

MEXICAN GRAY WOLF (*Canis lupus baileyi*) TALKING POINTS

WOLF CART INVENTORY

- Mexican gray wolf Skull
- Domestic dog skull
- Coyote pelt
- Wolf Resource Notebook

Note: Please return all items to their appropriate container on the cart, and make sure lids are secured.

MEXICAN GRAY WOLF GENERAL INFORMATION

The Mexican gray wolf, also known as “El Lobo” or the “Lobo” is the smallest, most genetically distinct and most endangered subspecies of the five gray wolf subspecies in North America and has the southernmost range. It is believed that gray wolves evolved in Eurasia about 800,000 years ago and came to North America via the Bering Land Bridge 300,000-400,000 years ago. Today the gray wolf is the dominant canine predator in North America.

MEXICAN GRAY WOLF HABITAT/RANGE/DISTRIBUTION

- Historic range: Central and northern Mexico, southwest U.S. in central Arizona, southern New Mexico and west Texas
- Current range: Recovery areas in Arizona, New Mexico and northern Mexico
- Habitat: historically - mountain forests, grassland, and shrub land, but not low desert areas (which are more commonly inhabited by coyotes); need a water source
- Range can be several hundred square miles and depends on the availability of prey animals

MEXICAN GRAY WOLF PHYSICAL ADAPTATIONS

1. Size/Weight/Life Span

- Sexually dimorphic with males taller, longer and heavier than females
- Height: males – to 49”; females – to 42”
- Weight: 60 – 80 lbs.
- Body length: 4’5” to 5’5” including tail
- Tail: 14” to 20” (male longer than female)
- About the same size as a German shepherd dog and smaller than other gray wolves
- Life span: Varies a lot, but on average 6-8 years in the wild with some to 13 years; in captivity up to 17 years

2. Skull/head/dentition

- Head/skull smaller and narrower than other gray wolves
- Short, thick muzzle with a strong jaw and large nose pad
- 42 teeth including long canines and grabbing carnassials for tearing and slicing flesh and large molars for crushing bone
- Rounded, erect, black tipped ears
- Forward facing eyes with binocular vision

3. Fur

- Coat is usually a mixture of gray, brown, rust and tan with light colored under parts.
- Face is usually white to cream.
- Tails, ears and legs are often highlighted in black.
- Thick undercoat fur traps air and provides insulation beneath the guard coat.
- Long guard coat fur protects the undercoat from getting wet.
- Mane hairs are long and are raised and lowered depending on state of aggression.
- Because of climatic differences, the Mexican gray wolf pelage is less thick than that of its northern counterparts.
- The mixed color of the Mexican gray wolf provides excellent camouflage in the forest environment.

4. Body Type

- Sleek body with long legs enabling them to run fast
- They can travel 5 MPH for long periods of time while hunting and can reach speeds of 45 MPH for short periods of time.
- Oversized paws provide good traction
- Bushy tails used for balance and for social signaling within the pack

5. Senses

- Very good binocular vision; excellent peripheral vision and night vision very advantageous when hunting prey
- Excellent sense of smell, an important factor in picking up on scent marks as well as when hunting
- Excellent hearing

MEXICAN GRAY WOLF BEHAVIORAL ADAPTATIONS

1. Life Style

- Wolves (including the Mexican gray) have one of nature's most sophisticated and complex social orders.
- They are very social and live in family groups or packs of 5-8 animals, consisting usually of a pair of monogamous breeding adults and their offspring, one to two years old.
- The breeding or alpha pair is likely to be the oldest, largest and strongest wolves in the pack.
- Wolves use body language and sounds to convey pack rules and dominance.
 - Dominant wolves carry their tails high and stand tall.
 - Subordinate wolves hold their tails down or between their legs and may lower their bodies to the dominant wolf.
 - Vocalizations within the pack also convey dominance with subordinates sometimes whimpering to the dominant wolf.
- They may spend 8-10 hours a day covering up to 40 miles on the move through their territory or while hunting.

- They are masters of hunting cooperatively, which enables them to bring down animals larger than they are, especially if the prey animal is running.
- Generally hunt at night

2. Communication

- 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.
- Howling is distinctive among individuals and is used to assemble the pack, advertise territory and to convey information about a kill.
- Within the pack they howl, whimper and growl and use body posture, tail wagging and movement to communicate.

3. Diet/Eating

- Mexican gray wolves are carnivorous and commonly hunt whitetail and mule deer, javelinas (members of the peccary family), rabbits, squirrels, mice and other small animals and will scavenge carcasses.
- They locate prey by scent, tracking or by chance encounter and may stalk prey before chasing.
- When prey animals are scarce, they will kill cows and sheep, a practice that puts them at odds with ranchers.
- Life is often marked by “feast or famine” for wolves as they may go several days between meals.
- When the hunt is successful, they gorge themselves with large quantities of meat, biting and tearing off large hunks, swallowing with a minimum of chewing, hence the term “wolfing your food”.
- The alpha pair often monopolizes the kill food, forcing the rest of the pack to wait to eat.
- Powerful jaws (with bite strength almost twice that of a German shepherd) can crack open most bones.

4. Reproduction

- Usually only the alpha pair (monogamous) breeds and this happens between late January and March.
- Caves, enlarged burrows and areas under tree roots and rock ledges provide denning spaces.
- Following a gestation of about 63 days, 4-6 pups are born, blind and defenseless
- The entire pack assists in raising the pups to physical maturity at about 10 months.
- Pups feed from food regurgitated by all pack adults in addition to nursing.
- They leave the den at 4-6 weeks to investigate their surroundings and by autumn they are traveling with the pack and hunting.
- The wolves reach sexual maturity at two to three years, when they may leave the pack to search for a mate and establish new pack territories.

MEXICAN GRAY WOLF INTERESTING/FUN FACTS

- Many wolves have been killed because of stories and fables and myths such as “Little Red Riding Hood” that have portrayed them as a ferocious killer to be greatly feared.
- Wolves have been associated with witchcraft in Europe and in some Native American cultures.
- However many native American tribes hold wolves in high esteem, considering them to represent courage, strength, loyalty and success in hunting; some tribes believe that their first ancestors transformed from wolves.

- Stories that vilify wolves grossly misrepresent their behavior. Wolves do not eat people and in fact, avoid them when at all possible.
- Pups are born with blue eyes, but then fade to amber, brown or gold by the time the pup is 10 weeks old. No adult wolf has blue eyes.
- The Mexican gray wolf has a Facebook page –check it out!!!

MEXICAN GRAY WOLF CONSERVATION

1. History/Status Prior to Recovery Efforts

- Prior to the arrival of European settlers, thousands of Mexican gray wolves roamed the southwest and Mexico.
- They were considered “top dog” as a predator in the southwest and played an important environmental role in maintaining a balanced and healthy population of prey animals by preying on the old, sick and young.
- Why did the Mexican gray wolf become the most endangered mammal in North America?
 - The new settlers hunted native prey such as deer and elk nearly to extinction.
 - In the 1800’s cattle and sheep were brought in to the southwest, altering and damaging the habitats of the wolves and further impacting the ungulate population.
 - Without enough natural prey to sustain them, the wolves began to prey on livestock.
 - The wolf became an enemy to the livestock industry and bounties were placed on wolves in an effort to reduce their numbers.
 - When this did not work, the livestock owners convinced the U.S. Bureau of Biological Survey (the precursor to the U.S. Fish and Wildlife Service) to aid in exterminating the wolves.
 - Wolves were shot, poisoned, trapped and pups pulled from dens, extirpating most breeding packs by the early 1940’s; the Agency reported killing more than 900 wolves in Arizona and New Mexico from 1915-1925 and more may have been poisoned and not reported.
 - Because the cattle industry came later to Mexico, Mexican gray wolves did initially survive there, but faced death if they roamed into the U.S.
 - Later, when cattle ranching took hold in the wolf habitat areas of Mexico, the ranchers employed the same methods to nearly eradicate them. Luckily some survived.

2. History of the Mexican Gray Wolf Recovery Efforts

- In 1976 the Mexican gray wolf was listed as endangered under the U.S. Endangered Species Act.
- The IUCN lists all wolves together under the designation *Canis lupus* and lists them as “least concern”. It does not list gray subspecies separately.
- In 1979 the U.S. Fish and Wildlife Service formed the Mexican Gray Wolf Recovery Team and worked with the Mexican government to save the wolf.
 - Between 1977-1980 four males and a pregnant female were captured in Mexico and transferred to the U.S. to establish a certified captive breeding program.
 - Two lineages of captive wolves had been held in captivity since the 1960’s in the U.S. and Mexico.
 - In 1995 approval was given to add them to the breeding program and as a result, by 1999 the captive population was 178 wolves.
 - 13 wolves were released in 1997 and three additional breeding pairs were released in 1999 into the primary recovery zone within the Apache National Forest in eastern Arizona.

- The goal was to release additional family groups each year until natural reproduction could sustain the wild population growth.
- Wolves are not allowed to establish territories outside the recovery zones and are captured and returned to the zones if they leave.
- By 2015, 96 released wolves were living in 21 packs in the recovery areas; 48 wolves were radio collared; 23 wild born pups survived to the end of that year.
- In addition to releasing captive bred animals, the team also were able to translocate some wild born wolves to protected areas.
- Between 1998 - 2015 there have 124 known wolf deaths in the recovery areas; these included death by natural cause, pup mortality and illegal hunting.
- The Fish and Wildlife Service is currently working with ranchers in the southwest, providing information and techniques for protecting their livestock from wolf predation with the goal of teaching them to live sustainably with wolves.
- Returning the wolf population to healthy numbers will have a positive, balancing effect on the ecosystems of the Southwest by keeping deer, javelina and elk populations to sustainable numbers, thus helping to eliminate overgrazing and ecosystem degradation.

3. Captive Population Management

- The captive population of Mexican gray wolves is managed under the AZA through the Mexican Gray Wolf Species Survival Plan's bi-national captive breeding program between the U.S. and Mexico with the purpose of raising wolves to reintroduce them into the U.S. and Mexico.
- The stated goal is to have a minimum of 240 wolves in captivity at all times.
- Wolves are transferred among zoos and other SSP holding facilities to insure and maintain optimal genetic diversity within the captive population.
- Wolves to be released are evaluated at pre-release facilities and undergo an acclimation process.
- Released wolves are genetically redundant to the captive population.

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<https://CZS.org/Brookfield-Zoo/Share-the-Care/Mammals/Mexican-Grey-Wolves>

WOLF TO WOOF HOW IS IT THAT WE HAVE DOGS?

Historically and currently there are various theories that attempt to explain the how and when of dog evolution. One reason that there is no one definitive answer is the process that led to domestication happened so long ago that fossil evidence is not complete.

Speculation that the process began in Asia after the introduction of agriculture less than 15,000 years ago has now been challenged. Recent studies based on examining genetic evidence from bones has pushed back the dates to either 15,000-19,000 years ago or further back to 30,000 to 34,000 years ago, pre-dating the practice of agriculture.

There are also various theories about where the process began; was it East Asia, Mongolia, Siberia, Europe or Africa? Many researchers have come to the conclusion that there were multiple sites involved. Research is made more difficult because modern dog genetics are what have been described as a “mess” due to factors including the great amount of selective breeding that began in the 19th century and the continued random breeding of domesticated dogs and interbreeding with wolves over 15,000 years or more.

There is on-going research in England aimed at creating a large database from ancient bone DNA samples in order to compare it to modern canine genetics. The object is to provide more definitive answers to lingering questions about dog evolution.

It has been determined that modern dogs from different geographical areas are more closely related to each other than to wolves. Likewise modern wolves from different geographical areas are more closely related to each other than to any dogs. It is largely held that 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.

How then did domestication occur? It was once believed that wild wolf pups were taken by our ancestors and domesticated. Because it is not possible to take wild born wolf pups today and domesticate them, this theory seems unlikely. Wild wolves remain wild wolves. A more likely scenario has been suggested.

The Ice Age of 35,000 years ago was a turning point for nomadic, prehistoric man, who relied on hunting large animals. 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 (which later eventually led to agriculture). Garbage was strewn around the perimeters of the camps, creating rotting, smelly mounds that attracted scavengers, including some wild canines – wolves and jackals in addition to rats and mice.

Eventually these wolves learned they could find some food at the camps (easier than hunting) and began to hang around. They were tolerated because they disposed of rotting food bits. Ultimately these garbage pits outside the camps became home range and these wolves became dependent on them. 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. They continued to breed with one another over a long period of time until canines genetically different from wild wolves evolved. It is likely that some of these early lines of dogs may have died out.

As noted above, the wolves from whom early dogs evolved also became extinct. These early dog ancestors certainly did not look like modern dogs.

These canines or early dogs also served other purposes, including serving as watchdogs or accompanying humans on hunts. Living on the fringes of the settlements, they would make loud noises if strangers or wild animals approached. The next step would likely have been for pups to be taken from the litters of the social canines and raised to serve as watchdogs for individual homes. The loudest barking dogs could be selectively bred, thus insuring this trait. It is interesting to note that modern domesticated dogs bark often, but modern adult wolves seldom bark.

At a much later date dogs were greatly genetically modified through selective breeding to perform various functions, including to hunt, point, retrieve, herd, guard or to provide companionship. They did not look like what we know as dogs today until relatively recently. Today there are upwards of 400 distinct breeds of dogs (and many more mixed breeds) that have resulted from selective breeding. They vary greatly in size, color, pelage, behavior, and temperament and in susceptibility to disease and other ailments.

Modern dogs are different from modern wolves in many ways. In general they have smaller skulls per body size and shorter snouts; they eat comfortably around people and wolves do not. Wolves mate for life and the males help rear the young. These behaviors are not found in dogs. Most dog breeds have floppy ears – a trait only of wolf puppies. Wolves have narrower chests and hips and long legs and large paws made for running at high speeds. Dogs have wider hips and chests and most have legs short in comparison to their body size. Wolves have larger brains per body size than dogs. All adult wolves have varying shades of yellow eyes; only wolf pups have blue eyes. Most dogs have brown eyes or sometimes blue (Huskies). Some experts theorize that dogs retain many of the features and behaviors of wolf pups and never develop beyond the pup stage in appearance or mental maturity.

It is estimated that there are upwards of one billion dogs in the world, but only one fourth of them are actual pets; the others are free roaming village dogs or city feral dogs living from dumps and scavenging, not really friendly toward humans. They carry disease, notably rabies and cause many deaths each year. They are considered by many to be a parasite – one that man created.

As research continues, it will be important to update our information about and understanding of “man’s best friend”.

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<http://missionwolf.org/page/wolf-dog-difference/>

WOLF VS DOG SKULL TALKING POINTS

NOTE: Dog skulls vary with the breed as do wolf subspecies. The dog skull on the cart is a generic dog skull of medium size.

1. Skull/head/dentition

- 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.
- Wolves have larger and a more complicated cusp pattern on their molars than dogs; wolves have stronger molars than dogs, enabling them to crush large bones.
- Wolf canine teeth are longer and more curved than those of a dog, making wolfs effective when ripping open a prey's throat.
- 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"))
- Wolves have large saggital crest and broad cheek bones (the arching bone on the side of the skull - zygomatic arches), which the jaw muscles attach to; the wolf has a very powerful bite and has the largest bite pressure of any canids including dogs; the strong bite of the wolf allows them to bring down prey.
- The broad cheek bones (zygomatic arch) also serve to protect the eyes and hearing organs of the wolf from serious injury from the kicking hooves of prey.
- 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.

2. Body Type

- 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.
- All of these adaptations lead to maximize fast, almost continuous locomotion and supports their endurance-running or cursorial hunting strategy. They are better adapted for running long distances at high speeds.

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Wolf Canyon Fast Facts

Mexican Gray Wolf Fast Facts:

- Most endangered wolf subspecies, and most endangered mammal in N.A.
- Used to be found throughout southern US and Mexico, now only in recovery areas in Arizona, New Mexico, and northern Mexico
- Prey species were wiped out by humans, so wolves turned to livestock
 - US Government started “exterminating” wolves
- In 1976 they were listed as endangered; in 1979 the USFW started focusing on their recovery
- 5 individuals 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
- Males weigh 60-80 lbs and grow up to 5’5” in body length
- Smaller than standard gray wolves, about the size of a German shepherd
- Howls are unique to each individual
- Wolves do not eat people, and actually avoid human contact

Wolf Canyon Fast Facts:

- Opened June 8th, 2016
- Three 10 yr old males in the exhibit
 - “Prince”
 - “David Bowie”
 - “Jerry Garcia”
- Cameras, automated feeders, and high-tech enrichment are all incorporated into the exhibit
 - Crowd Optic helped outfit the exhibit
- Eventually scientists will collect sperm from these wolves to father future generations if needed

Wolf Cart Fast Facts:

- Dogs and wolves share approximately 98% of their DNA
- Wolf domestication began somewhere between 35,000 and 15,000 years ago
 - “Wolf-like” species evolve (Canids) - approximately 2 million years ago
 - *Homo sapiens* evolve - approximately 250,000 years ago
 - First recorded evidence of dogs & humans co-existing - around 15,000 years ago
- 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)
 - Today there are more than 400 dog breeds (not including mixed breeds)
 - All from selective breeding by humans
 - Dogs are the most morphologically diverse terrestrial mammalian species known
- How to tell a wolf from a dog:
 - 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”
 - Wolves have a scent gland partway down the top of their tail that is usually marked by darker fur (dogs do not)
 - Wolves stand with their feet splayed outward, whereas dogs’ feet face forward
 - Adult wolves never have blue eyes, they are usually a shade of yellow or hazel
 - Wolf canines are longer, thicker, and more curved than those of a dog
 - 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
 - Dog brains relative to that of wolves has decreased by 30% since domestication
 - Reduction in fight or flight response
- Wolves also have a well developed crest bone on the top of its skull
 - This is where a large muscle is anchored for their powerful jaws
 - Up to 1,500 pounds per square inch (about twice that of a German shepherd)
- Wolf skulls also have a large arching bone on the side
 - Protects the eyes and auditory organs of the wolf from kicking hooves of prey
- Gray wolves have thinner fur due to warmer climate (than coyote pelt on cart)

Distinguishing between a Wolf and A Coyote

Wolves and Coyotes are two animals with similar coat colors, but different facial characteristics. The coyote on the left has a narrow snout and small nose pad, with large ears relative to its head size. The wolf on the right has a broad snout and large nose pad, with small ears relative to its head size. (see photo of tracks)



COYOTE (<i>Canis latrans</i>)	GRAY WOLF (<i>Canis lupus</i>)
<ul style="list-style-type: none"> • Small nose pad 	<ul style="list-style-type: none"> • Large nose pad
<ul style="list-style-type: none"> • Narrow snout 	<ul style="list-style-type: none"> • Broad snout
<ul style="list-style-type: none"> • Long ears with pointed tips 	<ul style="list-style-type: none"> • Short ears with rounded tips
<ul style="list-style-type: none"> • Shoulder height: 21-24 in. 	<ul style="list-style-type: none"> • Shoulder height: 26-32 in.
<ul style="list-style-type: none"> • Length (nose to tail): 3.5 - 4.5 ft. 	<ul style="list-style-type: none"> • Length (nose to tail): 4.5 - 6.5 ft.
<ul style="list-style-type: none"> • Weight: 15-50 lbs 	<ul style="list-style-type: none"> • Weight: 70-50 lbs
<ul style="list-style-type: none"> • Coat: Gray or reddish brown, often grizzled, often with whitish throat, chest, and/or belly 	<ul style="list-style-type: none"> • Coat: Grizzled gray is most common, but can also be mostly or all black; white or cream coats rare outside far northern populations

Source: <https://www.wildlife.ca.gov/Conservation/Mammals/Gray-Wolf/Identification>



Mexican Gray Wolves once ranged from central Mexico to southwestern Texas, southern New Mexico and southeastern Arizona. Today, the Mexican Gray Wolf has been reintroduced to the Apache National Forest in southeastern Arizona and may move into the adjacent Gila National Forest in western New Mexico as the population expands.





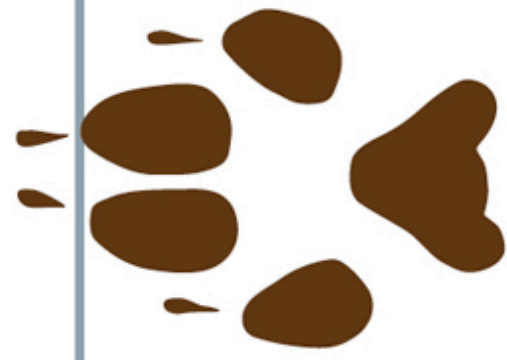




Front Tracks



Hind Tracks



Coyote

Domestic Dog
Size is highly variable but usually less than 3.5 in. (9 cm) in length

Wolf

Tracks from field drawings by David Moskowitz



Jerry Garcia



David Bowie



Prince



Jerry Garcia



David Bowie



Prince

David Bowie



- Long snout
- Dark body with red
- Largest
- Alpha male
- Does laps to survey exhibit
- Lots of red tones on face



Jerry Garcia



- Shorter snout
- Big, wide-set eyes
- Fluffy mane
- Square head
- Scar under right eye
- Likely to be on exhibit

Prince



- Lightest face
- Scar under left eye
- Long snout
- Slim
- Lighter body (mostly grays, less browns or reds)
- Usually in front of exhibit near the moat