Alaska Department of Fish and Game Division of Wildlife Conservation

> Federal Aid in Wildlife Restoration Annual Performance Report Survey-Inventory Activities 1 July 1997 - 30 June 1998

# DALL SHEEP

Mary V. Hicks, Editor



Grant W-27-1 Study 6.0 September 1998

Project Title: Southcer	ntral Alaska I	Dall Sheep	Management
-------------------------	----------------	------------	------------

<b>Project Location:</b>	Units 7, 11, 13, 14, and 15
	Kenai, Talkeetna, Chugach, and South Wrangell Mountains

Sheep populations in the region are managed by mountain range or special hunt area. Mountain ranges frequently divide game management units; therefore, unit numbers may be repeated in sections of the text.

#### *Kenai Mountains: Units 7 and 15 (8390 mi<sup>2</sup>)*

**Project Objectives and Activities:** Maintain a population of sheep that will sustain an annual harvest of 25 rams.

- Conduct midsummer aerial surveys to assess population size and sex and age composition.
- Monitor harvest with assistance from Fish and Wildlife Protection and U.S. Fish and Wildlife Service.

**Work Accomplished During the Project Segment Period:** Three count areas in Unit 15 (855, 856 and 857) were surveyed during summer of 1997, resulting in 644 sheep classified. Composition was 125 rams, 123 lambs, and 396 ewes and unidentified sheep. Lambs and rams each composed 19 percent of the total sheep observed.

Preliminary harvest statistics revealed 177 hunters harvested 25 rams in Units 7 and 15 during 1997. Hunter success rate was 28 percent. Mean horn length from reported harvest (n = 23) was 35.1 inches and ranged from 31 to 38. Average age was 8.7 years, with a range of 7 to 13. Twenty-two (88%) rams were harvested by Alaska residents, 1(4%) by a nonresident and 2 (8%) by hunters of unreported residence.

In spring of 1997 the Board of Game adopted a Cooper Landing Advisory Committee proposal to increase the size of the Round Mountain sheep hunting area by decreasing the size of the Cooper Landing Closed Area. This proposal also increased the size of the ewe sheep hunt area created in 1993 to include a portion of Unit 7. Twenty permits for ewes only were issued again in 1997 and 15 permit holders reported hunting. Six (40%) of these hunters were successful, harvesting 5 ewes and 1 illegally taken male lamb. All successful hunters were Alaska residents and used a highway vehicle to access the hunt area.

**Progress Meeting Project Objectives:** Harvests in 1997 met the management objective of maintaining a population of sheep in the Kenai Mountains that could sustain an annual harvest of 25 rams. Unlike elsewhere in the state, the Kenai Peninsula has had relatively normal winters, allowing sheep numbers to remain stable to slightly increasing. The current sheep population estimate for Kenai Mountains is 1500 to 1775.

Preliminary harvest data indicate a decline by 32 percent in hunting effort and 29 percent in harvest for 1997. Extremely harsh weather during the first part of the season may account for most of the decline in effort. Harvest rate, however, nearly doubled in 1997. In general, the Kenai Mountains support a moderately high number of hunters, resulting in the harvest of most legal rams annually.

Limited harvest of ewe sheep in the Round Mountain area resulted in the harvest of 5 ewes and 1 illegal taken male lamb. This population has been reduced through the harvest of ewes from 126 to 106 sheep. Harvesting ewes should continue until the population density is reduced to 3 sheep/mi<sup>2</sup> (80 to 90 countable sheep). Thereafter, harvesting of ewes should be implemented only to stabilize the population at this level to evaluate the response in lamb survival. Lamb survival has increased from 14 lambs/100 ewes in 1992 to 25/100 in 1996. In 1997 the Round Mountain portion of count area 850 was not counted. Reports from hunters suggest the area still supports about 90 to 110 sheep.

Results from 1997 surveys in count areas 855 and 856 were slightly higher compared to previous years. Count area 857 declined by 41 percent compared to the last count conducted in 1995. Number of sheep in this area has declined steadily since 125 sheep were classified in 1992. Harvesting of ewes should be extended to count area 856, north of Tustumena Lake, which has over 500 countable sheep. No additional changes are recommended at this time.

Talkeetna Mountains: Subunits 13A, 13E, 14A, and 14B (16,380 mi<sup>2</sup>)

**Project Objectives and Activities:** Maintain a population of sheep that will sustain an annual harvest of 75 rams.

- Identify critical sheep habitat (e.g., mineral licks and lambing areas)
- Monitor the harvest through hunter contacts and harvest reports
- Conduct composition surveys

Work Accomplished During the Project Segment Period: No work was directed specifically at identifying and documenting critical sheep habitat in the Talkeetna Mountains.

For this area we monitored the sheep harvest from harvest reports. Hunters were required to return their harvest reports within 15 days after the close of the season or within 15 days of taking an animal. Days hunted, method of take, date of kill, location of kill and transportation used were noted in the harvest report. The reported harvest from the Talkeetna Mountains was 81 sheep, taken by 425 hunters. This is similar to the number of hunters in 1993, and represents the third year the number of hunters has declined (from a high of 516 in 1994). Use of 4-wheelers by successful hunters has also declined, from 44% in 1996 to 27% in 1997 (again similar to 1993). The decline in both number of hunters and number of successful hunters using 4-wheelers is probably due to changes in fall distribution of Nelchina caribou.

No sex and age composition surveys were conducted.

**Progress Meeting Project Objectives:** Harvest objectives for the Talkeetna Mountains were met. The area is popular with sheep hunters, but because of funding levels, population surveys are conducted only periodically. Funds should be allocated to conduct surveys every 2-3 years, and managers from Units 13 and 14 should strive to coordinate survey schedules.

Chugach Mountains: Units 11, 13D, 14A, and 14C (22,990 mi<sup>2</sup>)

**Project Objectives and Activities:** Maintain a minimum population of sheep that will sustain an annual harvest of 120 rams.

Identify critical sheep habitat (e.g., mineral licks and lambing areas). Monitor the harvest through hunter contacts, harvest or permit reports, and aging/measuring sheep horns. Conduct composition surveys.

**Work Accomplished During the Project Segment Period:** We counted sheep by aerial survey in Units 13D and 14C.

In Unit 13D count areas 1–5, 7 and Tonsina Controlled Use Area (count areas 11–13) 1182 sheep were observed in July 1997. The count included 106 full-curl or larger rams, 170 1/2 to full-curl rams, 178 lambs, and 728 ewes and unidentified young rams. Lambs composed 15% of the total count.

In Unit 14C 2286 sheep were counted by aerial survey in late July and early August 1997. The population included 127 full-curl or larger rams, 126 7/8 to full-curl rams, 403 1/2 to 3/4-curl rams, 326 lambs, and 1243 ewes and unidentified young rams, 7 unclassified rams, and 54 unclassified sheep. Lambs composed 15% of the total population.

We analyzed harvest reports for all units. All Unit 14C sheep hunters were required to bring their permit and horns to an ADF&G office within 10 days of taking a sheep. Horns were aged by horn annuli, and length and base measurements were recorded.

The total harvest for the Chugach Mountains was 171 sheep: 143 full-curl or larger rams, 6 young rams (less than full-curl), 21 ewes, and 1 unknown ram (24% hunter success). In Unit 13D, 207 hunters shot 54 full-curl rams (26% hunter success). In Unit 14A, 112 hunters shot 23 full-curl rams (21% hunter success).

All sheep hunting in Unit 14C is by drawing permit. In 1997 hunters applied for 3 types of drawing permits: full-curl ram or ewe, ewe-only, or any sheep (archery only). We issued 385 drawing permits: 180 ram/ewe, 100 ewe-only, and 105 any-sheep (archery only); 270 hunters went afield; and 66 hunters shot a sheep (24% hunter success). Of these, 38 were full-curl or larger rams (including rams less than full curl, but with both horns broomed or at least 8 years old), 6 were young rams (less than full curl), 1 was a ram of unknown size (not recovered), and 21 were ewes. The success rate for the archery-only permits, including 80 issued during a late season 1–10 October hunt, was 11%, while hunters in the remainder of the hunts achieved a 30% success rate.

**Progress Meeting Project Objectives:** The population and harvest objectives were met. The full-curl and ewe-only permits in Unit 14C focused the harvest on large rams and ewes, while protecting young rams, a significant improvement over the previous "any sheep" regulation. As the number of full-curl rams increases, the number harvested should also increase.

South Wrangell Mountains: Unit 11 (12,780 mi<sup>2</sup>)

**Project Objectives and Activities:** To allow the population to fluctuate according to available habitat, climate conditions, and predation. To allow harvest of mature rams as they are available in the population; to allow very limited harvest of other sex and age classes on a sustained-yield basis.

- Identify critical sheep habitat (e.g., mineral licks and lambing areas)
- Monitor the harvest through hunter contacts and harvest reports

**Work Accomplished During the Project Segment Period:** The only area surveyed during 1997 was count area 11 which is located between the Dadina River and Long Glacier. This count area has been surveyed more frequently than any other in Unit 11 for sheep. The 1997 count was 297 sheep, equal to the previous 4-year (1993–96) average of 297 sheep (range = 254–347), but 47% lower than the 559 sheep counted in 1987. The number of ewes and lambs in this count area had respective increases of 17% and 8% in 1997 compared to 1996 data. Lambs composed 17% of the flock in 1997, compared to 18% in 1996 and 24% in 1995. Total rams increased by 26% compared to1996 due to the increase in sub-legal rams (<full curl), which increased from 31 in 1996 to 41 in 1997. This is the second year in a row the total ram count increased since the all time low of 27 recorded in 1995. The number of mature (full curl) rams has remained constant since the 50% decline observed from 1994 to 1995 (18 compared to 9).

Preliminary data indicate hunters killed 110 sheep (a 22% decrease compared to 1996) in Unit 11 during the 1997 hunting season. This harvest includes 71 mature rams taken by sport and subsistence hunters and 24 sub-legal rams and 14 ewes taken by subsistence hunters. The mature ram harvest was 24% lower than the previous 5-year (1992–96) mean harvest of 93 rams (range = 79–107), and 48% lower than the peak harvest of 137 mature rams in 1987. The number of smaller subsistence rams taken was 33% higher than the 1992–96 average of 18 (range = 12–27). The subsistence ewe harvest decreased by 2 compared to 1996 (n = 16). The current ewe harvest is down 61% from a peak harvest of 36 ewes in 1992.

**Progress Meeting Project Objectives:** Sheep populations were high in Unit 11 throughout the early and mid-1980s. Sheep surveys in recent years suggest sheep numbers have declined in some portions of Unit 11 from previous population highs. In the early 1990s the count of ewes and lambs showed the largest decline. However, there also was an overall decline in all sex and age categories. Throughout the 1990s, data for CA 11 have been variable, but there has been a decline in the number of mature full-curl rams. The reasons for this decline in ram numbers are unknown. Survey timing may have affected the total ram count in 1995. Inclement flying weather prevented an earlier count; thus, the survey was conducted too close to the hunting season. However, this was not the case during the last 2 years when surveys were flown earlier and the number of

mature (full-curl) rams was still low. Another explanation may be that poor lamb production or survival in previous years is now showing up as reduced recruitment of larger rams.

During this reporting period wolves were abundant in Unit 11, and wolf predation on sheep appears high. Often hunters observe wolves at higher elevations where wolves could easily be hunting sheep. Observations of surplus killing of sheep by wolves were recorded during the winters of 1989 and 1992. Sheep hunters have also reported observing wolves in the high country and wolf scats containing sheep hair.

On average, hunting pressure has increased by almost 42% in the 1990s compared to that of the 1980s. From 1981–89 an average of 236 (range = 204–259) people reported hunting sheep in Unit 11 compared to an average of 334 (range = 291–388) for 1990–96 (complete data were not available for the 1997 season at the time of this writing). Success rates for sheep hunters in Unit 11 during 1997 were not available at the time of this report but increased for the previous 2 years. The 1996 rate of 45% was similar to the average rate for 1981–96 (44%). The subsistence take of small rams and ewes seems to vary from between 30 and 50 animals a year and reflects the subsistence demand at this time. The definition of a subsistence hunter in Unit 11 was broadened under state law during 1990 to include all state residents, whereas only local rural residents were considered subsistence sheep hunters in previous years. The current subsistence harvest of small rams is relatively low, dispersed throughout the unit and has little effect on ram numbers. The subsistence ewe harvest is also low but is of concern when most of the harvest occurs in concentrated areas as occurred in 1995 when areas adjacent to the

accounted for 47% (9) of the ewes taken. During the past 2 seasons, the ewe harvest was more evenly distributed throughout the unit. Ewe and small ram harvests at the present level are not considered a biological problem at this time. Harvest objectives were met for Unit 11, and no changes in season dates or bag limits are recommended at this time for either the sport or subsistence hunt.

#### **Segment Period Project Costs:**

	Personnel	<u>Operating</u>	<u>Total</u>
Planned	14.0	0.0	14.0
Actual	14.0	0.0	14.0
Difference	0.0	0.0	0.0

*Explanation:* Because of the full-curl regulation, we are no longer doing counts.

#### Submitted by:

Michael G, McDonald Assistant Management Coordinator

#### Project Title: Interior Dall Sheep Population Management

<b>Project Location:</b>	Unit 12 (9,978 mi <sup>2</sup> )
	North Wrangell, Nutzotin, and Mentasta Mountains

**Project Objectives and Activities:** Provide the greatest level of sustainable annual opportunity to participate in hunting Dall sheep and provide the greatest level of sustainable annual harvest of Dall sheep.

• Monitor the harvest through hunter contacts and harvest reports

**Work Accomplished During the Project Segment Period:** Preliminary harvest statistics indicated 251 hunters harvested 124 full-curl rams for a hunter success rate of 51%. Harvest was below the 1992–96 average harvest of 172 rams. Annual kill has been declining since 1991. The average harvest between 1986 and 1991 was 243 rams. Average number of hunters was lower over the past 3 years (351) than during the previous 5 years (441). Between 1992 and 1994 success rates declined but increased during 1995 to 1997 to levels comparable to the average success rate (53%) between 1986 and 1991.

We completed a composition survey in the Mentasta Mountains between the Glenn Highway and the Nabesna River. Survey time was 15.7 hours, and we counted 1346 sheep. Total ram, legal ram ( $\geq$ 4/4 curl), and lambs:100 ewes were 36:100, 6:100, and 27:100, respectively. To estimate change in population size and composition, I compared counts and ratios between 4 surveys conducted periodically since the 1970s. Based on this comparison, the number of sheep in the Mentasta Mountains in 1997 were comparable to numbers in 1971–73 but were 30% lower than the number of sheep found in 1980. The greatest differences in composition between 1980 and 1997 were the number of rams (-46%) and the number of lambs (-44%). Based on the number of subadults and lambs observed in 1997, the Mentasta sheep population was increasing. It appears that current harvest removes most of the legal rams annually in the accessible area, but does not limit the population's growth. There was a definite difference in distribution of legal rams within the area. Most of the legal rams were located in the Tetlin Reservation, which is closed to hunting, or in the most inaccessible areas. No legal rams were counted in the drainages most easily accessed from the Nabesna Road. During 1997 only 3 rams were taken by 30 hunters (10%) in this area, compared to 16 rams taken by 41 hunters (39%) in 1995.

**Progress Meeting Project Objectives:** We met the human-use objectives of providing maximum opportunity to participate in sheep hunting and allowing the greatest sustainable harvest. Between 1992 and 1994 we commonly received negative comments from hunters concerning crowded hunting conditions and lack of legal rams. Sheep populations throughout Unit 12 declined because of poor lamb production between the late 1980s and 1993 and because of high adult mortality during the severe winter in 1992. Harvest affected the ram population within the areas most accessible from the Nabesna Road. In these areas legal ram population will probably remain low until year 2000. Hunter participation probably declined due to the depressed ram population. I do not recommend any changes in seasons and bag limits because harvest is not limiting the sheep population and because the number of hunters declined in response to the reduced ram

population. Although we have not received negative comments over the past 3 years, some access restrictions are warranted along the Nabesna Road to rebuild the area's ram population. I will discuss this idea with the advisory committees during the coming year.

**Project Location:** Units 9B, 16A, 16B, 17B, 19B, and 19C (43,616 mi<sup>2</sup>) Western Alaska Range

**Project Objectives and Activities:** Manage for a sustained opportunity to harvest full-curl rams from a population of at least 3000 sheep.

- 1. Conduct aerial surveys to assess population trends, lamb production, and proportion of rams in the various subherds in the area
- 2. Monitor the sheep harvest through harvest reports and/or hunter contacts

**Work Accomplished During the Project Segment Period:** We surveyed 11 count areas (794 mi<sup>2</sup>) during summer 1997. We observed 1159 sheep, with 57% "ewe-likes," 16% lambs, and 27% rams. Of the rams, 10% were legal (full-curl). Reported harvest was 110, and hunter success rate was 56.1%. Mean horn length in the harvest was 35.99 inches with a mean base circumference of 13.06 inches. We monitored sheep harvests, contacted hunters, and flew aerial surveys.

**Progress Meeting Project Objectives:** We met all our objectives. The Western Alaska Range population was at least 4300 sheep. More refined population estimates are currently underway. We should work to expand the sheep survey database by surveying new areas. These count areas are predominately in the southern parts of the known sheep range. In one or two large efforts (~\$30,000 total) we could collect baseline data for the entire Western Alaska Range. Based on the amount of hunter effort and harvest, it is important to assess these populations.

**Project Location:** Units 12, 13C, and 20D (17,717 mi<sup>2</sup>) Tok Management Area

# **Project Objectives and Activities**

- 1. Manage for a harvest of 30–45 rams each year with a mean horn length of 36–37 inches among harvested rams and a mean age of 8–9 years
  - a. Monitor the harvest through hunter contacts and harvest reports
  - b. Conduct aerial or ground composition surveys
- 2. Manage to achieve an average of 7–10% of rams with 40-inch or greater horns in the harvest
- 3. Manage to prevent unacceptable increases in hunter concentration and maintain the aesthetic qualities associated with sheep hunting in the Tok Management Area (TMA)

**Work Accomplished During the Project Segment Period:** We issued 120 drawing permits. Ninety-five hunters reported taking 41 full-curl rams, compared to the 5-year average of 48 rams. Hunter success rate (43%) was below the 5-year average (54%). The participation rate (79%) was comparable to the 5-year average (81%). Average horn length during 1996 and 1997 was 35.8 and 36.5 inches, respectively. Percent rams harvested with horns longer than 40 inches during 1996 was 9% and 7% in 1997.

No aerial or ground composition surveys were conducted during 1997. We surveyed the entire TMA in 1994.

**Progress Meeting Project Objectives:** We achieved management objectives in the TMA throughout the last decade and during this reporting period. Continuing success was due to our drawing permit system. The TMA permit is the most sought after sheep drawing permit in the state. Annually, about 2500 hunters apply for the 120 available permits. Hunter participation rates were high between 1995 and 1997. Two of the highest harvests on record occurred during 1995 and 1996; those harvests may have effected the number of 40-inch rams currently available. During the past 2 years, 7% and 9% of harvested rams were >40 inches, compared to an average of 15% between 1990 and 1995. We will closely monitor the trophy portion of the harvest for decline and discuss management options with advisory committees.

<b>Project Location:</b>	Units 13B, 20A, and 20D (1,495 mi <sup>2</sup> )
	Delta Controlled Use Area

# **Project Objectives and Activities**

- 1. Manage a population of approximately 1800 sheep to provide a mean annual harvest of 35 full-curl rams with a mean horn length of more than 36 inches and mean age exceeding 8 years.
  - a. Monitor the Dall sheep harvest through hunter contacts and permit reports
  - b. Conduct aerial and/or ground composition surveys of Dall sheep
  - c. Mail a questionnaire to hunters and quantify their satisfaction with aesthetics of Dall sheep hunting in the Delta Controlled Use Area (DCUA)
- 2. Manage to provide aesthetically pleasing hunting conditions

**Work Accomplished During the Project Segment Period:** Sheep harvest was monitored with permit reports for drawing permit hunts DS203 and DS204. Preliminary data indicated that 65 hunters killed 19 sheep during hunt DS203 and 51 hunters killed 21 sheep during hunt DS204. Mean horn length of sheep killed during hunt DS203 was 35.7 inches and mean age was 9.3 years. During hunt DS204, mean horn length was 37.0 inches and mean age was 8.3 years. Overall, mean horn length was 36.4 inches and mean age was 8.8 years.

We mailed questionnaires to hunters to quantify satisfaction with aesthetics. Hunters were satisfied with DCUA management objectives and aesthetic hunting conditions. No population estimation or composition surveys were conducted due to lack of funding.

**Progress Meeting Project Objectives:** Harvest was monitored through permit reports and hunter contacts. The number of sheep harvested met the objective. Mean horn size and age objectives were met. Questionnaires were mailed to hunters to monitor hunter satisfaction and aesthetics. Most hunters continued to be satisfied with DCUA management objectives.

<b>Project Location:</b>	Units 20A (6,796 mi <sup>2</sup> )
	Alaska Range Central (ARC)

# **Project Objectives and Activities**

- 1. Manage for 3000–5000 Dall sheep in Unit 20A.
  - a. Conduct aerial composition surveys
  - b. Evaluate the need for management actions if the population is estimated to include less than 3000 sheep
  - c. Identify the factors limiting growth of the Dall sheep population in Unit 20A
  - d. Monitor response of the Dall sheep population to the wolf control program by comparing Unit 20A data with data from other Interior sheep populations
- 2. Provide for the greatest sustainable annual opportunity to hunt and harvest full curl Dall sheep rams.
  - a. Monitor the sheep harvest through hunter contacts and harvest reports
  - b. Maintain a hunting season for full curl rams throughout all of Unit 20A
- 3. Provide for the sustainable opportunity for the public to view and photograph Dall sheep
  - Identify suitable sites for viewing and photographing sheep and promote these sites by 1998

**Work Accomplished During the Project Segment Period:** We conducted a postlambing composition survey using 2 Robinson R-22 helicopters in June 1997. This survey also provided an estimate of population trend for a portion of Unit 20A.

Using harvest reports, we estimated the number, timing, spatial distribution, hunter effort, transportation mode, horn size, and age characteristics of sheep taken by hunters.

**Progress Meeting Objectives:** We are not meeting our management objectives for 3000–5000 sheep. However, we expect the population to increase because of higher recruitment and presumably lower adult mortality.

We met our objective to provide the greatest sustainable opportunity to hunt and harvest full-curl sheep by maintaining a general open season from 10 August through 20 September. We anticipate very low harvests for several years as weak cohorts from the relatively severe winters of 1989–90

We identified numerous suitable sites for viewing and photographing sheep, but we have not made progress promoting them.

<b>Project Location:</b>	Units 20B and 25C
	Western Tanana Hills and White Mountains

## **Project Objectives and Activities**

- 1. Manage for the sustained opportunity to harvest full-curl rams from a population of at least 250 sheep.
  - a. Conduct aerial or ground composition surveys
  - b. Monitor the sheep harvest through harvest reports and/or hunter contacts
- 2. Cooperate with BLM and potentially affected interest groups to protect sheep habitat.
  - a. Provide input to interagency fire-management plans when necessary
  - b. Review and comment on the proposed plans for trail development associated with the Nome Creek Development in 1996
- 3. Develop population and management goals and objectives for the West Point sheep population by 1998.

**Work accomplished During the Project Segment Period:** We conducted a postlambing composition survey using 2 Robinson R-22 helicopters in July 1997. This survey also provided an estimate of population trend for at least a portion of the unit. Using harvest reports, we estimated the number, timing, spatial distribution, hunter effort, transportation mode, horn size, and age characteristics of sheep taken by hunters.

**Progress Meeting Project Objectives:** We met our population objective of 250 sheep. We estimated the population was between 550 and 600. We are planning surveys for summer 1998 that will be an annual project. We recommend monitoring the West Point sheep population at least biennially.

We did not meet our objective of setting populaton goals and objectives for the West Point sheep population. We are planning to evaluate both the White Mountains and West Point populations during the next Board of Game cycle with help from local users and Fish and Game advisory committees.

<b>Project Location:</b>	Units 20D and 20E (16,318 mi <sup>2</sup> )
	Tanana Hills

# **Project Objectives and Activities:**

Manage for aesthetic hunting conditions

• Monitor the harvest through hunter contacts and harvest or permit reports

**Work Accomplished During the Project Segment Period:** We issued 4 drawing permits to hunters for the Mount Harper area (DS106). Hunters needed a sheep harvest ticket to hunt in the Glacier Mountain Controlled Use Area and the Charley and Seventymile Rivers areas. Two permit holders participated in the Mt. Harper hunt and both took a ram. Preliminary harvest statistics indicated 23 hunters harvested 10 full-curl rams outside the permit area for a success rate of 43%. Average horn length was 35.3 inches and average age was 10.5 years. Hunters were widely distributed and had little competition for legal sheep.

We completed a composition survey within the Mt. Harper complex and the Salcha River, Chena River, and Birch Creek drainages (SCB). Survey time in the Mt. Harper area was 5.1 hours. In SCB survey time was 6.5 hours. The survey objective was to determine current sheep population size and composition after 2 years of intensive wolf trapping by area trappers, but before nonlethal wolf control was implemented (November 1997). In combination, these 2 actions are expected to reduce the area's wolf population by 70–80%. Wolf control activities will occur during 1997–2000, with full treatment not expected until spring 1999.

We counted 83 sheep during the Mt. Harper survey. Total rams, legal rams, and lambs:100 ewes were 54:100, 27:100, and 19:100, respectively. We counted 13 legal rams and 9 lambs. The number of sheep observed in 1997 exceeded the number observed in 1993 by 38%. Primary difference was an increased number of ewes observed in 1997. The number of rams and lambs were comparable between the 2 counts. Mt. Harper was also surveyed in 1982. Sheep numbers were comparable to those in 1997 except the number of rams in 1982 was higher.

In SCB we counted 147 sheep. Total rams, legal rams, and lambs:100 ewes were 95:100, 44:100, and 40:100, respectively. The most apparent differences between SCB and Mt. Harper were the number of rams and lambs.

**Progress Meeting Project Objectives:** Positive comments from hunters indicated we achieved our objective of providing aesthetic hunting conditions. Sheep hunting aesthetics are expected to remain high due to the remoteness and limited accessibility of these areas.

The sheep population declined. The causes were higher adult mortality due to adverse weather conditions during the early 1990s and poor lamb recruitment. The number of legal rams is expected to remain low at least until year 2000. The lower number of sheep should not affect hunting conditions because so few hunters use the area.

The data were not adequate to determine effects of the public wolf trapping effort on the Mt. Harper or SCB Dall sheep populations. We know wolf numbers were not significantly reduced in the Mt. Harper area due to trapping effort. The sheep population did increase since 1993, but we do not know if most of the increase occurred following the 1995 trapping effort or with the favorable weather conditions in 1994.

In SCB the wolf population was reduced, but we do not have any sheep population data before the trapping effort for comparisons. There were substantially greater numbers of lambs in the SCB compared to the Mt. Harper area. In 1997 the National Park Service also found high lamb survival in Yukon–Charley Rivers National Preserve. Wolf harvest during 1995 and 1996 was high enough to cause a reduction in wolf numbers in a portion of the survey areas, but how that affected lamb survival is still not known.

I recommend no changes in the current population and harvest objectives.

<b>Project Location:</b>	Unit 24 (26,055 mi <sup>2</sup> )	
	Central Brooks Range	

# **Project Objectives and Activities**

- 1. Maintain or increase the sheep population within the Gates of the Arctic National Park and provide for opportunities to view and photograph sheep, allowing for a subsistence harvest of no more than 50 sheep per year
  - a. Monitor subsistence sheep hunting success through periodic visits to villages in the unit
- 2. In other areas of the unit, maintain or increase the sheep population to provide an average annual harvest of at least 5 rams under aesthetic hunting conditions

**Work Accomplished During the Project Segment Period:** Eighteen hunters registered to hunt sheep in Gates of the Arctic National Park. No harvest reports were received as of 31 May 1998. Outside the park, 41 hunters harvested 18 rams. We collected harvest data through direct contact after the hunt and through letters.

**Progress Meeting Project Objectives:** We met objectives to monitor harvest through harvest tickets and permits. Other management objectives were met through the low harvest.

Project Location:	Units 25A, 26B and 26C (47,088 mi <sup>2</sup> )

Eastern Brooks Range

#### **Project Objectives and Activities**

- 1. In cooperation with FWS, continue to monitor sheep population status using trend indicator areas
- 2. Manage for a harvest of Dall sheep rams with full-curl or larger horns
- 3. Monitor the effects of the full-curl minimum size limit that took effect in fall 1993
- 4. Work with ADF&G Subsistence Division and FWS to manage subsistence sheep harvests

**Work Accomplished During the Project Segment Period:** Lamb production was high (45–71 lambs:100 ewes) in the Eastern Brooks Range in 1998, based on composition surveys in the Atigun and Hula-Hula drainages. The high production and survival were probably a result of mild winter weather. Hunters seem adapted to the full-curl regulation implemented in 1993 and to a decline in sheep populations during the late 1980s and early 1990s.

While the eastern Brooks Range continues to be a popular hunting area, preliminary review of 1997 harvest reports indicated hunting pressure and harvest success have stabilized in response to generally lower sheep numbers. We continued to monitor subsistence sheep harvests. Harvests in Unit 26C are fairly well known due to the efforts of Subsistence Division to interview residents of Kaktovik.

**Progress Meeting Project Objectives:** Management objectives were met in this area, although numbers of sheep have declined in recent years.

#### **Segment Period Project Costs**

	Personnel	<u>Operating</u>	<u>Total</u>
Planned	67.9	17.9	85.8
Actual	4.9	11.2	16.1
Difference	63.0	6.7	69.7

*Explanation:* During the last 7 months of this report period, Region III staff initiated a new time accounting procedure. In December 1997 staff began recording time spent on specific federal aid projects. Previously staff had recorded only total time which was then prorated to either federal aid or nonfederal aid time according to a fixed percentage that varied among staff positions. Therefore, the "Actual" expenditures for "Personnel" in this report are estimates derived from 7 months of specific project time extrapolated to 12 months. The new procedure unavoidably resulted in what appears to be substantial discrepancies between "Planned" and "Actual" personnel expenditures for most of the FY98 federal aid projects. However, most of these "discrepancies" are not real, and the explanation and justification are presented in the explanation

section of each project report. This is a transitional phenomenon and, unlike this year, the FY99 performance reports will reflect 12 months of actual project-time accounting.

<u>*Personnel*</u>: All sheep surveys were conducted during summer, and very little sheep-related work was conducted during the latter half of the fiscal year when project time was documented. Because of this, the personnel expenditure listed above is an underestimate.

<u>Operating</u>: The operating allocation was actually 12.3, a budgetary decision made after the Work Plan was submitted. Poor weather conditions prevented us from completing all survey areas in Unit 19.

## Submitted by:

<u>Roy A. Nowlin</u> Regional Management Assistant

David D. James Management Coordinator

Project Title:	Western Alaska Dall Sheep Management
Project Location:	Unit 23 and Unit 26A (99,000 mi <sup>2</sup> )
	Kotzebue Sound and Western Brooks Range

#### **Project Objectives**

- 1. Maintain a minimum posthunt population in the Baird Mountains of 450–600 adult sheep and a minimum ratio of 7–10 7/8+ curl rams:100 "ewes" (includes adult female, yearling, and 1/4- curl ram) in Unit 23
- 2. Maintain public support for conservation of sheep in Unit 23 as demonstrated by compliance with hunting closure

**Work Accomplished During the Project Segment Period:** We conducted sex and age composition surveys in the Baird Mountains during July 1997.

	Baird Mt.
Rams 1/2+ curl	114
Rams 7/8+ curl	72
"Ewes" <sup>a</sup>	314
Adults	428
Lambs	83
Total	511
Lambs:100 "Ewes"	26
Total Rams:100 "Ewes"	36
Rams 7/8+:100 "Ewes"	23
Adults: mi <sup>2</sup>	0.60

<sup>a</sup> "Ewes" defined as adult female, yearling, and 1/4-curl ram.

The number of sheep remained below population goals in the Baird Mountains. Considering survey results and public comments, the department issued emergency orders in July 1997 closing sheep hunting west of the Etivluk, Aniuk Rivers, and the Cutler, Redstone Rivers in Unit 23 and 26A. The remainder of Unit 23 and 26A east of the Etivluk, Aniuk Rivers and Cutler, Redstone Rivers remained open for hunting under the published seasons and bag limits. No hunters reported harvesting sheep in Unit 23 or the western portion of Unit 26A in 1997–1998.

We made numerous contacts with the public and advisory committee members regarding development of an acceptable hunting system if sheep numbers continued to increase. A proposal was submitted to the Board of Game and new hunting regulations were passed in November 1997. Three sheep populations were identified; subsistence registration hunts and sport drawing hunts were established for each area with quotas based on survey results. The number of drawing permits are predicated on meeting estimated subsistence needs.

**Progress Meeting Project Objectives:** We made progress meeting project objectives through monitoring and management actions. With public support, agencies have reduced hunting mortality through season closures. Given the low density and discontinuous distribution of sheep in northwestern Alaska, the influence of wolf and caribou dynamics, and the frequency of severe winters, it is unlikely that managers can maintain stable sheep populations, even at modest densities. The increase in lambs and adults in 1995 through 1997 indicates the declining population trend has reversed. However, 4 years of low lamb production will have negative effects on the population for many years.

## **Segment Period Project Costs**

-	Personnel	<b>Operating</b>	<u>Total</u>
Planned	11.5	5.7	17.2
Actual	11.5	10.0	21.5
Difference	0.0	-4.3	-4.3

*Explanation:* Because no cooperative surveys were conducted with National Park Service, we covered a larger survey area, which required more cost.

#### Submitted by

Peter Bente Survey–Inventory Coordinator