

HISTORY AND CURRENT STATUS OF BIGHORN SHEEP IN NORTHEAST MONTANA

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Abstract: For thousands of years Audubon bighorn sheep (*Ovis canadensis auduboni*) inhabited the badlands, breaks and isolated mountain ranges of eastern Montana. In 1916 the last known Audubon sheep was killed in the Missouri River Breaks (MRB) near Seven Blackfoot Creek. In 1947 an attempt was made to reestablish bighorns in the MRB when 16 Rocky Mountain bighorn sheep (*O. c. canadensis*) were released in Garfield County. This reintroduction attempt initially appeared successful, but by 1956 the population had started to decline and by 1963 all of the sheep had died. There are currently 4 bighorn sheep populations in northeast Montana. Three of these populations occur in the MRB while the third is in the Little Rocky Mountains south of Malta. The sheep population in the Little Rocky Mountains, Hunting District (HD) 620 is the result of a 1972 transplant when 43 sheep were released near Saddle Butte. In 1982 a hunting season was established for this population. Since 1982 42 rams, having an average age of 4 ½, have been harvested. In December 1996, 87 sheep were observed during an aerial bighorn sheep survey in the Little Rocky Mountains. Two bighorn sheep populations are found in the MRB south of Malta in the Charles M. Russell National Wildlife Refuge. These populations are the product of a 1980 transplant when 28 bighorns were released near Brandon Butte. A hunting season was established in 1987 and both populations occur in HD 622. Since 1987 51 rams have been harvested in HD 622. The average age of harvested rams was 6 ½. One hundred and twenty eight sheep were observed during an aerial survey of these populations in December 1996. The fourth, and largest, bighorn sheep population is located in the Missouri River Breaks south of Chinook. This population is the result of transplants occurring from 1958 to 1961 in Two Calf Creek and a 1980 transplant in the Chimney Bend area. These sheep subsequently pioneered into the MRB along both sides of the Missouri River. Hunting seasons for this population were established in 1987 and in 1996 the area was split into 2 HDs. HD 482 lies to the south of the Missouri River, while HD 680 lies to the north. In the spring of 1996, 483 bighorns were counted during aerial surveys of both HDs. Since 1987, the average age of harvested rams has been 6 ½. Currently all 4 bighorn sheep populations in northeast Montana appears to be either stable or increasing. In April 1998, Montana Fish Wildlife & Parks (FWP) initiated a research project in conjunction with Montana State University to study bighorn sheep in HD 680. The objectives of the study include: 1) establish a standardized population estimation procedure; 2) determine movement and habitat use patterns; 3) test the efficiency of a bighorn sheep habitat suitability model and determine how much potential range in HD 680 is occupied; and 4) assess mortality, disease, predation, and other limiting factors in this population.

HISTORY

The first documented record of bighorn sheep in Montana occurred on April 29, 1805, by Joseph Fields of the Lewis and Clark expedition (Thwaits 1904-5). Although few people consider northeast Montana as bighorn sheep country, the sheep observed by Mr. Fields were along the Missouri River near the present day town of Culbertson. Further down the Missouri River Clark noted "great herds of the horned animals, one of which I killed." Bighorn sheep were still abundant in the mid-1800s, a fact noted by passengers aboard steamboats traveling up and down the Missouri River.

The bighorn sheep observed by early explorers were Audubon bighorn sheep, a race distinct from the Rocky Mountain bighorn native to the mountains of western Montana. Unfortunately, by the late 1800s Audubon bighorn sheep were nearly extinct and the last known Audubon bighorn was killed in 1916 near Seven Blackfoot Creek in the MRB (Walcheck 1980). Competition with livestock, habitat loss, disease, and unregulated hunting all contributed to their extirpation.

The first attempt to reintroduce bighorn sheep back into the MRB occurred in 1947 when 16 Rocky Mountain bighorns from Colorado were released near Billy Creek in northern Garfield County. This population initially grew quickly, but began to decline in 1956 and by 1963 it had completely disappeared. Biologists believe that these sheep died off from a number of reasons including competition for forage, disease, crossbreeding with domestic sheep and social intolerance towards domestic sheep (Eichhorn and Watts 1972).

CURRENT STATUS

There are currently 4 populations of bighorn sheep in northeast Montana. Three of these populations are located in the MRB, while the fourth population inhabits the Little Rocky Mountains. All of these bighorn populations are the result of transplants of Rocky Mountain bighorn sheep captured along the east front of the Rocky Mountains near Augusta, Montana.

Little Rocky Mountains - HD 620

The Little Rockies are a small isolated mountain range in south Phillips County. Although these mountains are heavily wooded, scattered meadows and rocky outcrops provide habitat for bighorn sheep. Most of the sheep habitat is on land administered by the Bureau of Land Management (BLM); however, some sheep also use private land within the Zortman/Landusky Gold Mine.

Forty-one bighorn sheep were transplanted into the Little Rockies in 1972. Since 1981 this population has remained relatively stable although there has been some year to year variation in survey data due to variables affecting sightability. Since 1994 a helicopter has been used to conduct this survey. Prior to this time most surveys were conducted using a fixed-wing aircraft or by ground crews.

In most years 40 - 65 bighorns are counted during aerial surveys (Table 1). However, in December 1996, eighty-seven sheep were located. Survey conditions were excellent at the time of this census and sheep were concentrated on their winter range due to deep snow conditions on other parts of their range. Sheep were very dispersed during the winter of 1997-98 and, as a result, only 46 animals were located. Many of these animals were observed in wooded areas making classification difficult and sometimes impossible.

Table 1. Survey data for Hunting District 620 (1991-98).

Date	Rams			Tot.	Ewes	Lambs	Unc	Total
	<1/2	1/2-3/4	>3/4					
3/91	4	0	1	5	23	9	0	46
8/94	2	3	1	6	40	17	0	63
8/95	0	0	0	0	26	9	0	35
3/96	6	4	0	10	21	10	25	66
12/96	15	1	0	16	44	23	4	87
1/98	8	2	0	10	11	9	16	46

Unc = unclassified sheep

Although good lamb production is typically observed in this population, ram numbers are low. Poaching is suspected as being the primary cause of low ram numbers and last year 3 residents of the Fort Belknap Indian Reservation, were cited for illegally harvesting antelope, deer, elk and bighorn sheep outside of the Reservation (Chris Wright, pers. commun.).

A hunting season was established in 1982 with a quota of 2 either-sex bighorn sheep licenses. Either-sex licenses were increased to 3 in 1987 and 5 in 1988. In 1994 the either-sex license quota was reduced to 2 due to the low numbers of rams in the population.

Since 1982 hunters have taken 42 rams. These 42 rams had an average age of 4 1/2 and ages ranged from 2 1/2 to 9 1/2 years old. The average base circumference for the largest horn of harvested rams was 13.6 inches and ranged from 10.0 to 16.5 inches. The average length of the longest horn was 27.3 and lengths ranged from 18.6 to 34 inches.

MISSOURI RIVER BREAKS - HD 622

Twenty-eight bighorns were transplanted into the Mickey-Brandon Buttes in 1980. Some of these sheep soon split off and moved into the Iron Stake Ridge vicinity, approximately 15 miles to the northeast. Bighorn sheep habitat is very marginal between these two areas and, although there may be some interchange of rams, these are basically 2 distinct sheep populations. Since both sheep populations occur within the Charles M. Russell National Wildlife Refuge, FWP cooperates with the Fish and Wildlife Service in managing these sheep.

Prior to 1994 surveys of this HD were conducted by ground crews, sometimes in conjunction with a fixed-wing aircraft. Since 1994 a helicopter has been used to conduct sheep surveys. Typically around 120 sheep are observed during annual surveys (Table 2) and year to year variations are primarily due to sightability.

Table 2. Survey Data for Hunting District 622 (1990-98).

Date	Rams			Tot.	Ewes	Lambs	Unc	Total
	<1/2	1/2-3/4	>3/4					
12/90	15	14	7	36	49	28	6	119
12/91	18	5	4	27	42	9	1	79
12/92	17	9	5	31	38	8	7	84
12/93	13	7	7	27	46	18	0	91
8/94	5	5	20	30	66	27	0	123
8/95	7	8	8	23	55	28	12	118
12/96	27	9	16	52	46	26	4	128
1/98	19	10	11	40	46	18	0	104

Unc = unclassified sheep, most of these sheep are probably ewes and yearling (1/4 curl) rams.

A bighorn sheep hunting season was established for HD 622 in 1987 with 2 either-sex licenses available. In 1988 the either-sex quota was raised to 5 where it has remained, except for a one-year increase to 7 in 1996. Five adult ewe permits were also issued in 1996 and 3 in 1997.

Since 1987 51 rams and 9 ewes have been harvested. Ages of harvested rams range from 3 1/2 to 9 1/2 years and average 6 1/2. The average base circumference of the largest horn for harvested rams is 15.6 and range from 14.0 to 16.7 inches. The average length of the longest horn for rams is 35.7 inches and ranges from 30.5 to 40.5 inches.

MISSOURI RIVER BREAKS - HD 680 & 482

These river breaks encompass approximately 40 river miles between the Judith Landing (State Highway 236) downstream to the Fred Robinson Bridge (State Highway 191). Most sheep are found within 5 miles north or south of the Missouri River. The varied topography of these breaks supports a complex mosaic of vegetation and habitat types. Benchlands, ridgetops, coulee bottoms and steep south-facing slopes are dominated primarily by sagebrush-grasslands. The sideslopes of drainages have scattered stands of juniper and Douglas fir. The majority of sheep habitat is managed by the BLM although some sheep habitat also occurs on private land.

Between 1958 and 1961, 43 bighorns were released near Two Calf Creek in north Fergus County. A hunting season was established in 1969 and by 1971 the population had grown to 90 animals. However, the herd experienced high winter mortality during the winter of 1971-72 and for the next 8 years the population was static at 20 to 30 animals. In 1980, 28 bighorns were released in the Chimney Bend area in north Fergus County. These sheep subsequently merged

with the Two Calf population and pioneered into the Breaks along both sides of the river. By 1986, a total of 63 sheep were counted during a fixed wing survey of this area. Another fixed-wing survey was conducted in 1992. During this survey, a total of 281 sheep were observed, including 64 rams of which 29 were 3/4 curl or larger. Helicopter surveys were conducted in 1995 and 1997. The 1995 survey revealed a total of 462 sheep including 84 3/4 curl or larger rams and 50 lambs/100 ewes. A total of 483 sheep were observed in 1997 including 69 rams that were 3/4 curl or larger and 44 lambs/100 ewes. This population obviously was growing in size and distribution, although survey effort and efficiency also increased over time.

Hunting seasons were established in 1987 and 2 either-sex licenses were issued for HD 680, which included the sheep range north and south of the Missouri River. From 1988-93, 5 either sex licenses were issued each year. The license quota was increased to 6 in 1994 and 15 in 1995. In 1996, HD 680 was divided into HD 482 south of the Missouri River and HD 680 north of the Missouri River. In 1996 and 1997 there were a total of 23 either-sex licenses and 18 ewe licenses issued each year for both HDs.

During these 11 hunting seasons, only 1 of 99 either sex permit holders was unsuccessful in harvesting a ram. The 98 rams that were harvested had an average age of 6 1/2 years and ranged from 3 1/2 to 10 1/2. The average base circumference of the largest horn for these rams was 15.7 inches. Base circumferences ranged from 14.1 to 18.3 inches. The average length of the longest horn for these rams was 37.4 inches and lengths ranged from 32.6 to 44.2 inches.

HD 680 RESEARCH PROJECT

In early April 1998 FWP initiated a 3-year research project to study the sheep population in HD 680. Thirty bighorn sheep, 20 ewes and 10 rams, were radio-collared using helicopter net gun techniques. Radio collars were put on individuals from 10 different sheep bands throughout their distribution on the north side of the Missouri River. All collars were color coded for individual recognition. Microchips were injected under the skin of rams for additional identification and enforcement purposes. Blood samples were taken from all 30 sheep for standard disease and parasite tests.

The objectives of the study include 1) establish a standardized population estimation procedure; 2) determine movement and habitat use patterns; 3) test the efficiency of a bighorn sheep habitat suitability model and determine how much potential range in HD 680 is occupied; and 4) assess mortality, disease, predation, and other limiting factors in this population.

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