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**CHAPTER 17: MOOSE MANAGEMENT REPORT**

From: 1 July 2011

To: 30 June 2013<sup>1</sup>

**LOCATION**

**GAME MANAGEMENT UNIT:** 16A (1,850 mi<sup>2</sup>)

**GEOGRAPHIC DESCRIPTION:** Westside Susitna River (Kahiltna River to Chulitna River)

**BACKGROUND**

The Unit 16A moose population has historically experienced large fluctuations in population size as a result of die-offs during severe winters. Die-offs have occurred at least once every decade (Griese 1996). A population high was noted in 1997 of 3,636 moose and a low of 1,619 was recorded in 2005. Recovery of the moose population after a severe winter can be hampered by predation (Peltier 2010).

The predator control program implemented to reduce the wolf population in Unit 16B was expanded in 2006 to include the non-roaded portions of Unit 16A. In 2007 a black bear control program began on the same lands which included provisions for an unlimited take of black bears, the taking of sows with cubs, and the taking of cubs, among others (Peltier 2008). While the initial control efforts were designed to improve the moose population in Unit 16B, it is possible that predator reductions in the unit may have led to an increase in calf recruitment and the moose population in Unit 16A as well.

Unit 16A is mostly a roadless area. Access is limited to a few points from the Parks Highway, Petersville Road or Oil Well Road. Boats, airboats, all-terrain vehicles, and airplanes are used to access more remote portions of the unit for moose hunting. Annual harvest has fluctuated as a result of variable moose densities, availability of cow moose hunts, and improved hunter access (Griese 1996). Harvest numbers have ranged from a high of 309 (1984) to a low of 37 (1990) (Del Frate 2004).

**MANAGEMENT DIRECTION**

**MANAGEMENT GOALS**

- Maintain and enhance the moose population to provide for high levels of human consumptive use.
- Provide maximum opportunity to participate in hunting moose.

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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.

- Enhance wildlife viewing opportunities within state and national parks.

#### **MANAGEMENT OBJECTIVES**

- Attain a population of 3,500–4,000 moose, with a sex ratio of 20–25 bulls:100 cows during the rut.
- Achieve an annual harvest of 190–360 moose.

#### **METHODS**

The moose population in Unit 16A is surveyed using the geospatial population estimator (GSPE) technique (Kellie and DeLong 2006) on a triennial basis. This estimate provides data on sex and age composition and aids in developing trend information that is used to develop recommendations for season and bag limits.

Harvest in Unit 16A was monitored through general season harvest reports from hunters. All harvest data were reviewed for accuracy and adjusted as necessary. Thus, some figures may not match those previously reported. The Alaska Railroad Corporation provided numbers of moose killed by trains, and the Alaska Department of Public Safety provided numbers of moose taken illegally, killed by highway vehicles, or shot in defense of life or property.

#### **RESULTS AND DISCUSSION**

##### **POPULATION STATUS AND TREND**

###### *Population Size*

No surveys were conducted during the reporting period due to time and weather constraints. Population composition and trends were examined from the previous surveys conducted in 2000, 2005, and 2009 (Peltier 2012). The 2009 GSPE estimate was  $2,574 \pm 294$  (80% CI; Table 1) moose.

###### *Population Composition*

The ratio of bulls:100 cows for the 2009 survey was 26 and the ratio of calves:100 cows was 29 (Table 1).

##### **MORTALITY**

###### *Harvest*

Seasons and Bag Limits. The fall general open season was 20 August–25 September for all resident and nonresident hunters, and 10–17 August for archery-only hunters. During this period the bag limit was 1 bull with a spike or fork antler on at least one side, or with an antler spread at least 50 inches, or 3 or more brow tines on at least one side (Schwartz et al. 1992).

Alaska Board of Game Actions and Emergency Orders. There were no changes to the moose hunting regulations during this reporting period.

Harvest by Hunters. There was a decrease in harvest during the reporting period (Table 2). The 5-year average (RY08–RY12) was 112 moose, which was less than the previous 5-year average

(RY03–RY07) of 123 moose and below the harvest objective minimum (190). The lower level of harvest is likely due to lower moose densities.

Hunter Residency and Success. Hunter participation and success rate decreased in RY12 (Table 3). RY12 was a very wet and cool autumn in the Matanuska Valley and as a result interest in hunting was down in several units. The majority of hunters were not considered local residents (i.e., residents of Unit 16). The 10-year average of hunter success was 14.6%.

Harvest Chronology. The majority of the moose were taken in the last 2 weeks of the season (Table 4). Hunters prefer to take moose when they are more vulnerable as the rut approaches and where hunting competition for moose is light.

Transport Methods. All-terrain vehicles and boats account for most of the transportation used by successful hunters in the past 10 seasons (Table 5). Given the wet, swampy habitat of much of the unit, airboats are also popular.

## **HABITAT**

### *Enhancement*

An 18,000-acre area east of the lower end of Kroto Creek (Deshka River) was prepared for a planned prescribed burn in 1994 (W. Collins, Wildlife Biologist, ADF&G, Palmer, personal communication). During spring and summer 2007, a 10,000-acre wildfire burned over major portions of the same prescription area (G. Holt, Forester, Division of Forestry, Palmer, personal communication). This was expected to result in improved habitat and forage for moose. Currently ADF&G is working with the Division of Forestry on a proposal for a prescribed burn adjacent to the area proposed by Collins in 1994. This burn would affect approximately 4,940 acres.

## **CONCLUSIONS AND RECOMMENDATIONS**

At this time it appears that the current season and bag limits are adequate for increasing the moose population. The survey trend between 2005 and 2009 indicates a growing moose population and there has been no significant change to either the number of hunters in the unit or the success rate of the hunters. However, current information about the size of the population is lacking. Triennial surveys with a consistent methodology will effectively capture accurate population trends and help managers to be more responsive to fluctuations in populations as well as sex and age components. Providing that a positive trend in the population continues, additional harvest opportunity could be provided through either an any bull draw hunt or an increase in season length.

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

Peltier, T. C. 2014. Unit 16A moose. Chapter 17, Pages 17-1 through 17-10 [*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. Unit 16A fall aerial moose composition surveys and censuses, Alaska, regulatory years<sup>a</sup> 2000–2009.

Regulatory year	Bulls: 100 Cows	Yearling bulls: 100 Cows	Calves: 100 Cows	Calves (%)	Adults observed	Moose observed	Moose /mi <sup>2</sup>	Population size <sup>b</sup>
2000 <sup>c</sup>	28	6	22	15	661	787	1.4	2,420 ± 528
2005 <sup>d</sup>	22	3	19	14	510	590	1.1	1,619 ± 197
2009 <sup>e</sup>	26	6	29	19	691	853	1.9	2,574 ± 294

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2000 = 1 July 2000–30 June 2001.

<sup>b</sup> Population estimate and 80% confidence interval.

<sup>c</sup> Becker and Reed (1990) survey methodology.

<sup>d</sup> Ver Hoef (2001) survey methodology.

<sup>e</sup> Geospatial population estimator technique (Kellie and DeLong 2006).

Table 2. Unit 16A moose harvest and accidental death, Alaska, regulatory years<sup>a</sup> 2003–2012

Regulatory year	Reported				Estimated			Accidental deaths <sup>b</sup>			Grand total
	M	F	Unk	Total	Unreported <sup>c</sup>	Illegal <sup>d</sup>	Total	Road	Other	Total	
2003	168	0	0	168	12	25	37	17	0	17	222
2004	139	0	0	139	10	25	35	15	0	15	189
2005	107	2	0	109	8	20	28	10 <sup>e</sup>	0	10	147
2006	115	0	0	115	8	20	28	10 <sup>e</sup>	0	10	153
2007	85	0	1	86	6	20	26	10 <sup>e</sup>	0	10	122
2008	103	0	0	103	7	20	27	10 <sup>e</sup>	0	10	140
2009	116	0	1	117	8	20	28	10 <sup>e</sup>	0	10	155
2010	125	0	1	126	9	20	29	10 <sup>e</sup>	0	10	165
2011	135	0	0	135	9	20	29	5	0	5	169
2012	77	0	1	78	5	20	25	7	0	7	110

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2003 = 1 July 2003–30 June 2004.

<sup>b</sup> Roadkill is minimum number and does not reflect moose hit and lost or not salvaged.

<sup>c</sup> Derived by taking 7% of the reported harvest.

<sup>d</sup> Includes moose taken in defense of life or property.

<sup>e</sup> Estimated minimum based on the previous years as data was missing for this period.

Table 3. Unit 16A moose hunter residency and success, Alaska, regulatory years<sup>a</sup> 2003–2012

Regulatory year	Successful					Unsuccessful					Total hunters
	Local resident <sup>b</sup>	Nonlocal resident	Nonresident	Unk	Total (%)	Local resident <sup>b</sup>	Nonlocal resident	Nonresident	Unk	Total	
2003	12	144	11	1	168 (18)	48	696	38	0	782	950
2004	7	119	10	3	139 (16)	33	646	40	0	719	858
2005	4	101	4	0	109 (12)	42	726	49	3	820	929
2006	3	100	10	2	115 (13)	40	676	26	15	757	872
2007	5	73	7	1	86 (11)	41	599	37	0	677	763
2008	7	85	11	0	103 (12)	42	680	29	0	751	854
2009	2	103	11	1	117 (16)	29	566	33	5	633	750
2010	5	113	7	1	126 (17)	41	547	30	3	621	747
2011	9	109	16	1	135 (18)	31	566	22	5	624	759
2012	1	70	7	0	78 (12)	43	518	36	6	603	681

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2003 = 1 July 2003–30 June 2004.

<sup>b</sup> Unit 16 residents.



Table 4. Unit 16A moose harvest chronology, Alaska, regulatory years<sup>a</sup> 2003–2012.

Regulatory year	August			September					Unknown	Total
	10–17	20–26	27–31	1–7	8–14	15–20	21–25	26–30		
2003 <sup>b</sup>	0	13	6	10	15	34	34	47	9	168
2004 <sup>b</sup>	0	8	4	9	20	35	37	21	5	139
2005 <sup>b</sup>	1	5	2	8	11	19	24	36	3	109
2006 <sup>b</sup>	0	4	5	6	14	33	24	25	4	115
2007 <sup>c</sup>	0	1	3	11	22	48			1	86
2008 <sup>c</sup>	1	13	2	8	25	52			2	103
2009 <sup>c</sup>	2	11	6	12	28	55	3		0	117
2010 <sup>c</sup>	2	10	6	14	39	53	1		1	126
2011	0	10	5	8	24	50	37		0	134
2012	0	7	2	10	19	21	19		0	78

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2003 = 1 July 2003–30 June 2004.

<sup>b</sup> Open season = 10–17 August (archery only), 20 August–30 September (spike-fork 50).

<sup>c</sup> Open season = 10–17 August (archery only), 20 August–20 September (spike-fork 50).

Table 5. Unit 16A percent transport methods of successful moose hunters, Alaska, regulatory years<sup>a</sup> 2003–2012.

Regulatory year	Transport method (%)									<i>n</i>
	Airplane	Horse	Boat	3- or 4- wheeler	Snowmachine	ORV	Highway vehicle	Airboat	Unk	
2003	11	0	21	40	0	8	14	5	1	168
2004	9	1	15	52	0	6	15	0	2	139
2005	12	1	19	47	0	6	13	1	1	109
2006	13	1	17	45	0	6	10	4	4	115
2007	6	1	25	45	1	6	13	4	0	86
2008	9	0	28	32	0	12	14	5	0	103
2009	10	0	22	51	0	9	6	2	0	117
2010	7	0	30	29	0	14	15	3	2	126
2011	13	1	30	35	0	7	12	2	0	135
2012	14	1	18	41	0	9	12	5	0	78

<sup>a</sup> Regulatory year begins 1 July and ends 30 June, e.g., regulatory year 2003 = 1 July 2003–30 June 2004.