

Moose Management Report and Plan, Game Management Unit 11:

Report Period 1 July 2015–30 June 2020, and
Plan Period 1 July 2020–30 June 2025

Joelle Hepler



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2025

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Report Period 1 July 2015–30 June 2020, and
Plan Period 1 July 2020–30 June 2025

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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 Todd Rinaldi, Management Coordinator for Region IV 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).

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Purpose of this Report

This report provides a record of survey and inventory management activities for moose (*Alces alces*) in Game Management Unit 11 for the 5 regulatory years 2015–2019 and plans for survey and inventory management activities in the next 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 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 moose management report of survey and inventory activities that was previously produced every 2 years.

I. RY15–RY19 Management Report

Management Area

Unit 11 (12,784 mi²) consists of the area draining into the headwaters of the Copper River south of Suslota Creek and the area drained by all tributaries into the east bank of the Copper River between the confluence of Suslota Creek with the Slana River and Miles Glacier (Fig. 1). Most of Unit 11 is included in Wrangell-St. Elias National Park and Preserve. The estimated moose habitat in Unit 11 is the area below 4,500 ft, which covers approximately 6,809 mi². Unit 11 includes portions of 3 of Alaska’s 32 ecoregions: the Wrangell Mountains, the Chugach and St. Elias mountains, and the Copper River Basin. Glaciers cover 35% of the parklands, and the surrounding habitat consists of mixed spruce, aspen, and balsam poplar forest, as well as muskeg and tussocks.

Additional maps for Unit 11 boundaries and special management areas can be found at: <http://www.adfg.alaska.gov/index.cfm?adfg=maps.main>.

Summary of Status, Trend, Management Activities, and History of Moose in Unit 11

In December 1978, the establishment of the Wrangell-St. Elias National Monument encompassed most of Unit 11. In 1980, the monument status was changed to park and preserve with the passage of the Alaska National Interest Lands Conservation Act. State hunting regulations apply on private and preserve lands within Unit 11. The National Park Service (NPS) closely manages hunting on parklands by issuing hunting permits based on hunter residency.

Moose are recognized as an integral part of the ecosystem throughout lower elevations of Unit 11 and are managed to provide for a wide variety of human uses and values, including hunting, photography, viewing, and scientific research (ADF&G 2002). Due to the extent of NPS land included within Unit 11, moose management in Unit 11 is reflective of NPS policy, which largely strives to allow for natural ecosystem processes without human interference and thereby

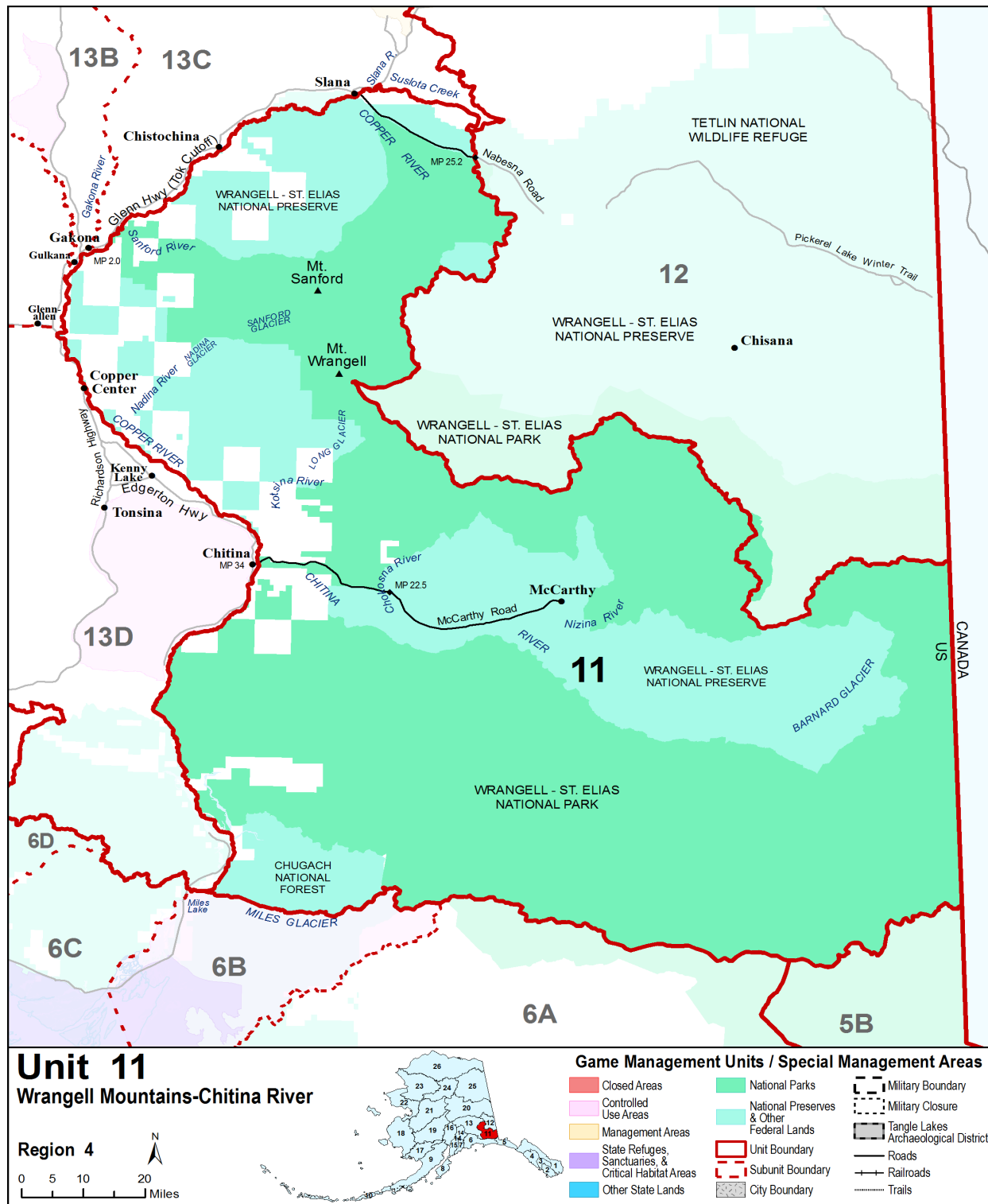


Figure 1. Unit 11 boundaries, Southcentral Alaska, regulatory years 2015–2019.

allows the moose population to fluctuate as influenced by available habitat and predation rates. Therefore, because of land status and limited access, the state has adopted a more passive approach to moose management. The moose population has been considered low density across Unit 11 for many years, but counts during aerial surveys tend to cycle between very low periods (0.1 moose/mi² in 1979 and 1992) and considerably higher periods (1.0 moose/mi² in 1969 and 2012; 0.7 moose/mi² from 1987 to 1990).

Management Direction

EXISTING WILDLIFE MANAGEMENT PLANS

The direction for northern Chitina and southern Chitina moose management, as outlined in *Alaska Wildlife Management Plans: Southcentral Alaska* (ADF&G 1976), has been modified through public comments, staff recommendations, and Alaska Board of Game (BOG) regulatory actions over the years. A record of these changes can be found in the division's management report series. The plan portion of this report contains the RY20–RY24 management plan for moose in Unit 11.

GOALS

- Protect and maintain the moose population and its habitat in concert with other components of the ecosystem.
- Provide a sustained yield to support moose hunting opportunities.
- Provide an opportunity for nonconsumptive uses such as viewing and photographing.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Unit 11 moose population has a positive customary and traditional use determination finding. The unitwide amount reasonably necessary for subsistence is 30–40 moose.

Intensive Management

The BOG has determined that the moose population does not provide high levels of human consumptive use (negative finding) in Unit 11.

MANAGEMENT OBJECTIVES

Maintain a population with a posthunt (fall) minimum bull-to-cow ratio of 30:100.

MANAGEMENT ACTIVITIES

Assessing population status and trends and monitoring harvest and mortality are integral components of management programs in Unit 11. Survey and inventory management activities used to monitor moose populations in Unit 11 are described below.

1. Population Status and Trend

ACTIVITY 1.1. Monitor moose abundance and population composition.

Data Needs

Moose abundance and composition data are necessary to determine population status in relation to management objectives. These data inform sustainable harvest levels and provide a density context for interpreting nutritional condition relative to habitat.

Methods

An aerial survey using a fixed-wing aircraft is usually conducted every other year in a 287 mi² trend count area (CA11) along the western slopes of Mount Drum during the late fall through early winter to determine moose population trends and sex and age composition (Fig. 2; Appendix A). An experienced pilot with an observer fly transects systematically, following geographic contours when necessary, at 70–80 mph, 300–800 ft above ground level, searching for moose and recording data. Each moose observed during the survey is circled to determine sex and age classification, as well as antler configuration if applicable, and a waypoint is recorded for each observation.

In addition, ADF&G collaborates with NPS to obtain their annual moose survey data, if available.

Results and Discussion

During this reporting period, CA11 was surveyed in fall 2015 and 2017. Moose densities were relatively high and consistent with the previous reporting period, with an average of 1 moose/mi² observed (Table 1). Bull-to-cow ratios averaged 54:100, which is much lower compared to the previous reporting period average of 81 bulls:100 cows. However, the bull-to-cow ratio is still well above the current management goal of 30 bulls:100 cows. Calf-to-cow ratios averaged 20 calves:100 cows, which is consistent with the previous 5 years.

NPS did not conduct moose surveys during this report period.

Recommendations for Activity 1.1

Continue.

2. Mortality-Harvest Monitoring and Regulations

ACTIVITY 2.1. Monitor and evaluate moose mortality through hunter harvest reports.

Data Needs

Monitoring harvest during the hunting season is critical for sustained yield management and essential to successfully administer the Community Subsistence Harvest (CSH) hunt. Monitoring and analyzing data annually is important to understand hunter effort and success in Unit 11 to establish quotas and to inform regulatory decisions.

Methods

Individuals who obtain a moose permit from ADF&G (harvest ticket, registration, or CSH) are required to report on their permit after successful harvest, or after the end of the season. Failure to report results in reminders and eventual penalty. Hunt reports are recorded in ADF&G's Wildlife Information Network (WinfoNet), and include information regarding hunter residency, success, effort, hunt location, date of kill, transportation, and antler size. Harvest information is summarized daily for the CSH hunt (CM300), and annually for all other hunts. Federal hunters report to NPS. Federal harvest information is retrieved from NPS annually once the information becomes available.

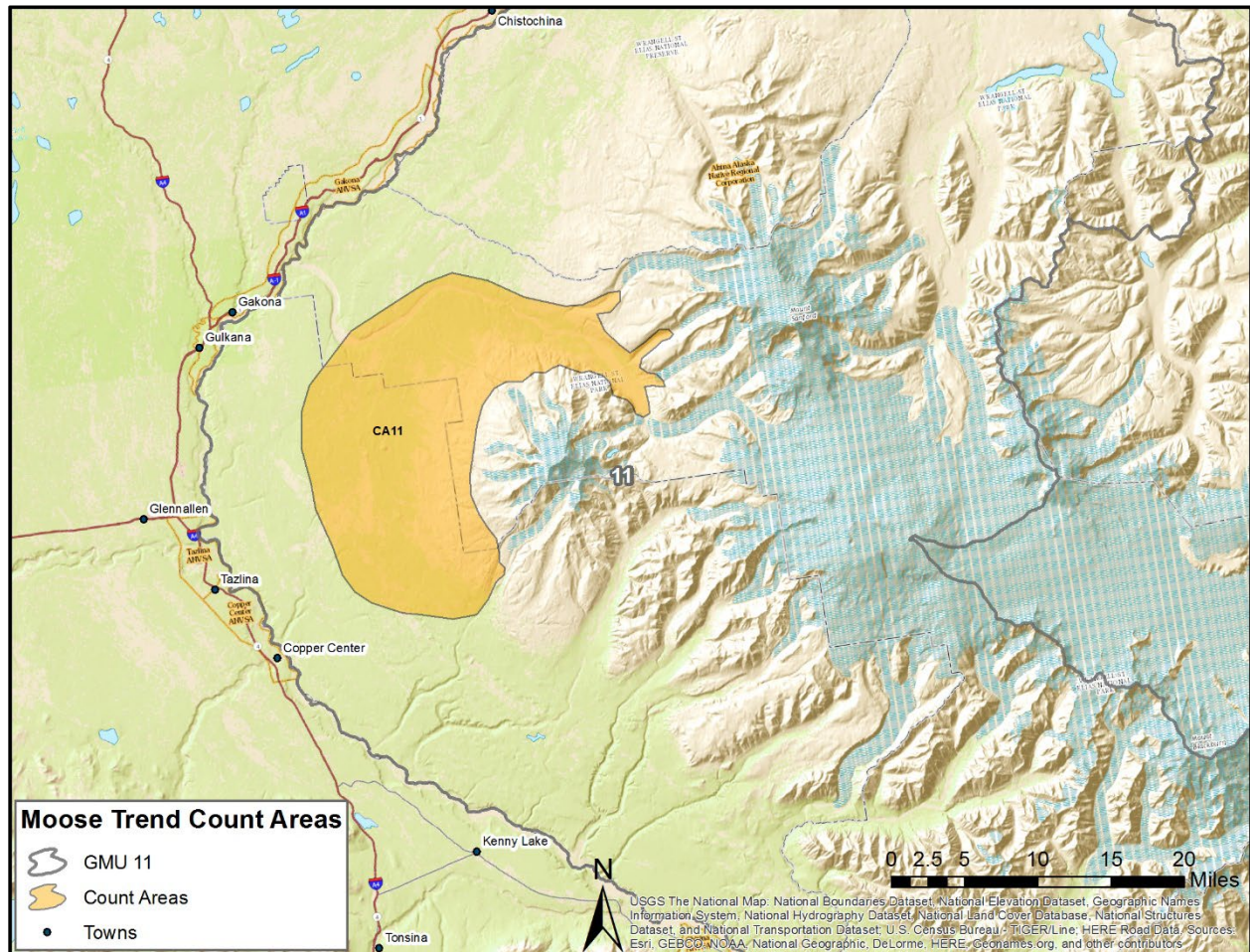


Figure 2. Survey count area (CA11) for moose in Unit 11, Southcentral Alaska, regulatory years 2015–2019.

Table 1. Survey count area (CA11) aerial moose composition fall counts, Unit 11, Southcentral Alaska, regulatory years 2015–2019.

Regulatory year	Bulls: 100 cows	Yearling bulls: 100 cows	Calves: 100 cows	% Calves	Total moose	Moose/mi ²
2015	50.4	2.3	22.6	13	230	0.8
2016 ^a	–	–	–	–	–	–
2017	58.1	10.3	18.2	10.3	358	1.2
2018 ^a	–	–	–	–	–	–
2019 ^a	–	–	–	–	–	–

^a No surveys were conducted in regulatory year 2016, 2018, or 2019.

Seasons and Bag Limits

Unit 11 state hunt	Bag limit	Resident open seasons	Nonresident open seasons
CM300	1 bull with locking tag	20 August ^a –20 September	No open season
RM291	1 bull with spike-fork antlers, or 50-inch antlers, or 3 or more brow tines on at least one side	20 August–17 September	20 August–17 September
Harvest ticket	1 bull with spike-fork antlers, or 50-inch antlers, or 3 or more brow tines on at least one side	20 August–20 September	20 August–20 September

^a Season start date was changed from 10 August to 20 August effective in regulatory year 2018.

Unit 11 federal hunt	Bag limit	Qualifying hunters	Open seasons
FM1106	1 antlered bull	Residents of Units 11, 13A, 13B, 13C, 13D, and Chickaloon	20 August–20 September
FM1107	1 bull	Residents of Units 11, 13A, 13B, 13C, 13D, and Chickaloon	20 November–20 January ^a

^a Season end date changed from 20 December to 20 January effective in regulatory year 2018.

Additional information is available on ADF&G’s website:

<http://www.adfg.alaska.gov/index.cfm?adfg=wildliferegulations.hunting>.

Results and Discussion

Harvest by Hunters

During this reporting period, the annual number of hunters in Unit 11 ranged from 187 to 264, the lowest being in RY19 and the highest in RY16 (Table 2). The combined harvest in Unit 11 from all hunts during the reporting period, including federal harvest, averaged 54 bulls annually and ranged from 48 bulls in RY19 to 63 bulls in RY16.

Table 2. Reported moose harvest, Unit 11, Southcentral Alaska, regulatory years 2015–2019.

Regulatory year	Males ^a	Unknown ^a	Number of hunters
2015	48	0	232
2016	63	0	264
2017	54	1	234
2018	56	0	251
2019	48	0	187

^a Includes federal harvest.

Permit Hunts

On average, the general state harvest hunt has the highest success rate of all hunts (40%) in Unit 11 (Table 3). This could be attributed to the fact that Unit 11 is a difficult area to access; therefore, the majority of general season hunters in the area use guides or other commercial services, resulting in higher success rates than other permits. The joint state-federal permit, RM291, averaged a success rate of 16%, while the community subsistence permit, CM300, has traditionally had low participation in Unit 11 with no successful harvest since 2017. The federal subsistence hunt for local area residents had the next highest success rate of 19%.

Hunter Residency and Success

Nonresidents have the highest success in Unit 11 with the general season state harvest ticket, with 65% of hunters harvesting a moose annually (Table 4). Local residents have the next highest success rate with an average of 19%, followed by nonlocal residents averaging 15% success. The high success of nonresident hunters is attributed to the use of guiding services in the area.

Harvest Chronology

On average, the majority of moose harvest with general season harvest tickets occurs late in the season, with the highest percentage (37%) being taken the fourth week (Table 5). Bull moose generally increase their movements at the onset of rut in mid-September, during which time they also respond better to hunter calls. This timing also coincides with leaf drop. The combination of factors results in bull moose being more vulnerable toward the end of the hunting season, and many hunters time their efforts accordingly.

Transport Methods

Unit 11 moose hunters typically use aircraft, horses, all-terrain vehicles, and highway vehicles to access hunting areas (Table 6). Except for federally qualified subsistence hunters, all off-road vehicle use on federal lands in Unit 11 is restricted to existing trails by permit only. Given that Unit 11 is difficult to access with few trails or roads going into the unit, 57% of hunters use aircraft to access the areas. Aircraft can be used for hunter transportation in Wrangell-St. Elias National Preserve, but not in Wrangell-St. Elias National Park.

Table 3. Moose harvest by permit type, Unit 11, Southcentral Alaska, regulatory years 2015–2019.

Regulatory year	GM000 general state harvest ticket			RM291			CM300			Federal permit			Total harvest
	Harvest	Hunters	Success rate	Harvest	Hunters	Success rate	Harvest	Hunters	Success rate	Harvest	Hunters	Success rate	
2015	25	75	33%	9	82	11%	1	2	50%	13	76	17%	48
2016	28	72	39%	17	103	17%	1	3	33%	17	80	21%	63
2017	25	66	38%	15	85	18%	0	4	0%	14	75	19%	54
2018	26	60	43%	17	100	17%	0	3	0%	13	86	15%	56
2019	23	51	45%	14	83	17%	0	3	0%	11	49	22%	48

Table 4. Hunter residency and success for GM000 general state harvest tickets, Unit 11, Southcentral Alaska, regulatory years 2015–2019.

Regulatory year	Successful hunters					Unsuccessful hunters					
	Local resident ^a (%)	Nonlocal resident (%)	Nonresident (%)	Not specified (%)	Total successful hunters	Local resident ^a (%)	Nonlocal resident (%)	Nonresident (%)	Not specified (%)	Total unsuccessful hunters	Total hunters
2015	8	24	64	4	25	40	54	6	0	52	77
2016	21	7	68	4	28	48	38	13	2	48	76
2017	16	12	72	0	25	47	40	11	2	45	70
2018	27	8	65	0	26	53	39	8	0	29	55
2019	22	22	57	0	23	45	31	24	0	34	57

^a Residents of Units 11 and 13.

Table 5. Moose harvest chronology for GM000 general state harvest tickets, Unit 11, Southcentral Alaska, regulatory years 2015–2019.

Regulatory year	Percent of total harvest by week of season				
	1st	2nd	3rd	4th	5th
2015	13	9	22	35	22
2016	19	11	11	41	19
2017	8	25	17	42	8
2018	19	8	12	15	46
2019	13	13	13	50	13

Note: Season dates were 20 August through 20 September.

Table 6. Successful hunter transport methods for GM000 general state harvest tickets, Unit 11, Southcentral Alaska, regulatory years 2015–2019.

Regulatory year	Method of transportation (%)						Total successful hunters
	Airplane	Horse	Boat	ATV ^a	Snowmachine	ORV ^a	
2015	64	8	4	8	0	4	25
2016	54	25	4	11	0	4	28
2017	60	16	0	20	0	0	25
2018	54	15	0	19	0	8	26
2019	52	13	4	30	0	0	23

^a ATV = all-terrain vehicle; ORV = off-road vehicle.

Alaska Board of Game Actions and Emergency Orders

For the CSH hunt beginning in RY16, participating groups were locked into a 2-year commitment once they joined the hunt. Annual group reports were also implemented as a requirement.

During a special BOG meeting in Glennallen in March 2017, changes were made to the CSH hunt that took effect in RY18. The season start date in Unit 11 changed from August 10 to August 20. Also, the any-bull locking tag distribution was changed from 1 tag for every 3 households in a group to 350 total locking tags distributed among all eligible CSH participants. Distribution of the 350 locking tags was based on scoring criteria similar to the Tier II permit hunt application process used for other areas in the state.

At the regular BOG meeting in February 2018, the meat-on-bone salvage requirement for the CSH hunt was also extended to include the neck, brisket, and backbone.

Recommendations for Activity 2.1

Continue.

3. Habitat Assessment-Enhancement

None.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

Data Recording and Archiving

- State moose harvest data are stored on the WinfoNet server (<http://winfonet.alaska.gov/index.cfm>). Federal moose harvest data must be obtained from NPS and are stored electronically on the area biologist's hard drive in the Glennallen office.
- Moose trend count survey data forms (Appendix A) are stored in a filing cabinet located in the assistant area biologist's office in Glennallen.
- Data are entered and stored electronically, with survey waypoints and survey tracks, on the area biologist's hard drive in the Glennallen office, along with PDF files of the scanned data sheets (D:\BGDIF\Moose\Moosecomp\Count Areas).
- All electronic files are backed up on a portable hard drive located in the area biologist's office in Glennallen.
- A memorandum on survey results, including cost, conditions, dates flown, and count information, was written and distributed to appropriate staff and supervisors.

Agreements

A data sharing agreement is in place to provide moose (and other species) harvest data to Wrangell-St. Elias National Park and Preserve for RY90 through RY20 (Appendix B).

Permitting

None.

Conclusions and Management Recommendations

Given the low hunting pressure, limited access, and relatively low levels of predator harvest in Unit 11, the moose population is expected to remain at a relatively stable but low density. Aerial survey results from this reporting period indicate that while the bull-to-cow ratio has declined from roughly 81:100 during the previous reporting period to 54:100, it is still well over the objective of 30:100. Additionally, the yearling bull-to-cow ratio, calf-to-cow ratio, and overall moose density have remained within the same range as previous years. Annual fluctuations may occur with changing winter severity. Collaboration with NPS will be the most effective and efficient way to monitor the moose population in Unit 11.

Moose hunting patterns have not changed considerably in Unit 11 during this reporting period. Few CSH participants hunt moose in Unit 11, presumably because ease of access and moose densities are greater in neighboring Unit 13.

II. Project Review and RY20–RY24 Plan

Review of Management Direction

MANAGEMENT DIRECTION

The existing management direction and goals for Unit 11 remain appropriate within the context of statewide goals (ADF&G 2002), as well as within the frameworks of sustained yield and species conservation. There is no evidence that the long-term sustainability of moose in Unit 11 will be compromised by the current management direction or goals.

GOALS

- Protect and maintain the moose population and its habitat in concert with other components of the ecosystem.
- Provide a sustained yield to support moose hunting opportunities.
- Provide an opportunity for nonconsumptive uses such as viewing and photographing.

CODIFIED OBJECTIVES

Amounts Reasonably Necessary for Subsistence Uses

The Unit 11 moose population has a positive customary and traditional use determination finding. The unitwide amount reasonably necessary for subsistence is 30–40 moose.

Intensive Management

Not applicable.

MANAGEMENT OBJECTIVES

Maintain a population with a posthunt (fall) minimum bull-to-cow ratio of 30:100.

Literature supports this ratio as sufficient to allow for optimal reproduction in low-density moose populations (Schwartz 1998).

REVIEW OF MANAGEMENT ACTIVITIES

1. Population Status and Trend

ACTIVITY 1.1. Monitor moose abundance and population composition.

Data Needs

No change from the RY15–RY19 report.

Methods

No change from the RY15–RY19 report.

2. Mortality-Harvest Monitoring

ACTIVITY 2.1. Monitor and evaluate mortality and harvest data annually.

Data Needs

No change from the RY15–RY19 report.

Methods

No change from the RY15–RY19 report.

3. Habitat Assessment-Enhancement

None.

NONREGULATORY MANAGEMENT PROBLEMS OR NEEDS

No problems or needs for RY20–RY24 have been identified.

Data Recording and Archiving

No change from the RY15–RY19 report.

Agreements

The data sharing agreement with National Park Service, Wrangell-St. Elias National Park and Preserve will be updated to extend beyond RY20.

Permitting

None.

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- Schwartz, C. C. 1998. Reproduction, natality, and growth. Pages 141–171 [*In*] A. W. Franzmann and C. C. Schwartz, editors. Ecology and management of the North American moose. Smithsonian Institution Press, London, United Kingdom.

Appendix A. Moose trend count survey data sheet, Southcentral Alaska, regulatory years 2015–2019.

MOOSE SURVEY FORM

Page ____ of ____

GMU/Subunit _____ Count Area _____ Survey Type (circle one)
 Date _____ Pilot/observer _____ Trend Count or GSPE

Survey conditions (circle): Excellent Good Fair Poor (turn around and go home)

Weather: clouds _____ precipitation _____
 winds/turbulence _____ temperature _____

depart time: _____ break time: _____ return time: _____ total flight time: _____

survey start time: _____ break time: _____ survey stop time: _____ total survey time: _____

<u>Light</u>	<u>Snow age and cover</u>	<u>Search Type</u>
<u>Type</u>		
Bright	Fresh	Standard (~ 6.5 - 8 min/mi ² , ~ 45min)
Flat	Complete	
	≤ week	Intensive (~ 10 - 12 min/mi ² + 20min)
	> week	
	Some low vegetation showing	
	Bare ground showing	

[illegible]

Appendix B. Data sharing agreement for wildlife data with National Park Service, Wrangell-St. Elias National Park and Preserve, 1990–2021.

**AGREEMENT FOR USE OF WILDLIFE DATA
BETWEEN
ALASKA DEPARTMENT OF FISH & GAME (ADF&G)
AND
WRANGELL-ST. ELIAS NATIONAL PARK AND PRESERVE**

This agreement covers the following two files to be transferred to Wrangell-St. Elias National Park and Preserve: 1) harvest data files for bison, black bear, brown bear, caribou, moose, mountain goat, sheep, and wolves in Game Management Units 11 and 12 by UCU, including location of kill by major and minor subdivisions, method of take, date of kill, horn, skull, or antler morphometric data, and sex for the regulatory years 1990–1991 through 2014–2015; and 2) a .shp file delineating UCU boundaries. ADF&G will provide harvest data for species listed for regulatory years 2015–2016 through 2020–2021 upon request by Wrangell St Elias National Park.

This information is released to, and may be used by, Wrangell-St. Elias National Park and Preserve under the following conditions:

1. The information will be used to monitor harvest of bison, black bear, brown bear, caribou, moose, mountain goat, sheep, and wolf populations within the Park boundaries.
2. Harvest information will not be published, publically disseminated, or presented by the NPS or its contractors at the spatial resolution of latitude and longitude of a kill site or by watershed defined as a Uniform Coding Unit (UCU) in ADF&G data.
3. The information will not be released to others except to persons in a contractual relationship with Wrangell-St. Elias National Park and Preserve who will be performing work for or on behalf of Wrangell-St. Elias National Park and Preserve, on a need-to-know basis, in which case Wrangell-St. Elias National Park and Preserve will require the contractors to agree to and abide by the conditions in this document.
4. The NPS agrees that the harvest location data is protected from disclosure under state law and will make every effort to keep it confidential under federal law, and will notify ADF&G if there is a Freedom of Information Act request for the data.

Under the above conditions, ADF&G agrees to release the attached information, and Wrangell-St. Elias National Park and Preserve agrees to receive and use it.

SOF

Date April 4, 2016
Maria Gladyszewski, Deputy Director, Division of Wildlife Conservation, ADF&G

SOF

Date April 7, 2016
Eric Veach, Acting Superintendent, Wrangell-St. Elias National Park and Preserve

