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CHAPTER 4: DALL SHEEP MANAGEMENT REPORT

From: 1 July 2010
To: 30 June 2013[1]

LOCATION

GAME MANAGEMENT UNITS: Southern Unit 11 (5,332 mi^2) and southern Unit 13D (5,745 mi^2)

GEOGRAPHIC DESCRIPTION: Chugach Mountains

BACKGROUND

The Chugach Mountains between the Copper River and the Canadian border are encompassed by Unit 11. This easternmost portion of the Chugach range is almost entirely within the park portion of the Wrangell–St. Elias National Park and Preserve. The central Chugach Mountains between the Coal Creek drainage and the Copper River are encompassed by Unit 13D. While this area has been a popular sheep hunting destination since the early 1900s, very limited sheep population or harvest information prior to the 1970s is available.

During the early 1970s the eastern Chugach range in Unit 11 averaged 16 hunters per year, while the more popular central Chugach range in Unit 13D averaged 152 hunters per year. In 1975 a 644 mi^2 portion of Unit 13D (east of the Richardson highway and north of the lower Tiekel River) was changed to a walk-in only hunt area and designated as the Tonsina Controlled Use Area (TCUA). This restriction was implemented to reduce harvest pressure and allow more rams to mature to trophy size. Ground access to the remainder of sheep habitat in Unit 13D is limited by distance, rough terrain, and river crossings. Aircraft have consistently been the most common method of transportation for the majority of sheep hunters in the central Chugach Mountains.

In 1978, Presidential Proclamation 4625 designated the eastern Chugach Mountains, as well as the majority of the Wrangell Mountains in Unit 11, to be a national monument, effectively closing the area to hunting for all but local area residents. At the time, managers worried that the change would lead to increased hunting pressure in adjacent areas such as Unit 13D, and management recommendations included possible permit hunts for the entire Chugach range. Wrangell–St. Elias National Park and Preserve was established in 1980. Park lands retained the local residency requirement, though preserve areas were reopened to all hunters. Because of these restrictive federal subsistence regulations, hunting pressure remains low in the eastern Chugach Mountains in Unit 11.

Despite concerns about the displacement of sheep hunters, sheep harvests remained relatively consistent in Unit 13D until 1986, when the number of hunters increased significantly. This

[1] At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

increase was likely due to a combination of factors. Aircraft access restrictions were imposed in 1985 by the National Park Service in the park portion of Wrangell–St. Elias National Park and Preserve in Units 11 and 12, which stopped subsistence hunters from using aircraft to access hunt areas. Perhaps the most important regulation change impacting sheep hunting patterns in the central Chugach range occurred in fall 1988 when the state's exclusive guide use area system was invalidated by the Owsichek Supreme Court decision. For the next 20 years an unlimited number of guides had the ability to accommodate sheep hunting clients in Unit 13D.

Throughout the 1960s and 1970s, the sheep bag limit for all of Unit 13 was one ¾-curl ram, similar to the rest of Southcentral Alaska. In 1979 it was changed to ⅞-curl. In 1989 the Unit 13 bag limit was changed to full curl.

Although the total number of sheep hunters and harvest in Unit 13D remained relatively stable through the 1990s, hunting patterns, such as the chronology of harvest and hunter residency, changed significantly. After 2002, sheep numbers began to decline in some portions of the subunit. Due to concerns of heavy hunting pressure and low sheep numbers, the general season in the central Chugach Mountains west of the Richardson highway was changed to drawing permit in 2008.

MANAGEMENT DIRECTION

MANAGEMENT OBJECTIVES

- Provide a quality hunting experience as well as the opportunity to take a trophy class ram in the central Chugach Mountains in Unit 13D.
- Provide sustainable subsistence hunting opportunity in the eastern Chugach Mountains in Unit 11.

METHODS

Activities accomplished during this reporting period included conducting summer aerial sex and age composition surveys and monitoring the number, horn size, and location of harvested sheep through the sealing process. Due to time and fiscal restraints, surveys are rotated annually between the surrounding mountain ranges.

RESULTS AND DISCUSSION

POPULATION STATUS AND TREND

Population Size

Given the size of Unit 13D, it is difficult to estimate the sheep population for the entire area in any given year. Annual survey data are presented in Table 1.

Trend count areas (TCA) 1, 2, 16, 17, and 18 cover western Unit 13D (Coal Creek drainage to the Tazlina Glacier). The highest count of sheep in this area was 1,028 in 1976. Subsequent surveys have fluctuated between 300 and 700 observed sheep. The most noticeable trend in this area has been in TCAs 16 and 17, between the Matanuska and Nelchina glaciers. While observers in 1976 documented 475 sheep in this area, numbers declined to 278 in 2002, then to 91 in 2007. The population appeared to rebound during this report period with 161 observed in

2010 and 163 observed in 2012. For all 5 TCAs, 708 sheep were observed in 2010, decreasing to 491 in 2012. The highest numbers observed were in the Coal Creek drainage on the border of Unit 14A. Tracks indicate that sheep do pass between these 2 management areas, creating some difficulty in monitoring population trends.

TCAs 3, 4, 5, 7, and 9 cover eastcentral Unit 13D (Tazlina Glacier to the Richardson Highway). Based on periodic surveys in this area, the highest sheep numbers here likely occurred in 1997, when 479 sheep were observed in TCAs 3, 4, and 5 (between Tazlina and Klutina lakes). Counts slowly declined to 319 in 2009, increased to 451 in 2010, and dropped to 297 in 2012. Periodic surveys from TCAs 7 and 9 (between Klutina and Tonsina lakes) suggest these areas had up to 400 additional sheep during the 1990s. In 2012 a total of 189 sheep were observed in TCAs 7 and 9 combined.

TCAs 11, 12, and 13 cover eastern Unit 13D (TCUA). The observed number of sheep in TCUA increased from a low of 148 in 1976 to a high of 312 in 1992. Periodic surveys indicated a population decline through 2006, when only 156 sheep were observed. In 2008, 171 sheep were observed, and in 2010, 233 sheep were observed, indicating the population may be rebounding.

Minimal survey data exist for the eastern Chugach Mountains in Unit 11, TCAs 25–31. In 1991, 2 areas were surveyed by the National Park Service; 73 sheep were observed in TCA 27 (Nelson Mountain area), and 27 sheep were observed in TCA 31 (south Logan Glacier). At the time, the remainder of the area was similarly classified as low density (McDonald et al. 1991). This area is almost entirely national park land and is only hunted by a small number of local federal subsistence hunters.

Population Composition

During this reporting period, the percentage of full-curl and larger rams observed in Unit 13D was 19% of all rams and 3.6–4.4% of all sheep. The percentage of lambs observed ranged 16–24% of all sheep (Table 1). While the percentage of full-curl rams for Unit 13D is lower than in adjacent areas, the lamb numbers are consistently high, indicating good productivity and initial survival.

Given the different management strategies across Unit 13D, composition data are most relevant when addressed by geographic area within the subunit.

The sheep composition for all 5 TCAs in western Unit 13D ranged 37–42 rams:100 ewes and 26–34 lambs:100 ewes during this reporting period. During 2010 surveys, 14% of rams observed were judged to be full curl, and in 2012, 18% of rams observed were judged to be full curl. For both years, full-curl rams accounted for only 4% of the total number of sheep observed.

In eastcentral Unit 13D, the sheep composition for all 5 TCAs ranged 31–33 rams:100 ewes and 25–37 lambs:100 ewes for this reporting period. During surveys in 2010 and 2012, 23% and 21% (respectively) of rams observed in this area were judged to be full curl.

In eastern Unit 13D (TCUA), 31 rams:100 ewes and 37 lambs:100 ewes were observed in 2010. Of the rams observed in 2010, 23% were judged to be full curl.

No composition data are available for the eastern Chugach range in Unit 11.

Distribution and Movements

Sheep distribution and movements in Unit 13D during the summer months have been documented by aerial surveys, although little is known about important rutting, wintering, and lambing areas. Predation risk and weather patterns likely influence sheep distribution year-round. Similar to other known sheep wintering areas, sheep in this area require relatively snow-free, windblown ridges during the winter months. An ADF&G research project initiated in 2009 (Federal Aid in Wildlife Restoration project 6.16) has begun to address Dall sheep movements between the Matanuska and Tazlina glaciers, among other issues.

MORTALITY

Harvest

Seasons and Bag Limits. During this reporting period, the hunting season for sheep in Unit 13D was 10 August–20 September. Through regulatory year (RY; regulatory year begins 1 July and ends 30 June, e.g., RY12 = 1 July 2012–30 June 2013) 2012, the bag limit was 1 ram with full-curl horns or larger under the general season in eastern Unit 13D (TCUA). Hunting in eastcentral Unit 13D (Tazlina Glacier to the Richardson Highway) was by drawing permit only, with a bag limit of 1 ram with full-curl horns or larger. Since RY08, hunting in western Unit 13D (Coal Creek drainage to the Tazlina Glacier) has been by drawing permit only, with a bag limit of 1 ram.

In the Chugach portion of Unit 11, only local federally qualified hunters can hunt sheep and method of access is limited to boats. The federal subsistence season was 10 August–20 September with a bag limit of 1 sheep. There is a small amount of private land in this area that is open to state general season hunting, although no state hunt reports have been received for this area.

Board of Game Actions and Emergency Orders. No Board of Game actions were taken for this area during this reporting period.

Harvest by Hunters. The sheep harvest from the eastern Chugach Mountains in Unit 11 continues to be very low. For this reporting period, the average number of federal subsistence sheep hunters in this area was 4 per year, and the average harvest was 1 sheep per year (100% rams).

Sheep harvests for Unit 13D are reported in Table 2. The annual ram harvest for this reporting period ranged 20–27 (average = 23.7 per year).

The harvest of trophy class rams peaked in the mid-1990s in Unit 13D, with 35 of the rams taken in RY94 having horn lengths ≥38 inches and with 14 of the rams taken in RY95 having horn lengths ≥40 inches (18% of the total harvest). The harvest of large rams declined over time. By RY02 only 10 of the rams taken had horn lengths ≥38 inches and only 2 rams had horns ≥40 inches (4% of total harvest). The number of large rams increased somewhat between RY03 and RY05, but total harvest and the number of large rams taken began declining again in RY06. In RY08, the first year of the drawing hunts, only 2 rams were taken that had horn lengths ≥38 inches, and no 40-inch rams were taken. In RY09, 7 of the rams taken had horns that were

≥38 inches, and 1 ram had horns that were ≥40 inches (6% of total harvest). In RY10, 10 rams were taken with horns ≥38 inches, and 3 rams had horns ≥40 inches (15% of total harvest). In RY11, 14 rams were taken with horns ≥38 inches, and 5 rams had horns ≥40 inches (19% of total harvest). In RY12, 16 rams were taken with horns ≥38 inches, and 7 rams had horns ≥40 inches (29% of total harvest).

Permit Hunts. Since RY08, drawing permits have been issued for 2 hunt areas in Unit 13D. Permit numbers were initially set conservatively to allow sheep numbers to increase. West of the Tazlina Glacier, 8 permits were allocated for residents (DS160) and 2 permits were allocated for nonresidents (DS260), with a bag limit of any ram. Between the Tazlina Glacier and the Richardson Highway, 33 permits were allocated for residents (DS165) and 8 permits were allocated for nonresidents (DS265), with a bag limit of 1 ram with full-curl horns or larger. In RY12, permit numbers were increased. West of the Tazlina Glacier, 10 permits were allocated for residents (DS160) and 2 permits were allocated for nonresidents (DS260), with a bag limit of any ram. Between the Tazlina Glacier and the Richardson Highway, 40 permits were allocated for residents (DS165) and 10 permits were allocated for nonresidents (DS265), with a bag limit of 1 ram with full-curl horns or larger.

Hunter Residency and Success. Hunter residency data for Unit 13D are reported in Table 3. The percentage of nonresident hunters and the percentage of rams harvested by those nonresidents increased dramatically during the 1990s and the early 2000s. In RY05, 34% of hunters were nonresidents, and they took 61% of the total sheep harvested. In RY07 there was a pulse of resident hunters in Unit 13D, likely in response to the planned implementation of drawing hunts the following year. When the drawing hunts were established in RY08, the board allocated 20% of available permits to nonresidents. For RY10, 12% of hunters were nonresidents, and those nonresidents comprised 45% of successful hunters. RY11 and RY12 averaged 20% nonresident hunters, with those hunters representing an average of 44% of successful harvest.

The nonresident percentage of TCUA hunters has generally been lower than the remainder of Unit 13D. Between RY10 and RY12, nonresidents averaged 10% of all TCUA hunters.

Harvest Chronology. Chronology data for sheep harvested in Unit 13D are reported in Table 4. Harvest patterns have changed dramatically over time in Unit 13D. Through the early 1990s it was common to see rams harvested throughout the entire 6-week season. During the late 1990s and early 2000s the percentage of the harvest occurring in the first week of the season increased significantly. For RY10–RY12, an average of 42% of the harvest occurred during the first week of the season. The harvest chronology remains highly variable in TCUA due to low harvest.

Transport Methods. Aircraft has consistently been the most popular and successful method of transportation for Unit 13D hunters outside the walk-in area. During this reporting period an average of 48% of all Unit 13D hunters used an aircraft, followed by an average of 38% who accessed their hunt from a highway vehicle. Of the successful hunters (Table 5), an average of 79% used an aircraft and 16% accessed their hunt with a highway vehicle.

Other Mortality

Prior to 2009, no studies were conducted in Unit 13D addressing Dall sheep mortality factors. New research is beginning to address predation on lambs and ewes, as well as other mortality

causes between the Matanuska and Tazlina glaciers. Some of the mortality factors identified thus far include pneumonia, avalanches, and predation by eagles, wolverines, bears, and wolves.

HABITAT

Assessment

Habitat is not currently monitored in this area, but it is believed that snow depth, snow density, and icing conditions, rather than vegetation quality or quantity, may be the primary determinants of winter sheep habitat in this area. Summer range quality may be similarly influenced by the timing of early snowmelt, as well as precipitation and temperature throughout summer months.

CONCLUSIONS AND RECOMMENDATIONS

The Dall sheep population in the central Chugach Mountains in Unit 13D covers such a large area that monitoring population trends has proven difficult with a limited budget and unpredictable summer weather. Habitat assessment and monitoring would be beneficial to determine if winter weather conditions are indeed primary factors driving population trends.

Current Dall sheep management in the central Chugach Mountains reflects the historical trophy value of the area. TCUA was originally established to provide a quality experience as well as the continued opportunity to take a trophy class ram. Due to the difficulty involved in hunting the TCUA, the objectives are expected to be attained under the general season. It is reasonable to assume that existing drawing hunts west of the Richardson Highway will also allow the same objectives to be met. As sheep numbers rebound, permit numbers have been and will be adjusted accordingly.

Ongoing research in this area documenting baseline health parameters, as well as monitoring productivity and survival, will be essential in understanding all the underlying factors behind the population dynamics in the area. If funds and time permit, annual weather parameters, habitat, and basic genetic diversity should also be evaluated more closely in an effort to understand the ability of this sheep population to withstand disease, extreme weather, and changing climate patterns.

REFERENCES CITED

McDonald, L. L., D. Strickland, D. Taylor, J. Kern, and K. Jenkins. 1991. Estimation of Dall sheep numbers in Wrangell-St. Elias National Park and Preserve - July 1991. Technical Research Work Order prepared for National Park Service, Alaska Region, Anchorage.

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Please cite any information taken from this section, and reference as:

Hatcher, H. L. 2014. Units 11 and 13D Dall sheep, Chugach Mountains. Chapter 4, Pages 4-1 through 4-10 [*In*] P. Harper and L. A. McCarthy, editors. Dall sheep management report of survey and inventory activities 1 July 2010–30 June 2013. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2014-4, Juneau.

Table 1. Chugach Mountains, Unit 13D Dall sheep composition counts and estimated population size, Alaska, calendar years 2007–2012.

Calendar year	Rams		Ewes and yearling rams	Lambs (%)[b]	Total sheep observed[c]
	Full curl (%)[a]	< Full curl			
2007	21 (10)	190	584	184 (19)	979
2008	36 (25)	110	401	163 (23)	710
2009	23 (17)	113	506	183 (22)	825
2010	35 (19)	148	546	232 (24)	961
2012	43 (19)	179	602	153 (16)	977

[a] Does not include an unknown number of legal rams at least 8-years old or with both horn tips broken. Percent full curl is calculated as a proportion of total rams.
[b] Percent lambs is calculated as a proportion of total sheep observed.
[c] The amount of area surveyed varies each year.

Table 2. Chugach Mountains, Unit 13D Dall sheep harvest, Alaska, regulatory years[a] 2008–2012.

Regulatory year	Rams	Average horn length (inches) of rams	% of horn length ≥40 inches	Ewes	Total sheep
2008	7	35.5	0	0	7
2009	17	37.2	6	0	17
2010	20	37.7	15	0	20
2011	27	38.3	19	0	27
2012	24	37.8	29	0	24

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2008 = 1 July 2008–30 June 2009).

Table 3. Chugach Mountains, Unit 13D Dall sheep hunter residency and success, Alaska, regulatory years[a] 2008–2012.

Regulatory year	Successful				Unsuccessful				Total hunters
	Local[b] resident	Nonlocal resident	Nonresident	Total	Local[b] resident	Nonlocal resident	Nonresident	Total	
2008	0	3	4	7	2	53	4	60[c]	67
2009	0	7	10	17	1	36	2	39	56
2010	0	11	9	20	8	53	0	61	81
2011	0	14	13	27	1	45	2	48	75
2012	1	13	10	24	8	44	7	59	83

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2008 = 1 July 2008–30 June 2009).
[b] Local means residents of Unit 13.
[c] One unsuccessful hunter did not specify residency.

Table 4. Chugach Mountains, Unit 13D Dall sheep harvest chronology percent by harvest period, Alaska, regulatory years[a] 2008–2012[b].

Regulatory year	Harvest chronology percent by harvest period						
	8/10–8/16	8/17–8/23	8/24–8/30	8/31–9/6	9/7–9/13	9/14–9/20	*n*
2008	58	14	14	0	14	0	7
2009	47	17	6	12	6	12	17
2010	30	5	25	10	5	25	20
2011	33	15	15	15	15	7	27
2012	63	4	25	4	0	4	24

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2008 = 1 July 2008–30 June 2009).
[b] Represents only reports with date of kill.

Table 5. Chugach Mountains, Unit 13D Dall sheep harvest percent by transport method, Alaska, regulatory years[a] 2008–2012[b].

Regulatory year	Harvest percent by transport method								
	Airplane	Horse	Boat	3- or 4-wheeler	Snowmachine	ORV	Highway vehicle	Other	*n*
2008	71	0	0	0	0	0	29	0	7
2009	76	0	0	0	0	0	24	0	17
2010	80	0	0	0	0	0	20	0	20
2011	78	0	4	7	0	0	11	0	27
2012	79	0	4	0	0	0	17	0	24

[a] Regulatory year begins 1 July and ends 30 June (e.g., regulatory year 2008 = 1 July 2008–30 June 2009).
[b] Represents only reports with transportation data.