

Species Management Report and Plan ADF&G/DWC/SWR&F-2025-5

Dall Sheep Management Report and Plan, Game Management Units 7 and 15:

Report Period 1 July 2010–30 June 2021, and
Plan Period 1 July 2021–30 June 2026

PREPARED BY:

Jason Herreman

Assistant Area Biologist

APPROVED BY:

Jeff Selinger

Management Coordinator

REVIEWED BY:

Tom Lohuis

Research Coordinator

Kyle Smith

Wildlife Research Biologist

PUBLISHED BY:

Susan Fisher

Technical Reports Editor

©2025 Alaska Department of Fish and Game

Alaska Department of Fish and Game
Division of Wildlife Conservation

PO Box 115526
Juneau, AK 99811-5526



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 pay 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 Jeff Selinger, Management Coordinator for Region II for the Division of Wildlife Conservation.

Species management reports and plans are available via the Alaska Department of Fish and Game's public website (www.adfg.alaska.gov) or by contacting Alaska Department of Fish and Game's Division of Wildlife Conservation, PO Box 115526, Juneau, AK 99811-5526; phone: (907) 465-4190; email: dfg.dwc.publications@alaska.gov. The report may also be accessed through most libraries, via interlibrary loan from the Alaska State Library or the Alaska Resources Library and Information Services (www.arlis.org). To subscribe to email announcements regarding new technical publications from the Alaska Department of Fish and Game, Division of Wildlife Conservation please use the following link: <http://list.state.ak.us/mailman/listinfo/adfgwildlifereport>.

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

Herreman, J. 2025. Dall sheep management report and plan, Game Management Units 7 and 15: 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/SMP&P 2025 5, Juneau.

Please contact the authors or the Division of Wildlife Conservation at (907) 465-4190 if you have questions about the content of this report.

The State of Alaska is an Affirmative Action/Equal Opportunity Employer. The Alaska Department of Fish and Game complies with Title II of the Americans with Disabilities Act of 1990. This document is available in alternative communication formats. If you need assistance, please contact the Department ADA Coordinator via fax at (907) 465-6078; TTY/Alaska Relay 7-1-1 or 1-800-770-8973.

ADF&G does not endorse or recommend any specific company or their products. Product names used in this publication are included for completeness but do not constitute product endorsement.

Purpose of this report

This report provides a record of survey and inventory management activities for Dall sheep (*Ovis dalli*) in Game Management Units 7 and 15 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., RY15 = 1 July 2015–30 June 2016). 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, the division) 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

The management area comprises Units 7 (3,520 mi²), 15A (1,314 mi²), 15B (1,121 mi²), and 15C (2,441 mi²).

Dall sheep range in Units 7 and 15 consists of the Kenai Mountains covering the majority of Unit 7, a fraction of Unit 15A, and the eastern edges of Units 15B and 15C. Approximately 78% of Unit 7 comprises federally managed lands: 50% U.S. Forest Service-Chugach National Forest; 22% National Park Service-Kenai Fjords National Park; 5% U.S. Fish and Wildlife Service-Kenai National Wildlife Refuge (KNWR); and 1% other federal land. The KNWR is the largest landholder in Units 15A and 15B and all Dall sheep habitat is found within the KNWR boundaries. The majority of sheep habitat in Unit 15C, which is southeast of Tustumena Lake and the Fox River, also falls within the boundaries of the KNWR. The Kenai Mountains are broken up into 32 sheep and goat survey units (Figure 1). Sheep have only consistently been found in 13 of these units (331, 332, 334, 337–339, 343, 344, 353, 355–358) since annual surveys began in the late 1960s. Three special management areas exist in Units 7 and 15: the Cooper Landing Closed Area (CLCA), Round Mountain (RndMt), and Crescent Lake (338).

Summary of Status, Trend, Management Activities, and History of Dall sheep in Units 7 and 15

The Kenai Mountains are the southern limit of Dall sheep range in Alaska, which appears to play a key role in their current and historic numbers. Dall sheep were reportedly slaughtered in significant numbers in the early 1900s during the building of the Alaska Central railroad and the gold rush days of the Hope-Sunrise placer mining district. In the late 1930s, however, substantial numbers were reported in the Snow River area (370 sheep) and the Indian Creek drainage (500 sheep) (Scott et al. 1950). During this time the annual bag limit was one ram. Federal managers closed the Kenai Peninsula to sheep hunting in 1942 due to low numbers. In 1949 a population estimate of 350 animals for the entire Peninsula was reported (Scott et al. 1950). The Cooper

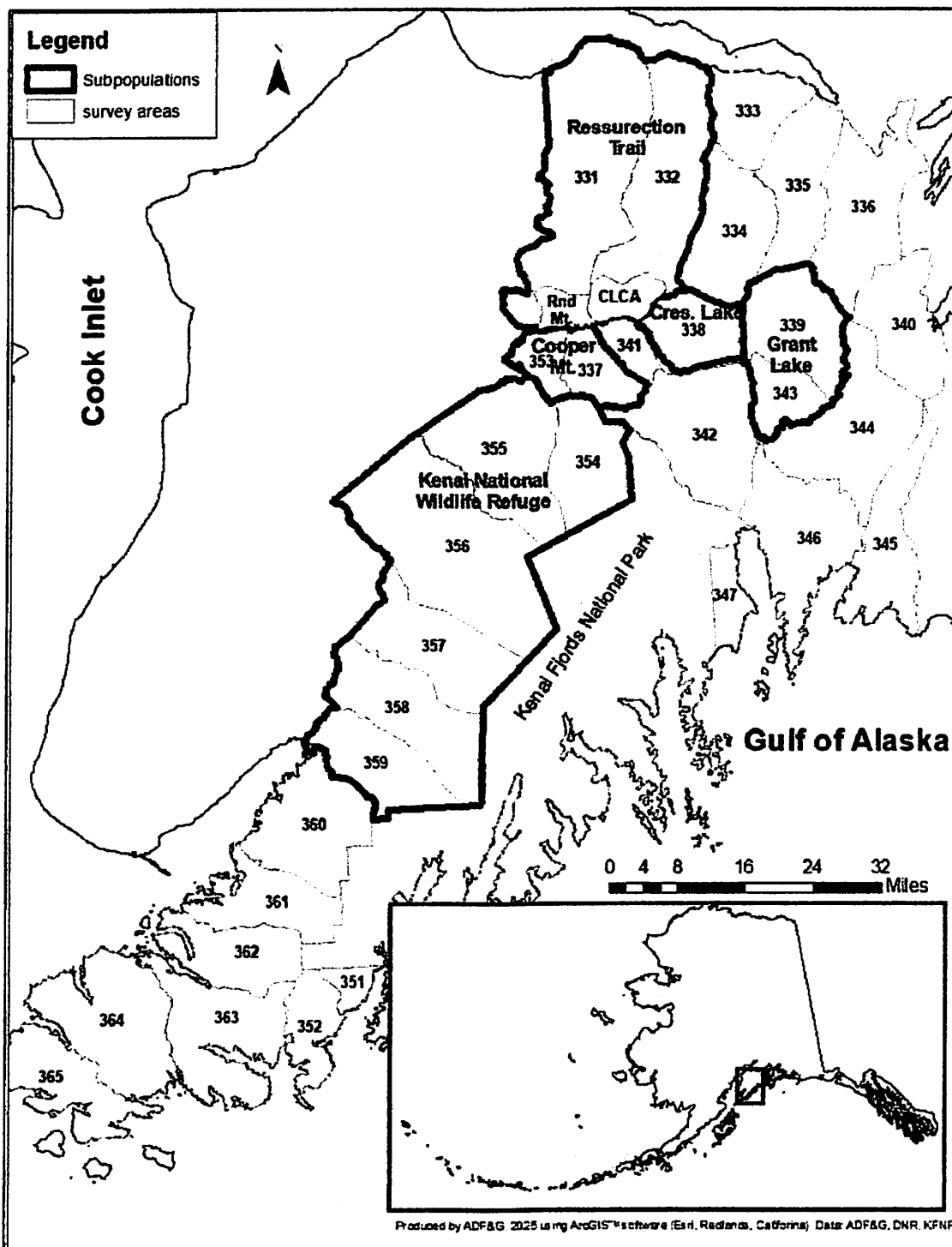


Figure 1. Dall sheep survey units and subpopulations for the Kenai Peninsula GMUs 7 and 15. Sheep have only consistently been found in 13 of these units (331, 332, 334, 337-339, 343, 344, 353, 355-358) since annual surveys began in the late 1960s.

Note: RndMt refers to Round Mountain, Cooper Mt refers to Cooper Mountain, Cres. Lake refers to Crescent Lake, and CLCA stands for the Cooper Landing Closed Area.

– good to fair conditions, 3 – poor (survey results likely to be significantly biased by the conditions, bumpy winds, high temps, poor lighting, sick observer).

Surveys are flown following the topography of the landscape. Transects are flown parallel to the mountain starting at the tree/alder line and increasing altitude with each subsequent pass. Each face receives 2–3 passes depending on the mountain height and observability. When sheep are observed, the pilot circles the location so that the observer can note the number and classification of animals in each group. Animals are classified into legal rams, sublegal rams, unclassified rams, ewe-like, lambs, and unidentified. Additional animals are sometimes seen while circling. The location and movement of animals in the group is noted so that on consecutive passes animals are not recounted. By starting transects at low altitude, animals higher on the ridge are less likely to move down into the alder line where they would be unobservable on later passes. Survey length varies by count conditions, area covered, and the number of animals seen.

Results and Discussion

Minimum counts were accomplished in all sheep management units on a 3-year minimum rotational cycle through RY19 (Table 1). In RY20, no budget was available to focus survey efforts on sheep-specific areas for the Kenai Peninsula due to Covid-related budget shortfalls within the department. Survey data collected in RY20 was from one sheep management unit, Indian Creek (count area 356), flown as a priority mountain goat survey area. The general population trend suggests that numbers continue to decline and only a limited number of full-curl rams exist in the population for harvest each year.

Five functional sheep areas or subpopulations are thought to exist within Units 7 and 15 based on our limited knowledge of sheep movement: 1. Resurrection Trail (count areas 331 and 332), 2. Kenai National Wildlife Refuge (count areas 354–359), 3. Grant Lake (count areas 339, 343, 344), 4. Cooper Mountain (count areas 337, 353), and 5. Crescent Lake (count area 338). Within these areas, sheep numbers have declined over the past 5 years (Tables 2a–2e). Sheep numbers in the Resurrection Trail, Grant Lake, Cooper Mountain, and Crescent Lake areas are all approaching or below what has been recommended as a minimum viable population for wild sheep. While the exact number needed to maintain a viable population has been debated, translocation efforts and modeling approaches would suggest minimum viable population numbers for wild sheep lie somewhere between 30 and 50 animals (Berger 1990; Krausman et al. 1993; Goodson 1994; Wehausen 1999; Singer et al. 2000a, b).

As such, research needs to be initiated to determine the connectivity of these areas, the cause of continued declines, what actions if any can be taken to reverse the declines, and whether harvest at these low numbers is additive or compensatory. Until more information is known, and it can be shown that harvest is not additive to the declines, managers should take a precautionary approach. Population levels in the Cooper Mountain and Crescent Lake areas dropped below the suggested minimum viable population level of 50 sheep, and legal rams were not observed in these areas or in the Round Mountain permit area during recent minimum-count flights, which caused harvest to be suspended in the Crescent Lake and Round Mountain permit areas in 2021 (outside the report period). Harvest should likely be suspended in the Cooper Mountain area as well.

6 Species Management Report and Plan ADF&G/DWC/SMR&P-2025-5

Table 1. Aerial sheep composition counts, Units 7 and 15, regulatory years 2016–2020, Southcentral Alaska

| Regulatory year | Rams | | | Unclassed sheep | Lambs | Total sheep observed ^b | Sheep/hour | Number of units surveyed | Population trend ^c |
|-------------------|-----------|----------------------------|------------------------|-----------------|-------|-----------------------------------|------------|--------------------------|-------------------------------|
| | Full curl | <Full-curl or unclassified | Ewe-likes ^a | | | | | | |
| 2016 | 4 | 100 | 231 | 2 | 4 | 385 | 16 | 10 | 476 |
| 2017 | 7 | 80 | 199 | 2 | 4 | 335 | 8 | 8 | 473 |
| 2018 | 7 | 66 | 174 | 2 | 4 | 297 | 17 | 8 | 435 |
| 2019 | 2 | 29 | 77 | 2 | 1 | 126 | 9 | 8 | 399 |
| 2020 ^d | 2 | 10 | 76 | 0 | 1 | 104 | 21 | 8 | 384 |

^a “Ewe-likes” includes ewes, yearlings of both sexes, and rams of ¼ curl or less.
^b The location and number of areas surveyed varies by year.
^c Population trend is based on the most recent survey data for all management areas.
^d No budget was available in RY20 for sheep-specific surveys on the Kenai Peninsula due to Covid-related budget shortfalls within the department. The RY20 survey data shown in the table was collected in one sheep management unit, Indian Creek (count area 356), during mountain goat survey flights.

Table 2a. Resurrection Trail unit, minimum count data and population trend by subpopulation, Units 7 and 15A, regulatory years 2016–2020, Southcentral Alaska.

| Regulatory year | 331 | | Round Mountain | | 332 | | CLCA | | Total sheep trend | Lambs: 100 ewe-likes ^a |
|-----------------|-------------|-------|----------------|-------|-------------|-------|-------------|-------|-------------------|-----------------------------------|
| | Total sheep | Lambs | Total sheep | Lambs | Total sheep | Lambs | Total sheep | Lambs | | |
| 2016 | – | – | 65 | 18 | – | – | 11 | 0 | 131 | 49 |
| 2017 | 81 | 13 | – | – | – | – | 38 | 0 | 119 | 16 |
| 2018 | 50 | 6 | – | – | 18 | 3 | – | – | 68 | 26 |
| 2019 | – | – | – | – | – | – | – | – | 68 | – |
| 2020 | – | – | – | – | – | – | – | – | 68 | – |

Note: Column headers 331 and 332 are count areas. Round Mountain is a permit area and CLCA stands for Cooper Landing Closed Area. Population trend is an interpolation of the most recent minimum count data for each area.
^a “Ewe-likes” includes ewes, yearlings of both sexes, and rams of ¼ curl or less.

Table 2b. Kenai National Wildlife Refuge unit, minimum count data and population trend by subpopulation, Units 15B and 15C, regulatory years 2016–2020, Southcentral Alaska.

| Regulatory year | 354 | | 355 | | 356 | | 357 | | 358 | | 359 | | Total sheep trend | Lambs: 100 ewe-likes ^a |
|-----------------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------|-------|-------------------|-----------------------------------|
| | Total sheep | Lambs | Total sheep | Lambs | Total sheep | Lambs | Total sheep | Lambs | Total sheep | Lambs | Total sheep | Lambs | | |
| 2016 | – | – | 2 | 5 | 112 | 4 | – | – | 2 | 0 | 0 | 0 | 82 | 9 |
| 2017 | – | – | – | – | – | – | 31 | 6 | – | – | – | – | 72 | 43 |
| 2018 | 0 | 0 | 2 | 2 | 148 | 32 | 39 | 4 | 13 | 1 | 0 | 0 | 29 | 6 |
| 2019 | – | – | – | – | – | – | – | – | – | – | – | – | 35 | – |
| 2020 | – | – | – | – | 104 | 16 | – | – | – | – | – | – | 81 | 21 |

Note: Column headers 354–359 are the count areas in the units. Population trend is an interpolation of the most recent minimum count data for each area.
^a “Ewe-likes” includes ewes, yearlings of both sexes, and rams of ¼ curl or less.

Table 2c. Grant Lake unit, minimum count data and population trend by subpopulation, Unit 7, regulatory years 2016–2020, Southcentral Alaska.

| Regulatory year | 339 | | 343 | | 344 | | Total sheep trend | Lambs: 100 ewe-likes ^a |
|-----------------|-------------|-------|-------------|-------|-------------|-------|-------------------|-----------------------------------|
| | Total sheep | Lambs | Total sheep | Lambs | Total sheep | Lambs | | |
| 2016 | 34 | 3 | 22 | 3 | – | – | 56 | 21 |
| 2017 | 25 | 4 | – | – | 6 | 0 | 55 | 19 |
| 2018 | – | – | – | – | – | – | 58 | – |
| 2019 | 23 | 2 | 28 | 3 | 11 | 0 | 62 | 12 |
| 2020 | – | – | – | – | – | – | 62 | – |

Note: Column headers 339, 343, and 344 are the count areas in the unit. Population trend is an interpolation of the most recent minimum count data for each area.
^a “Ewe-likes” includes ewes, yearlings of both sexes, and rams of ¼ curl or less.

Table 2a. Cooper Mountain unit, minimum count data and population trend by subpopulation, Units 7 and 15B, regulatory years 2016–2020, Southcentral Alaska.

| Regulatory year | 337 | | 353 | | Total sheep trend | Lambs:100 ewe-likes ^a |
|-----------------|-------------|-------|-------------|-------|-------------------|----------------------------------|
| | Total sheep | Lambs | Total sheep | Lambs | | |
| 2016 | 25 | 3 | 29 | 5 | 54 | 23 |
| 2017 | – | – | – | – | 48 | – |
| 2018 | – | – | – | – | 47 | – |
| 2019 | 20 | 5 | 15 | 1 | 35 | 25 |
| 2020 | – | – | – | – | 35 | – |

Note: Column headers 337 and 353 are the count areas in the units. Population trend is an interpolation of the most recent minimum count data for each area.

^a “Ewe-likes” includes ewes, yearlings of both sexes, and rams of ¼ curl or less.

Table 2e. Crescent Lake unit, minimum count data and population trend by subpopulation, Unit 7, regulatory years 2016–2020, Southcentral Alaska.

| Regulatory year | 338 | | Total sheep trend | Lambs:100 ewe-likes ^a |
|-----------------|-------------|-------|-------------------|----------------------------------|
| | Total sheep | Lambs | | |
| 2016 | 58 | 7 | 58 | 21 |
| 2017 | 50 | 10 | 50 | 33 |
| 2018 | – | – | 39 | – |
| 2019 | 28 | 5 | 28 | 38 |
| 2020 | – | – | 28 | – |

Note: Column header 338 is the count area in the unit. Population trend is an interpolation of the most recent minimum count data for each area.

^a “Ewe-likes” includes ewes, yearlings of both sexes, and rams of ¼ curl or less.

Recommendations for Activity 1.1

Continue monitoring Dall sheep by conducting sheep surveys on a 3-year rotational basis by functional sheep area in conjunction with mountain goat surveys. Survey Resurrection Trail, Giant Lake, Cooper Mountain, and Crescent Lake on a yearly basis, when budgets and time allow, until numbers increase above 100 sheep in each area. Close all areas with a subpopulation below 50 sheep to hunting.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor Dall sheep harvest through sealing records.

Unit Needs

Horn sealing is needed annually to assess trends in harvest.

Methods

Horns from harvested sheep were sealed and accompanying data collected and archived in the ADF&G Wildlife Information Network database (WinfoNet). Information recorded for each sheep includes curl, horn length and girth, date and location of kill, days hunted, method of take, and transportation used. Sealing is conducted by ADF&G personnel within 30 days of harvest. Harvest data are summarized by regulatory year.

Alaska Board of Game Actions and Emergency Orders

- In 2016, the Board of Game passed a statewide bag limit for nonresidents of 1 sheep every 4 years.
- A 5-day youth-only season was established statewide in 2016 from 1 August to 5 August.

Recommendations for Activity 2.1

Continue monitoring Dall sheep harvest through horn sealing.

3. Habitat Assessment-Enhancement

No activities for Dall sheep habitat assessment or enhancement were included in Units 7 and 15 Dall sheep management during RY16–RY20.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDSData Recording and Archiving

- Dall sheep and goat survey data sheets (Appendix 1) are stored in the Homer ADF&G office filing cabinet.
- Electronic records of the survey results, track files, and animal locations are stored on the Division of Wildlife Conservation shared drive in Homer at the following address:
O:\DWC\ADF&G-Homer Files\Species Data.
- State Dall sheep harvest data are stored on an internal database, ADF&G's WinfoNet.

Agreements

Currently there are no agreements with other agencies pertaining to Dall sheep management.

Permitting

No permits were needed to conduct Dall sheep management activities in Units 7 and 15 during RY16–RY20.

Conclusions and Management Recommendations

Dall sheep on the Kenai Peninsula are in a long term decline. Survey efforts, until 2020, have been adequate to document this decline. The cause of the decline is unknown but does not appear to be driven by harvest, as the Kenai Peninsula is managed under the full curl harvest strategy and harvest has declined in conjunction with population declines. **Several of our subpopulations however, are approaching or below what the literature suggests as minimum viable populations for wild sheep, which in turn means the loss of any individuals from the population could be detrimental.**

A likely cause of declining sheep numbers is the loss of quality winter habitat and thus a decrease in carrying capacity. No recent efforts have been made to evaluate habitat quality or