

Dall Sheep Management Report and Plan, Game Management Unit 16:

Report Period 1 July 2016–30 June 2021, and
Plan Period 1 July 2021–30 June 2026

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This species management report and plan was reviewed and approved for publication by Todd Rinaldi, Management Coordinator of Region IV for the Division of Wildlife Conservation.

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Purpose of this Report

This report provides a record of survey and inventory management activities for Dall sheep (*Ovis dalli*) in Game Management Unit 16B for the 5 regulatory years 2016–2020 and plans for survey and inventory management activities in the next 5 regulatory years, 2021–2025. A regulatory year (RY) begins 1 July and ends 30 June (e.g., RY16 = 1 July 2016–30 June 2017). This report is produced primarily to provide agency staff with data and analysis to help guide and record agency efforts but is also provided to the public to inform them of wildlife management activities. The Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC, the division) publishes these reports on a 5-year cycle to document trends and describe potential changes in data collection activities for Dall sheep.

I. RY16–RY20 Management Report

Management Area

The Alaska Range is located in Southcentral Alaska. It stretches from the Yukon Territory to Lake Clark National Park and Preserve. Dall sheep habitat within the Unit 16B portion of the Alaska Range encompasses 2,272 mi² along the western side of the unit from Denali National Park to Lake Clark National Park (Fig. 1).

Summary of Status, Trend, Management Activities, and History of Dall sheep in Unit 16

The western Alaska Range encompasses portions of Units 9B, 16A, 16B, 17B, 19B, and 19C. This roadless area attracts both resident and nonresident hunters. Sheep habitat in Unit 16A is very limited outside of Denali National Park, which is closed to hunting. Only 1 person has reported taking a sheep in Unit 16A in the past 20 years. The majority of hunters in the western portion of the Alaska Range use Unit 19C for sheep hunting (Pierce 2014). The number of hunters in Unit 16B has varied widely since the early 1980s; it has not shown any trend and has averaged 32 hunters annually (Fig. 2).

Surveys in the Unit 16B portion of the Alaska Range have been very infrequent. Pierce reported that, based on surveys in neighboring Unit 19C, the sheep population was believed to be stable from the late 1970s to the mid-1980s (Pierce 2014). Survey results from other areas throughout the state, as well as anecdotal evidence from sheep hunters, indicated a decline in the sheep population in most areas of the state, including Unit 16B, during the 1990s. The last known survey of Unit 16B and associated drainages (Fig. 1) occurred in 1996. At that time, the minimum count of sheep in the survey areas was 1,781. Partial surveys were conducted in 2003 and 2011. Among the units that were surveyed in the subsequent years, it appears that the population decreased from the 1996 estimate. The winter of 2019–2020 had considerable snow accumulation and resulted in reductions in sheep numbers in Unit 19C and most other areas of the state. It is likely that this heavy snow event reduced sheep numbers in Unit 16B as well.

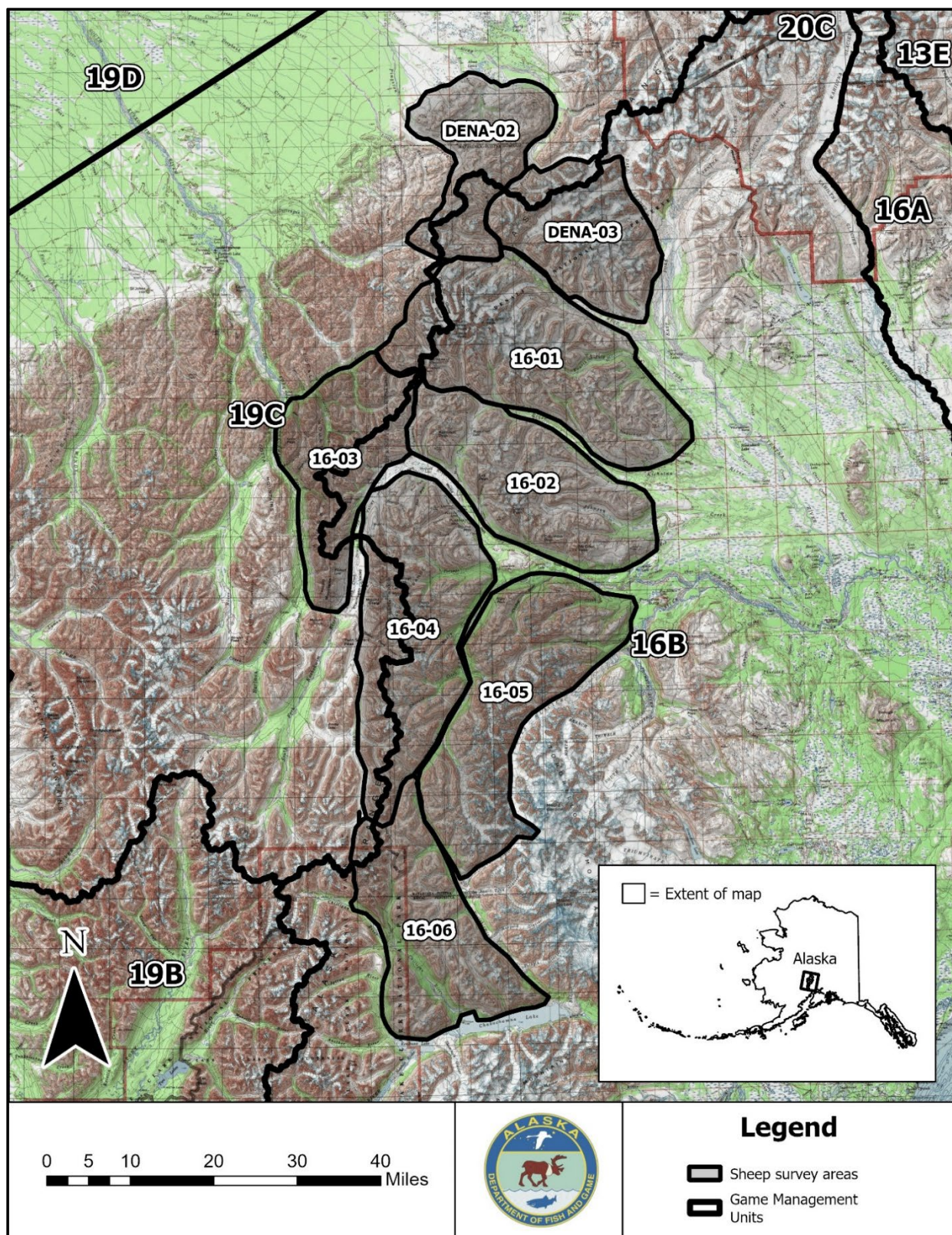


Figure 1. Dall sheep habitat and survey area in Unit 16 of the Alaska Range, regulatory years 2016–2020, Southcentral Alaska.

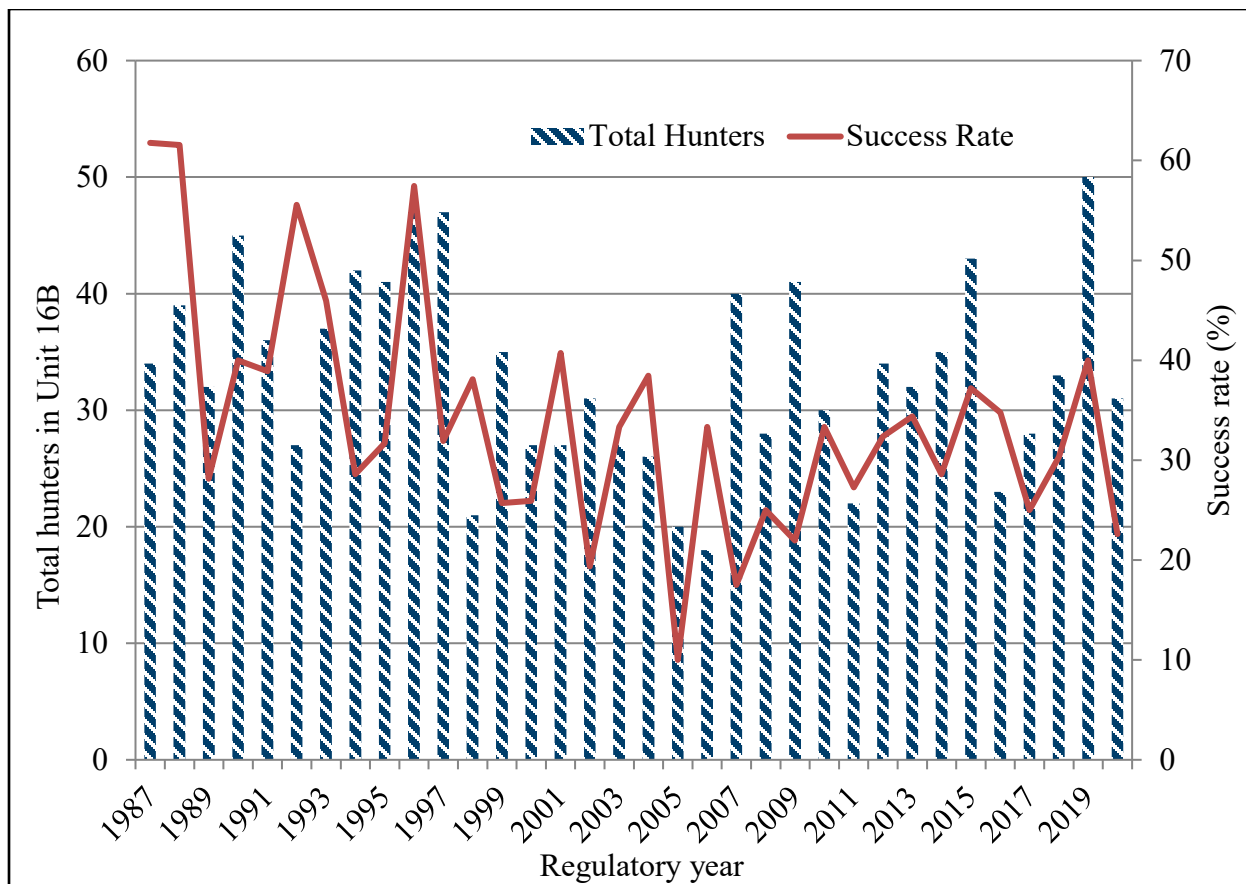


Figure 2. Total number and success rate for hunters in Unit 16 of the Alaska Range, regulatory years 2016–2020, Southcentral Alaska.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

Direction in the *Rainy Pass sheep management plan* (ADF&G 1976) originally detailed the management plan for Unit 16 Dall sheep.

GOALS

Provide an opportunity for sustainable harvest of Dall sheep rams similar to average historic levels.

CODIFIED OBJECTIVES

None.

Amounts Reasonably Necessary for Subsistence Uses

Not applicable.

Intensive Management

Sheep are not designated as an intensive management species in the state of Alaska. Intensive management predator control programs implemented for moose or caribou may affect predation levels on sheep.

MANAGEMENT OBJECTIVES

- Using a full-curl harvest strategy, maintain harvest of rams averaging ≥ 8 years old.
- Monitor harvest by hunters and assess age of the harvest through harvest tickets and horn sealing.
- Assess population trend, age, and composition through annual aerial surveys.

MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct aerial surveys in Unit 16B to estimate Dall sheep population size, sex and age composition, productivity, and trends.

Data Needs

Using abundance, the department can estimate sustainable harvest and establish a density context for interpreting nutritional condition relative to habitat conditions. Sex and age composition can be used to determine appropriate harvest levels and recruitment into the population, and ratio data may also be used to model population structure and trends.

Methods

Surveys have been conducted as time and resources have been available. A complete survey of Unit 16B was conducted in 1996 and partial surveys were conducted in 2003 and 2011. Surveys are typically conducted when most of the previous winter's snow has melted and prior to the beginning of the sheep hunting season on 10 August. In most years, this occurs in July.

The area to be surveyed has been subdivided into count areas, which are based on geographic features and are typically of a size that can be flown in 1 day by fixed-wing pilot and observer teams (Fig. 1). An experienced pilot-observer team flies geographic contours systematically within a count area at 70–80 mph searching for sheep and recording data. Individual sheep or those in groups are observed, counted, and sex and age classes are noted. Rams are classed as either greater than or equal to full-curl or greater than full-curl. However, rams that are less than 2 years old sometimes remain with larger bands of ewes and lambs; therefore, most ewes are reported as ewe-like and groups may contain young males as well as female sheep.

Results and Discussion

Surveys were completed in 2011 in survey areas DENA-03 and 16-01 through 16-04 (Fig. 1), with Unit 16-03 partially completed. A total of 450 sheep were counted with 18 full-curl rams, 136 less than full-curl rams, 225 ewe-like sheep, and 71 lambs.

Recommendations for Activity 1.1

The department recommends modifying this activity. Surveys should be completed on a regular basis, at least once every 5 years, to provide comparable results and determine trends in the Unit 16B population.

Additionally, survey accuracy may be improved by incorporating the use of digital single lens reflex (DSLR) cameras for group size and age class determination. Currently, groups of sheep are marked with GPS waypoints and their position noted on the worksheets. By taking photographs of groups of sheep and noting the photo number and corresponding waypoint, staff could verify the group size recorded. In addition, photos of males with various horn classes may be used as training aids for new observers and improve consistency between observers.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor Dall sheep mortality through field observations, hunter harvest reports, contact with hunters, and reports of other causes of mortality.

Data Needs

Monitoring, collecting, and analyzing harvest data is critical for sustained yield management. Information collected from harvest reports can inform management decisions regarding season length, permit levels, and appropriate methods of take.

Methods

Dall sheep hunting efforts in Unit 16B are recorded through the harvest reports submitted by individual hunters participating in the general season hunt. When horns are presented for sealing at a hunter's local department office, the sealing officer will collect information on hunter effort, location of harvest, and horn base circumference and length. Additional measurements may be taken for research and management purposes. A permanent seal is affixed to the horns for identification and tracking.

Season and Bag Limit

Dall sheep hunting in Unit 16B is based on a general season harvest with a bag limit of 1 ram with either a full curl horn or determined age of greater than or equal to 8 years old. Season dates for this hunt are 10 August–20 September.

Results and Discussion

Harvest by Hunters

Annual hunter harvest averaged 10 rams during RY16–RY20. This was a decrease from the previous 5-year period (RY11–RY15) of 11 rams. The average horn size during RY16–RY20

was 37.14". The percent of rams taken with horns over 40" averaged 8.8% (Table 1). The age of harvested rams averaged 9 years old during the reporting period.

Table 1. Sheep harvest in Unit 16 of the Alaska Range, regulatory years 2016–2020, Southcentral Alaska.

Regulatory year	Rams	Average horn length ^a (in)	% ≥40 in	Average age (y)	Ewes	Total sheep
2016	8	38.0	25	9.5	0	8
2017	6	36.1	0	8.0	0	6
2018	10	38.0	0	9.2	0	10
2019	20	36.1	5	8.5	0	20
2020	7	37.5	14	9.0	0	7

^a Includes only reported ram horn lengths.

Hunter Residency and Success

Local residents, defined as residents of Unit 16, were responsible for none of the harvest during RY16–RY20, and participated minimally in sheep hunting in the area (Table 2). During this period, 104 nonlocal resident hunters harvested 25 rams leading to a success rate of 24%; and 76 nonresidents harvested 26 rams resulting in a success rate of 34%. Nonresidents who participated in the hunt had a greater likelihood of success due to the guide requirement and effectiveness of guides operating in the area.

Table 2. Residency and success of sheep hunters in Unit 16 of the Alaska Range, regulatory years 2016–2020, Southcentral Alaska.

Regulatory year	Successful				Unsuccessful				Total
	Local resident ^a	Nonlocal ^b resident	Non-resident	Total (%)	Local resident ^a	Nonlocal ^b resident	Non-resident	Total (%)	
2016	0	3	5	28	0	14	7	72	29
2017	0	4	2	19	0	12	12	81	30
2018	0	7	3	29	0	16	9	71	35
2019	0	9	11	38	0	18	14	62	52
2020	0	2	5	21	0	19	8	79	34

^a Local residents refers to those who reside in Unit 16.

^b Nonlocal resident refers to residents of Alaska who do not live in Unit 16.

Harvest Chronology

The majority of sheep in Southcentral Alaska are taken in the first 2 weeks of the season. However, the Unit 16B harvest is more distributed throughout the season compared to neighboring units (Table 3).

Transport Methods

Most hunters during RY16–RY20 reported using fixed-wing aircraft to access hunting areas (Table 4). This has been a pattern for more than 10 years.

Table 3. Sheep harvest chronology percentage by harvest period in Unit 16 of the Alaska Range, regulatory years 2016–2020, Southcentral Alaska.

Regulatory year	10 Aug–16 Aug	17 Aug–23 Aug	24 Aug–30 Aug	31 Aug–6 Sep	7 Sep–13 Sep	14 Sep–20 Sep	<i>n</i>
2016	38	38	12	0	0	12	8
2017	33	17	0	0	17	33	6
2018	40	0	0	10	30	20	10
2019	70	15	5	5	0	5	20
2020	29	29	14	0	14	14	7

Table 4. Sheep harvest percentage by transport method in Unit 16 of the Alaska Range, regulatory years 2016–2020, Southcentral Alaska.

Regulatory year	Airplane	Horse	Boat	ATV	ORV	Highway vehicle	Unknown	<i>n</i>
2016	100	0	0	0	0	0	0	8
2017	100	0	0	0	0	0	0	6
2018	90	10	0	0	0	0	0	10
2019	80	15	5	0	0	0	0	20
2020	57	43	0	0	0	0	0	7

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

There were no habitat assessment or enhancement activities conducted for Dall sheep in Unit 16B during RY16–RY20.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

Harvest data and copies of sealing forms are stored on an internal database. Field data sheets are scanned and housed on the network server in the Palmer area biologist office and stored physically in file folders located in the assistant area biologist office.

Agreements

None.

Permitting

None.

Conclusions and Management Recommendations

The Unit 16B portion of the Alaska Range has garnered little attention from the department in terms of managing the Dall sheep population. It is believed that the full-curl management strategy along with the relatively low interest in hunting in the unit has served the purpose of providing opportunity to those hunters who wish to take a ram in this remote place. Increasing the survey effort now will provide a baseline for future harvest monitoring and will also allow a comparison of population fluctuations that may be observed in areas of greater exploitation.

Management objectives were met during this reporting period. The age of rams harvested in Unit 16B averaged 9 years old (Table 1). The continuation of sealing sheep and recording harvest ticket information will allow managers to monitor age class and hunting effort. It is recommended to increase the frequency of surveys and use digital cameras to better assess population age structure and counts.

II. Project Review and RY21–RY25 Plan

Review of Management Direction

MANAGEMENT DIRECTION

Currently there are no changes recommended to the harvest management direction for the Unit 16B portion of the Alaska Range. The unit is managed under a full-curl general season for both residents and nonresidents.

GOALS

Provide an opportunity for sustainable harvest of Dall sheep rams similar to average historic levels.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

None.

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

- Using a full-curl harvest strategy, maintain harvest of rams averaging ≥ 8 years old.
- Monitor harvest by hunters and assess age of the harvest through harvest tickets and horn sealing.
- Assess population trend, age, and composition through annual aerial surveys.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Conduct aerial surveys in Unit 16B to determine Dall sheep population size, sex and age composition, productivity, and trends.

Data Needs

No change from RY16–RY20.

Methods

Aerial surveys using fixed-wing aircraft will be conducted on a 5-year basis, as weather and logistical constraints create conflicts with survey requirements for the Talkeetna and Chugach ranges. Surveys need to be conducted when most of the previous winter's snow has melted and prior to the beginning of the sheep hunting season on 10 August. In most years, this occurs in July. The remoteness of the area requires survey staff be based out of Skwentna or Rainy Pass in order to reduce travel time and ensure local conditions are sufficient to conduct surveys. Surveys may be coordinated with the McGrath office, which is responsible for the neighboring Unit 19C sheep surveys.

Use DSLR cameras to capture photos of sheep groups for more accurate counts and determination of curl. By taking photographs of groups of sheep and noting the photo number and corresponding waypoint, staff could verify the group size recorded. In addition, photos of males with various horn classes may be used as training aids for new observers and to improve consistency between observers.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor Dall sheep mortality through field observations, hunter harvest reports, contact with hunters, and reports of other causes of mortality.

Data Needs

No change from RY16–RY20.

Methods

No change from RY16–RY20.

3. Habitat Assessment-Enhancement

No habitat assessment or enhancement activities are expected for Dall sheep in Unit 16B during RY21–RY25.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

No change from RY16–RY20.

Agreements

None.

Permitting

None.

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