Species Management Report and Plan ADF&G/DWC/SMR&P–2025–41

# Moose Management Report and Plan, Game Management Units 26B and 26C:

Report Period 1 July 2015–30 June 2020, and

Plan Period 1 July 2020–30 June 2025

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2025

Alaska Department of Fish and Game Division of Wildlife Conservation

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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 Jason Caikoski, Management Coordinator for Region III for the Division of Wildlife Conservation.

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



**Cover Photo:** Bull moose traverse the tundra of the North Slope near the Sagavanirktok River. ©2007 ADF&G.

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## Purpose of this Report

This report provides a record of survey and inventory management activities for moose in Units 26B and 26C for the 5 regulatory years 2015–2019 and plans for survey and inventory management activities in the following 5 regulatory years, 2020–2024. 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) launched this 5 year report to more efficiently report on trends and to describe potential changes in data collection activities over the next 5 years. It replaces the moose management report of survey and inventory activities that was previously produced every 2 years.

# I. RY15–RY19 Management Report

## Management Area

Units 26B (15,340 $mi^2$) and 26C (10,350 $mi^2$) are on the eastern North Slope of Alaska and encompass the Itkillik River drainage east to the Canadian border and north of the Brooks Range (Fig. 1). The area is divided into 2 ecoregions: Arctic coastal plain and Brooks Range foothills and mountains. The coastal plain is poorly drained and marshy. It is a treeless tundra consisting of permafrost-related surface features such as pingos, ice-wedge polygons, shallow freshwater lakes, peat ridges, and frost boils. Dominant vegetation includes perennial forbs, grasses, sedges, dwarf shrubs, mosses, and lichens found in communities such as wet sedge tundra, tussock tundra, and sedge Dryas tundra. Low and taller willow shrublands persist along drainages from the coastal plain to the foothills and include *Salix alaxensis*, *S. arbusculoides*, *S. arctic, S. glauca, S. pulchra, S. reticulata, and S. rotundifolia*.

The Brooks Range foothills consist of rolling hills and plateaus while the mountains are steep and rugged with broad exposed ridges. Dominant vegetation classes include expanses of mixed shrub-sedge tussock tundra, willow shrublands along rivers in the foothills, and Dryas tundra on ridges. Limited moose habitat begins approximately 30 mi south of the coast, and habitat gradually expands when approaching the foothills. Moose inhabit the portion of the coastal plain as far north as the willow shrub communities which persist along the riparian zones.

Climate is dry and polar throughout the year and is characterized by short, cool, moist summers and long, cold, dry winters (Coady 1980).

Moose concentrate along the riparian zones (consisting mainly of willow shrub communities) where the preferred browse species grow (*S. alaxensis* in winter and *S. arbusculoides* in summer; Mould 1977). In summer, particularly during calving and insect season, the moose disperse into the surrounding tundra, where there is important summer browse.

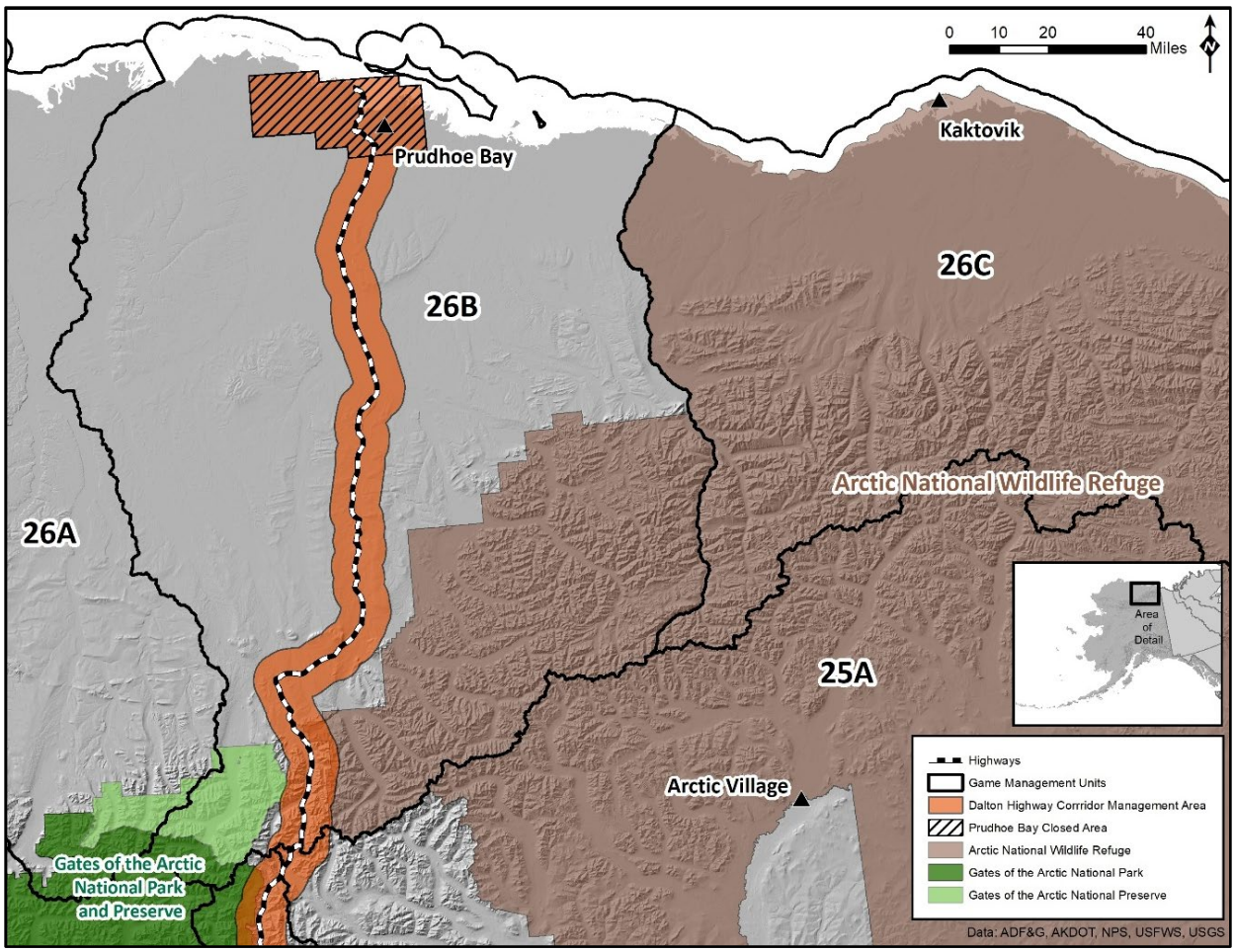


**Figure 1. Game Management Units 26B and 26C, Northeast Alaska, regulatory years 2015–2019.**

# Summary of Status, Trend, Management Activities, and History of Moose in Units 26B and 26C

Moose colonized tundra regions in Arctic Alaska in the late 1800s following riparian shrub habitat expansion (Tape et al. 2016) and following growth of southern populations (Coady 1980). During the 1940s to 1950s, populations expanded to become more common and even abundant along the limited riparian habitat of the region's major drainages (LeResche et al. 1973). This expansion was likely due to the reduction in wolf (*Canis lupus*) numbers by federal control programs during that period and the movement of Nunamiut people from inland foothills to coastal locations. With the reduced hunting pressure, moose were then able to become established in most of the riparian shrub habitat on the North Slope (Coady 1980). This area represents the northern limit of moose range in North America, and the lack of suitable habitat presents a strong limitation on the potential growth of moose populations.

The total number of moose in Units 26B and 26C likely peaked during the late 1980s at approximately 1,400 individuals (Martin and Garner 1984; Mauer and Akaran 1994; Lenart

2004, 2008). By the early 1990s, numbers of moose declined by at least 50% and remained at lower numbers throughout the decade (Mauer 1997, Lenart 2008). This decline appeared to be widespread on the North Slope, including Units 26A and 26C (Carroll 1998, Lenart 2006). Although the department did not conduct surveys in the latter unit during the 1990s, we suspected the same trend in this region based on anecdotal observations from residents, biologists, and hunters.

The low numbers of moose observed during the early 1990s resulted in closing the moose hunting seasons in Units 26B and 26C beginning in fall 1996. Prior to that year's hunting season closure, the reported moose harvest in Unit 26B was relatively stable, ranging 24–37 individuals, except in RY92 when harvest was 45 (Lenart 2006). In fall 2006, moose hunting seasons were reopened in Unit 26B (excluding the Canning River drainage) to resident hunters only by drawing permit for a fall season and by harvest ticket for a late winter season. Reported moose harvest ranged 2–11 animals during RY06–RY13 (Lenart 2018). Unit 26C remained closed to moose hunting. In spring 2014, moose numbers declined substantially in Unit 26B and the hunting season in the unit was once again closed beginning RY14.

During the 2000s the moose population slowly increased in Unit 26B, peaked at 606 individuals in the mid-2000s, and then stabilized at approximately 500 observable moose by the end of the decade (Lenart 2014). Populations then began declining; beginning in RY08 numbers and recruitment declined in adjacent Unit 26A and, in RY09, also dropped by approximately 100 moose in Unit 26B (Carroll 2012, Lenart 2014).

Surveys conducted by the U.S. Fish and Wildlife Service Arctic National Wildlife Refuge (ANWR) staff in central Unit 26C on the coastal plain during 2000–2010 indicated moose numbers appeared to be stable at 50–60 observable moose. Similar to Unit 26B, moose numbers in Unit 26C markedly declined in RY13 when only 23 moose were observed in central Unit 26C in spring 2014. In the Brooks Range in eastern Unit 26C, approximately 200 moose were observed in surveys conducted in the early 2000s (Lenart 2014) and, in early winter 2011, 339 moose were observed (Lenart 2018).

Kaktovik and Nuiqsut are the only communities within or near the area, and residents took 2–6 moose annually prior to the season closure in 1996. Local harvest was small because moose were scarce near Kaktovik and because most hunting by Nuiqsut residents occurred in the Colville River drainage in adjacent Unit 26A.

# Management Direction

## Existing Wildlife Management Plans

Moose management report and plan, Game Management Units 26B and 26C (Lenart 2018).

## GOALS

- G1. Maintain viable populations of moose in their historic range throughout the region.
- G2. Provide a sustained opportunity to harvest moose.
- G3. Provide opportunity for viewing and photographing moose.

## CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

C1. Unit 26 has a customary and traditional use finding for moose with amounts reasonably necessary for subsistence uses (ANS) of 21–48 moose, including 15–30 in Unit 26A.

Intensive Management

None.

## MANAGEMENT OBJECTIVES

- M1. In Unit 26B, maintain a population of ≥200 moose.
- M2. In Unit 26C, maintain a population of ≥150 moose.

## MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. In Unit 26B, conduct annual aerial surveys in April (G1, G2, G3, C1, M1).

*Data Needs*

Surveys are conducted to determine a minimum population size. The population approximation is necessary to determine if M1 and C1 have been met. Both are considered met when the minimum population is ≥200 moose in Unit 26B and a hunt is opened. Harvestable surplus is calculated as 5% of the minimum population size and a hunt is only conducted when at least 200 moose are present. This ensures that M1 is met and allows for subsistence opportunity, as outlined in C1 to provide reasonable opportunity.

*Methods*

Traditional moose surveys use a random sampling strategy to estimate moose density and population size. However, on the North Slope, moose are limited almost entirely to riparian shrub habitat during late winter and spring, and random sampling is not ideal. Instead, the department has determined that flying these riparian areas and counting the associated moose is more efficient and effective.

We used a Piper PA-18 flown at 70–90 mph and a Cessna 182 flown at 85–100 mph at altitudes of 300–700 ft above ground level. Moose were surveyed in established riparian count areas. If moose habitat was outside of these count areas, the habitat would be surveyed to its full extent (e.g., shrub habitat extending further north). We classified moose as adults and short yearlings (10-month-old calves). Moose were classified as short yearlings based on smaller body size and shorter noses compared to adults. A total count of moose observed in the riparian count areas was considered the minimum population estimate.

The riparian count areas include riparian shrub habitat along the major drainages. The following drainages east of the Dalton Highway were surveyed in all years: Accomplishment and Section creeks, Lupine River, Saviukviayak River, Flood Creek, Ivishak River, Gilead Creek, Echooka River, Juniper-Fin Creek, Kavik River, Eagle and Cache creeks and the mainstem of the Canning River between Eagle and Cache creeks, and the Sagavanirktok River between Happy Valley and Sagwon. Drainages west of the Dalton Highway included: Toolik and Kuparuk rivers beginning at approximately 68°42′N latitude (Fig. 2) to the White Hills and the extent of moose habitat, and the Itkillik River drainage.

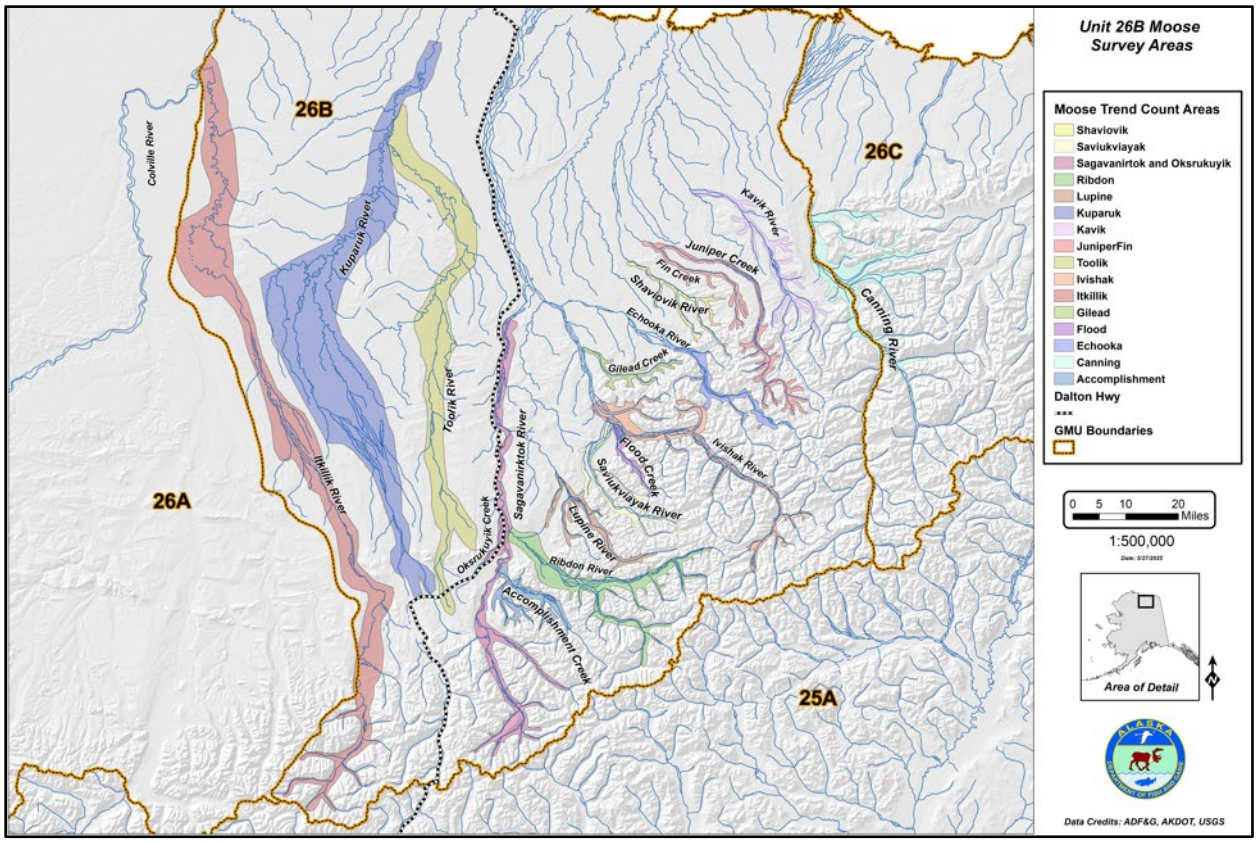


**Figure 2. Unit 26B moose survey drainages, Northeast Alaska, 2016–2020.**

Additional drainages were surveyed only in certain years:

- Only the lower Itkillik River (below Itkillik Lake) was surveyed in RY03 and RY04.
- Upper Sagavanirktok and upper Canning rivers were surveyed in RY05.
- Oksrukuyik Creek and a small portion of upper Sagavanirktok River were surveyed in RY06.
- Upper Sagavanirktok River and Oksrukuyik Creek were surveyed in RY07–RY09. Search time was higher in RY07 because snow cover was low.
- Upper Sagavanirktok River, Oksrukuyik Creek, and Ribdon River were surveyed in RY10.
- Upper Sagavanirktok River, Oksrukuyik Creek, Ribdon and upper Canning rivers were surveyed in RY11 and RY14.
- Upper Sagavanirktok River, Oksrukuyik Creek, Ribdon River, and upper Canning and Shaviovik rivers were surveyed in RY12, RY13, and RY15–RY19.

*Results and Discussion*

During RY15–RY19, a range of 138–239 moose were observed during April surveys (Table 1). The proportion of short yearlings observed ranged 11–21%, indicating that in some years recruitment was good, which likely contributed to the increase in population size. Moose numbers increased steadily during the report period, which has been an ongoing trend since the severe decline in RY13 (Lenart 2018). During the past 3 years, moose numbers were only slightly above the management objective of 200 moose.

*Recommendations for Activity 1.1*

Continue annual aerial surveys of riparian zones in Unit 26B to obtain a minimum count. However, for Unit 26B population trends, annual surveys are not necessary, and a schedule of every other year should be more than sufficient to identify whether population goals are being met.

## ACTIVITY 1.2. When the Federal Subsistence Board (FSB) rescinds the moose closure to non-federally qualified users, conduct annual aerial surveys in central Unit 26C in April and occasional surveys in eastern Unit 26C in fall (G1, G2, G3, C1, M2).

*Data Needs*

Surveys are conducted to find a minimum population estimate, which is necessary to determine if M2 and C1 have been met. Both are considered met when the population is ≥150 moose in Unit 26C, and a hunt is opened. Harvestable surplus is calculated as 5% of the minimum population size and a hunt is only conducted when at least 150 moose are present. This ensures that M2 is met and provides for 7 subsistence moose, as outlined in C1 to provide reasonable opportunity.

No surveys in Unit 26C were conducted during RY15–RY19 because FSB did not rescind the moose closure to non-federally qualified users.

**Table 1. Total moose observed in Unit 26B during spring aerial moose surveys, Northeast Alaska, regulatory years 2003–2019.**

| Regulatory year | Adults | Short yearlings[a] | Percent | Moose observed | Search time (h:min) |
|---|---|---|---|---|---|
| 2003 | 334 | 44 | 12 | 378 | 13:03 |
| 2004 | 403 | 87 | 18 | 490 | 13:55 |
| 2005 | 505 | 101 | 17 | 606 | 18:40 |
| 2006 | 477 | 92 | 16 | 569 | 16:19 |
| 2007 | 491 | 79 | 14 | 570 | 25:01 |
| 2008 | 517 | 47 | 8 | 564 | 18:58 |
| 2009 | 421 | 33 | 7 | 454 | 23:54 |
| 2010 | 414 | 35 | 8 | 449 | 20:51 |
| 2011 | 403 | 61 | 13 | 464 | 23:55 |
| 2012 | 360 | 36 | 9 | 396 | 20:52 |
| 2013 | 109 | 0 | 0 | 109 | 20:04 |
| 2014 | 100 | 4 | 4 | 104 | 16:56 |
| 2015 | 110 | 28 | 20 | 138 | ~21:06 |
| 2016 | 141 | 23 | 14 | 164 | ~15:29 |
| 2017 | 167 | 45 | 21 | 212 | 17:35 |
| 2018 | 187 | 24 | 11 | 211 | 17:55 |
| 2019 | 191 | 48 | 20 | 239 | 20:14 |

[a] Short yearlings are 10-month-old calves.

*Methods*

*Results and Discussion*

While the department did not conduct moose surveys due to lack of FSB action, some were conducted by ANWR in central Unit 26C during RY15–RY19 (North Slope Subsistence Regional Advisory Council [NSSRAC] 2023). From 2015 to 2018, the number of moose counted in central Unit 26C ranged from 20 to 60, but in 2019 the count substantially increased to almost 160 moose. The suspected cause for the dramatic increase in population was not addressed in their report.

*Recommendations for Activity 1.2*

ADF&G recommends conducting this activity when FSB rescinds the closure to moose hunting for non-federally qualified users. Since 2000, the surveys in central Unit 26C have been conducted by ANWR staff. FSB did not lift the closure in 2012 when ADF&G presented data which indicated there was a harvestable surplus of moose available for additional users in a portion of eastern Unit 26C in the Brooks Range. We do not anticipate any change in the state's authority to regulate moose hunting in Unit 26C for the next 5 years.

## 2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Maintain an open moose season when the objectives to maintain a population of ≥200 moose in Unit 26B and a population of ≥150 moose in Unit 26C are met (G2, C1, M1, M2).

*Data Needs*

Hunter effort and success will be documented to determine if G2 and C1 are met.

*Methods*

Harvestable surplus was estimated at 5% of the minimum population estimate for both Units 26B and 26C. In Unit 26B, when the population is at the management objective of 200 moose, the harvestable surplus is 10 moose. In 26C, when the population is at the management objective of 150 moose, the harvestable surplus is 7 moose.

*Results and Discussion*

Using 5% to calculate harvestable surplus is conservative because the bull-to-cow ratio is likely very high, and the population could sustain a higher harvest. However, the department does not conduct surveys during a time of year when bull-to-cow ratios can be calculated, which is why we use a conservative 5% harvestable surplus value and set the bag limit to bull-only hunts. The most recent population minimum count for Unit 26B was 239 moose, which resulted in a harvestable surplus of 12 moose.

Moose hunting is closed in Unit 26C to non-federally qualified users on federal land. Since nearly all of Unit 26C is comprised of ANWR land, there are no moose hunts currently offered under state regulations. If the federal closure were to be rescinded, then 5% of the most recent population minimum count would be used to calculate harvestable surplus. The most recent minimum count, which occurred in 2019 in a portion of Unit 26C, was 160 moose, which would calculate to a harvestable surplus of 8 moose.

No season was opened in Unit 26B or 26C during RY15–RY19 because FSB did not rescind the closure to non-federally qualified users.

Harvest by Hunters-Trappers

No harvest occurred during RY15–RY19.

*Recommendations for Activity 2.1*

ADF&G staff recommend modifying this activity and immediately opening the season to Unit 26B because the population has been above 200 moose for the last 3 regulatory years.

We recommend adding an Activity 2.2 to address the hunting season in Unit 26C separately from Unit 26B. We recommend opening a hunting season in Unit 26C because the moose population is above management objectives; however, FSB must rescind the current closure prior to a season opening.

The moose populations in these units can hover near the population objective, triggering seasons to open or close each year based on small fluctuations in the number of moose. This can cause confusion for hunters and hunt managers. We recommend modifying Activity 2.1 and 2.2 to allow for fluctuations slightly above and below the objectives while maintaining some regulatory consistency, using the suggested criteria listed below.

Both of the following criteria should be met when choosing to open a season:

1. The moose population must be above objective for 3 consecutive years.
2. The moose population trend must be growing or stable.

One of the following criteria should be met when choosing to close a season:

1. The moose population must be below objectives for 3 consecutive years.
2. The moose population falls more than 50 moose below the management objective.

3. Habitat Assessment-Enhancement

None.

### NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

None.

Data Recording and Archiving

Electronic data can be found on the DWC share drive under S:/NEAK/MOOSE/Unit26B_26C. In addition, a complete project documentation and data archive are available in WinfoNet/Data Archive/(Unit 26B moose).

Agreements

None.

Permitting

None.

## Conclusions and Management Recommendations

Moose in Unit 26B increased slightly during the previous 4 years following the severe population decline in spring 2014 (Lenart 2018). These moose inhabit the most northern extent of their range in Alaska, potentially making them more vulnerable to climatic or nutritional stresses.

During RY15–RY19, department staff met goal G1 to maintain viable populations of moose in their historic range throughout the region because moose numbers slowly increased following the severe decline in RY13. We did not meet goal G2 because no hunting season was opened during the report period; however, moose were available for viewing and photographing (G3).

We met objective M1 to maintain a population of ≥200 moose in Unit 26B during RY17–RY19, as the population ranged 211–239 moose.

It is unknown whether we met the objective to maintain a population of ≥150 moose during RY17–RY19 in Unit 26C (M2) because we have not surveyed this area during the reporting period. However, ANWR staff observed 160 moose in central Unit 26C during 2019 (NSSRAC 2023). Therefore, based on this survey, M2 was met during 2019.

# II. Project Review and RY20–RY25 Plan

## Review of Management Direction

### Management Direction

The goals and management objectives are altered from RY15–RY20 to better describe the current management approach. However, the overall management direction described throughout the report section is still current for moose in Units 26B and 26C.

### Goals

- G1. Provide an opportunity to harvest moose when sustainable.
- G2. Provide opportunity for viewing and photographing moose.

### Codified Objectives

Amounts Reasonably Necessary for Subsistence Uses

C1. Unit 26 has a customary and traditional use finding for moose with ANS of 21–48 moose, including 15–30 moose in Unit 26A.

Intensive Management

None.

### Management Objectives

- M1. In Unit 26B, maintain a population of ≥200 moose.
- M2. In Unit 26C, maintain a population of ≥150 moose.

## REVIEW OF MANAGEMENT ACTIVITIES

### 1. Population Status and Trend

ACTIVITY 1.1. In Unit 26B conduct aerial surveys during April (G1, C1, M1).

*Data Needs*

No change from RY15–RY19.

*Methods*

No change from RY15–RY19.

ACTIVITY 1.2. When FSB rescinds the moose closure to non-federally qualified users, conduct annual aerial surveys in central Unit 26C in April and occasional surveys in eastern Unit 26C in fall (G1, C1, M2).

*Data Needs*

No change from RY15–RY19.

*Methods*

No change from RY15–RY19.

### 2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Maintain an open moose season in Unit 26B when the objective to maintain a population of ≥200 moose is met (G1, C1, M1).

*Data Needs*

Provide opportunity to harvest moose when sustainable (G1) and determine whether the department can meet the codified objective of ANS (C1).

*Methods*

During RY15–RY19, harvestable surplus was estimated as 5% of the minimum population estimate. Using 5% to calculate harvestable surplus is conservative because the bull-to-cow ratio is likely very high, and the population could likely sustain a higher harvest. However, the department does not conduct surveys during a time of year when bull-to-cow ratios can be calculated, which is why department staff use a conservative 5% harvestable surplus value and set the bag limit to bull-only hunts. Seasons and bag limits for Units 26B are established in 5 AAC 85.045(24).

Both of the following criteria should be met when choosing to open a season:

1. The moose population must be above objective for 3 consecutive years.
2. The moose population trend is increasing or stable.

One of the following criteria should be met when choosing to close a season:

1. The moose population must be below objectives for 3 consecutive years.

2. The moose population falls more than 50 moose below the management objective.

ACTIVITY 2.2. Maintain an open moose season in Unit 26C when the objective to maintain a population of ≥150 moose is met and when FSB rescinds the moose closure in Unit 26C to non-federally qualified users (G1, C1, M2).

*Data Needs*

Provide an opportunity to harvest moose when sustainable (G1) and determine if the codified objective of ANS (C1) is met. Documenting hunter effort and success is necessary to evaluate G1 and C1.

*Methods*

When the population objective of 150 moose in Unit 26C has been met, ADF&G recommends the following hunts be opened:

Eastern Unit 26C: Implement the current state regulations which authorize a drawing permit hunt for up to 30 permits for residents and nonresidents in eastern Unit 26C in the drainages of the upper Kongakut River (upstream of and including Drain Creek) and the Firth River-Mancha Creek drainages. The bag limit is 1 bull for residents and 1 bull with 50-inch antlers or antlers with 4 or more brow tines on at least one side for nonresidents. The season for both residents and nonresidents would be 1–25 September. Harvestable surplus will be calculated as 5% of the most recent population estimate for the eastern portion of Unit 26C. It is important to recognize that this hunt cannot be implemented until FSB rescinds the closure to non-federally qualified subsistence hunters.

Remainder Unit 26C: There is no current hunt in state regulation for central Unit 26C. If the moose population grows above objectives and FSB rescinds the federal closure, then we recommend a proposal to BOG to open a hunt in the remainder of Unit 26C. Refer to Activity 2.1 for recommended criteria on opening or closing a season.

### 3. Habitat Assessment-Enhancement

None.

## NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

### Data Recording and Archiving

Electronic data can be found on the DWC share drive under S:/NEAK/MOOSE/Unit26B_26C. In addition, a complete project documentation and data archive are available in WinfoNet/Data Archive/(Unit 26B moose).

Agreements

None.

Permitting

None.

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