

SPECIES
MANAGEMENT REPORT

Alaska Department of Fish and Game
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CHAPTER 1: DALL SHEEP MANAGEMENT REPORT

From: 1 July 2010
To: 30 June 2013

LOCATION

GAME MANAGEMENT UNIT: 7 and 15 (8,397 mi²)

GEOGRAPHICAL DESCRIPTION: Kenai Mountains

BACKGROUND

The Kenai Mountains are the southern limit of Dall sheep range in Alaska. Aerial sheep surveys were initiated in some portions of the Kenai Mountains in 1949. Surveys showed the sheep populations in many areas increased from 1949 to the late 1960s and early 1970s, before declining in the late 1970s. Extensive surveys to estimate population numbers throughout traditional sheep range on the Kenai Peninsula have been conducted only in 1968 and 1992.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

Adequately monitor population trends and allow for hunting opportunities with a sustainable harvest.

METHODS

We conducted aerial surveys of selected count areas in the Kenai Mountains in conjunction with mountain goat surveys. Sheep were classified into the following categories: legal rams (full-curl or larger), sublegal rams (less than full-curl), lambs, ewes and yearling rams, and unidentified sheep. Yearling rams are difficult to distinguish from ewes and, therefore, their numbers are summarized together.

Harvest data are summarized by regulatory year, which runs from 1 July through 30 June (e.g., RY12 = 1 July 2012–30 June 2013).

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size and Population Composition

About 1,600 sheep were counted on the Kenai Peninsula in 1992 when an extensive survey was conducted covering most areas containing significant sheep populations. This was down from a comparable count conducted in 1968, which tallied more than 2,000 sheep. Some of the decrease in numbers from 1968 to 1992 may be due to variation in counting conditions or survey effort.

No comparable, wide-ranging survey has been conducted since 1992. Instead, minimum counts have been conducted in 34 management units. We attempt to survey all units at least once every 3 years. From these counts a population trend is calculated based on the most recent year's survey data in each management unit (Table 1). It is apparent from these minimum counts that sheep numbers throughout the Kenai Peninsula have declined significantly since the most recent high population trend estimate in 1997 of 1,545. Although the population appears to have increased slightly during this reporting period, due to the survey techniques and possible associated errors, we believe the population has remained stable at best. Comparing the most recent trend number of 723 to the two years previous to this reporting period, 2007 ($n = 754$) and 2006 ($n = 970$), indicates an overall downward trend in sheep numbers. The most southern management areas, 357—Tustumena Glacier and 358—Fox River, show the largest rates of decline. For example, area 357 had 41 sheep total when surveyed in 1997 and only 12 were counted in 2011; area 358 had 70 sheep in 2000 and only 5 were counted in 2013. Management area 359 used to contain minimal numbers of sheep as recently as 1972 but sheep are no longer seen in this area during surveys.

Distribution and Movements

Sheep range throughout the central portion of the Kenai Mountains. Sheep are found north of Sheep Creek in Unit 15C, north to the Skilak Glacier and Russian Mountain in Unit 15B, and in the eastern edge of Unit 15A, including the Mystery Hills and Round Mountain. In Unit 7, sheep range extends north of Kenai Lake and the Snow River, and south of Trail Creek and the Seward Highway and west of the Seward Highway and Six Mile Creek, north of the Sterling Highway.

MORTALITY

Harvest

Season and Bag Limit. The sheep season for resident and nonresident hunters on the Kenai Peninsula has been 10 August–20 September since 1964. The bag limit has been 1 ram with a full-curl horn or larger since 1989. A drawing permit hunt for ewes (DS152) was established in 1993. Two drawing permit hunts, 1 for ewes (DS154) and 1 for full-curl rams (DS156), started in the Crescent Lake area in 1999 (Table 2). A drawing hunt for Round Mountain rams (DS150) started in 2004 (Table 2). Currently permits are issued only for full-curl rams (DS150 and DS156). The last years in which permits were issued for ewe hunts DS152 and DS154 respectively were 2003 and 2008.

Alaska Board of Game Actions. There were no Board of Game actions during the reporting period.

Hunter Harvest, Residency, and Success. The harvest has averaged 9 rams over the last 5 seasons (RY08–RY12), a decrease of 3 rams from the previous 5-year average (Table 3). The number of general season hunters has averaged 114 over the past 5 seasons, and a majority of both successful and unsuccessful hunters were Alaska residents (Table 3).

Harvest Chronology. Chronology of harvest followed similar patterns over the past 5 years; most of the harvest occurred during the first week of the season (Table 4).

Transport Methods. Transportation methods vary from year to year with most access occurring by hiking in from the highway, airplane, or boat (Table 5).

HABITAT

Assessment

There have been no recent direct habitat assessments, significant habitat disturbance, or habitat improvements in the sheep range of the Kenai Mountains. It has however, been noted that we are losing alpine tundra habitat at a rate of approximately -17.4% per decade (Dial et al. 2007).

CONCLUSIONS AND RECOMMENDATIONS

Due to the decline in the sheep population across the Kenai Mountains, the department no longer issues drawing permits for ewes in the Crescent Lake or Round Mountain hunt areas. While the number of sheep hunters has been relatively stable over the past 5 seasons, the long-term decline in sheep numbers has greatly reduced both the harvest of legal rams and the number of hunters compared to the early 1990s. In 2010, the Alaska Department of Fish and Game regional sheep biologist initiated a pilot study on Kenai sheep. Based on the results of this preliminary work, and dependent on regional priorities, additional research identifying the limiting factors on Kenai sheep is needed.

Population trends within management areas suggest that sheep range may be moving farther north. Reports from locals suggest this shift may have been occurring for some time. Members of homestead families report having harvested sheep as far south as Mallard Bay in management area 360—Dixon Glacier in the 1940s (Pederson 1994). The reasons for this population decline or range shift are unclear. One hypothesized reason is a change in snow quality and quantity and icing events which may be linked to climate change. Sheep do not deal well with wet dense snows or icing events, which are becoming more common.

Preliminary data from a recent study conducted in adjacent Unit 14C support the idea of climate change impacting sheep populations. This study revealed 5.7% and 5.2% annual mortality rates of collared adult ewes and rams, respectively, from April 2012 to March 2013, and 27% and 22% mortality of ewes and rams, respectively, from April 2013 to February 2014. Most mortality of adult sheep during this time period was due to non-predatory events, including a high rate of avalanche deaths in late spring of 2013 (T. Lohuis, Wildlife Biologist, ADF&G, Anchorage, personal communication) . Although caution should be taken when applying these data to the Kenai, indications are that we will continue to see a decline in sheep numbers on the Kenai Peninsula.

REFERENCES CITED

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Table 1. Aerial sheep composition counts, Units 7 and 15, regulatory years 2008–2012.

Regulatory year	Rams		Ewes and yearling rams	Unclassified sheep	Lambs	Total sheep observed ^a	Population Trend ^b
	Full-curl	< Full-curl or unclassified rams					
2008	10	108	280	0	55	453	658
2009	1	42	113	0	25	181	645
2010	2	37	68	30	25	162	712
2011	1	59	134	0	42	235	751
2012	3	37	42	0	10	92	723

^a Location and number of areas surveyed varies by year.^b Population trend is based on the most recent survey data for all management areas.

Table 2. Results of drawing permit hunt, Units 7 and 15, regulatory years 2008–2012.

Hunt	Regulatory year	# of permits issued	# of hunters	Harvest	Percent success
Rount Mt. Ram (DS 150)	2008	3	2	0	0
	2009	3	3	0	0
	2010	3	2	1	50
	2011	3	1	1	100
	2012	3	2	1	50
Crescent Lake Ewe (DS 154)					43
	2008	10	7	3	
	2009	0	-	-	-
	2010	0	-	-	-
	2011	0	-	-	-
	2012	0	-	-	-
Crescent Lake Ram (DS 156)					33
	2008	6	6	2	
	2009	6	5	0	0
	2010	6	4	2	50
	2011	6	3	1	33
	2012	6	3	1	33

Table 3. Sheep hunter residency and success in the general season, Units 7 and 15, regulatory years 2008–2012.

Regulatory year	Successful					Unsuccessful				
	Local ^a resident	Nonlocal resident	Non- resident	Total ^b	Percent success	Local ^a resident	Nonlocal resident	Non- resident	Total ^b	Total hunters
2008	4	0	1	5	4	49	59	7	117	122
2009	3	3	2	8	7	42	50	2	102	110
2010	6	2	1	10	9	39	58	3	101	111
2011	6	5	2	13	17	23	35	1	62	75
2012	3	5	2	10	11	38	31	3	81	91

^a Local = residents of Units 7&15.^b Includes unspecified residency.

Table 4. Sheep harvest chronology in the general season, Units 7 and 15, 2008–2012.

Regulatory year	Harvest Periods						Harvest
	8/10– 8/16	8/17– 8/23	8/24– 8/30	8/31– 9/6	9/7– 9/13	9/14– 9/20	
2008	2	1	1	1	0	0	5
2009	5	1	1	0	1	0	8
2010	6	0	3	0	1	0	10
2011	7	2	1	1	1	1	13
2012	7	1	0	0	2	0	10

Table 5. Transport methods used during the general season for sheep, Units 7 and 15, 2008–2012.

Regulatory year	^{3/4} wheel- ATV	Airplane	Boat	Highway vehicle	Horse	ORV	Unknown	Harvest
2008	0	2	2	1	0	0	0	5
2009	0	0	2	5	1	0	0	8
2010	0	3	5	0	1	0	1	10
2011	0	4	2	5	2	0	0	13
2012	0	6	1	2	0	0	1	10