

Dall Sheep Management Report and Plan, Game Management Units 23 and 26A:

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

Christie R. Osburn



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Hunters are important founders of the modern wildlife conservation movement. They, along with trappers and sport shooters, provided funding for this publication through payment of federal taxes on firearms, ammunition, and archery equipment, and through state hunting license and tag fees. These taxes and fees fund the federal Wildlife Restoration Program and the State of Alaska's Fish and Game Fund, which provided funding for the work reported on in this publication.

Species management reports and plans provide information about species that are hunted or trapped and management actions, goals, recommendations for those species, and plans for data collection. Detailed information is prepared for each species every 5 years by the area management biologist for game management units in their areas, who also develops a plan for data collection and species management for the next 5 years. This type of report is not produced for species that are not managed for hunting or trapping or for areas where there is no current or anticipated activity. Unit reports are reviewed and approved for publication by regional management coordinators and are available to the public via the Alaska Department of Fish and Game's public website.

This species management report and plan was reviewed and approved for publication by Phillip Perry, Management Coordinator for Region V for the Division of Wildlife Conservation.

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This document, published in PDF format only, should be cited as:

Osburn, C. R. 2025. Dall sheep management report and plan, Game Management Units 23 and 26A: Report period 1 July 2016–30 June 2021, and plan period 1 July 2021–30 June 2026. Alaska Department of Fish and Game, Species Management Report and Plan ADF&G/DWC/SMR&P-2025-10, Juneau.

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Purpose of this Report

This report provides a record of survey and inventory management activities for Dall sheep (*Ovis dalli dalli*) in Game Management Units 23 and 26A 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 it of wildlife management activities. In 2016 the Alaska Department of Fish and Game's (ADF&G, the department) Division of Wildlife Conservation (DWC) launched this 5-year report to report more efficiently on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the Dall sheep management report of survey and inventory activities that was previously produced every 3 years.

I. RY16–RY20 Management Report

Management Area

Game Management Unit 23 encompasses approximately 43,400 mi² of mainland in Northwestern Alaska and covers the Kotzebue Sound, Chukchi Sea, and Arctic Ocean drainages, while Unit 26A encompasses approximately 53,200 mi² of mainland Northwestern Alaska and covers the Arctic Ocean drainages lying west of the Itkillik River drainages (Fig. 1). Mainland terrain varies from rugged mountains and river valleys to flat coastal wetlands. Spruce forests characterize eastern portions of Unit 23, while western portions of Unit 23 and most of 26A are treeless and largely tundra-covered, with willow thickets along riparian corridors. There are 17 communities within these 2 units, with a total population of approximately 14,500 people.

This report covers sheep populations of the De Long and Baird Mountains. The Baird Mountains lie wholly within Unit 23 and the De Long Mountains make up the western portion of the border between Units 23 and 26A.

Summary of Status, Trend, Management Activities, and History of Dall sheep in Unit 23 and 26A

Dall sheep of North America exist at the northwestern margin of their range within the De Long and Baird Mountains of Units 23 and 26A. The De Long Mountains make up the southern and western extent of the Brooks Range west of Howard Pass and the Baird Mountains separate the major river drainages of the Kobuk and Noatak rivers. Both these ranges have continuous habitat connections with the central Brooks Range and Schwatka Mountains, but exchange between the areas is likely minimal (Dau 2005) and the sheep populations within these ranges remain relatively discrete. This report will cover only the De Long and Baird Mountain sheep populations; the Schwatka Mountain population is included in the report for Unit 24.

Historically, these northwestern sheep populations provided an important subsistence food source for Inupiat residents (Georgette and Loon 1991), and as an iconic and charismatic Alaska big game species, have provided consumptive and nonconsumptive uses for nonlocal hunters and

travelers. Formal estimates of sheep abundance within the western Brooks Range began in the mid-1980s. Sheep numbers peaked in 1989 prior to drastic declines in 1990 and 1991 believed to be the result of severe winter weather (Abbott 1993). Disease and predation may have amplified the effects of these winters and abundance remained low through 1996. State and federal hunting seasons that had closed following the decline, reopened to various degrees between 1995 and 2010, by which time populations had approached pre-decline levels. The winters of 2011–2013 brought abnormal icing events and again steep declines occurred, reducing populations by roughly 80% of the 2011 estimates (ADF&G 2015). Sheep hunting seasons within the De Long and Baird Mountains were closed by state emergency order in RY14 and by Board of Game action in RY15. Federal regulation followed suit in 2016, and both state and federal seasons have remained close since.

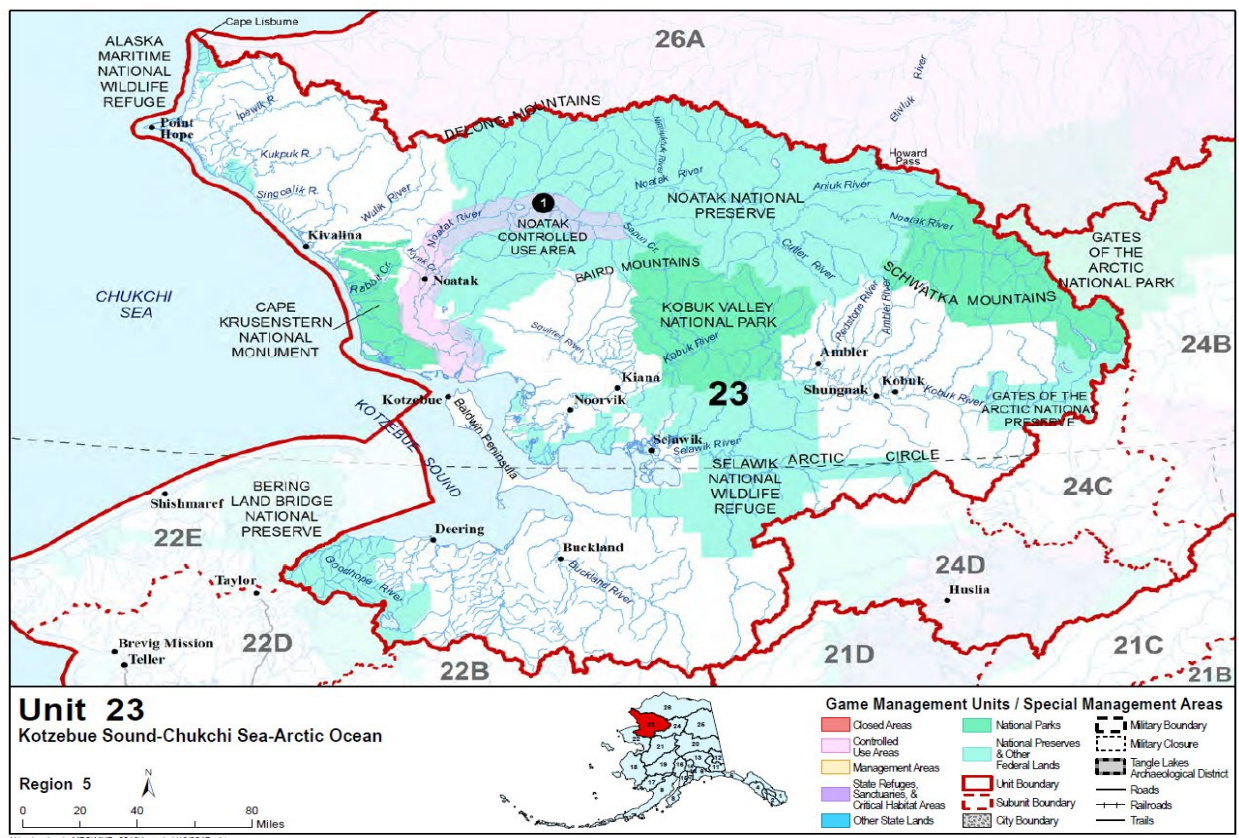


Figure 1. Map of Unit 23, including special management and controlled use areas, as found in the Alaska Hunting Regulations, regulatory years 2016–2020.

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

- *Western Brooks Range Sheep Management Plan. Pages 64–65 [In] Alaska Wildlife Plans: Northwestern Alaska* (ADF&G 1976).
- The Division of Wildlife Conservation's *Strategic Plan* (ADF&G 2002).

GOALS

- Sustain sheep populations at stable or increasing levels throughout their range.
- Provide opportunity for viewing, photography, and sustainable harvest.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Board of Game (BOG) has made a positive Customary and Traditional Use Determination finding for the Units 23 and 26A Dall sheep populations. The Amount Reasonably Necessary for Subsistence (ANS) varies by mountain range and is as follows:

- Units 23 and 26A west of the Etivluk River (De Long Mountains): 0–9 Dall sheep
- Unit 23 (Baird Mountains): 18–47 Dall sheep
- Units 23, 24, 25A, and 26 (Brooks Range): 75–125 Dall sheep

Intensive Management

Dall sheep within Units 23 and 26A are not currently identified as populations for intensive management.

MANAGEMENT OBJECTIVES

- Monitor the sheep population, in cooperation with the National Park Service (NPS), within each area at least once during each reporting period.
- Monitor harvest through the harvest ticket system, community-based harvest assessments, public contacts, and field observations.

The range-specific management objectives are as follows:

De Long Mountains

- Monitor population trends with an annual trend count survey.
- Maintain a minimum ratio of 7–10 large rams (with $\geq \frac{7}{8}$ curl) per 100 ewe-likes.

Baird Mountains

- Federal management on federal public land in the Baird Mountains has precluded state management goals and objectives.

Management Activities

1. Population Status and Trend

ACTIVITY 1.1 Monitor trends in abundance and composition in the De Long Mountains annually and assist when able with NPS-led abundance estimate surveys of the De Long and Baird ranges.

Data Needs

Monitoring population abundance and composition allows sheep managers to identify when, and how, sustainable harvest may be resumed.

Methods

Annual trend counts of sheep within the De Long Mountains are conducted in mid-July using a single pilot-observer pair in a tandem, two-place, fixed-wing aircraft (Piper Super Cub). The objective is to count and classify all sheep observed. The search effort is focused on high altitude terrain within the survey areas. All sheep are classified into 6 categories based on body size and horn configuration: lamb, ewe-like, $\frac{1}{2}$ curl ram, $\frac{3}{4}$ curl ram, $\frac{7}{8}$ curl ram, and full-curl ram. All sheep or sheep groups are recorded with a Global Positioning System (GPS) waypoint.

Due to the focus on high terrain areas, survey flights are limited to days with light winds aloft and cloud ceilings above 5,000 ft. When possible, surveys are initiated in the early morning to avoid thermal turbulence that can build through the later part of the day.

Unitwide abundance estimate surveys, led by NPS, are conducted in partnership on a semiregular basis (every 2 to 5 years) using a distance-sampling method. The abundance survey method is described in detail by Schmidt et al. (2012).

Results and Discussion

Dall sheep abundance surveys were conducted in collaboration with NPS during 2016–2019 of this reporting period. Abundance surveys used a distance-sampling method and were conducted in the Baird and central De Long Mountains (Fig. 2). The abundance estimates for the central De Long Mountains ranged from 434 sheep (95% confidence interval [CI]: 359–540) in 2017 to 161 sheep (95% CI: 110–236) in 2018. The Baird Mountains abundance estimates remained relatively stable, ranging from 233 sheep in 2017 (95% CI: 183–313) to 174 sheep in 2019 (95% CI: 141–230; Deacy and Schertz 2021).

In 2018, the department began conducting independent minimum count surveys in the central portion of the De Long Mountains to track population trends on an annual basis. Minimum count surveys were conducted in 2018, 2019, and 2020 and the results can be found in Table 1.

Abundance estimates and trend counts in both areas indicate a declining trend relative to the previous reporting period. However, estimated and observed lamb-to-ewe-like ratios remained relatively stable in both mountain ranges during the reporting period.

Recommendations for Activity 1.1

Minimum count surveys should continue to be conducted annually within the central De Long Mountains. If additional resources are available, surveys should also cover portions of the Western De Longs, Wulik peaks, and Lisburne Hills where sheep have historically been present but only sporadically surveyed.

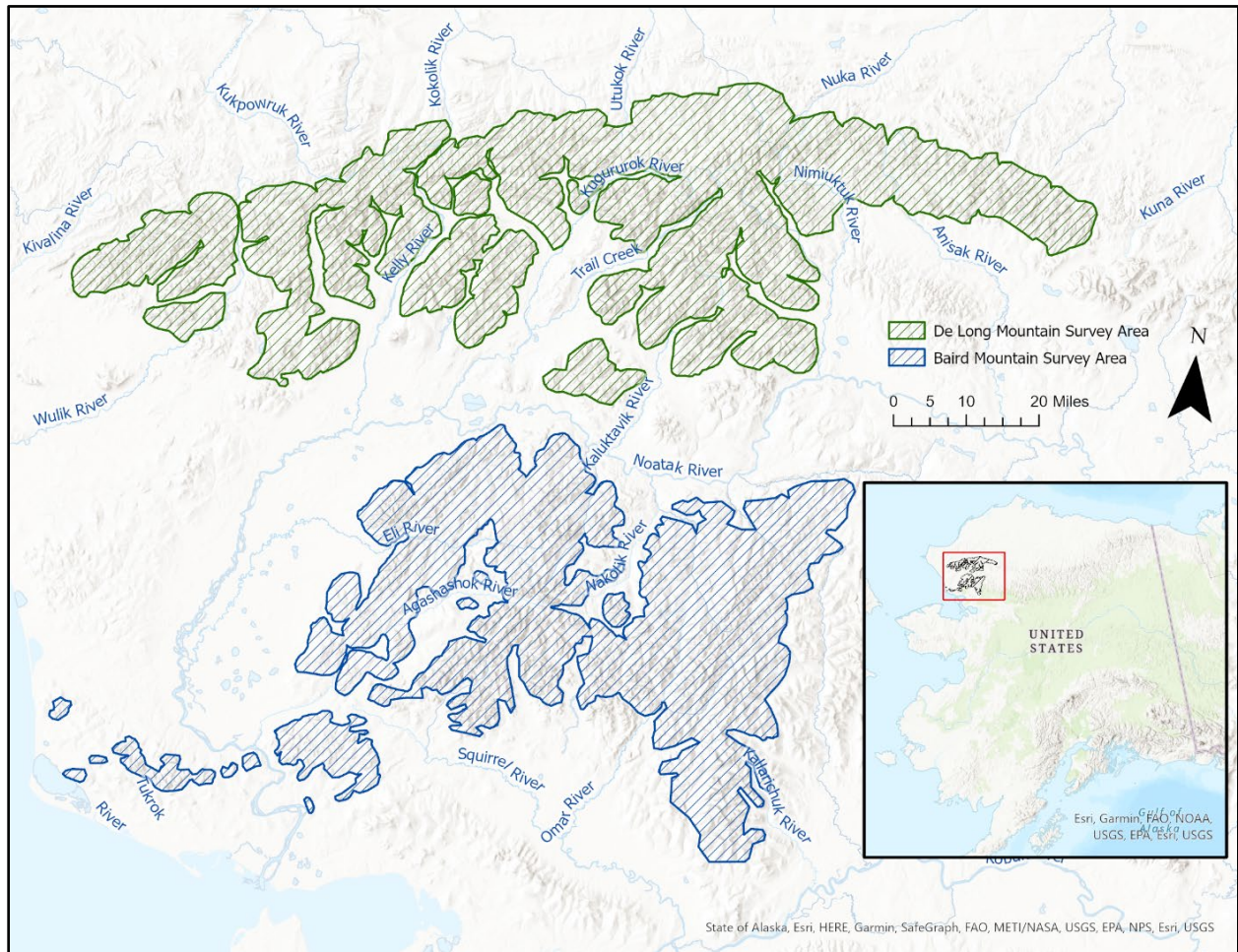


Figure 2. De Long and Baird Mountains sheep survey areas within Units 23 and 26A, northwest Alaska, regulatory years 2016–2020.

Table 1. De Long Mountain Dall sheep minimum count results, northwest Alaska, regulatory years 2018–2020.

Year	Count area	Sheep observed	Lambs	Ewe-like	Sub-curl rams ^a	Full-curl rams	Unclassified	Lambs:100 ewe-like	Lambs:100 adults	Rams:100 ewe-like	Full curl rams:100 ewe-like	Survey hours
2018	Central	196	44	131	10	11	0	34	29	16	8	11.5
2019	Central	177	52	108	10	4	3	48	42	13	4	14.6
2020 ^b	Central	84	15	43	22	4	0	35	22	60	9	16.2

^a Sub-curl rams include ½, ¾ and ⅞ curl rams.

^b The survey in 2020 was conducted with a different pilot than all other years; survey results for this year do not likely represent an accurate change in population, as large known groups of ewe-like sheep were missed.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1 Monitor harvest through state and federal harvest reporting, sealing records, and household subsistence surveys.

Data Needs

When sheep populations support a hunting season, monitoring harvest is essential for understanding hunter effort and success as well as assessing potential harvest impacts on those populations. When population levels are unable to support an open season, monitoring harvest allows managers to assess whether regulations are understood and complied with or if additional public outreach is needed.

Methods

Harvest data is collected when a hunter seals the horns of their harvested sheep with an ADF&G representative. Information on kill date, location, method of take, mode of transportation, horn characteristics, and animal age are recorded during the sealing process. All sealing data is archived and searchable by regulatory year in ADF&G's Wildlife Information Network (WinfoNet) database. Hunter effort and ancillary observations are also recorded through harvest ticket reports and discussions with the public.

Results and Discussion

Sheep hunting on state and federal lands within the De Long and Baird Mountains was closed during this reporting period. Harvest reports submitted under the state harvest ticket were monitored for any illegal harvest during the closure. Subsistence household surveys were conducted in the Unit 23 villages of Buckland, Noatak, and Noorvik during this period and no sheep were reported harvested.

Harvest by Hunters-Trappers

No harvest was reported for this reporting period.

Recommendations for Activity 2.1

Monitoring of sheep harvest through the harvest ticket and sealing program should continue despite season closures. Hunters who obtain general season harvest tickets online or from outside of the hunt area may fail to familiarize themselves with the current regulations and closures; monitoring harvest reports and sealing records allows managers to track any harvest that may occur under these circumstances.

3. Habitat Assessment-Enhancement

Habitat assessment-enhancement activities were not conducted during this reporting period.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

All harvest data is maintained on the ADF&G WinfoNet database.

Digital copies of survey data are stored on the Kotzebue ADF&G computer network and hard copies are filed on site with the area biologist.

Agreements

In 1998 the department and NPS approved an informal agreement to cooperatively manage Dall sheep within Units 23 and 26A. The components of the agreement are listed below:

- I. All sheep hunting in the Baird Mountains of Unit 23 will be administered through federal regulations (federal land only).
- II. Sheep hunting in the De Long Mountains of Units 23 and 26A will be administered jointly under state and federal regulations. A single harvest quota will be established with allocation for state and federal harvest.
 - A. If the total harvest quota is ≥ 20 sheep,
 1. NPS will issue federal registration permits where federal harvest can be divided between fall and spring hunts. Federal permits would allow use of aircraft and be valid only for federally qualified users on federal public lands.
 2. ADFG will issue up to 11 drawing hunt permits to resident and nonresident hunters for hunt DS384. These permits will be valid within the Noatak National Preserve, and the bag limit will be 1 full-curl ram. The department will also issue registration permits under hunt RS388. Registration permits will be valid within the Noatak National Preserve and the bag limit would be 1 sheep.
 3. ADFG and NPS will each close their respective hunts when the overall quota is reached regardless of how many sheep are taken under state or federal regulations.
 - B. If the harvest quota is < 20 sheep,
 1. NPS and department will each administer a portion of the quota.
 2. ADFG will close drawing hunt DS384 to ensure an adequate number of sheep are available for subsistence hunters under RS388.

Permitting

None.

Conclusions and Management Recommendations

Despite being non-hunted populations since 2016, abundance and trend count surveys suggest that sheep populations within the Baird and De Long Mountains continue to remain at low levels. Predator abundance, disease, forage limitation, and direct and indirect competition by caribou (*Rangifer tarandus*) have frequently been suggested as factors preventing the rebound of this nonhunted population but have not been formally investigated.

Identifying the factors that continue to repress these populations could aid in the general understanding of Dall sheep ecology and help inform how sheep populations existing at the margins of their range can be sustainably managed in the future. Determining the relative effects of these factors can assist managers in determining appropriate harvest seasons and bag limits, while identifying critical landscape features and areas requisite to sheep's continued presence in Units 23 and 26A.

II. Project Review and RY21–RY26 Plan

Review of Management Direction

MANAGEMENT DIRECTION

There are no major changes to management direction for the RY21-RY26 planning period.

GOALS

No change from RY16–RY20 report.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Board of Game (BOG) has made a positive customary and traditional use determination finding for the Units 23 and 26A Dall sheep populations. The amount reasonably necessary for subsistence (ANS) varies by mountain range and is as follows:

- Units 23 and 26A west of the Etivluk River (DeLong Mtns): 0–9 Dall sheep
- Unit 23 (Baird Mtns): 18–47 Dall sheep
- Units 23, 24, 25A, and 26 (Brooks Range): 75–125 Dall sheep

Intensive Management

Dall sheep within Units 23 and 26A are not currently identified as populations for intensive management.

MANAGEMENT OBJECTIVES

No change from RY16–RY20 report.

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Monitor trends in abundance and composition in the De Long Mountains annually and assist when able with NPS-led abundance estimate surveys of the De Long and Baird ranges.

Data Needs

No change from RY16–RY20 report.

Methods

Methods will follow those described in the RY16–RY20 report, but will include coverage of the western De Long Mountains, Wulik peaks, and Lisburne Hills when additional resources are available.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor harvest through state and federal harvest reporting, sealing records, and household subsistence surveys.

Data Needs

No change from RY16–RY20 report.

Methods

No change from RY16–RY20 report.

3. Habitat Assessment-Enhancement

No habitat assessment activities are planned for RY21–RY26.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

No nonregulatory management problems or needs were identified for this plan period.

Data Recording and Archiving

Any harvest data will continue to be maintained on the ADF&G WinfoNet database (<https://winfonet.alaska.gov/index.cfm>).

Digital copies of survey data will be stored on the Kotzebue ADF&G computer network and hard copies will be filed on site with the area biologist.

Agreements

No change from RY16–RY20 report.

Permitting

None.

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