

STATUS AND MANAGEMENT OF THE  
ROCKY MOUNTAIN GOAT, Oreamnos Americanus,  
IN THE PROVINCE OF ALBERTA<sup>1</sup>

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HISTORICAL INFORMATION

Millar (1915), while conducting a federally commissioned big game survey along the east slopes of the Rockies, stated that the goat was "everywhere present along the East slope in numbers that it would be difficult to estimate, but certainly well up in the thousands". When you couple this reference and the review of bighorn sheep in the Canadian Rockies by Stelfox (1971), it is evident that goat populations did not greatly decline in the late eighteen and early nineteen hundreds as did the sheep and elk populations. Stelfox stated that during the period 1860 to 1915 sheep numbers declined from in excess of 10,000 animals to about 2,600 animals. Elk numbers decreased from a population in the thousands to a 1915 population of not more than 365 (Millar *op. cit.*). The primary cause of this great reduction in sheep and elk numbers was the indiscriminate hunting, with firearms, by resident Indians, explorers, miners, railway builders and settlers (Quaedvlieg *et al.* 1973).

The mountain goat was not part of this massive harvest. Millar (*op. cit.*) stated that "the comparative remoteness of its range, the worthlessness of its hides, the small esteem in which it is held either as a trophy or as a source of meat, and the abundance hitherto, of other more desirable and more easily obtained big game have all attributed to save the goat from the rapid decline in numbers befallen most of the other big game of the Rockies".

Hunting Seasons - The first hunting season was legislated under the 1907 Alberta Game Act; actual hunting began in the fall of 1909, running from September 1 to October 14 (Table 1). It was an either sex season with no restrictions on age or size. The entire province was open and two goats could be taken. The season was extended to seven weeks in 1917. In 1921 only animals over one year of age or with a minimum horn length of 10cm (4 in) were legal game.

Many changes were implemented beginning in 1907 (Table 2); most were concerned with opening and closing of special areas and zones and season opening dates. The season was reduced to a 13 day for most of the goat hunting areas in 1968, with the Willmore Area shown in Fig. 1 as the only area open to goat hunting in 1969. This constituted a sizeable reduction in the amount of area open for hunting. A complete provincial closure was enacted in 1970 and remained this way until 1972 when one area was reopened for two weeks with 75 permits being issued. From 1973 to 1976 the number of permits issued annually was 50.

Hunting Pressure and Size of Harvest - Non-residents were the principal hunter of mountain goats in the province from 1909 to 1949 (Quaedvlieg *et al.* 1973). This was mainly due to the fact that goat populations were inaccessible to residents. Also, residents did not value the goat either as a trophy or a source of meat. Goat hunting was probably not excessive except in localized areas close to settlements during this time. The average annual reported goat kill between 1909 and 1924 was 43; a high of 61 was harvested in 1914 and a low of 26 in 1916. Harvest figures for the years of 1924 to 1949 are not available.

The post-1950 period saw an increased hunting interest and resulting intensive hunting of all provincial goat populations. An estimated total of 3,251 goats were harvested from 1950 to 1972, with the greatest yearly harvest occurring from 1956 to 1966 (Table 3). There was a steady decline in the number of goats harvested between 1967 (126 goats) and 1969 (54 goats).

Permit hunting and short seasons has resulted in a stabilized harvest since 1972 (Table 4).

<sup>1</sup>Editor's note. Paper not part of Symposium.

Table 1. A summary of hunting seasons for mountain goats of Alberta, 1907 - 1949.

Year	Season Opening & Closing Dates	Number of Days Open to Hunting	Bag Limit	Restrictions
1907 - 1908	No open season			
1909 - 1911	Sept. 1 - Oct. 14	38	2	
1912	Sept. 1 - Oct. 14	37	2	
1913 - 1916	Sept. 1 - Oct. 14	38	2	
1917 - 1918	Sept. 1 - Oct. 14	37	2	
1919	Sept. 1 - Oct. 31	53	2	
1920	Sept. 1 - Oct. 31	52	2	
1921 - 1922	Sept. 1 - Oct. 31	52	2	Over 1 year of age or a minimum of 10cm (4 in) horns
1923	Sept. 1 - Oct. 31	52	1	
1924 - 1925	Sept. 1 - Oct. 31	53	1	
1926 - 1929	Sept. 1 - Oct. 31	52	1	
1930 - 1931	Sept. 1 - Oct. 31	53	1	
1932	Sept. 1 - Oct. 31	52	1	
1933	Sept. 1 - Oct. 31	53	1	
1934	Sept. 1 - Oct. 31	52	1	
1935	Sept. 2 - Oct. 31	52	2	
1936	Sept. 1 - Oct. 31	53	2	
1937	Sept. 1 - Oct. 30	52	2	
1938	Sept. 1 - Oct. 31	52	2	
1939	Sept. 1 - Oct. 31	52	1	
1940	Sept. 2 - Oct. 31	52	1	
1941 - 1942	Sept. 1 - Oct. 31	53	1	
1943	Sept. 1 - Oct. 30	52	1	
1944 - 1945	Sept. 1 - Oct. 31	52	1	
1946	Sept. 2 - Oct. 31	52	1	
1947	Sept. 1 - Oct. 31	53	1	
1948	Sept. 1 - Oct. 30	52	1	
1949	Sept. 15 - Oct. 15	27	1	

Table 2. A summary of hunting seasons for mountain goats of Alberta, 1950 - 1976.

Year	Season Opening & Closing Dates	Number of Days Open to Hunting	Bag Limit	Restrictions and Areas Open <sup>1</sup>
1950	Sept. 15 - Oct. 31	40	1	Entire Province Open
1951	Sept. 1 - Oct. 15	38	1	
1952 - 1953	Sept. 1 - Oct. 15	39	1	
1954	Sept. 1 - Oct. 30	52	1	
1955	Sept. 1 - Oct. 31	52	1	
1956	Sept. 1 - Oct. 13	37	1	
1957	Sept. 2 - Oct. 31	33	1	Zone 8 Closed
1958 <sup>2</sup>	Sept. 1 - Oct. 31	53	1	Special Areas 1, 2, 3
	Sept. 1 - Oct. 30	52	1	South of the Bow
	Sept. 1 - Oct. 18	42	1	North of the Bow
1959	Sept. 1 - Oct. 31	53	1	Special Areas 1, 2, 3
	Sept. 1 - Oct. 17	41	1	Zones 1 - 15
1960	Sept. 1 - Oct. 29	51	1	Zones 1-8, 12-15 & Special Areas
	Sept. 1 - Oct. 22	45	1	Zones 9 & 10
1961	Sept. 1 - Oct. 28	50	1	Zones 1-8, 12-15 & Special Areas
	Sept. 1 - Oct. 21	44	1	Zones 9 & 10
1962	Sept. 1 - Oct. 31	52	1	Zones 1-8, 12-15 & Special Areas
	Sept. 1 - Oct. 20	43	1	Zones 9 & 10
1963	Aug. 31 - Nov. 2	55	1	Zones 12-15 & Special Areas
	Aug. 31 - Oct. 26	49	1	Zones 1-10
1964	Sept. 1 - Oct. 31	53	1	S400 - 444
1965	Sept. 1 - Oct. 30	52	1	S400 - 444
1966	Sept. 1 - Nov. 30	78	1	S400 - 442 (S444 Closed)
	Sept. 1 - Oct. 29	50	1	S400 - 438
1967	Sept. 1 - Oct. 31	52	1	S400 - 438, S440 & 442
1968	Aug. 31 - Oct. 31	53	1	S440, 442 & 410
	Sept. 21 - Oct. 5	13	1	S412 - 438 & S408
1969 <sup>3</sup>	Sept. 21 - Oct. 18	28	1	Willmore Special Area Only
1970 - 1971	Season Closed			
1972 <sup>4</sup>	Oct. 2 - Oct. 15	14	1	Portion of S422
1973 <sup>5</sup>	Oct. 3 - Oct. 13	13	1	To be taken in area of destination
1974	Sept. 30 - Oct. 12	13	1	
1975 <sup>6</sup>	Sept. 29 - Oct. 11	13	1	Compulsory Registration
1976	Sept. 27 - Oct. 9	13	1	

<sup>1</sup>The over one year of age or a minimum of 10cm (4 in) horns restriction was in effect for the entire period. Also beginning in 1957, W.M.U. S410 was open to bow hunting.

<sup>2</sup>Bow and arrow hunting only was initiated in Zone 8.

<sup>3</sup>Sunday hunting in the green areas was initiated.

<sup>4</sup>The 1972 season was a permit season and a total of 75 permits was issued.

<sup>5</sup>The 1973-74 seasons - 50 permits were issued. <sup>6</sup>The 1973-76 seasons - 45 permits were issued.

Table 3. The estimated mountain goat harvest for Alberta, 1950 - 1976.

Year	Resident	Non Resident Canadian	Non Resident Alien	Total Estimated Kill <sup>1</sup>
1950	150	-	-	150
1951	90	-	-	90
1952	20	2	60	82
1953	70	-	40	110
1954	123	-	44	167
1955	74	-	54	128
1956	140	3	90	233
1957	(71.5)		(44.5)	(116.0)
1958	(96.6)		(60.1)	(156.7)
1959	(129.4)		(80.5)	(209.9)
1960	(138.9)		(86.0)	(224.9)
1961	116		65	181
1962	169		89	258
1963	131		123	254
1964	124		87	211
1965	98		96	194
1966	84		111	195
1967	57		69	126
1968	44		45	89
1969	22		32	54
1970 - 1971		SEASON CLOSED		
1972	22			22
1973	14			14
1974	13			13
1975	28			28
1976	29			29
PERIOD TOTAL	2054.4		1281.1	3335.5

<sup>1</sup> Annual reported goat kill estimates were obtained from the hunter questionnaire returns with the exceptions of the years 1957 - 1960 for which kill estimates were extrapolated and for the years 1967 & 1969 for which kill estimates were obtained from the Annual Reports (1968 & 1970). Figures for 1972 to 1976 are not estimates.

Table 4. Summary of goat hunting seasons in Alberta, 1972 - 1976.

Year	No. of Permits Issued	No. of Hunters Hunting	Successful Hunters	Unsuccessful Hunters	Females Killed	Males Killed	Success Rate
1972	75	40	22	18	12	10	55%
1973	50	36	14	22	7	7	33%
1974	53	32	13	19	6	7	40%
1975	55	43	28	15	18	10	63%
1976	48	44	29	15	13	16	65%
TOTAL	280	196	106	90	55	51	

Licensing and License fees (1909 - 1977) - During the period 1909 - 1949, the goat hunter was required to be in possession of a resident Big Game License or a non-resident General Game License. In 1942, the resident Big Game License fee was \$2.00 and the non-resident General Game License fee was \$50.00. This entitled the holder to take one male mountain sheep, one mountain goat (male or female), one deer, one male moose, one caribou (male or female), one male elk with head of eight points or over, two male antelope, and (subject to Section 7(c) of the Regulations) one bear of each species (Alberta Gazette 1942). In 1943, the resident Big Game License was increased from \$2.00 to \$3.00 and a non-resident Big Game License was introduced at a fee of \$100.00. In 1944, a \$25.00 goat royalty was introduced and was additive to the non-resident Big Game Licensing fee. In 1948, the Big Game License was free of charge. Royalties were removed in 1950 and the previous resident and non-resident Big Game Licenses were reintroduced. From 1950 to 1955, the goat hunter was required to be in possession of a Big Game License. In 1955, the Big Game License was available at a fee of \$5.00 for residents, \$50.00 for non-resident Canadians, and \$100.00 for non-resident aliens. In 1956, the resident Big Game License was replaced and the resident goat hunter was required to purchase a \$10.00 Sheep and Goat License. In 1961, this license was replaced by a \$7.50 Resident Goat License. Up until 1969, the non-resident goat hunter continued to require a General Big Game License which permitted the taking of a sheep, antlered game, and black bear in addition to a goat. In 1972, permits were issued to residents only and the permit fee was \$10.00. The permit and fee structure that was introduced in 1972 are still being used.

#### CURRENT DISTRIBUTION

Presently an estimated population of 1200 goats inhabit about 70 percent of its historical range (Fig. 1) in Alberta. Approximately 50 percent of this total are found between 53° - 54°N and 118° - 120°W in an area referred to as the Willmore Park. Other concentrations occur in the Whitegoat and Siffleur Wilderness areas, and the Kananaakis, Elbow, Sheep and Highwood rivers drainages (Fig. 1). Other isolated herds are scattered along the east slopes of the Rockies.

An unnatural or transplant herd is located on Shunda Mountain east of Nordegg. A total of 7 goats (2 males and 5 females) was transplanted during July and August of 1972. Two kids were observed on Shunda Mountain in 1975 and in 1976 signifying initial success of this transplant.

#### CENSUS TECHNIQUES

Censusing of goat populations was historically carried out with a fixed wing aircraft concurrent with censusing of mountain sheep populations. Helicopter surveys were initiated in the late 1960's replacing the fixed wing surveys. Since 1972 goat surveys have been conducted separate from sheep surveys. These surveys are conducted during the first two weeks of July on a yearly basis in hunted areas and every three years in areas closed to hunting.

Surveys are conducted in two ways. Watersheds of areas closed to hunting are flown at altitudes whereby the aircraft is about half way between the top of the mountain and tree line and far enough away from the mountain to give survey crews a good view of the entire area. Mountain ranges are surveyed in a clockwise direction giving total coverage of the area. When goats are sighted they are classified as adults (one year and older) or kids. The second method employed in the hunted areas and is similar to the first except that the classification is carried out from the ground. Upon sighting a herd of goats the crew is dropped off and with the aid of spotting scopes, classify the animals as to adults, yearlings and kids (Table 5).



Figure 1. Distribution of Mountain Goats in Alberta.

Table 5. Classification of goats within the hunting area.

Year	Yearlings	Young of Year	Adult Male	Adult Female	U/G <sup>1</sup>	Total	Kids/100 Adults	Yrig./100 Adults
1976	20	54	21	53	131	279	26.34	9.75
1975	47	84	37	108	79	355	37.5	10.98
1974	34	43	21	25	111	234	27.39	21.65
1973		58	1	13	197	269	27.48 <sup>2</sup>	

<sup>1</sup>Unclassified adults

<sup>2</sup>Number of kids per hundred goats

All goat surveys are done at present during the summer months because of observing difficulties in the winter. The reason for this is that goats occupy the more open alpine meadows during summer.

#### MANAGEMENT

Non-hunted populations - Attempts are made to collect the following data from goat populations in areas closed to hunting: population decrease or increase; sex ratio of young to adults, and expansion into surrounding areas. Number of goats in these areas is currently estimated at 600. Most goats in non-hunting areas are found in recreational areas of relatively high human use.

Hunted populations - Those areas open to hunting are situated in the northern portion of Alberta's goat range (Fig. 1). The area has been divided into six zones using locations of individual herds and drainage system as a base. A total of 50 permits is allotted for an either sex, one animal season which takes place during the first two weeks of October each year. The harvest has varied from 13 to 29 since 1972, while the success rate has varied from 33 to 65 percent (Table 4).

Our goal is to harvest our goats at a rate not higher than 10 percent of the known number of goats in any given zone. Our present level of harvest (1972 - 76) is five percent, which may be a more realistic level in light of the apparent high rate of mortality among kids and the low recruitment rate.

Management problems - Management problems as seen by the author are threefold: what is the mortality rate among kids, what is the recruitment rate and what are the goat's movement and migration patterns? One must have some knowledge about all three problems before good management can be carried out. Mortality and recruitment rates must be known so that harvest rates do not exceed the natural recruitment level. Movement and migration patterns are important when your management plan is based on the number of goats per drainage system.

#### LITERATURE CITED

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