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**CHAPTER 10: MOOSE MANAGEMENT REPORT**

From: 1 July 2011  
To: 30 June 2013<sup>1</sup>

**LOCATION**

**GAME MANAGEMENT UNIT:** 11 (12,784 mi<sup>2</sup>)

**GEOGRAPHIC DESCRIPTION:** Chitina Valley and the eastern half of the Copper River Basin

**BACKGROUND**

Most of Unit 11 was included in Wrangell–Saint Elias National Monument in December 1978. In 1980, monument status was changed to park and preserve status with passage of the Alaska National Interest Lands Conservation Act. State hunting regulations still apply on private and preserve lands within Unit 11. The National Park Service (NPS) closely manages hunting on park lands by controlling access based on hunter residency.

The existing state season dates of 20 August–20 September have been in place since 1993. The bag limit has been 1 bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side. Harvests averaged 34 (range = 22–42) bulls by 131 hunters during the 1990s. In 2000 a federal subsistence season for local residents was opened with a bag limit of 1 bull. In regulatory year (RY) 2012 (regulatory year begins 1 July and ends 30 June, e.g., RY12 = 1 July 2012–30 June 2013) a registration moose hunt (RM291) was implemented with a bag limit of 1 bull with spike-fork antlers, or 50-inch antlers, or 3 or more brow tines on at least one side for residents, or 1 bull with 50-inch antlers with 3 or more brow tines on at least one side for nonresidents. Currently, the community hunt (CM300) allows for harvest of up to 10 antlered bulls of any size by community harvest participants in possession of “any bull” locking tags in Unit 11.

**MANAGEMENT DIRECTION**

**POPULATION OBJECTIVES**

- Allow the population to fluctuate as dictated by available habitat and predation rates.
- Maintain a population with a posthunt minimum of 30 bulls:100 cows.

**METHODS**

An aerial survey is usually conducted every other year in a 287 mi<sup>2</sup> area along the western slopes of Mount Drum during the late fall-early winter to determine moose population trends and sex and age composition. In some years surveys are not possible due to a lack of snow or funding.

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<sup>1</sup> At the discretion of the reporting biologist, this unit report may contain data collected outside the report period.

An additional count area in the upper Copper River drainage has also been counted in some years by NPS. Harvests and hunting pressure were monitored through state and federal harvest ticket reporting systems.

## RESULTS AND DISCUSSION

### POPULATION STATUS AND TREND

The moose population has been considered low density across Unit 11 for many years, but counts in Count Area 11 tend to cycle between very low periods (0.1 moose/mi<sup>2</sup> in 1979 and 1992) and considerably higher periods (1.0 moose/mi<sup>2</sup> in 1969 and 2012; 0.7 moose/mi<sup>2</sup> from 1987 to 1990). For this reporting period, observed moose densities were relatively high in Count Area 11, with 0.9 moose/mi<sup>2</sup> observed in 2011 and 1.0 moose/mi<sup>2</sup> observed in 2012.

#### *Population Composition*

During this reporting period, bull:cow ratios were lower than the long-term average for the area of 98 bulls:100 cows (1990–2008), but ratios were still well above the current management goal of maintaining no less than 30 total bulls:100 cows (Table 1).

Calf:cow ratios during this reporting period remained in the typical range of the 9–25 calves:100 cows for this area, with 21 calves:100 cows observed in 2011 and 13.3 calves:100 cows observed in 2012.

#### *Distribution and Movement*

Data from past fall composition and winter stratification surveys, field observations, and reports from the public indicate the highest moose numbers in the unit are along the slopes of Mount Sanford, Mount Drum, and Mount Wrangell. Portions of Unit 11 south of the Chitina River have the lowest density of moose in the unit.

Fall rutting and post-rutting concentrations normally occur in upland habitats to elevations as high as 4,000 feet. Migrations to lower elevations begin with snowfall, but usually are not complete until late November or early December. By late winter, moose numbers in riparian habitats along the Copper and Chitina rivers are at their highest levels for the year. Some moose from the western slopes of Unit 11 move to lower elevations in a westerly direction across the Copper River to winter in eastern Unit 13.

### MORTALITY

#### *Harvest*

Seasons and Bag Limits. The state general season is 20 August–20 September with a bag limit of 1 bull with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on at least one side. The federal subsistence season has a bag limit of 1 bull, though season dates are the same as for the state general season. In RY09 a community subsistence harvest (CSH) hunt (CM300) was held in Units 11 and 13 with season dates of 10 August–20 September with a bag limit of 1 bull under general season antler restrictions, or any bull if the hunter is in possession of an “any bull” locking tag. The CSH hunt was not held in RY10, but began again in RY11. In RY12, a joint state-federal registration hunt (RM291) began with hunt dates of 20 August–17 September with a bag limit of 1 bull with spike-fork or 50-inch antlers or 3 or more brow tines on at least one side

for residents, or 1 bull with 50-inch antlers with 3 or more brow tines on at least one side for nonresidents.

Alaska Board of Game Actions and Emergency Orders. During the March 2009 meeting, the Board of Game (BOG) opened Unit 11 to a CSH moose hunt for the 8 Ahtna communities: Chitina, Kluti kaah, Tazlina, Gakona, Gulkana, Chistochina, Mentasta, and Cantwell. Other Alaskan residents were allowed to participate if they had ties to one of the 8 Ahtna communities. Community hunters were allowed to hunt in Unit 11, Unit 13, and a small portion of Unit 12 near Mentasta. They were allowed to take up to 15 ‘any’ bulls, and an unlimited number of bulls meeting the state general hunt antler restrictions. For purposes of the CSH hunt, an ‘any’ bull was a bull that did not meet the state general hunt antler restrictions. Due to a court ruling, BOG eliminated the CSH hunt for the RY10 season. The CSH hunt was reinstated in RY11. Since then, it has been open to any group of Alaska residents that with 25 or more individuals registered to participate in the hunt. The extensive hunt conditions can be found online at <http://www.adfg.alaska.gov/index.cfm?adfg=huntlicense.cultural>.

In March 2011, BOG decreased the “any bull” moose quota for the community harvest hunt from 100 to 70 for Units 11 and 13, effective 1 July 2011.

In March 2012, BOG replaced the general season hunt for that portion in Unit 11 east of the east bank of the Copper River upstream from and including the Slana River drainage and Unit 12, that portion within the Nabesna River drainage west of the east bank of the Nabesna River upstream from the southern boundary of the Tetlin National Wildlife Refuge, with a registration hunt (RM291) for both residents and nonresidents. The RM291 hunt has a resident bag limit of 1 moose with spike-fork or 50-inch antlers or antlers with 3 or more brow tines on one side, nonresident bag limit of 1 bull with 50-inch antlers or antlers with 3 or more brow tines on one side, season 20 August–17 September, effective 1 July 2012.

Harvest and Success by Hunters. The combined harvest in Unit 11 from all hunts during this reporting period ranged from 65 to 49 bulls (Table 2). Hunters participating in the general state moose hunt typically show higher success rates than those participating in the federal, registration, or community hunts, presumably because general state hunters in Unit 11 are more likely to utilize commercial services than are other Unit 11 hunters. Out of 173 Unit 11 hunters that reported on the use of commercial services in 2012, 40% of general season hunters used commercial services, 1% of registration hunters used commercial services, and 1 out of 6 community hunters used commercial services.

Harvest Chronology. Chronology data for the state general hunt indicate most moose are taken late in the season in Unit 11 (Table 3). Bull moose are more vulnerable towards the end of the season. Their movements increase at the onset of rut in mid-September, they respond better to hunters’ calls, and the timing coincides with leaf fall. In addition, many hunters time their efforts later in the season as a result of these factors.

Transportation Methods. Unit 11 moose hunters typically use aircraft, 3- or 4-wheelers, horses, or highway vehicles to reach hunting areas (Table 4). 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. Lower use of 3- and 4-wheelers in RY08 and RY09 were the result of trail closures

imposed by NPS in response to legal issues. Most of the transportation restrictions were removed in RY10, just prior to hunting season. Aircraft can be used for hunter transportation in the preserve, but not in the park.

### *Natural Mortality*

Wolves and bears are present in the area and contribute to moose predation year-round. The low calf:cow ratios observed during fall counts suggest early calf mortality similar to that observed in areas with documented high brown bear predation on neonatal moose calves. The Unit 11 moose population will probably remain at low densities as long as predation continues to limit recruitment.

## **HABITAT**

### *Assessment*

Fires occurred throughout much of Unit 11 prior to the mid-1940s, when the Bureau of Land Management began suppressing fires. The benefits of that era, a natural fire mosaic with substantial amounts of early succession browse, rapidly declined after the 1960s. In 1981 the Wilson Camp Fire started on the slopes of Mount Drum and covered 13,000 acres (20 mi<sup>2</sup>). No substantial fires occurred in Unit 11 for another 27 years. In 2009, the Chakina fire near McCarthy burned 52,000 acres (81 mi<sup>2</sup>). This fire should produce forage for the next 20 years. Other recent fires have received initial fire suppression due to changes in land management policies, such as the Kotsina River fire in 2009, or have had unfavorable burning conditions. Currently, vast areas within the unit support stands of mature spruce, many of which have been killed by spruce bark beetles and have limited value as moose habitat. Habitat types that moose currently use are climax upland and riparian willow communities.

During the 1990s, limited commercial clearcut logging occurred in the lower Chitina River Valley on privately owned Native corporation lands. The willow regrowth in some of these cuts has been substantial.

Large portions of Unit 11 are classified as limited fire suppression zones, where wildfire is allowed to burn. In the past year, however, much of the private Native corporation lands in Unit 11 have been converted to full fire suppression to protect valued natural resources.

### *Enhancement*

Habitat manipulation to benefit moose is not currently an option in Unit 11 because most of the area is included in Wrangell–Saint Elias National Park and Preserve, where habitat manipulation is prohibited.

Unit 11 is covered by the *Copper River Fire Management Plan* which was designed to bring natural wildfire back onto the landscape. Given recent changes in land management policies, large tracts of private Native corporation land, even though remote, are now listed under the full protection category. This will have substantial impacts on fire management throughout Unit 11. In addition to full fire suppression on private corporation lands, NPS is expected to suppress fires on any adjacent lands, if there is any chance the fire could spread to corporation land.

## CONCLUSIONS AND RECOMMENDATIONS

An increase in the number of moose counted, the moose per hour figures, and the moose per square mile figures lead to the conclusion that moose numbers in the western portion of Unit 11 may have increased slightly over the past decade. Regardless, densities remain at or below 1 moose/mi<sup>2</sup> and are still considered relatively low density. Recent winters have been mild and snow depths have been average. Given the relatively high numbers of bears and wolves in Unit 11, the moose population is expected to remain at a relative low density. Annual fluctuations may occur with changing winter severity. The Chakina fire should provide substantial new early succession browse near McCarthy in the next 3–10 years. Without a reciprocal decline in predation, the response in the moose population is expected to be minimal.

Moose hunting patterns have not changed considerably in Unit 11 during this reporting period for either the state general hunt or the federal subsistence hunt. Few Community Hunt participants utilize Unit 11 for moose, presumably because ease of access and moose densities are greater in neighboring Unit 13. While the number of hunters has increased since 2000 for all hunts combined, much of this was due to the establishment of the NPS federal subsistence moose hunt that same year. Many hunters participate in both the state and federal hunts. Additionally, as new communities are added to the federally qualified list by the Federal Subsistence Board, more hunters are drawn to the unit in search of moose. The liberal bag limit of 1 bull and unlimited off-road vehicle use in the federal subsistence hunt draw considerably more interest than the state general hunt, which has antler restrictions.

The combination of current state and federal regulations in Unit 11 is complicated, and often results in double reporting. Options should be pursued to help simplify moose hunting for Unit 11 hunters.

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Please cite any information taken from this section, and reference as:

Hatcher, H. L. 2014. Unit 11 moose. Chapter 10, Pages 10-1 through 10-8 [*In*] P. Harper and L. A. McCarthy, editors. Moose management report of survey and inventory activities 1 July 2011–30 June 2013. Alaska Department of Fish and Game, Species Management Report ADF&G/DWC/SMR-2014-6, Juneau.

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Table 1. Count area 11 (western slopes of Mount Drum) fall aerial moose composition counts, Alaska, 2008–2012.

Year	Bulls: 100 cows	Yearling bulls: 100 cows	Calves: 100 cows	Percent calf	Total moose	Moose/ hour	Density moose/mi <sup>2</sup>
2008	73.3	7.0	17.4	9.1	164	38.1	0.6
2011	71.0	3.6	21.0	10.9	265	45.7	0.9
2012	83.9	11.2	13.3	6.7	282	45.5	1.0

Table 2. Unit 11 moose harvest by permit type, Alaska, regulatory years<sup>a</sup> 2008–2012.

Regulatory year	General state harvest ticket		RM291 (started in 2012)		CM300		Federal permit		Total harvest
	Successful hunters	Success rate (%)	Successful hunters	Success rate (%)	Successful hunters	Success rate (%)	Successful hunters	Success rate (%)	
2008	25	20					29	16	54
2009	35	32			1	17	20	15	56
2010	19	17					19	13	38
2011	35	38			3	33	27	20	65
2012	23	26	16	15	1	17	9	12	49

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2008 = 1 July 2008–30 June 2009.

Table 3. Unit 11 moose harvest (%) chronology for general state harvest tickets, Alaska, regulatory years<sup>a</sup> 2008–2012.

Regulatory year	Season dates	Week of season (%)				
		1st	2nd	3rd	4th	5th
2008	20 Aug–20 Sep	8	12	16	12	52
2009	20 Aug–20 Sep	11	8	17	33	31
2010	20 Aug–20 Sep	11	5	16	47	21
2011	20 Aug–20 Sep	13	9	34	19	25
2012	20 Aug–20 Sep	9	14	14	45	18

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2008 = 1 July 2008–30 June 2009.

Table 4. Unit 11 successful moose hunter transport methods (%) for general state harvest ticket hunt, Alaska, regulatory years<sup>a</sup> 2008 – 2012.

Regulatory year	Transport methods (%)						Highway vehicle
	Airplane	Horse	Boat	3- or 4-Wheeler	Snowmachine	ORV <sup>b</sup>	
2008	58	8	4	8	0	8	13
2009	38	18	9	9	0	9	18
2010	67	11	6	11	0	0	6
2011	49	23	0	14	0	3	11
2012	52	22	0	13	0	4	9

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2008 = 1 July 2008–30 June 2009.

<sup>b</sup> ORV = off-road vehicle.