On the Mountain

Putting and Keeping Wild Sheep on the Mountain

WILD SHEEP®
Foundation

Stone's Sheep

Numbering 10,000, they are usually black-brown in color; except for white or gray on the face, stomach, inside of legs, and rump patch. They are only found in the Canadian provinces of British Columbia and the Yukon Territory. The horns usually have a more open and spreading curl. Their habitat has long, cold and dark winters with days of short daylight With little sun for melting snow, these sheep depend on wind to keep the forage (food) from being covered with snow.

Dall's Sheep

Having a population of 50,000, they are often thought to be the most beautiful of all wild sheep. They live in parts of Alaska and in the northwest comer of British Columbia, Yukon Territory, and Northwest Territories. Their coat is pure white while their eyes are a striking yellow. While found over a large north to south range, their white color is darker in sheep in their southern range. A cross between Stone's and Dall's are known as Fannin.

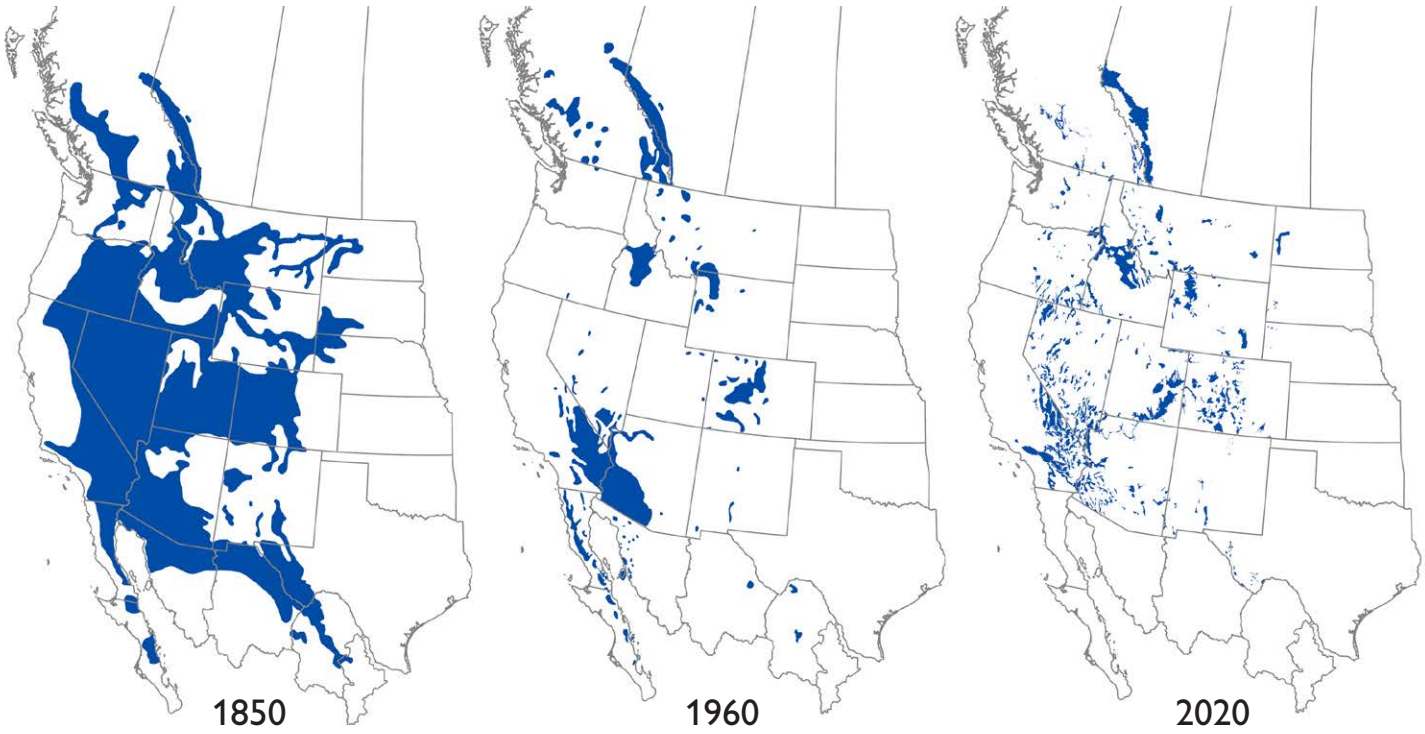
Rocky Mountain Bighorn Sheep

Around 47,400 live in the roughest and toughest parts of 13 western states and two Canadian provinces. When thinking about the majestic sheep, the Rocky Mountain bighorn often comes to mind for many, with the vision of two large rams rearing up on their hind legs and running towards each other during the breeding season (rut). Just before they hit, they each lower their heads and "CRASH!" The battle over the females is on. Named for their massive, curling horns (which can grow to 50 inches in length) and known for their agility and perfect balance.

Desert Bighorn Sheep

About 34,000 live in isolated mountain ranges in northern Mexico and portions of seven southwestern United States. There are four subspecies of desert sheep: Nelson's desert bighorn, Mexican desert bighorn, Peninsular desert bighorn, and the Weem's desert bighorn. Can live up to 6 months without drinking water, as they can survive on water from the plants they eat. These arc the smallest among all four species of North American wild sheep.

SHEEP POPULATIONS TODAY



CONSERVATION

Where are the Sheep?

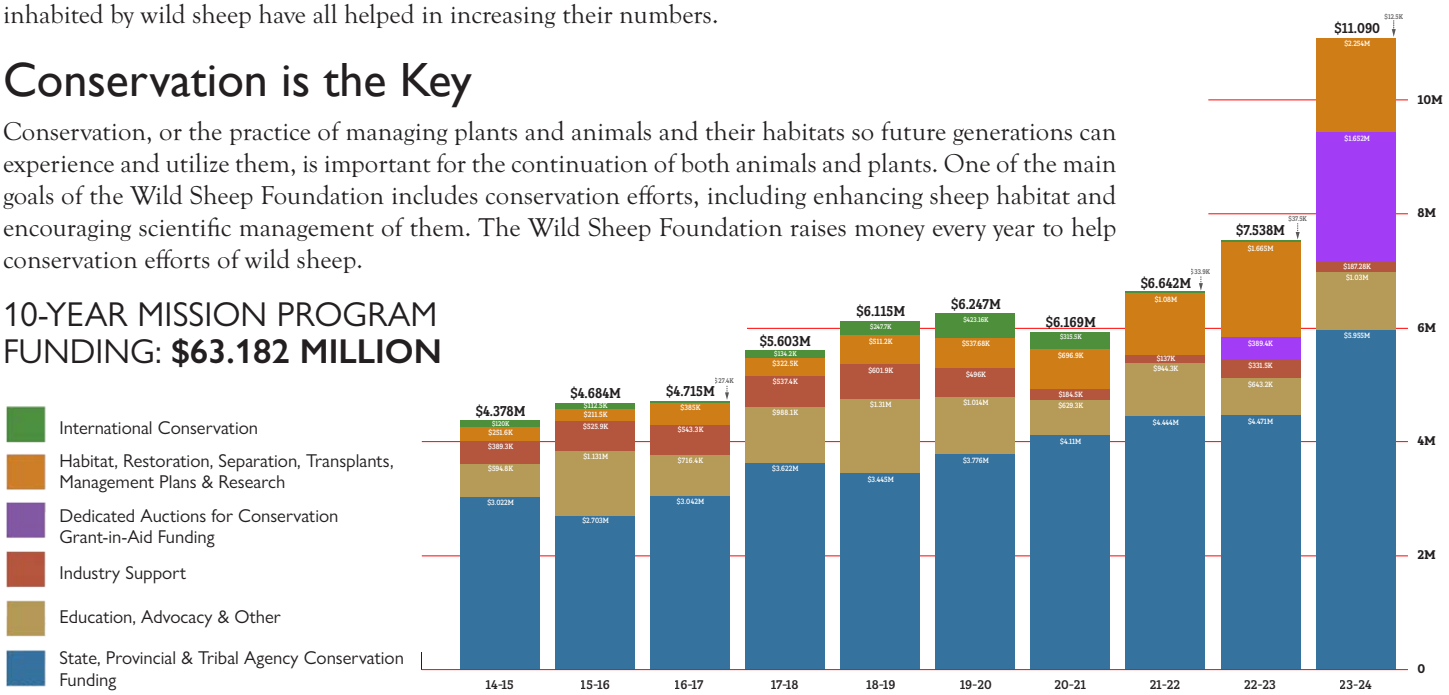
Sheep populations reached their lowest levels in the 1960s. This was for a variety of reasons. Human populations increased in areas where sheep live. New towns and cities were built where once sheep lived freely. Unregulated hunting in the late 1800s also led to reduced populations. Competition with ranching, along with various diseases reduced the populations even further.

Wild sheep are making a grand recovery. Hunting, now regulated and based upon the North American Model of Wildlife Conservation, ensures healthy herds. Hunter conservation groups, such as the Wild Sheep Foundation, lead fundraising efforts to restore damaged habitat, conduct scientific tests on current diseases affecting wild sheep, and transporting sheep from healthy populations to areas once inhabited by wild sheep have all helped in increasing their numbers.

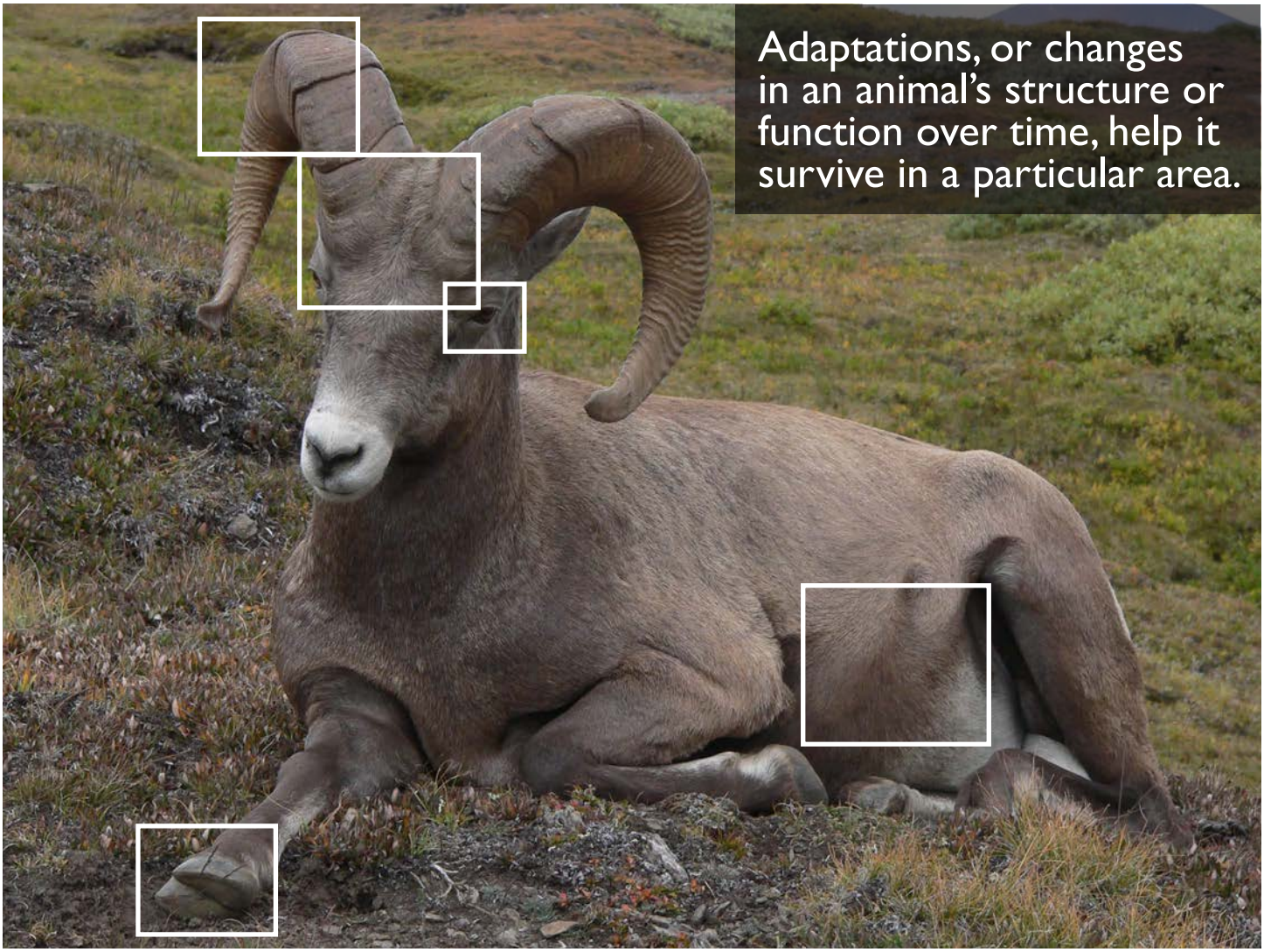
Conservation is the Key

Conservation, or the practice of managing plants and animals and their habitats so future generations can experience and utilize them, is important for the continuation of both animals and plants. One of the main goals of the Wild Sheep Foundation includes conservation efforts, including enhancing sheep habitat and encouraging scientific management of them. The Wild Sheep Foundation raises money every year to help conservation efforts of wild sheep.

10-YEAR MISSION PROGRAM FUNDING: **$63.182 MILLION**



SHEEP ADAPTATIONS



Hooves: A harder outer shell and soft inner, make them flexible and therefore help sheep when climbing over precarious terrain. Sheep have sharp edged cloven hooves that are elastic and concave. Each hoof has two toes which can spread wide when jumping on rocks for better balance. Rough pads on the bottom of the hoof help to grip the surface of the rocks as well.

Camouflage: Their color allows them to blend into their surroundings to make it harder for predators to see.

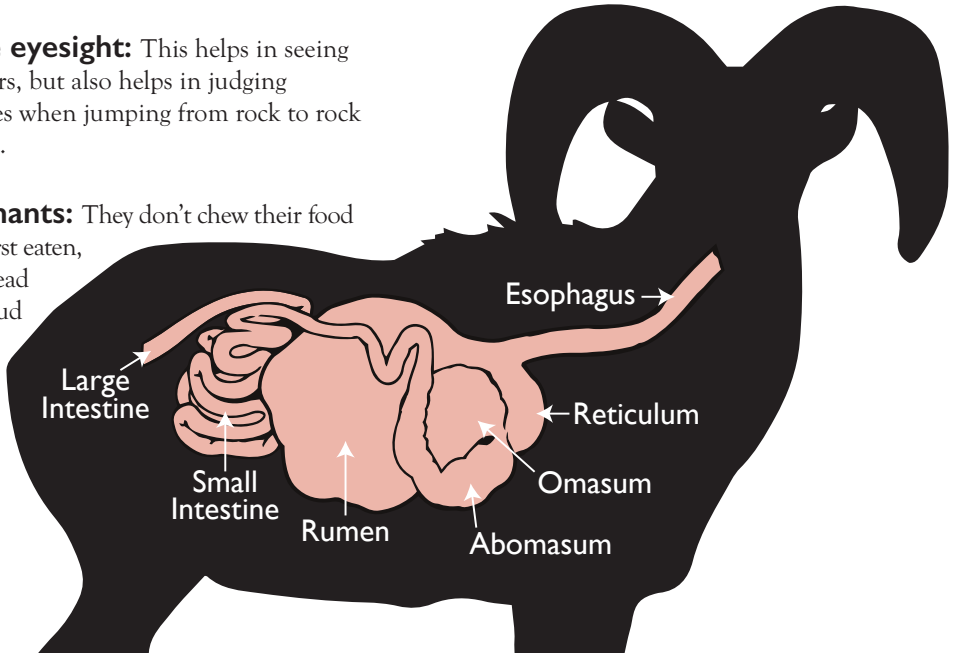
Hollow Hairs: Help insulate their bodies.

Horns: Male bighorn sheep have large horn cores, enlarged cornual and frontal sinuses, and internal bony septa. These adaptations serve to protect the brain by absorbing the impact of clashes.

Skull: Bighorn sheep have a double-layered skull honeycombed with bone struts to protect their brains during their impressive head-banging battles. These absorb the shock as they hit heads.

Acute eyesight: This helps in seeing predators, but also helps in judging distances when jumping from rock to rock on cliffs.

Ruminants: They don't chew their food when first eaten, but instead these "cud chewers" gobble up food fast, and regurgitate it to chew later while they are relaxed and protected. This is made possible because of their four chambered stomach.



IMPORTANCE OF SHEEP TO EARLY PEOPLE

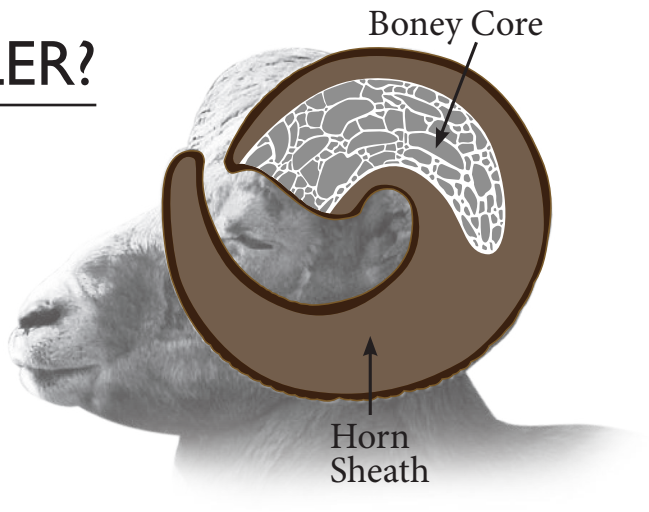
Wild sheep were an important food source to many early Native Americans. In fact, one group of Shoshone Indians from the northern Rockies were known as Tukudika, which translates to "sheep eaters" due to their main source of food consisting of wild sheep. Many rock carvings in rock, or petroglyphs, of sheep can be seen in a variety of locations throughout the western part of North America. There are many general thoughts of why early people etched sheep into surfaces of rock. One belief is that it was a form of ritual hunting magic that would help them be successful during their hunts. Another theory is that they could have been made by shamans, or speakers with the spirit world, during vision quests. Regardless of why they were etched, it is evident that sheep played an important role in early inhabitants of North America.

PRACTICE DRAWING YOUR OWN WILD SHEEP PETROGLYPHS

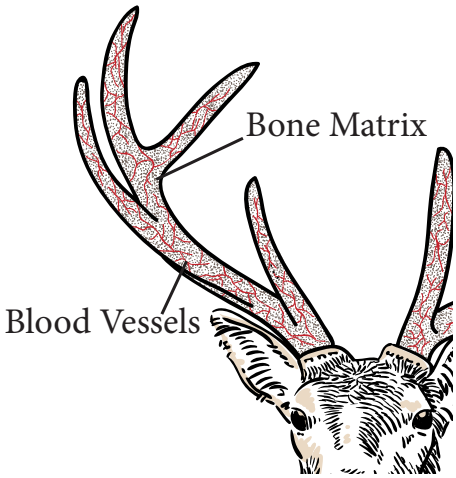
DO YOU HAVE WHAT IT TAKES?

Wild sheep are perhaps best known for their excellent sense of vision, yet have also adapted well to camouflage into their surroundings...It takes a keen eye for photographers, hunters, and predators such as wolves, grizzly bears, and golden eagles to spot sheep in their natural habitat. Do you have what it takes to spot the seven sheep below?

IS THAT A HORN OR AN ANTLER?



When someone mentions a bighorn sheep, the first image many people get is that of their massive, curved horns. Horns are very different than antlers, which grow on other large mammals. Horns grow on animals such as sheep, bison, mountain goats, pronghorn antelope, and other bovine such as the domesticated cow. Horns are actually a two-part structure with a hair and keratin (same thing your fingernails are made from) outside sheath covering a bone core underneath. Horns are permanent and continue to grow on the animal for its entire life, except for the antelope, which is the exception and actually sheds its horn and regrows it each year. Bighorn sheep horns can weigh up to 30 pounds, or about the weight of a three-year old child! The annuli, or growth rings on a sheep horn can be counted to tell how old the sheep is.



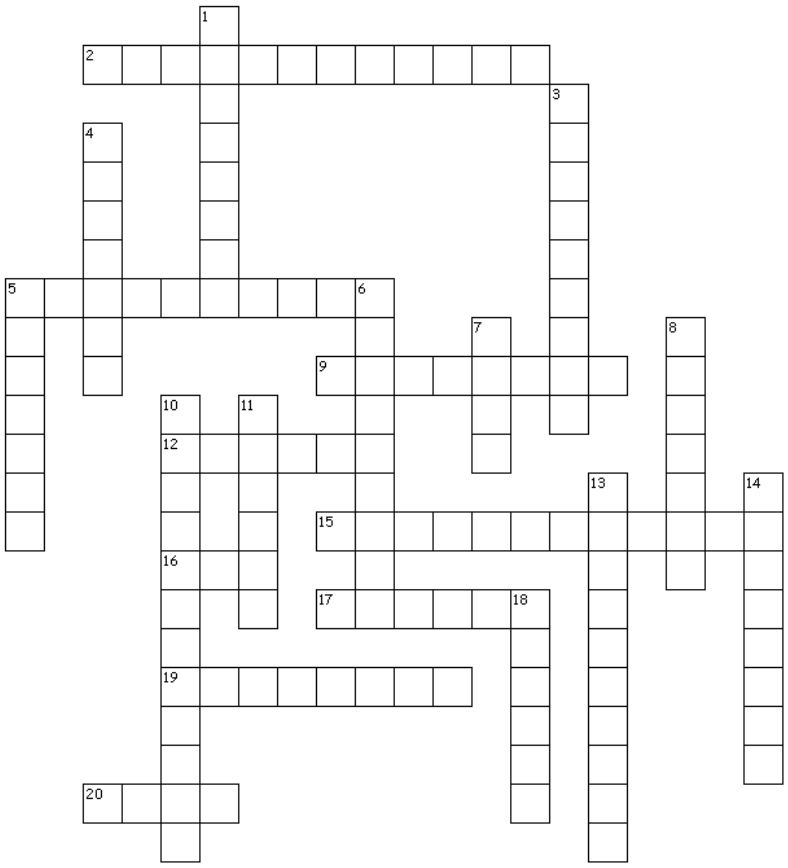
Antlers are found on animals such as deer, elk, moose, and caribou. Antlers are actually made from bone and grow only on the males, except for the caribou, which is the exception, where females grow them as well. Antlers fall off, or "drop", each year. The antler grows from a part on the skull called the pedicle. When antlers first begin growing in the spring they are actually covered with a thin skin and short hairs known as "velvet". Blood vessels under the skin provide nutrients to the bone antler as it grows. Once the antler has grown to full size, and influenced by length of daylight coming through the animal's eyes, the velvet comes off and the bone hardens , leaving the antler you see atop the head of many mammals until they fall off during the late winter months, only to grow back again.

Across

2. The name given to a tame animal, often kept as a pet or on a farm
5. A carving in rock, especially by ancient people
9. An animal that naturally preys, or eats, others
12. Also known as growth rings, these can be counted to help age a ram
15. Protecting animals and plants for future generations to enjoy
16. A full-grown female sheep
17. The smallest species of wild sheep
19. An animal that doesn't chew its food at first, but instead swallows it whole, lets it semi-digest, and then regurgitates it back into their mouth for chewing
20. Made of the same substance as a fingernail and remains on the mammal for its lifetime

Down

1. A sheep between one and two years of age
3. Temporarily moving from one area to another due to seasonal changes in weather
4. Water, space, shelter, and food
5. The term given to someone who illegally shoots an animal
6. Animals like sheep that eat only plants
7. The name of a young sheep under one year old
8. The material that a sheep's horns are made out of
10. The name for a group of adult male wild sheep that live together most of the year
11. Made of bone and fall off the mammal each year
13. To hide or disguise into an animal's surroundings
14. A hoofed mammal that uses the tips of its toes to support its entire body weight
18. The average age of a wild sheep



WILD SHEEP VS. DOMESTICATED SHEEP

Domestic sheep, or those that have been tamed and made fit for human use, differ from their wild relatives and ancestors in several ways. Through selective breeding by humans, certain traits and characteristics were bred out, while other characteristics where selected. Many domestic sheep can be seen with no horns. Probably much easier to be around to cut off the wool wouldn't you think? Another difference is that domestic sheep vary in color from pure white to dark chocolate brown and even spotted. In comparison, wild sheep, except for the white Dall's sheep, are only brownish gray in color. Another difference is their hair. A wild sheep's hair is hollow, like a very tiny straw. This helps it stay warm and acts as insulation from the elements. Wool, found on domestic sheep, are not hollow.

DISEASES

Recently, pneumonia (lung inflammation caused by bacteria) has been identified as the main disease responsible for the decline of bighorn sheep in certain populations. Even with millions of dollars contributed since 1990 by WSF and its Chapters and Affiliates, the cause of how wild sheep get pneumonia is not totally understood yet. Currently, research points to domesticated (tame) sheep as the source of the bacteria. The bacteria, which doesn't harm the domestic sheep is shed off and picked up by the wild sheep. Great efforts have been put into place to ensure domestic sheep and goats don't occupy the same ranges at the same time as wild sheep. As future research provides more answers we will have a greater chance of reducing the devastating die-offs of wild sheep.

WILD WORD SEARCH

A N D G N R F H U L N B Q J S S E R B J N J D W L
K U O R R V O N P R H Z W A T N S H A B I T A T C
C T V I A O G T O E A T X C O L L R K S A I L Z B
J P U B T U W H A C D J V I N R M I U J T X L Y N
O H C K L A G T A D V I T A E U A L B Q N C S S P
X S Z A Y I C X H R E A C D N C R M M J U A H L L
I Y T M B F N U B R V R H L Q L E B K U O S E N L
U E U H H U F Y D R I P P B E L A W Z H M X E Z S
R L U N X C R G E E S N B D A U A I E Y Y D P K J
K E H A X P O S N P R P G K R F S N B O K X W R C
K J N I A T N U O M R E O S U T D T Q C C V E H O
O T I H V O U D M E X U T M P F I Z B F O H G A H
J P N E C Q B S Y H P I L N T M G F Z L R N C O N
D E S E R T S H E E P M D A U K F A J T D Q M P L
D R E H N U B B W L H V G N T H V L M M C N Z A K

DESERT SHEEP
DALL SHEEP
ROCKY MOUNTAIN
STONE
BIGHORN
EWE
UNGULATE
HABITAT
MOUNTAIN
PREY
PREDATOR
RAM
HERD
GROWTH RINGS
FULL CURL
CUD
HUNTER EDUCATION
CONSERVATION
PEDICLE

WHAT ARE UNGULATES?

Ungulates are a large group of mammals, most of which use the tip of their toes (hooves in this case) to hold their whole body weight while moving. In general, the term means "hoofed animal". A hoof is just a modified toenail and unlike a claw or a nail, a hoof is the main point of contact between the legs and the ground.

The evolutionary development of hooves led to a running lifestyle that was forced onto early ungulates by fast-running predators. Since only the hooves touch the ground, the rest of the parts of the foot have basically become parts of the leg. This increased the length of the stride. Modern ungulates have taken this to the extreme, as the wrist/ankle bones are often as long as other parts of the leg. By raising the heel and digits off the ground it increases the number of joints that move the legs forward and this increases the rate of stride. Together, these two factors have given modern ungulates the speed needed to survive which would not have been possible without the development of hooves.

DEER

There are about 30 recognized types of deer, with the whitetail deer being one of the most recognized. In the United States, it is the most widely found ungulate. Its name comes from the underside of its tail, which sticks up and shows as it runs away. The average male deer, or buck, weighs 130-290 pounds. Adults stand about 39 inches tall at the shoulder. They eat a variety of food including: shoots, leaves, cacti, grasses, acorns, fruit and corn. Females give birth to 1-3 spotted young, or fawns. White-tailed deer communicate in many different ways using sounds, scent, body language, and markings.

ELK

The elk is also sometimes referred to as wapiti, a name given it by the Shawnee and Cree that means "white rump". The average male, or bull, elk weighs around 700 pounds while the female, or cow, weighs around 500 pounds. A bull elk stands about 5 feet tall at the shoulder and from nose to tail is 8 feet long. Elk have two upper canine teeth called ivories and scientists believe they are remnants of tusks that ancient elk used in combat, now replaced by their massive antlers. Elk are among the nosiest ungulates, as they communicate danger quickly and easily identify each other by sounds.

MOOSE

The moose is the largest species in the deer family. Moose eat a variety of forbs and other non-grasses as well as fresh shoots from trees such as willows. However, almost half of their diet consists of aquatic plants, which although lower in energy, they provide the moose with the sodium requirements they need. A typical moose weighing 790 pounds can eat up to 71 pounds of food a day. However an adult male (bull) moose can weigh up to 1,500 pounds. An adult moose stands anywhere from 4.6 to 6.9 feet tall at the shoulder and although can live up to 20-25 years, the average age is closer to 12-15 years.

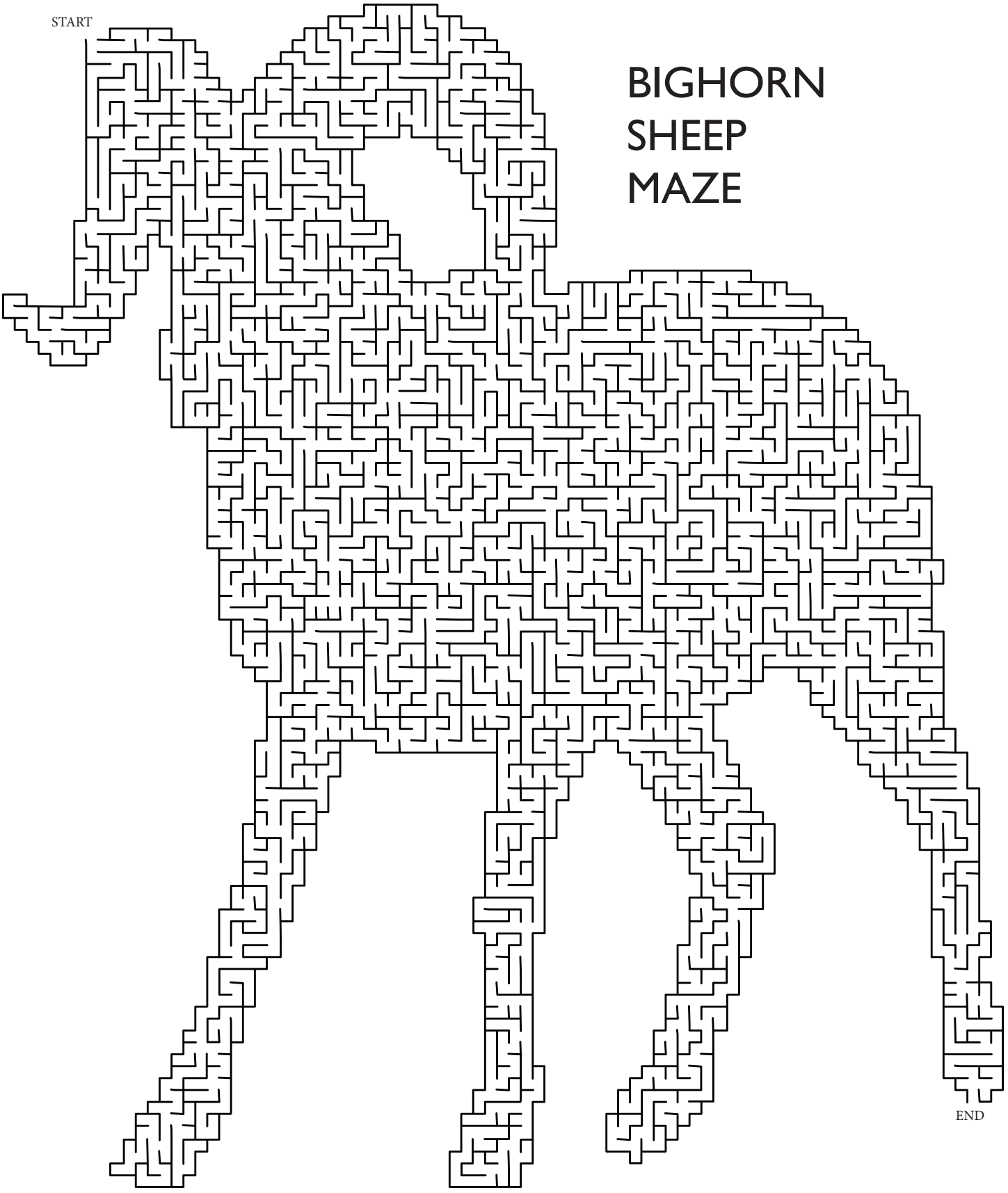
MOUNTAIN GOAT

This animal is found only in North America. This sure-footed climber is often seen on cliffs and ice. They are protected from the cold climates they live in by their dense wool of their undercoat as well as their outer layer of longer, hollow hairs. Standing at a shoulder height of 3 ½ feet and weighing 100 to 300 pounds, these mountainous animals have an average life span of 9 to 12 years in the wild.

BIGHORN SHEEP

Living on average about 12 years in the wild, the bighorn sheep live in distinct gender groups most the year. Herds from 5 to 15 ewes (females) and younger sheep, called lambs, are often spotted together while smaller groups of two to five rams (males) usually hang together. Competing for ewes in the fall, the rams charge each other at speeds up to 20 mph and crash their horns and heads together producing a sound that can be heard a mile away. Weighing between 140 and 300 pounds, the rams live separately from ewes most of the year in "bachelor herds".

BIGHORN SHEEP MAZE



MIGRATION INFORMATION

For wild sheep that live in higher elevations that experience changes in weather, from warm summers to snowy winters, migrating seasonally helps ensure their survival. These sheep depend on a diet of grass, sedge, and shrubs that grow very well on sunny slopes of mountains after the spring snow melt. However, when winter approaches, they retreat from heavy snowpack to lower elevations where finding food is easier. Younger sheep learn the migratory route by following older group members. Migrating distances vary from 0.6 miles to 20 miles.

Most desert bighorn sheep do not seasonally migrate from high elevations to lower ones like other populations of wild sheep. They do however show differences in habitat use patterns throughout the year. In many populations, desert bighorns will have smaller home ranges in summer, staying closer to water sources. During the wetter and cooler months, their home range grows as they move farther away from water sources. During the rut (mating season) and when lambs are born, habitat use is also influenced.

WILD SHEEP®
Foundation

Our Purpose: To Put and Keep Wild Sheep on the Mountain

WSF Headquarters | 412 Pronghorn Trail | Bozeman, MT 59718
406.404.8750 | wildsheepfoundation.org