

NATURE DETECTIVES

Fall 2021



Bam! Fall Is Ramming Time for Bighorn Sheep

The chilly air smelled like fall, and young Ramekin was confused. During the weeks since he'd joined the band of rams (male sheep), they'd spent their days calmly eating and resting. But that fall day, the mood turned tense. Ramekin saw some of the older rams in staring matches. Even though he was a young ram, he knew staring was not acceptable. Staring was rude! Yet the bigger males glared at each other and flaunted the size of their head gear. Standing majestically posed, the rams purposefully moved their heads to show off their thick, curved horns.

Ramekin had wandered into the bachelor band at the end of summer after quitting the band of ewes (females) and juveniles he'd lived with since he was a newborn. He was almost three that summer, and he'd instinctively realized he must move on. Like a human teenager, he'd grown as tall as the females. He was restless and strong. He'd started butting and kicking out at the others. One day he'd use those moves to establish his rank among the adult males, but his practicing had become an annoyance to the ewes.

Head to Head Combat

Mid-fall, the band of rams moved to a new location, and the ewes and youngsters moved into that area too. Ramekin witnessed rams sizing up each other's horns and butting shoulders. Rams with smaller horns walked away.

The rams' wise old leader stood near one of the ewes, then a second large ram moved close. Many of the bighorns paused to watch what would happen. The old ram kicked at the challenger with a stiff front leg. The hostile stares of the two rams intensified. The combatants moved apart a few yards. Then they turned, glaring at each other. Suddenly they reared up on their back legs, and charged at full speed. Crack! With all their weight supported on their muscular front legs, the two males bashed heads. Their curved horns crashed with an

explosive sound that echoed down the valley. With only brief rests, the rams clashed again and again.

When both rams were exhausted, the old leader stood tall and watched his rival stagger away. The victor had won the right to father most of the lambs...at least for one more season.



Winter Hardship



After the rams' drama in the fall, bighorns separate back into the all-male band and the females and youngsters band.

Winter cold kills the grasses and other plants sheep prefer. The sheep use their hooves to dig through snow for meager bites of woody shrubs. They migrate to lower mountain meadows and slopes where the sun keeps the snow cover thinner and easier to dig through.

Following Spring Growth Upslope

Forage is easier to find as new plants sprout at the edges of melting snow. Grazing the lush spring grasses in high mountain meadows, rams rebuild the strength they lost the previous fall when they waged battles rather than eat. They'd headed into winter in an already weakened state, and some didn't survive on the limited food available during the cold season.

A wise female sheep leads ewes and lambs to traditional good grazing in the alpine meadows. Spring prompts each pregnant ewe to seek a steep, rocky, predator-safe nook away from the group to have her baby.

Lambs Born Ready to Leap

Lambs are born a day or two after the ewes find their private lambing spot. The newborns are quickly ready to walk and run. They already have sharp hooves with rubbery centers. Their hooves are the climbing tools bighorns need for their rocky mountain living. Moms and babies form a strong bond in isolation, memorizing each other's voice and scent. After a week they rejoin their band. Lambs leap, playfight, and grow strong on their mom's milk. Two-week-old lambs can zigzag up the cliffs as fast as the ewes.

Lazy Summer

In their two separate bands, the bighorn sheep spend much of their day chewing. They quickly bite and swallow. Later they upchuck plant material (called cud) back into their mouth, and grind it small. They spend a lot of time lying down, chewing what they first swallowed. Chewing mixes the forage with saliva to aid digestion before the food is swallowed again.

Bighorn Migration During Ice Ages and Now

Fellow ice age dwellers such as woolly mammoths died out, but bighorns survived by living much like modern bighorn sheep and looking much the same. Bighorns likely followed retreating glaciers to find the tenderest new grasses. Today's bighorns migrate only short distances. Their choices are limited by highways and buildings, and disappearing healthy habitat.

Sensing Danger

The sheep stand or lie facing different directions so they can spot danger from all sides. When one sheep startles, the whole group scrambles upslope. Vertical mountain terrain and sheer canyon walls almost always provide escape from a mountain lion or any predator except a human. Soft-footed animals can't match the speed and agility of sheep on a rocky mountainside. Sheep can even use ledges that are only two inches wide for footholds!

Besides their climbing skills, bighorns have good eyesight. Their large, well-placed eyes provide a wide field of view, and even small movements a mile away draw their attention. Their big ears easily pick up sounds of danger.

A lucky mountain lion may take down an old or sick sheep, but healthy adult sheep have little to fear from predators. Lambs sometimes fall prey to coyotes, bobcats, and even golden eagles. Older ewes act as babysitters while moms are off grazing. It's their job to spot predators soon enough for lambs and ewes to escape.

Adults and lambs can die from accidental falls, but most deaths occur because of disease. Ewes tend to live longer than rams, but most don't live beyond ten to twelve years.



Curling Horns and Spike Horns

Horns are not shed and regrown annually like deer, moose, and elk antlers. A bighorn ram's horns keep growing every year his whole life. The horns are made of bone attached to the skull and covered with keratin. (Keratin also makes up your fingernails.) As the ram's horns grow, they get thicker and bigger around at the base. They gradually form an impressive curve.

Ram horns grow very little in winter because of poor nutrition. The seasonal growth makes a ridge each year. Counting the dark-colored ridges gives an idea of the age of the ram. It isn't exact because rams often break off the tips of their horns. The tips and whole horns can break accidentally or in battles. Some rams purposely break off the ends of their horns when the curling horns start to block their vision.



Lambs are born with little baby bumps, the start of their future horns. Ewes grow horns that are short spikes with a slight curve.

The horns on rams can grow so huge they weigh nearly thirty pounds. Imagine that on top your head!

Our State Mammal

The Rocky Mountain Bighorn sheep was named the official Colorado state mammal in 1961. Bighorn rams are also the mascot of Colorado State University. The Desert Bighorn Sheep is the official mammal of the state of Nevada. What qualities about bighorn sheep do you think are the reasons they were chosen?



Sticky Feet

Bighorn sheep have specialized rubber-like pads in the center of their hooves that help keep them from slipping when jumping up and down rock cliffs. You can see how this works by trying this:

Find a rubberized jar opener (usually a round or square rubber pad that helps make opening jars easier).

Find a smooth, slick area to walk on—this could be a floor in your house, a big slick rock outside, or a smooth cement surface (without any ridges). Walk on your surface with bare feet and notice how it feels.



Now cut out a circle from the rubberized jar opener (about 1.5 inches across). Roll up a piece of tape and put the tape on one side. Stick the rubberized piece with the tape to the ball of your foot (the front part underneath where the toes are connected to your foot). Now walk across the same surface. How does it feel different this time? That's how bighorn hooves work!



Hard Heads

The U.S. Air Force has studied how the bones and muscles of bighorns work to protect colliding rams from concussions. Some of the protection is due to special bones under their thick skull. The special bones act as struts to resist compression and absorb shock.

When you wear a bicycle helmet, it helps protect your head in the same way. To see how this works, see if you can protect an egg from being broken by building a protective shield around it. Use whatever you can find—foam, straws, plastic air packaging bags, etc. Wrap up your egg and drop it and see if you can get your protective “head gear” to protect the egg.

Thank goodness for helmets...and thick skulls!