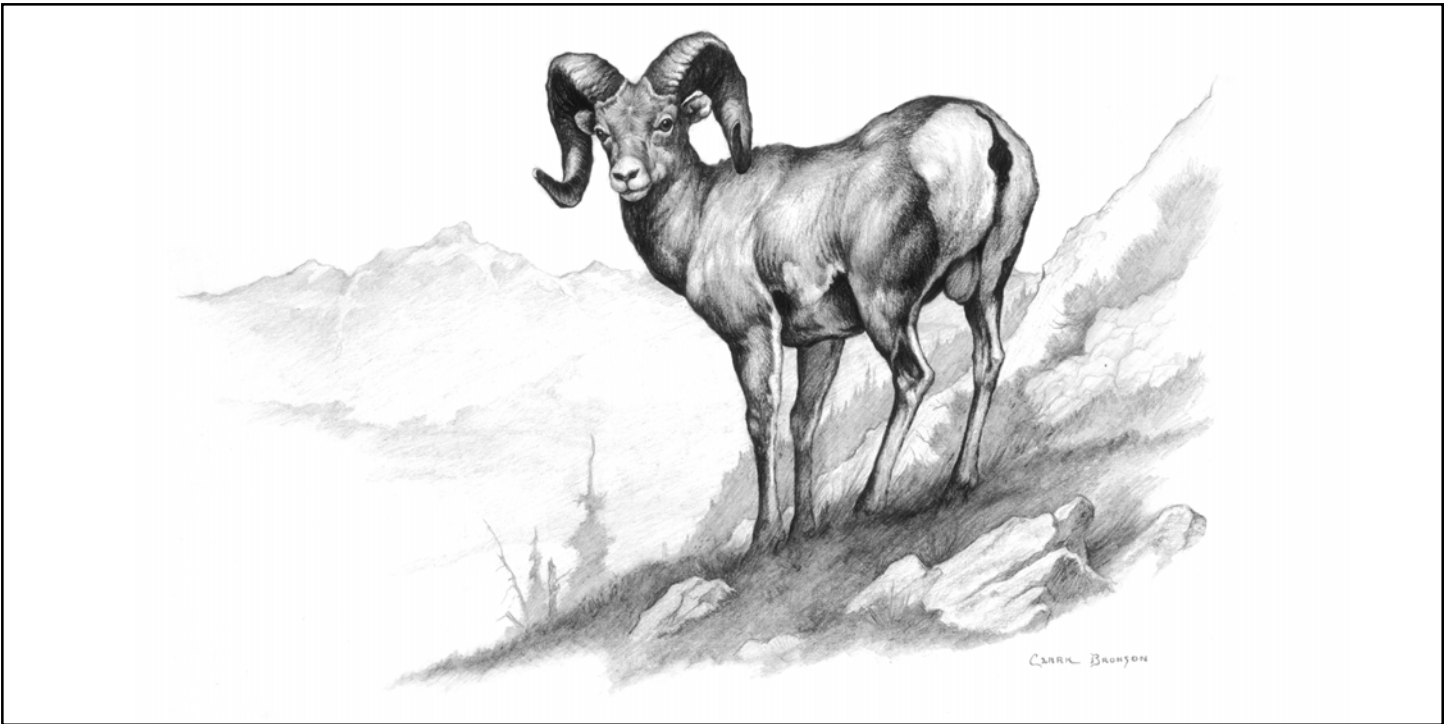


Bighorn Sheep

(*Ovis canadensis*)



Bighorn sheep are one of the most impressive large mammals in North America. Charging at a great speeds, two rams crashing horns in a duel for dominance is one of the most astounding sites in nature. Not only magnificent in stature and behavior, bighorns also live in some of the most remote and beautiful areas of the American West. Viewing bighorns in the wild is truly an exciting and exhilarating experience.

Utah is home to three subspecies of bighorn sheep: the Rocky Mountain bighorn (*Ovis canadensis canadensis*), the desert bighorn (*Ovis canadensis nelsoni*) and the California bighorn (*Ovis canadensis californiana*).

Description

Bighorn sheep are named for their most notable characteristic, the massive headgear worn by the males of the species. Though both sexes have horns, it is the male (ram) that grows the large spiral or curl that is normally associated with bighorn sheep. The horns are permanent and consist of a sheath of keratin covering a bony core. Horns grow throughout life and reach maximum size at 8 to 10 years of age. Growth of the horns is interrupted during the rutting (breeding) season, at which time a ring is formed in the horn leaving

a permanent record of age. The bony core of the horn is honeycombed with air chambers which reduce the weight of the horns. Still, the skull and horns of a mature bighorn ram may weigh in excess of 40 pounds. Females (ewes) also have horns, although they are much smaller, ranging between six and ten inches in length (about the same size of those of a yearling male).

Bighorn sheep show a great deal of variation in color, ranging from light tan to chocolate gray. All sheep have white muzzles, rump patches and trim on the back edges of the legs.

Rocky Mountain bighorns are nearly twice as heavy as desert bighorns. Mature Rocky Mountain rams approach 300 pounds while desert rams usually do not exceed 150 pounds. California bighorns are intermediate in size between Rocky Mountain and desert bighorn sheep. Ewes are correspondingly about 40 percent smaller than rams in each of the three subspecies. Although three subspecies of bighorn sheep are currently recognized, recent studies indicate there may be no genetic differences between Rocky Mountain and California bighorns and that perhaps the two subspecies should be considered the same.



Petroglyph - Nine Mile Canyon, Wellington, UT

History

The first wild sheep probably entered North America from Asia during the Pleistocene epoch by crossing the Bering land bridge. Sometime during the last ice age, a population split occurred and the two groups of wild sheep developed independently in North America into the northern thinhorn sheep (*Ovis dalli*) and the southern bighorn sheep (*Ovis canadensis*).

The first fossil records of bighorn sheep in Utah can be found in the late Pleistocene rock formations. More recent records include skeletal remains found in caves inhabited by prehistoric man and in Pueblo Indian cliff dwellings. This prehistoric evidence suggests that bighorn sheep were a source of both food and clothing for the native people of Utah. Other records of bighorns are quite literally written in stone. Bighorn sheep are depicted in pictographs and petroglyphs of the Fremont, Anasazi and other Native American tribes that lived in Utah more than any other form of wildlife.

Historical records of the first white men in the state confirm the presence of bighorns. Father Escalante noted in his journal as he crossed the Colorado River in Utah, "Through here wild sheep live in such abundance that their tracks are like those of great herds of domestic sheep." Explorers, trappers, pioneers and settlers also recorded numerous observations of bighorn sheep throughout the state.

Rocky Mountain bighorns are generally recognized to have inhabited northern and central Utah and desert bighorns were found in southern Utah. It is not known if California bighorns historically inhabited Utah. Some mixing and interbreeding of Rocky Mountain and desert bighorns likely occurred where their ranges converged, making a clear distinction of historic ranges difficult.

Following pioneer settlement, native populations of Rocky Mountain bighorn sheep were nearly extirpated. By the 1930s

Rocky Mountain bighorn sheep numbers in Utah were estimated at a few hundred and only a small number of scattered sightings persisted in northern Utah as late as the 1960s. Factors contributing to their decline included competition with domestic livestock for forage and space, vulnerability to diseases of domestic sheep, degradation of habitat caused by conversion of native grasslands towards shrub lands due to excessive grazing and fire suppression and unregulated hunting.

The first law in Utah protecting bighorn sheep was passed in 1876. This law prohibited hunting of bighorns and other big game animals between January 1 and July 1 each year. In 1899 another law passed by the Utah Legislature prohibited bighorn sheep hunting altogether.

During this time period Utah's desert bighorn sheep populations also struggled to survive civilization. While some herds suffered early extirpation, others remained relatively unexploited until the 1940s and 1950s when uranium was discovered on the Colorado Plateau. Mining operations opened access to remote areas and drove desert bighorns from their traditional ranges. In addition, miners and prospectors hunted bighorns for food and sport despite the fact they were legally protected. By the 1960s, only a small population of desert bighorns remained in Utah along the most remote portions of the Colorado River.

Habitat

Bighorn sheep are uniquely adapted to inhabit some of the most remote and rugged areas in Utah. They exist in some of the most hostile of climatic conditions from the hot, dry canyonlands of southern Utah to the cold, snowy alpine regions of Utah's northern mountains. Bighorns are sometimes referred to as a wilderness species because of the naturally remote and inaccessible areas they inhabit.

Bighorns prefer open habitat types with adjacent steep rocky areas for escape and safety. Habitat is characterized by rugged terrain including canyons, gulches, talus cliffs, steep slopes, mountain tops, and river benches. Most Rocky Mountain bighorns have seasonal migrations with established winter and summer ranges while desert bighorns generally do not migrate.

Bighorn sheep are well suited to survive in their rocky environments. They are superb climbers and their hooves have sharp outer edges that grip well and have large, rubbery soles that provide traction on smooth rock.

Bighorn habitat in North America is highly varied but is characterized by an open landscape and stable plant communities in which grasses predominate. The diet of bighorn sheep is primarily grasses and forbs, although they also utilize shrubs depending on season and availability.

Life History and Behavior

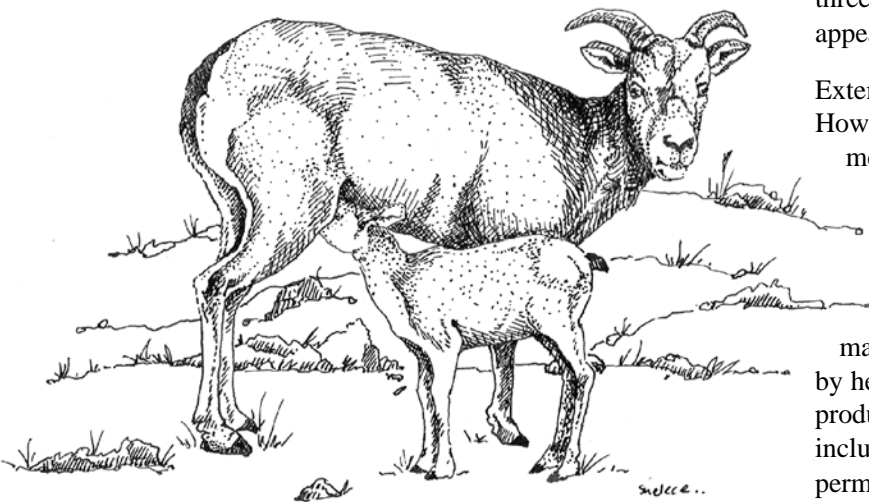
Bighorns are very social animals. Rams however, normally separate themselves from groups of ewes and lambs, except during the breeding season. In Utah, bighorn sheep breed during November and December.

During this time of year rams engage in dramatic head butting clashes to establish dominance. During these battles, the two rams face each other, rear up on their back legs, lower their heads, charge and collide heads and horns. The resulting crash of horns meeting horns can often be heard several miles away and is a good way to locate rams during the rutting season. These battles are rarely dangerous to the rams since their horns, skulls and thick, powerful necks are well adapted to absorb the tremendous impacts. Rams which are successful in establishing dominance will mate with several ewes during the breeding season.

Ewes move into the most rugged terrain available to give birth to their lambs. The remote nature of these areas provides for an adequate supply of good forage and plenty of escape cover for protection.

Lambs are born in May and June about 180 days after mating. Ewes almost always give birth to a single lamb, with twins being rare. Newborn lambs weigh eight to ten pounds and stand 15 to 17 inches at the shoulder.

Newborn lambs are well developed and able to move and follow their mothers shortly after birth. Within a day or two, bighorn lambs can climb among the rocky crags almost as well as their mothers. At about two weeks old, lambs begin to nibble on grasses and other vegetation. They can be weaned at as early as one month, though most are weaned at about four to five months. They grow rapidly with ram lambs approaching the size of ewes by 8 months of age. Ewes will reach their adult weight in four to five years, whereas rams will achieve maximum weight at six to seven years.



Management

Utah has been involved in an aggressive program to restore bighorn sheep to their native habitat since the late 1960s. Aerial surveys which began in 1969 indicated some populations were slowly increasing. Encouraged by these findings, Division of Wildlife Resources (UDWR) biologists initiated plans to reintroduce or enhance populations in other suitable habitats.

Rocky Mountain bighorns were first reintroduced into the state near Brigham City in 1966. Releases of Rocky Mountain bighorn sheep have met with varying degrees of success in Utah. Transplanted herds in Box Elder County and on Mount Nebo were deemed unsuccessful. Other reintroductions have done much better. A herd introduced by the Ute Tribe in the early 1970s at Florence Creek in Desolation Canyon has grown considerably.

Rocky Mountain bighorns have also been transplanted by UDWR to the Deep Creek Mountains and to Pilot Mountain near the Nevada border. Additional herds have been reestablished along the Green River corridor and on the north slope of the Uinta Mountains in northeastern Utah. In 1991, UDWR biologists authorized the first legal hunt for Rocky Mountain bighorn sheep since the turn of the century. Eight permits were authorized in 2000.

Desert bighorns were first relocated to areas of historic habitat in 1973 in Zion National Park. Between 1979 and 1999, over 500 desert bighorns were trapped and released into areas of historic habitat including the Kaiparowits Plateau, Escalante Canyon, Dolores Triangle, Dirty Devil, Little Rockies, Paria River, Beaver Dam Mountains, and Arches and Capitol Reef National Parks. Most desert bighorn transplants have been successful and the first legal hunt for desert bighorn sheep in Utah was authorized for November of 1967. In 2000, 36 hunting permits were authorized.

California bighorns have also been released in Utah. Twenty three bighorns were released on Antelope Island in 1997 and appear to be doing well. Six more were released in 2000.

Extensive historic bighorn habitat occurs throughout the state. However, not all habitat is currently suitable for reestablishment of bighorn populations. Vegetative changes, human encroachment and continued grazing by domestic sheep make some areas unsuitable for bighorn restoration.

In addition to transplant projects, management practices include population surveys, research, and habitat management. Bighorn populations are regularly monitored by helicopter and ground surveys to determine herd size, productivity and composition. Habitat management practices include buy-outs or conversions of domestic sheep grazing permits, vegetative treatments and water developments.

Population Status

Rocky Mountain bighorns existed in six areas in the northern half of the state in 2000. All of these populations are the result of transplant efforts. The population estimate for Rocky Mountain bighorns in Utah in 2000 was approximately 1,000 sheep.

California bighorns currently exist only on Antelope Island State Park. These animals were obtained from British Columbia and released in March, 1997. The population numbered near 100 animals in 2000.

Desert bighorns inhabit southern Utah and are more abundant than Rocky Mountain bighorns. Significant populations occur across the Colorado Plateau including the San Rafael Swell and throughout the Colorado River and its many tributaries. The population estimate for desert bighorns in Utah in 2000 was 2800 sheep.

How You Can Help

Biologists are hopeful that bighorn sheep herds will eventually be reintroduced into most of their historic range. Concerned citizens interested in this effort can:

- Contribute to the Utah Division of Wildlife Resources' Bighorn Sheep Enhancement Fund. Donations to this fund directly benefit bighorn sheep.
- Join the Utah Chapter of the Foundation for North American Wild Sheep (FNAWS), a conservation organization dedicated to wild sheep and their habitat. For information, contact FNAWS at 2929 Kenwood St., Salt Lake City, UT 84106.
- Volunteer to assist UDWR biologists in restoring and developing bighorn sheep habitat. Contact your local UDWR office for more information.



Suggested Viewing Areas.

Utah's bighorn sheep provide wildlife watchers some incredible opportunities. Visitors to the Following sites can find themselves in excellent bighorn habitat.

- Sheep Creek Geological Loop south of Manilla.
- Flaming Gorge Reservoir.
- Hole-in-the-Rock south of Lone Tree, Wyoming.
- Cisco to Moab Drive along the Colorado River.
- Dead Horse Point State Park north of Moab.
- Antelope Island State Park.
- White Rim Trail in Canyonlands National Park

Additional Reading

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