinguished by its smaller, narrower skull and its darker pelt
- Live in remote areas of mountainous forests and woodlands
- Diet of deer, elk, javalinas, and smaller mammals such as rabbits and squirrels

*Canis lupus baileyi*

Smaller than standard grey wolves, about the size of a German shepherd and darker fur. The Mexican Gray wolf, commonly referred to as "El lobo" or "lobo. The gray wolf, *Canus lupus*, is also known as the "Timber Wolf". The Mexian gray wolf is about half the size of the North American Gray wolf.

Males weigh 60-80 lbs and grow up to 5'5" in body length. Males are typically heavier, longer and taller than the females.

Live in remote areas of mountainous forests and woodlands.

Diet of mostly large hooved animals such as elk, white-tailed deer, and mule deer, javelinas, also rabbits, ground squirrels and mice including fur and bones. Also scavenge on carcasses of prey species.

Life span: ~10 years (average 6-8 years) in the wild; in captivity ~ 15 years

## Historical Range

- Used to be found throughout southern US and Mexico, now only in recovery areas in Arizona, New Mexico, and northern Mexico
- Critically endangered, most endangered wolf subspecies, and most endangered mammal in North America
- Wolves were hunted, trapped, and poisoned to near extinction in the U.S. by the mid-1970s


Once ranged widely from central Mexico throughout the southwestern U.S. Now, range is restricted to southeastern Arizona and parts of New Mexico and northern Mexico. The Mexican gray wolf is the most southerly gray wolf and the most genetically distinct because of its isolation.

*Canus lupus* is not considered endangered but *Canus lupus baileyi* is the most endangered wolf subspecies, and most endangered mammal in North America.

The Mexican Gray Wolf became critically endangered largely because wolves were hunted, trapped, and poisoned to near extinction in the U.S. by the mid-1970s.

In 1925, Mexican gray wolf mostly eliminated in the US (down to 24 individuals)

In 1976 Federally listed as an Endangered Species.

Many myths and misconceptions about wolves and they are generally misunderstood. Wolves do not eat people, and actually avoid human contact. Wolves don't eat that much livestock, it is just unevenly distributed among ranchers. They also maintain healthy populations of their natural prey, going for the old, sick and young prey.

## Recovery Status

- 5 remaining wolves in the wild were captured in the late 1970's, those wolves began the breeding program
- There are now approximately 100 in the wild and 200 in captivity
- With this reintroduction, biologists hope to restore balance to southwest ecosystem.


The 5 remaining wolves in the wild were captured in the late 1970's and early 80's, these wolves began the captive breeding program for the Mexican Gray wolf Recovery Plan with the US Fish and Wildlife.

In 1998, 11 individuals were reintroduced to the wild to the Blue Range of the Apache National Forest in southeastern Arizona and may move into the adjacent Gila National Forest in western New Mexico as the population expands.

The Mexican gray wolf was once "top dog" in the southwest. Biologists believe that lobos will restore balance to the Southwest's ecosystems by keeping deer, elk and javelin by keeping populations healthy and in check. Wolves strengthen these animals by preying on the old, sick and young, and prevent their populations from growing so numerous that they overgraze and destroy habitat that countless other species depend on.

The Mexican Gray Wolf is managed under a SSP of the AZA- challenges include maintaining genetic diversity and aggression of the same sex groupings.


Wolves (including the Mexican gray) have one of nature's most sophisticated and complex social orders.

The Gray Wolf lives in packs of extended family groups of usually 4-8 individuals, including an alpha male and female. The size of the pack is determined by the availability of resources and the size of their territory. The pack has a hierarchy of dominant and subordinate individuals to help it work as a unit. Usually the young stay with the pack 2-3 years. The dominant alpha male/female control when and where the pack will hunt.

Howling is distinctive among individuals and is used to assemble the pack before and after a hunt, advertise territory and to convey information about a kill. Howls are unique to each individual. Myth buster – Wolves do not howl at the moon!!

Packs rarely meet face to face because they effectively draw territorial boundaries by howling, scent marking with urine and feces and by scratching the ground.

Wolves also use tail positions to communicate emotion. Wolves expressing threatening signs hold their tails high, almost perpendicular, while submissive wolves lower themselves before dominant pack members, tails tucked between their legs.

Facial expressions are often used to express emotions. Wolves may indicate dominate behavior by baring teeth and pointing erect ears forward.

Wolves are adapted for a fast, almost continuous locomotion and their endurance-running or cursorial hunting strategy. They are better adapted for running long distances at high speeds. They can trot ~ 5 mph and average about 35 mph but can sprint up to 45 mph.

Some of these adaptations include: wolves have narrower chests and hips and longer legs and larger paws than dogs; their limbs and feet are about directly under the center of their body while standing.

The paw of a wolf is twice the size of that of a dog.

Wolves stand with their elbows pointed inward and their paws outward, whereas dogs' paws and elbows face forward.

## Reproduction

- Breeding pair – alpha male and female
- Litter size is ~ 4 – 6 pups
- Pups are born blind and defenseless; they are altricial
- The pack cares for the pups until they reach physical maturity at ~ 10 months
- Sexual maturity is reached ~ 2 – 3 years

Usually only the alpha pair (monogamous) breeds and this happens between late January and March.

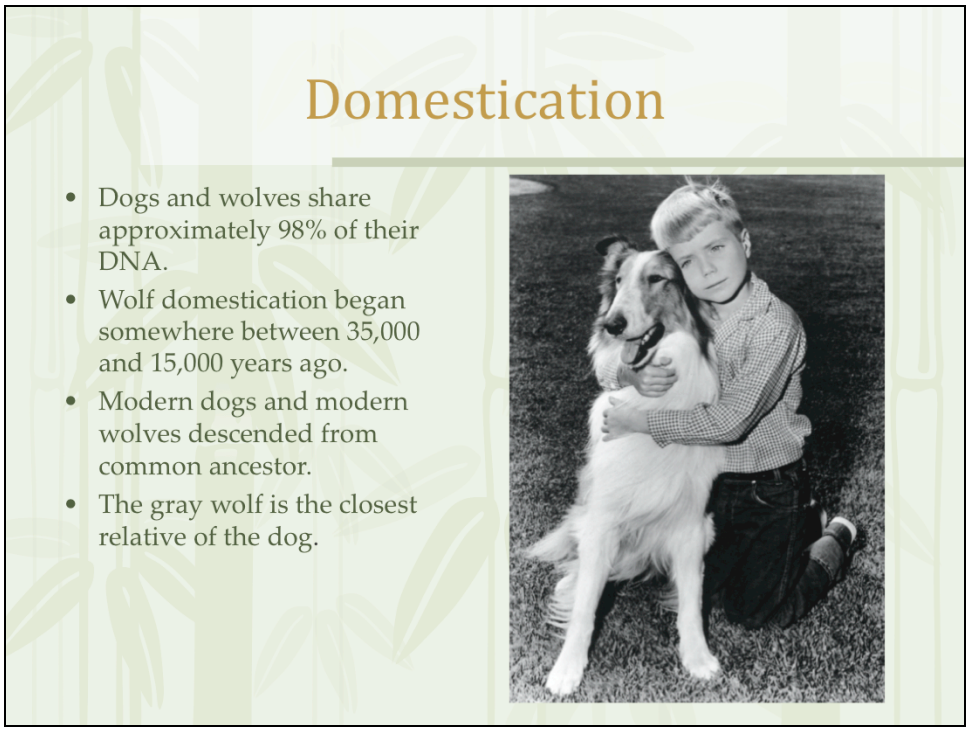
The breeding or alpha pair is likely to be the oldest, largest and strongest wolves in the pack.

Pups are born in an underground den after a 63 day gestation period. They are about 1 lbs. During the first 3 weeks, pups nurse every 4 to 6 hours and need help regulating their body temperatures. The mother usually stays with her young in the den, eating food brought to her by other members of the pack. Pups are weaned at 8 weeks.

The entire pack assists in raising the pups to physical maturity at about 10 months. At ~ 6-8 months, they begin to travel with the pack and join hunts.

Pups feed from food regurgitated by all pack adults in addition to nursing.

Fewer than half of wolf pups born in the wild survive to adulthood. Survival rates are affected by disease, malnutrition and predation.




Dogs and wolves share approximately 98% of their DNA. Dogs are domesticated and in many cases this means the retention of juvenile traits.

Both modern dogs and modern wolves descended from older wolf or wolf-like canine ancestors that became extinct (modern dogs did not evolve from gray wolves)

"Wolf-like" species evolve (Canids) - approximately 2 million years ago

*Homo sapiens* evolve - approximately 250,000 years ago

Wolf domestication began somewhere between 35,000 and 15,000 years ago

First recorded evidence of dogs & humans co-existing - around 15,000 years ago

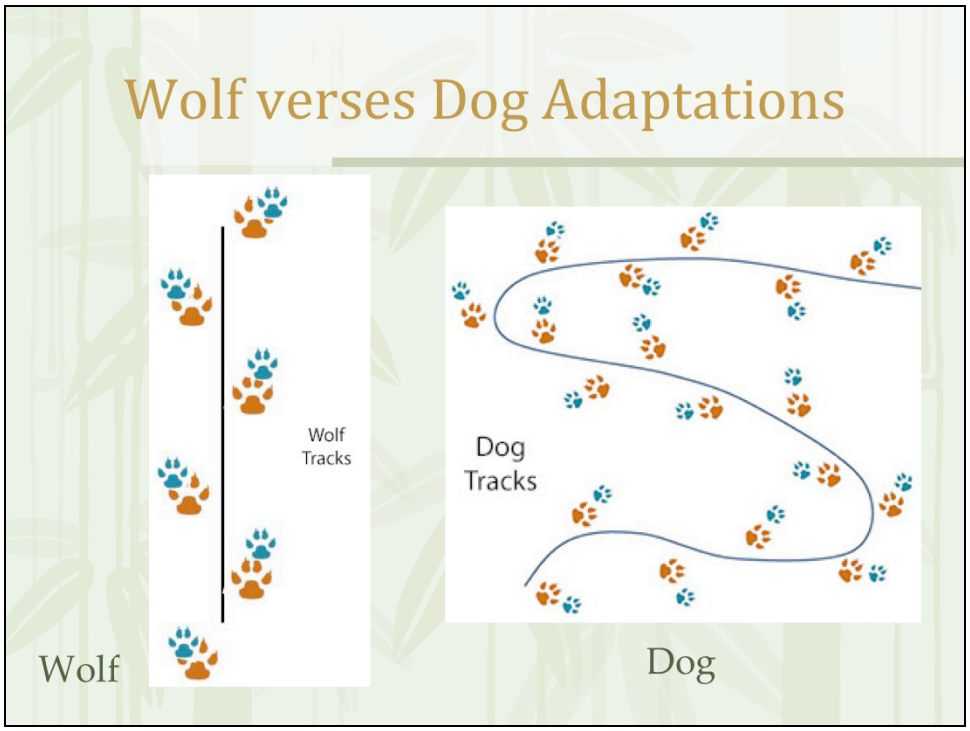
Because of the loss of large game during the Ice Age, these hunters became less nomadic and established base camps, from which they could divide labor, hunt smaller game and forage for plants. Garbage was strewn around the perimeters of the camps, which attracted scavengers, including canines. These canines became hanging around more as this was an easy food source.

Although the humans tolerated them, they probably killed any of the wolves that were overly aggressive, thus leaving more social, timid wolves to breed. These tamer wolves became more and more comfortable foraging and more comfortable around humans.

Today there are more than 400 dog breeds (not including mixed breeds). All from selective breeding by humans.

Today, dogs function as: watchdogs that provide protection, help in the hunt, devotion

Wolves have more hostility and independence




How to tell a wolf from a dog of similar size:

Wolves have narrower chests and hips and longer legs and larger paws than dogs; their limbs and feet are about directly under the center of their body while standing. Wolves stand with their feet splayed outward, whereas dogs' feet face forward

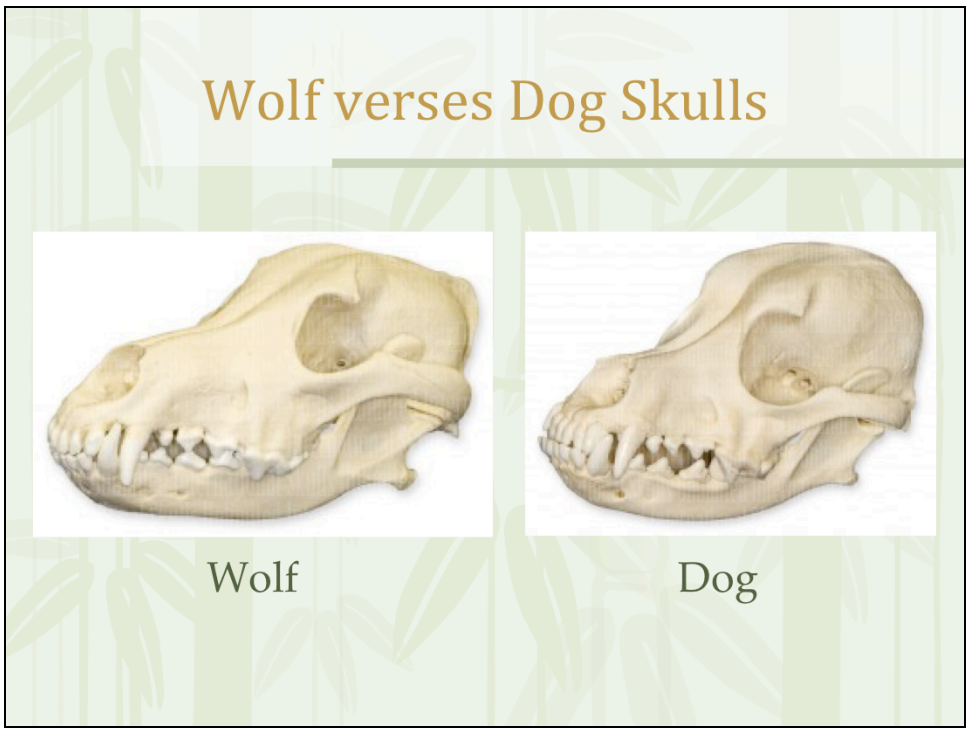
Wolves walk in a straight line, and place their hind footprint in the impression of their forefoot print, dogs have a meandering gate with little clear "purpose".

When wolves run their backs remain perfectly flat, while dogs have very wide hips and chests and rather short legs so they bob up and down when they run.

Wolves have a scent glad partway down the top of their tail that is usually marked by darker fur (dogs do not)

Adult wolves never have blue eyes, they have eyes in shades of yellow.

Grey wolves have thinner fur due to warmer climate (than coyote pelt on cart)




Wolves' skulls are much larger in comparison to their body size than dogs; wolves have physically larger brains than dogs. The overall size of dogs' brains relative to that of wolves has decreased by nearly 30%. The larger brain helps the wolf hunt in packs, allowing them to cooperate and take down much larger prey.

Wolves have a longer muzzle than dogs; wolves have a keener sense of smell than dogs.

Wolf canine teeth are longer, thicker, and more curved than those of a dog, making wolfs effective when ripping open a prey's throat.

Wolves have large saggital crest and broad cheek bones (the arching bone on the side of the skull - zygomatic arches) where a large muscles are anchored for their powerful jaws. Bite force up to 1,500 pounds per square inch (about twice that of a German shepherd- 750 psi). This strong bite of the wolf, allows them to bring down prey. With a larger and a more complicated cusp pattern on their molars than dogs, their bite is sufficient to break open most bones. The zygomatic arch also serves to protect the eyes and auditory organs of the wolf from kicking hooves of prey

The bony protrusions of a skull that encase structures of the inner ear are larger on the wolf than the dog skull; wolves have a keener sense of hearing than dogs. (structures called auditory or tympanic bullae (pronounced "buhl-ee"))

The wolf's head from the top of the skull to the tip of the nose is relatively flat, whereas the dog's head had a steeper angle and a more noticeable "forehead." A large area of the brain that decreased when the dog was domesticated was in an area of the brain which is involved in the flight or flight responses. This area is also associated with the front area of the brain. Domestication may have, therefore, reduced areas of the wolf brain that enabled tolerance to human contact.

## Wolf Canyon

- Three 10 yr old males:
  - "Prince"
  - "David Bowie"
  - "Jerry Garcia"
- Cameras, automated feeders, and high-tech enrichment are all incorporated into the exhibit
- Eventually scientists will collect sperm from these wolves to father future generations if needed

No training. Trying to keep the wolfs releasable as possible.