

BIGHORN SHEEP IN THE MISSOURI RIVER BREAKS OF MONTANA

By

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In 1805, Lewis and Clark observed bighorn sheep in the Missouri River breaks near the mouth of the Judith River in central Montana. In his journal, Clark noted, "...I saw great numbers of the bighorned animals, one of which I killed..." However, in less than 75 years, man reduced the native bighorn, *Ovis canadensis auduboni*, to near extinction. The last known native bighorn disappeared in the Billy Creek area by 1916.

In the early 1940's, biologists began to talk of introducing Rocky Mountain bighorns, *Ovis canadensis canadensis*, to range once occupied by the native (also called Audubon or badlands) bighorn. In 1947, Colorado provided 16 Rocky Mountain bighorns for release within a 328-acre, fenced area on Billy Creek in the Missouri River breaks.

In 1951, the herd had grown to 54 and bighorns roamed on both sides of the fenced area. Following removal of the fence in 1952, the bighorns scattered over a wide area. Permit hunting seasons for 3/4-curl rams opened for 2 years. Hunters bagged two in 1955 and none in 1956. A population decline became evident, and the bighorn disappeared by 1963. The decline apparently began with the removal of the fence, but specific reasons for this population's failure are unknown. Undoubtedly, habitat deficiencies played an important role in the disappearance. Competition for forage, disease, cross-breeding with domestic sheep and social intolerance of domestic sheep may have complicated the transplant bighorn's life and hurried along its demise.

In 1957, the Montana Fish and Game Department began a second reestablishment transplant in the Two Calf Creek area in northern Fergus County. Department personnel constructed a 7-foot fence around 1400 acres on the Missouri River. Between 1958 and 1961, they released 43 Rocky Mountain bighorns of Montana origin, within this enclosure.

Although inventory records before 1969 are incomplete, the bighorn population apparently increased slowly from the original 43 transplants. Lamb production was good in 1969 and the population increased to at least 51. During the fall of 1969, hunters harvested 5 legal (3/4 curl minimum) rams. The following year productivity was even better and a ratio of 79 lambs per 100 ewes survived the winter, increasing the population to at least 63 (Table 1). This is probably the highest production and lamb survival rate on record for Rocky Mountain bighorns. Hunters took three more legal rams in 1970. Productivity remained good in 1971 and the population increased to at least 90 bighorns during the fall of 1971. Hunters bagged three legal rams in 1971.

The Two Calf bighorn population experienced high mortality before the spring of 1972. Femur marrow from 18 of the 19 bighorn carcasses we examined indicated starvation. The near elimination of this population (Table 1) focused attention to severe winter range problems. Domestic livestock, primarily

cattle, grazed the Two Calf area (except for the range inside the enclosure) from April through November. Cattle did not make uniform use of the entire range because of rough terrain and the distribution of water. Throughout the summer bighorn herds grazed areas missed or lightly grazed by livestock. However, late summer cattle grazing has contributed to overuse on drainage bottoms and the adjacent lower slopes, sources of potential winter range for bighorns.

Table 1. Two Calf Bighorn Sheep Classification

Date	Male				Female	Young	Total
	Full	3/4	1/2	1/4			
Winter 1969-70	4	1	5	6	24	11	51 ^{1/}
Winter 1970-71	2	2	5	2	29	23	63 ^{1/}
Winter 1971-72			3		18	2	23
Winter 1972-73		2		1 ^{2/}	18	0	21
Winter 1973-74	2		1		15	0	18

^{1/} Minimum counts

^{2/} Two year old ram in spring of 1973

Most bighorns must therefore return to the enclosure for winter forage. Bighorns returning to the fenced enclosure must compete for forage with an underharvested deer herd. Continual overuse (Table 2) of desirable browse plants by deer has led to the "hi-lining" (eating all the foliage from lower branches) of even such poor quality forage as Rocky Mountain juniper and Douglas fir. The "hi-lined" condition indicates an overall depleted range. Bighorns also must depend upon browse plants for winter survival, when grasses they normally prefer have inadequate nutrition or are gone or buried by winter snows.

The Bureau of Land Management initiated a rest-rotation grazing system in 1973 to improve winter range conditions for bighorns in the Two Calf Creek area. We are now monitoring this grazing system. Additional fencing and livestock watering facilities will distribute livestock to some areas not previously grazed. This may reduce summer range for bighorns, but bighorn winter range conditions should improve. The winter range within the rest-rotation system implemented in 1973 showed 3 percent canopy coverage of residual vegetation in June 1972, after the bighorn sheep die-off and with season-long livestock grazing. This winter range was rested from all livestock use in 1973. In March 1974, there was 55 percent canopy coverage of residual vegetation. The bighorns did use this winter range within the rested pasture during the winter of 1973-74. If wildlife objectives are not met with the rest-rotation grazing system, other alternatives will be reviewed and recommended.

Table 2. Percent Use on Browse Transects Within Two Calf Enclosure.

Date	<u>Percent Use</u>			
	4-30-71	3-23-72	5-4-73	3-13-74
<u>Transect #53</u>				
<u>Chrysothamnus nauseosus</u>	100	96	87	93
<u>Rhus trilobata</u>	57		11	69
<u>Transect #54</u>				
<u>Atriplex nuttallii</u>		51	0	2
<u>Transect #56</u>				
<u>Atriplex nuttallii</u>		35	0	0
<u>Artemesia tridentata</u>		65	0	3
<u>Transect #57</u>				
<u>Artemesia cana</u>		100	49	95
<u>Artemesia tridentata</u>		84	0	3

A 1972 change in deer hunting district boundaries should direct more hunter pressure into this portion of the Missouri River breaks and hopefully attain better balance between the deer and their food supply. Deer hunting is still not allowed within the 1,400 acre enclosure, but if competition for winter forage continues at unacceptable levels, hunting changes will be recommended.