



## INTERESTING WOLF FACTS

<b>Average length</b>	Male: 5-6.5 feet (nose to tip of tail) Female: 4.5 to 6 feet
<b>Average height</b>	26 to 32 inches
<b>Average weight</b>	Males: 80-110 lbs. Female: 60-80 lbs.
<b>Average paw size</b>	4 inches wide by 5 inches long
<b>Longevity</b>	5-9 year average in the wild 14-15 years in captivity
<b>Pelage</b>	Any shade of gray, brown, black, white, or tawny
<b>Number of teeth</b>	42
<b>Breeding season</b>	Mid January to Mid April (depending on climate-the colder the climate, the later the breeding season)
<b>Gestation Period</b>	63 days on average
<b>Weight at birth</b>	1 pound on average
<b>Litter size</b>	4-6 pups on average
<b>Pup mortality rate</b>	Highly variable, but approximately 40-60% per year
<b>Pack size</b>	6-8 members on average
<b>Pack territory/ size</b>	10-1000 square miles per animal
<b>Speed</b>	6 miles on average but can reach speeds of 43 mph during a chase
<b>Common prey</b>	Caribou, elk, deer, bison, musk-oxen, sheep, goats. Also will prey on rodents, beavers, fish, and birds. Basically whatever is available when ungulate are scarce.
<b>Wolf to deer ratio</b>	1 wolf to a population of 50-200 deer
<b>Main threats to survival</b>	Loss of habitat due to destruction, development and encroachment by humans, persecution by humans.



## What is Sanctuary? by Wendy Spencer, Animal Care Director

In my opinion, a *true* sanctuary exists solely for the welfare of its residents and as such, their welfare should be its highest priority. A *true* sanctuary commits to the highest level of care and every action or procedure is examined to ensure that it serves the animals rather than the humans (including staff, volunteers, visitors or donors) - for a *true* sanctuary is not the place to feed a human ego.

There is no question that all animals, both wild and domestic, "feel" their lives. They are unique, living, breathing beings with a full complement of emotions, so how we treat them matters greatly. A *true* sanctuary provides a safe, lifetime home where its residents are free to express themselves and be appreciated for who and what they are. And for many who have suffered at the hands of humans, a *true* sanctuary helps to restore their sense of self.

A sanctuary is more than just a safe haven, it is a philosophy and a guiding principle and at its essence, it is the consideration for all aspects of an animal's well-being. It is making sure that they are treated with compassion, respect and dignity from the day they arrive until their end of days.

Wolf Haven recently received American Sanctuary Accreditation (ASA). What is the significance of this to your organization?

Currently, any animal organization can call themselves a sanctuary. However, without the oversight and accountability that comes with ASA accreditation, many of these facilities may employ practices that are contradictory to the actual definition of sanctuary. Too often, an unsuspecting public is none the wiser. ASA holds its members to a high set of standards, therefore receiving our ASA accreditation helps to distinguish us from other facilities that might not hold themselves to providing the same level of care.

The guiding principle of a sanctuary is that the well-being of the animals in its care is the highest priority. Breeding, selling or propagation of the animals is prohibited (bona fide breeding programs, like a Species Survival Plan (SSP) program, are an exception to the breeding policy). Sanctuaries housing wild animals (like wolves) do not permit unescorted visitation, nor does the public interact or "socialize" with the animals. Wild animals do not participate in ambassador programs nor are they exploited for the purpose of fundraising. Additionally, the animals are not used for research unless the research is passive and non-invasive.

Many facilities routinely engage in some or all of the above mentioned practices, in accordance with their respective mission. However, as a sanctuary, we believe said practices are not in the best interest of the animals' well-being.

It is my belief that the very best gift that we can give to our animals is the gift of simply "being." That is what it means to be a sanctuary.

*Note (by Diane Gallegos, Executive Director): One of the highest goals of a true sanctuary is educating the public and working to develop a "community of care", respect and empathy toward animals.*



# Basic Wolf Information

## Wolf Biology & Ecology

Wolves once roamed throughout the Northern Hemisphere, occupying nearly every habitat with the exception of only tropical rainforest and arid desert. A wolf is a large predator that depends for its survival upon large ungulates (hoofed animals), such as deer, elk, caribou, and in some parts of its range, moose and bison that tip the scales at more than a thousand pounds.

The wolf has powerful jaws, capable of exerting about 1500 pounds of pressure per square inch -- or twice that of the domestic German Shepard. Wolves are accustomed to a feast and famine existence, often going many days without eating and then gorging as much as 20 pounds in a single sitting. Wolves are opportunistic hunters, meaning they will take down what they can get, which often happens to be the weak, sick, old and very young.

Wolves will chase and test their prey looking for weakness. Hunting in this manner helps to improve the overall health of their prey population by removing the disadvantaged individuals, thereby allowing the healthiest animals to create future generations (wolves will also take down healthy adults that are often at some disadvantage, such as a moose on ice). Their method of hunting also prompts the prey animals to become more vigilant, agile and aware. The end result is a healthy natural relationship between predator and prey which has succeeded for hundreds of thousands of years.

## Species Origin & Development

When dinosaurs became extinct approximately 65 million years ago, mammals began to fill the niches once occupied by the large reptiles.

Fifty-five million years ago, the first mammals with specialized meat-shearing teeth, called carnassials, evolved. One of these animals, known as *Miacis*, is thought of as the key ancestor of both wolves and bears.

Thirty-five million years later, animals that would become the Canid, or dog family, began to move out into the open country and evolve with longer limbs built for speed. Long legs, as well as sharp claws and keen senses were necessary if these carnivores were to become successful predators. These early meat-eaters followed their prey into almost every available habitat in the Northern Hemisphere: Arctic tundra, high plains, lowland savannas, and (excluding tropical rain forests) all types of forests. With the exception of present day human beings, wolves were one of the most widely distributed land mammals that ever lived.

It was in the Pleistocene era, around one million years ago, that true proto-wolves emerged. These animals had bigger brains and longer jaws than earlier forms, and from them evolved gray wolves (*Canis lupus*) as well as their short-lived cousins, dire wolves (*Canis dirus*), which existed over 100,000 years ago. The dire wolf overlapped with the present day wolf before it became extinct some 17,000 years ago. The present day gray wolf was originally recognized and designated *Canis lupus* by the Swedish biologist Carolus Linneaus in 1758.

Over millions of years wolves have evolved into highly intelligent animals with a successful social structure that enables them to live and hunt in family groups called packs. This arrangement allows wolves to hunt larger animals than a single wolf, hunting alone, would be able to do. This family unit also promotes greater survival of their young.

## Gray wolf physiology

**Scientific name:** *Canis lupus*

**Kingdom:** *Animal*

**Phylum:** *Chordata*

**Subphylum:** *Vertebrata*

**Class:** *Mammalia*

**Order:** *Carnivora*

**Family:** *Canidae*

**Description:** Length 4.5 to 6 feet, including tail; Height 26 to 34 inches at the shoulder; Weight 70 to 110 pounds - females generally 5 to 10 pounds lighter than males; Coloration ranges from white to black with combinations between with gold, tan, brown and rust (a single litter can contain a variation of colors)

**Historic Ranges:** Most of the northern hemisphere, throughout the world to the southern borders of Chihuahua and Durango in Central America

**Present Range:** Stable throughout Canada and Alaska. Stable in the Great Lakes (Minnesota, Wisconsin and Michigan). Reintroduction has been biologically successful in Idaho and Yellowstone National Park. Ongoing efforts have been underway to restore Mexican gray wolves to Arizona and New Mexico since 1998. Red wolf reintroduction efforts in The Great Smoky Mountains were called to a halt in October of 1998 due to an insufficient prey base. Red wolves have been successfully reintroduced into the Alligator River National Refuge in North Carolina.

**Reproduction:** Wolves breed once a year. Their breeding season is usually January through February. The mother gives birth 63 days later, roughly in April or May, to a litter of 4 to 8 pups, each weighing about 1 pound. The pups are born in a den, where they will stay for the first 6 to 8 weeks of their life. When the pups

are first born they cannot see, hear or maintain warmth and they need constant care from their mother. By to 8 weeks of age, the pups will venture out of the den and begin their life of learning how to be a predator.

**Habitat:** Nearly all habitats except tropical rain forests and arid deserts.

**Status:** The Mexican gray wolf will remain protected under the Endangered Species Act in the Southwest. Red wolves will remain protected in the Southeast.

**Diet:** Consists primarily of members of the deer family: moose, deer, elk and caribou. Wolves also eat beaver, rabbits and mice.

**Life span:** Roughly 6 - 10 years in the wild. They can live up to 19 years in captivity.

Wolves are superbly constructed and adapted for their particular role in an ecosystem - predators that pursue a large and small prey over different kinds of terrain: open plains, dense forest, deep snow, steep slopes and into the water if need be. Wolves have developed lean, muscular bodies set on long, powerful legs to be able to pursue prey. Wolves are built for endurance and running; they can average around 25 miles per hour for several miles and 35 to 40 miles per hour for short bursts.

The wolf's expert hunting ability comes from a combination of speed, stamina and strategy. Because wolves have narrow chests and outward – splayed forelegs, their hind legs can move in the same track as their front legs – an advantage in covering ground efficiently. Wolves' large, well-padded feet help to spread their weight over snow and allows them to efficiently grip irregular surfaces like rocks and logs.

The sagittal crest (the bone on the top of the skull) on a wolf is where the jaw muscles are attached. This is well defined on the wolf because of their very powerful jaw. Wolves' jaws produce immense power - a crushing pressure of about 1,500 pounds per square inch (psi), compared with 750 pounds for average large dogs such as German Shepherds. Wolves have 42 teeth specialized for stabbing, shearing and crushing bones. The first four teeth, front and bottom are called incisors and are used for nipping and gnawing meat from the bone. Wolves use their canine teeth, which can grow to be 2 inches in length, for gripping and holding itself to the prey animal. The premolars are used for slicing and grinding. The specialized molars, called carnassials are used for slicing and tearing. The last molars are used for pulverizing and grinding food.

Even more extraordinary is a wolf's sense of smell - up to 100,000 times greater than human beings'. Under the right conditions a wolf can smell something up to 300 yards to 1 mile away. Their hearing is excellent also. Under certain conditions, wolves can hear a howl as far as six miles away in the forest and ten miles away on the open tundra.

## **Range & Territory**

Wolves occupy territories and will defend their territory against other trespassing wolves or other canids. Usually, defense requires no more than intimidating an outsider with growling and baring of teeth. At times, a chase will ensue and in an extreme situation the chase may result in a physical confrontation. Boundaries of territories may overlap, yet separate packs will usually avoid one another at most costs.

Under most normal circumstances, the territory belonging to a certain pack of wolves will remain so for many generations. Younger wolves will often 'inherit' the territories belonging to their elders.

Expansion of territories depends upon land and the availability of prey. One wolf per every 10 square miles (ex: five wolves to fifty square miles) is thought of as a 'comfortable' amount of space. Some species of wolves will migrate in order to follow prey and when a pack increases in size it may split or some members might disperse in order to form their own packs.

## **Predation**

Wolves are extraordinary predators that play an extremely important part in a healthy, thriving ecosystem. Wolves are called apex predators, which means that they are at the top of the food chain. As predators, they serve to help keep the ecosystem in balance by hunting primarily on prey that is weak, sick or elderly, leaving stronger and healthier animals to survive and produce viable young. Other competing predators would be cougar, coyote, bear and humans.

A predator's life is not an easy one. Almost every time they are hungry, wolves must find and bring down prey. Each predator has its own tools and hunting strategies. Wolves use their incredible sense of smell combined with excellent hearing abilities to help them find prey. Wolves do chase and test their prey, looking for the animals they can kill while expending as little energy as possible and decreasing chances of injury. Large ungulates like deer, moose, elk and caribou are a wolf's primary food source. Wolves will also eat smaller animals like beaver, rabbit, mice and ground squirrel.

When hunting large game, the wolf pack separates out and surrounds its prey. Wolves usually bite the shoulders and flanks. While some pack members approach the prey from the rear, other wolves seize the prey by the nose.

Hunting can be dangerous for a wolf. The antlers and the hooves of a large animal like a moose or a caribou can injure or kill an attacking wolf. As hunters, wolves have a low success rate. One study shows that for every twelve moose tracked, only one was caught.

Wolves are built for a feast or famine diet and can "wolf" down up to 20 pounds at one feeding. If wolves do not finish what they have killed, the leftovers will feed the scavengers - fox, coyote and raven.

Wolves must travel many miles in order to find suitable prey. Scientists have estimated that one wolf needs at least ten square miles for a "home" territory. In the Arctic, wolves often follow their main prey, caribou, as the caribou migrate, often thousands of miles.

In nature there is a place for both predator and prey and, although their relative numbers fluctuate, predator and prey can maintain the equilibrium necessary for the survival of both if given the opportunity to do so naturally.

## **Pack Structure**

Because of the ways in which wolves have evolved and the special demands of their way of life, wolves have become one of the most highly social of all carnivores.

Wolves live in packs – groups of animals that are usually related by close, blood ties (family units). A hierarchical order exists within the pack; every animal knows its place in that order.

Researchers studying wolves today observe the common traits shared by humans and wolves. Like many human beings, wolves live in extended families. For wolves, those families are called packs. Wolves live in packs because cooperation allows wolves to bring down larger prey than individual wolves can do on their own. Pack life also insures the care and feeding of the young, and allows wolves to expertly defend their common territory. The male and female leaders of the pack are called alphas. These two animals lead the pack during a hunt and often eat first when a kill is made. Generally, though not always, the alpha wolves are the only wolves in the pack to have pups.

Wolves mature sexually at around 22 months of age. Most often the alpha pair are the only wolves in a pack to mate and produce pups, however in areas where prey is abundant and life is mostly stress-free, multiple litters within a pack can occur. The breeding season for wolves occurs roughly from January through March, depending on the latitude. Animals in the highest latitude usually have the latest season. Pups are born in the spring (following a 63 gestation period). The entire pack takes a part in raising the young. The average litter size is four pups.

At birth, wolf pups weigh about one pound and are darkly furred. They are deaf, blind, have little or no sense of smell and cannot regulate their own body heat. For their safety, wolf pups are born in a den. Wolf dens can be in rock caves abandoned by other animals, in the hollowed bases of large trees, or in shallow surface beds. More commonly, pregnant female wolves dig dens themselves, often as early as three weeks before the pups are born. Wolves prefer their den sites to be located on elevated areas near water. Dens are typically tunnels that extend six to fourteen feet into the earth. At the end of the tunnel is an enlarged chamber where the

newborn pups are kept. The age of the pups when the pack abandons the den is not known; it is thought to be between eight and ten weeks after the pups are born.

Between the time the pups leave the den and the next winter, the young wolves remain at rendezvous sites while the adults hunt the surrounding countryside. When adults return from the hunt, the pups lick the muzzles of the adult animals, and the wolves regurgitate predigested food for the young pups.

As the pups grow, some of them will be very assertive in their play, while others in the same litter will be weaker and more submissive. Like human children, the more assertive wolf pups will grow up to be alphas while the more submissive pups will most likely grow into subordinate wolves.

Next in the social hierarchy of the pack is the beta wolf. Betas can be either male or female and, if something happens to one of the alphas, it is the beta that will most likely move up in rank. The remainder of the pack is typically composed of adolescent wolves, one to four years old, several pups and an omega. An omega wolf can be either male or female and is the scapegoat, the lowest ranking member of the pack. The omega lives on the outskirts of the pack, usually eating last. The omega serves as both a stress-reliever and instigator of play.

When wolves become adolescents and have reached sexual maturity, many will leave their home territory in order to search for a mate. These wolves are called dispersers. The long, drawn-out howl of a 'lone wolf' will hopefully attract another unattached wolf. The two new self-proclaimed alphas find suitable territory to start a family of their own.

## **Communication & Behavior**

For cooperation to exist between any group of animals, some type or form of communication is necessary. Among wolves, communication is a highly developed skill.

Without this skill, constant and clear communication between pack members would not be possible. Like humans, wolves use three main avenues of communication: olfactory (scent), postural (body language) and vocal.

Olfactory communication among wolves consists primarily of scent marking. Scent marking is used to clearly mark the boundaries of territories, to claim and defend that territory from other packs, to mark food ownership and to act as a sort of road map for the pack itself. Because wolves have scent glands between their toes, they leave their personal signature wherever they walk. Urination is the most common form of scent marking for wolves.

A great deal of the communication among wolf pack members involves body language. Within a pack of wolves, specialized behaviors and postures have evolved that help to reduce the aggression between individual animals. This body language helps the pack live together and function as a harmonious unit. Facial

expressions are among the most obvious visual ways in which wolves express emotions.

Generally, bared teeth with ears erect and pointed forward indicate a threat by dominant wolves. Conversely, closed mouths, slit-like eyes and ears pulled back and held close to the head indicate subordinate behavior. Wolves also use tail positions to communicate emotion. Threatening wolves hold their tails high, almost perpendicular, while submissive wolves lower themselves before dominant pack members, tails tucked between their legs.

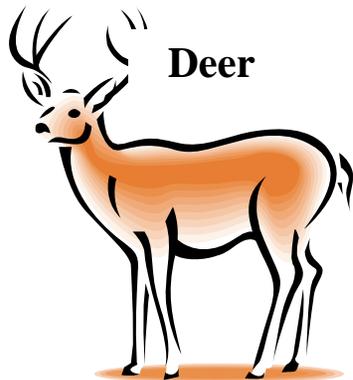
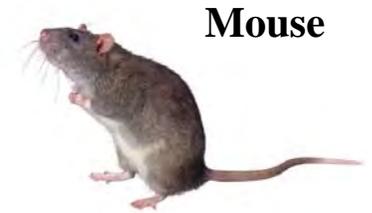
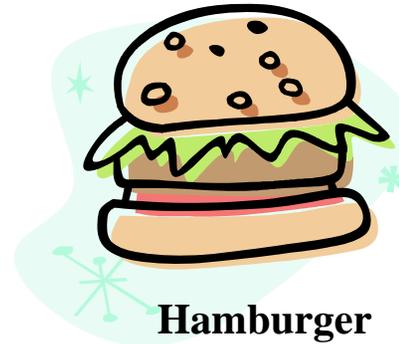
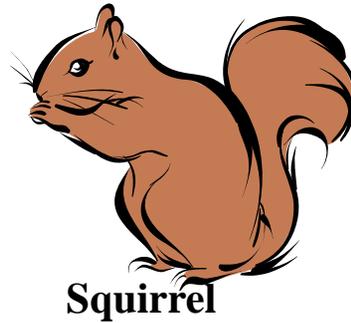
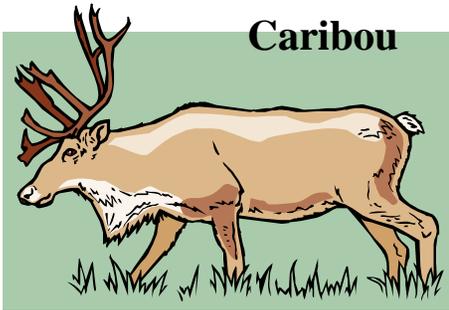
Vocal communication among wolves consists of howls, whines, growls and barks. Although all the functions of howling are not known, scientists think that one of the main reasons wolves howl is to assemble the pack. Another possible function of howling is to claim territory. Some experts think that wolves can identify other wolves through their howls. Whines are used often at the den site and are used primarily by the adult female. They are thought to be sounds of affection. Growling conveys aggressiveness and usually comes from dominant wolves posing a threat. Some experts think barking signifies alarm, while others think it is the call of the chase. It could also indicate any kind of excitement.

Understanding and respecting each other's communication leads to cooperation. Cooperation allows wolf packs to bring down larger prey than individual wolves could do on their own, insures the care and feeding of the young and allows wolves to defend their common territory.



# What does a wolf eat?

Please circle the items below that a wolf in the wild would eat



# What does a wolf need to survive?

Please circle the items a wolf needs to survive in the wild.

DEER (FOOD)



TOOTHPASTE



COMPUTER



WATER



LAMP



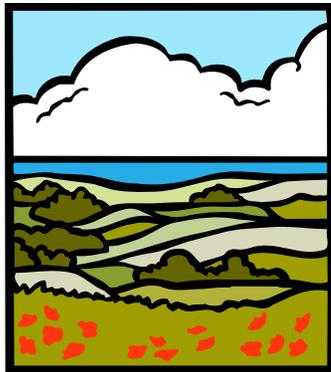
SHAMPOO



CLOCK



SPACE (TERRITORY)



JACKET



DEN (SHELTER)





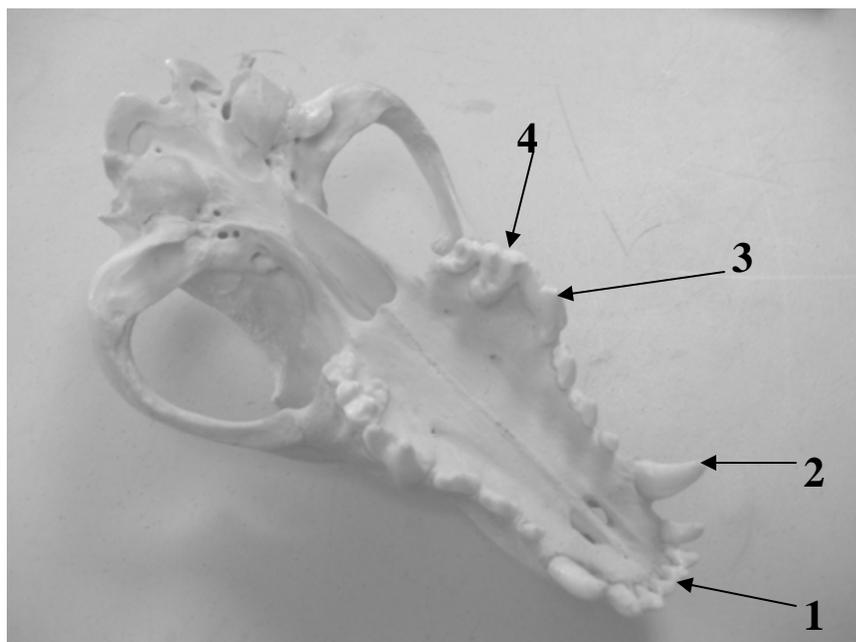
I WAS JUST  
A PUP  
WHEN MY  
FAMILY AND  
I CAME TO  
WOLF HAVEN. THE  
STAFF HAS  
LEARNED A LOT  
FROM US ABOUT  
WOLF BEHAVIOR.  
THANKS,  
BART



# What Big Teeth You Have!

Wolf Skull Profile

Wolf Head Profile



At the front of the jaw are found the incisors (1). These teeth are mainly used to cut meat. Behind them are the canines (2), which function to hold prey. In *Canis lupus*, the canine teeth can reach 2 inches in length. The large, specialized *pre-molars* known as the *carnassials* (3), are designed for the purpose of shearing and slicing flesh. Beyond the carnassials lie the last teeth in the series, the molars (4).

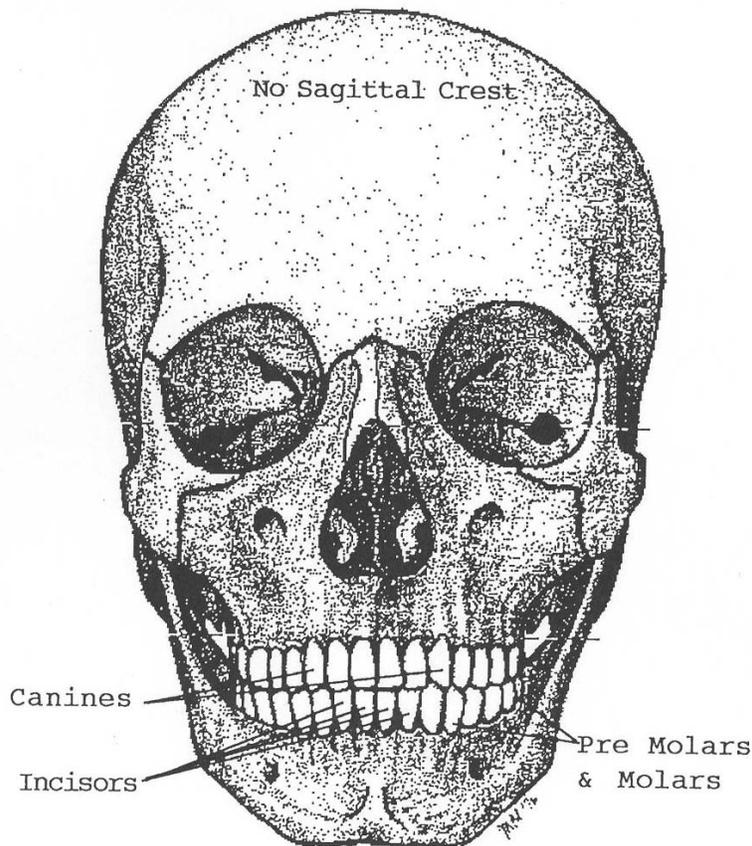
Members of the dog family (wolves, domestic dogs, coyotes, and foxes) have a high ridge on top of their head, called the sagittal crest. The sagittal crest is where their jaw muscles attach. Having longer jaw muscles allows these meat eaters to exert more pressure when they bite. Wolves typically produce twice as much biting pressure as a German Shepherd. German Shepherds generate about 750 pounds of pressure per square inch (psi). Wolves generate about 1,500 psi, enough to crush large leg bones of deer and elk.

Sagittal Crest



# How Does Your Skull Measure Up?

**TOOTH TRIVIA:** Humans have teeth that look very different from the teeth of wolves. Both species' teeth have the same names for the most part, and some have the same function. Generally, incisors (the front four teeth top and bottom) are similar in both wolves and humans, and are used for nipping and gnawing. The canines are very different in looks and functions. Wolves use their canines for gripping, ripping, and tearing. Humans use knives and forks for these tasks. Carnivores, or meat-eaters such as the wolf, have specialized molars, called carnassials. These sharp, high-ridged teeth work like scissors to cut meat off bone and help crush bones to get rich marrow. Human molars are flat and round on top, and are used primarily for crushing and grinding.

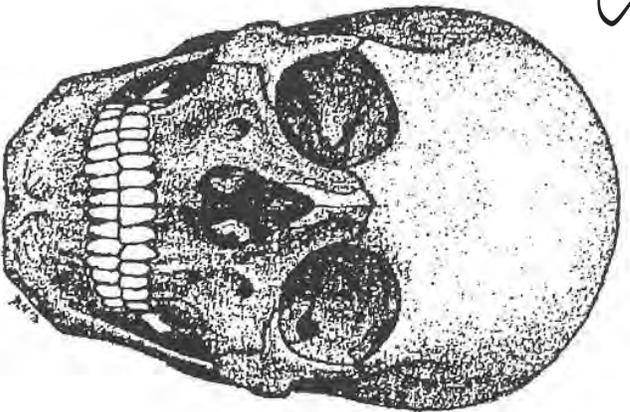


Human Skull



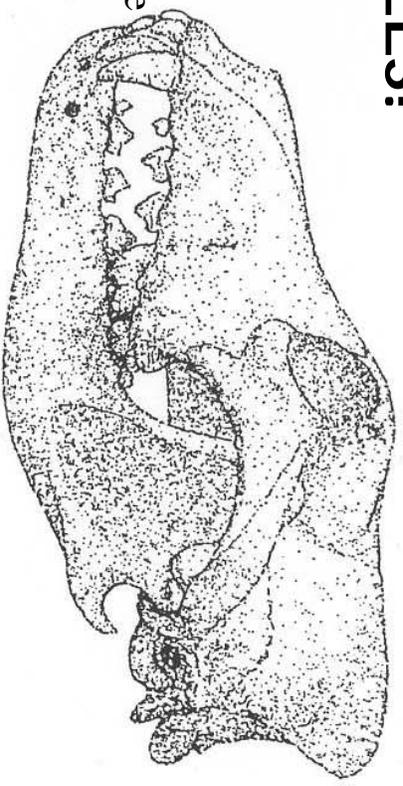
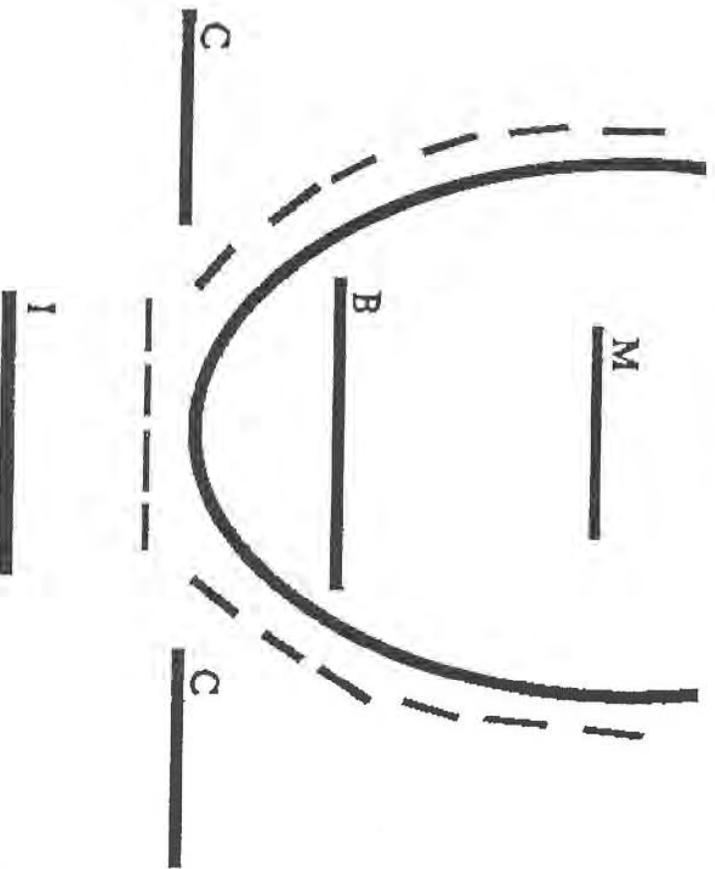


# HUMAN JAW

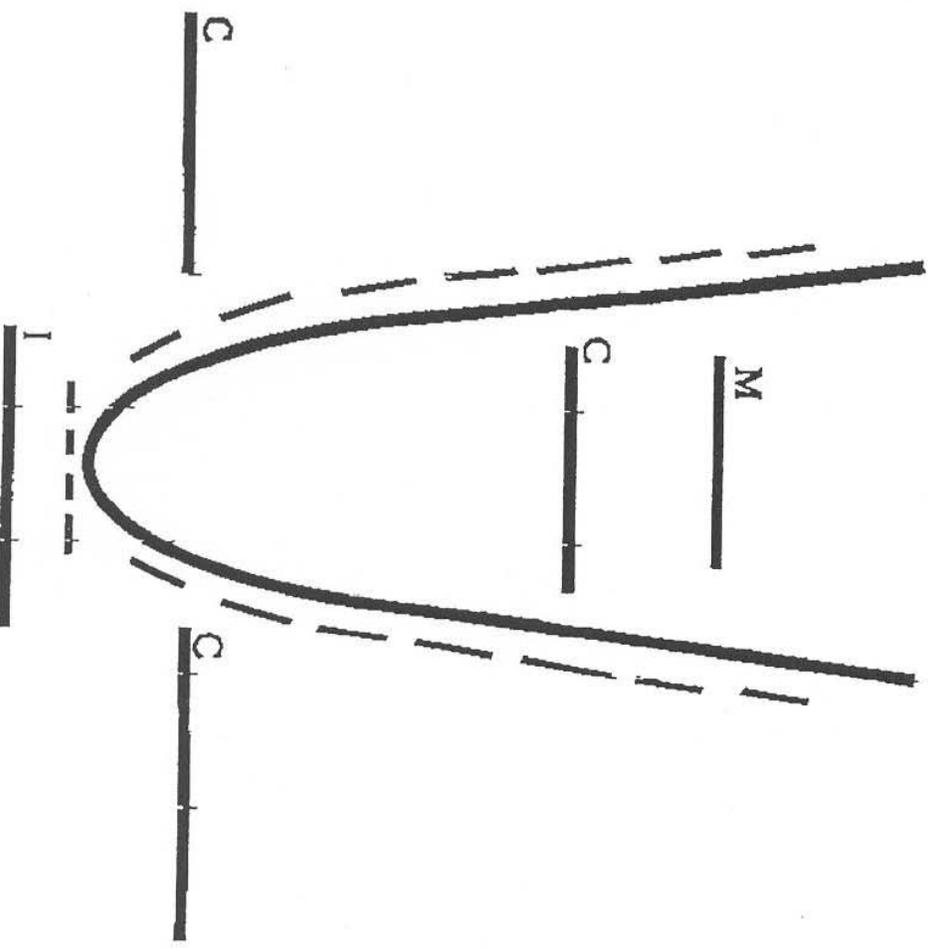


## TEST YOUR SKILLS!

Label the various teeth on the human jaw and the wolf jaw. I've given you a head start by providing the first letter of the different types of teeth.

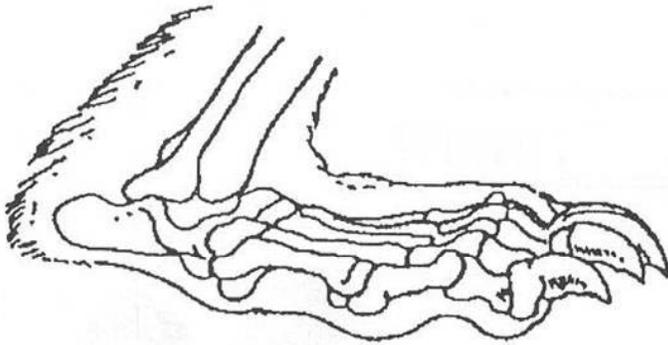


# WOLF JAW

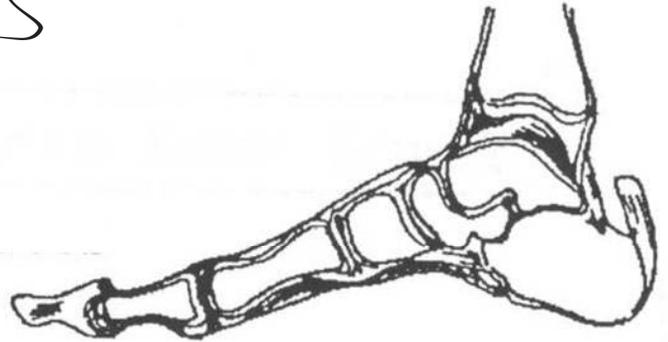


# What Part of the Foot Do You Walk On?

Every animal has feet that are adapted for different uses and benefits, whether it be for walking, running, jumping, climbing, attacking, or defending.

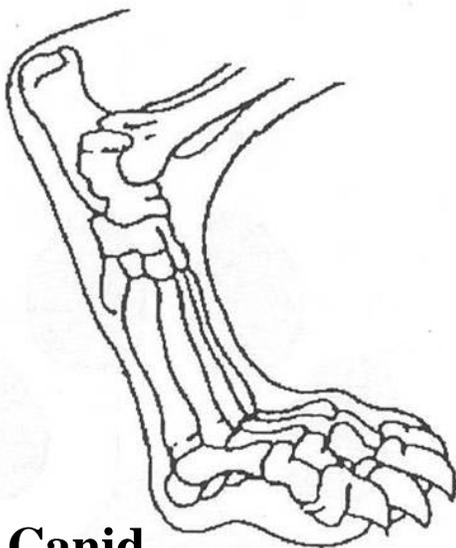


**Bear**

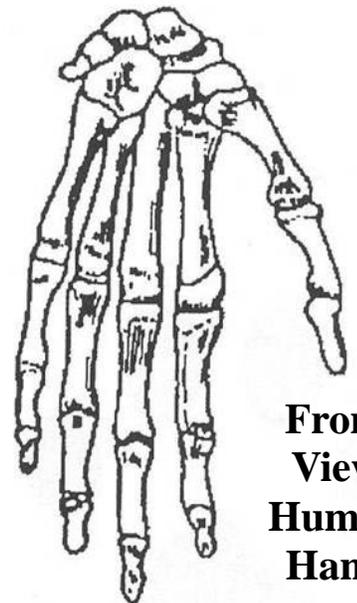
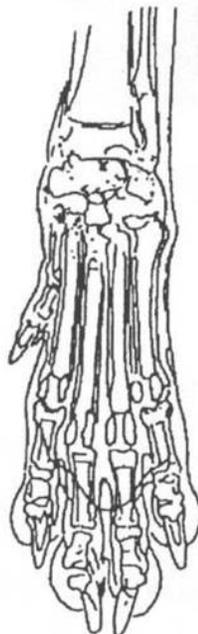


**Human**

Bears and humans walk on the soles of their feet. This is called plantigrade. Members of the dog and cat families, however, walk on their toes or digits, called digitigrade. Wolves are members of the dog family (Canidae) and walk on their toes. Notice how far the heel is off the ground in the canid below compared to the animals above. This lengthens the stride, and allows dogs and cats to run faster. Compare the front paw of the canid to the hand of a humans. What major difference can you spot in the digits (fingers or toes)? Now it's your turn to label the tracks on the next page.



**Front View  
Canid Paw**



**Front  
View  
Human  
Hand**

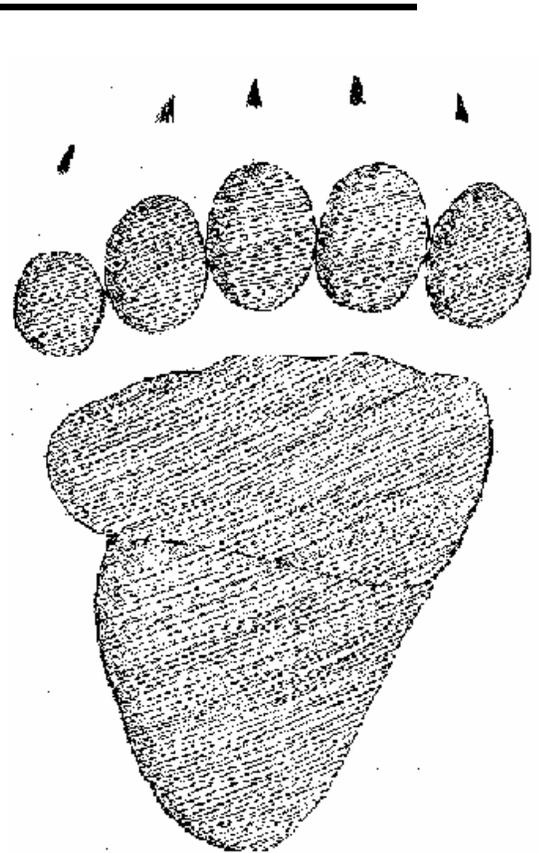
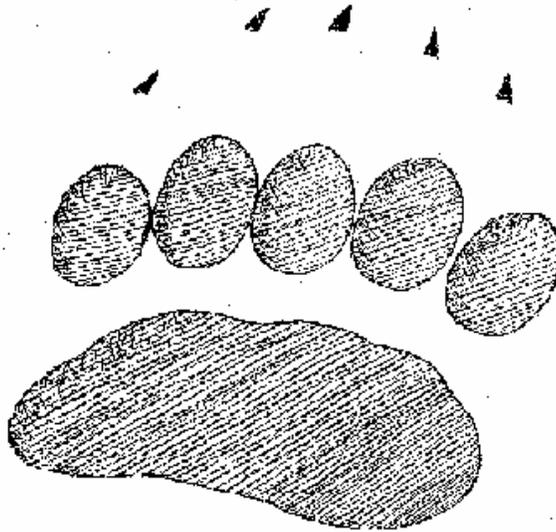
**Canid**

# Whose Track is That?



Please label the following tracks with the appropriate owners.  
Answers on next page.

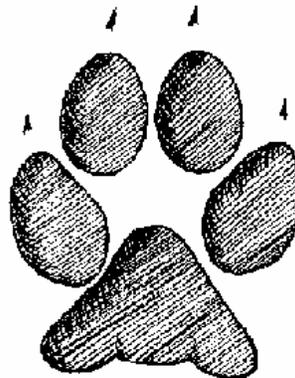
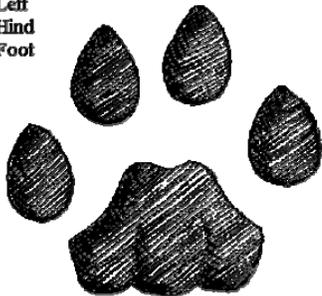
Front track on the left.  
Hind track on the right. Claws longer on  
front foot for digging.



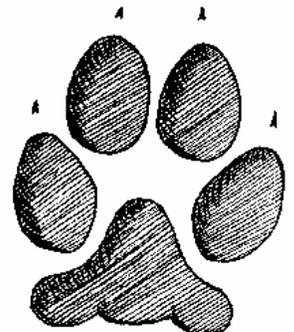
Left  
Front  
Foot



Left  
Hind  
Foot



Front Foot



Hind Foot

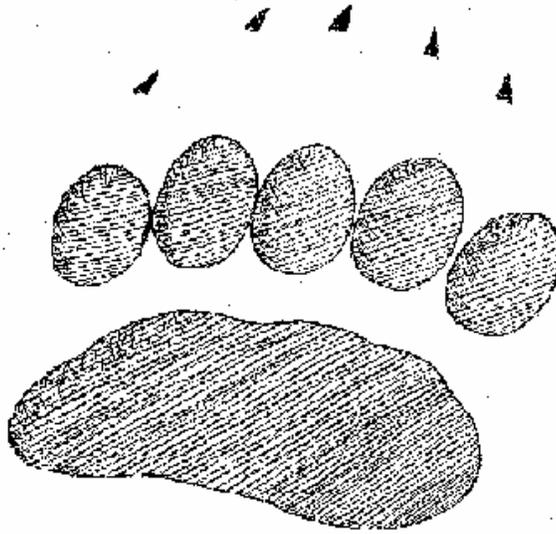
Tracks used are courtesy of [www.bear-tracker.com](http://www.bear-tracker.com)

# Whose Track is That?



Please label the following tracks with the appropriate owners.

Front track on the left.  
Hind track on the right. Claws longer on  
front foot for digging.



Brown Bear or Grizzly

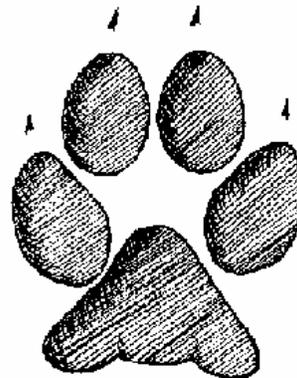
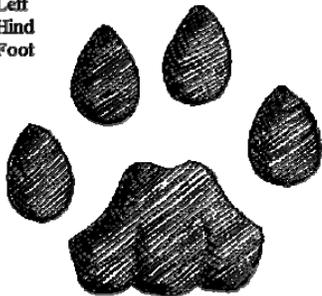


Left  
Front  
Foot



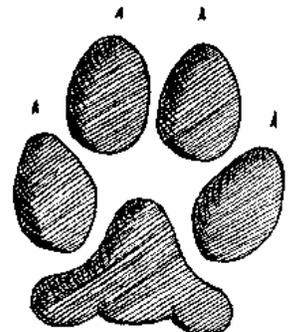
Cougar

Left  
Hind  
Foot



Front Foot

Wolf



Hind Foot

Tracks used are courtesy of [www.bear-tracker.com](http://www.bear-tracker.com)

# WHO NEEDS HABITAT?...WE ALL DO!



Habitat is defined as the entire environment in which an animal lives. All animals, including human beings, share the same basic survival needs: food,

water, shelter, and space.

All over the planet, wildlife habitat is being lost. Whenever an area of land is paved or plowed, small animals lose their homes. As these small animals disappear, so too do the large animals who depend upon the smaller species as a food source, thus affecting the natural food web.

As human beings continue to push deeper into wilderness areas and exploit resources to feed, house, and water towns and cities, animals continue to be forced from their natural habitats. Disturbed wilderness areas, by such industries as logging, mining, and milling, take more than several human lifetimes to recover.

Wolves need a lot of land to roam to fulfill their habitat needs. It has been estimated that on average, one wolf needs the equivalent of 10 square miles, thus a pack of 6 wolves needs at least 60 square miles. The number of wolves in a pack is dependent on the amount of prey within a certain amount of space.

Wolves also need large expanses of wilderness in which to disperse. Individual pack members that have reached two to four years of age will often strike out to build their own pack. These individuals are called dispersers. Wolf packs also need enough space to increase or decrease the size of their territories, depending upon the year's prey base and water resources.

Wolves have lost major areas of viable habitat to human activities which have disturbed natural cycles. Some of the worst land pollution problems are caused by the incorrect disposal of industrial waste products. Garbage and toxic runoff also contribute to major pollution problems in streams, river, and oceans.

Each of us can make constructive contributions to improving the environment, for ourselves and for the animals who share the earth with us. Sometimes our effectiveness can be improved if we work with other people, sharing ideas, information and skills.

If the wolf and all other species, including our own, are to survive, we must reconnect to nature. We need to understand the importance of old growth forest, unpolluted rivers and streams, and clean, fresh air.

**Who needs habitat? We all do!**

# HABITAT HOLES

(Adapted from Project Wild Activity Guide)



## **Objectives:**

The students will be able to identify basic components of habitat, i.e. food, water, shelter, and space, and apply this knowledge to the different species that contribute to a wolf's ecosystem.

## **Exercise:**

The Habitat Identification Sheet on the next page can be used in one of two ways:

- 1: It may be filled out as a worksheet by each individual child as a research and reference exercise for the library.
- 2: A second method would be to break the class into groups of three or four students and have each group research one of the animals such that they can complete the blocks for that animal as a group. You may then have the individual groups put together a presentation on that animal.



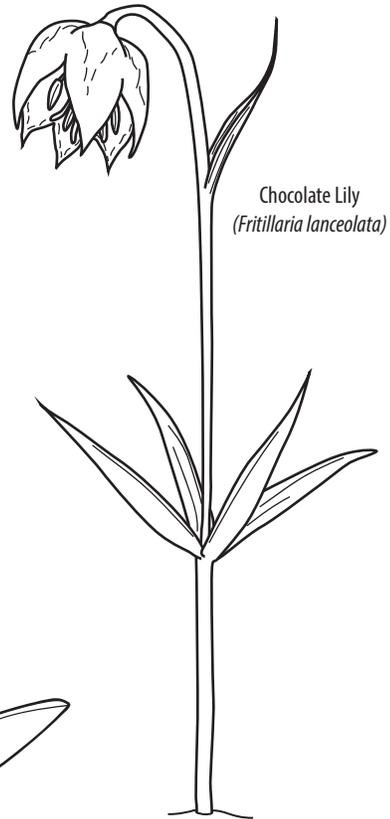
# Habitat Identification Sheet

	FOOD	WATER	SHELTER	SPACE	ECO-SYSTEM
WOLF					
DEER					
RABBIT					
BEAR					
HUMAN					

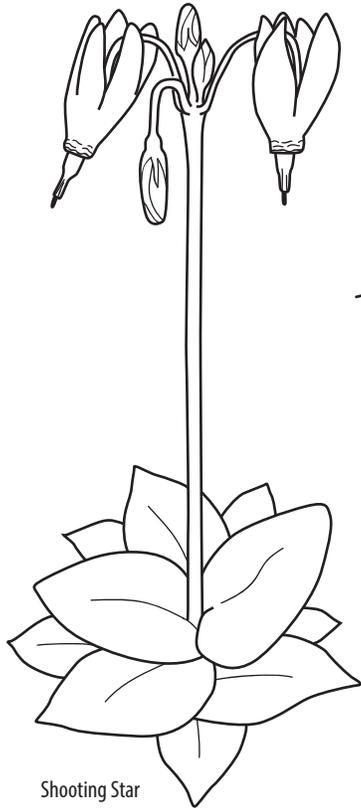
# Native Wildflowers of South Puget Sound Prairies



Red Columbine  
(*Aquilegia formosa*)



Chocolate Lily  
(*Fritillaria lanceolata*)



Shooting Star  
(*Dodecatheon hendersonii*)



Common Camas  
(*Camassia quamash*)



Golden Paintbrush  
(*Castilleja levisecta*)



Early Blue Violet  
(*Viola adunca*)



Yellow Prairie Violet  
(*Viola nuttallii*)



WOLF HAVEN  
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[www.WolfHaven.org](http://www.WolfHaven.org)

To conserve and protect wolves and their habitat.



Center for Natural  
Lands Management  
[www.SouthSoundPrairies.org](http://www.SouthSoundPrairies.org)

All drawings by Anne Schuster

Dedicated to protecting and restoring imperiled species and their habitats.