

## United States Department of the Interior

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- To: Ron Britton, Supervisory Biologist
- From: Dominique Watts, Wildlife Biologist

**CC:** Chris Peterson, Wildlife Biologist (ADF&G)

Date: 12/14/2012

**Re:** 2012 moose composition survey summary (GMUs 9C & 9E)

We conducted moose composition surveys in southern GMU 9C and northern GMU 9E for 5 days during 28 November –10 December 2012. Dom Watts (biologist) and Jim Wittkop (pilot) located and evaluated moose using an Aviat Husky (A-1B). Composition surveys were conducted throughout primary moose habitats in southern 9C and northern 9E on the Bristol Bay side of the Aleutian Mountains from the Naknek River south to the north side of Aniakchak including most of the Park Border, Big Creek, Kejulik, Ugashik, Blue Mountain, Mother Goose, Flats A, Flats B, and Cinder River trend-areas (Fig. 1). Effort was concentrated on primary moose habitats and known wintering areas in order to maximize sample size. We also evaluated and recorded moose that were randomly encountered in transit to and from primary survey areas.

We observed a total of 438 moose with an overall bull:cow ratio of 48:100 and an overall calf:cow ratio of 15:100. Bull:cow ratios were slightly higher in 9E survey areas (54:100, n = 242) than in 9C survey areas (43:100, n = 188) but both were within or above ADF&G management objectives (i.e., 25 to  $\geq$ 40:100). Bull:cow ratios in 9C survey areas were similar to those reported for 9C during 2007–2008 (Butler 2010). Bull:cow ratios in the areas of 9E we surveyed (54:100) were considerably higher than those reported for 9E in 2005 (25:100) but were similar to those observed in 9E during 2002–2003 (46–74:100).

As is commonly observed in GMU 9, calf recruitment was low throughout the areas we surveyed during 2012. Data from radio-collared moose in the area also supported this conclusion (D. Watts, unpublished data). Calf:cow ratios appeared to be slightly higher in 9C survey areas (18:100) than in 9E survey areas (11:100). Butler (2010) reported similarly low calf:cow ratios in 9C during 2005–2008 (8–13:100) and in 9E during 2002–2005 (6–15:100).

Although we conducted surveys prior to the established 10 December cutoff, approximately 14% of the bulls we observed had shed one or both antlers. Large and small bulls in these areas generally maintain both antlers through mid to late December (often through January). Thus, antler casting appeared to be slightly earlier during 2012 than we typically observe which could have biased composition estimates if some bulls were misclassified as cows. However, given the early antler casting noted, additional effort was made to correctly evaluate observed moose and observed bull:cow ratios did not appear to be biased low.

Poor weather and survey conditions (e.g., inadequate snow cover) frequently limit moose surveys in GMU 9 and autumn trend-areas are infrequently surveyed. During 2012, survey conditions were poor throughout most of GMU 9 prior to the 10 December cutoff with snow cover varying from light snow cover in southern 9C to large areas with no snow cover and bare ground showing throughout most of 9E. Consequently, autumn trend-area surveys could not be conducted during 2012.

Moose composition surveys (i.e., this report) are not designed to provide reliable estimates of moose abundance or densities but can provide insight into minimum moose numbers. Based on the number of moose observed during composition surveys, primary moose habitats from the Naknek River south to the Cinder River on the Bristol Bay side contain at least 438 moose. Given poor survey conditions and the observed distribution of moose it is likely that some moose were not detected during composition surveys and results reported here for trend-areas represent a minimum number of moose observed in these areas but are probably not appropriate for direct comparisons with autumn trend-area data.

Non-target species observations included active brown bears in the Ugashik Drainage (n = 3), Painter Creek (n = 1), Pumice creek (n = 1), Volcano creek (n = 1), and the Kejulik drainage (n = 2) including a very large boar feeding on and defending the carcass of another large bear that it had apparently been feeding on for some time. We observed 7 wolves (2 adults, 5 pups) in the Cinder River trend-area, several hundred NAPCH caribou in the vicinity of Practice Lake and along Big Creek, porcupines (n = 2) in the Park Border trend-area, and golden eagles in the Kejulik (n = 1) and Ugashik (n = 1) survey areas. Ptarmigan were commonly observed throughout the areas surveyed with the largest winter aggregations observed along the Kejulik River.

## Literature Cited

Butler, L.G. 2010. Unit 9 moose management report. Pages 116–123 in P. Harper, editor. Moose management report of survey and inventory activities 1 July 2007–30 June 2009. Alaska Department of Fish & Game. Project 1.0. Juneau, Alaska, USA.

Table 1	Results of 2012 moose com	position surveys by area	Alaska Peninsula, Alaska, USA
		position surveys by area	$a, \pi a a a a a a a a a a a a a a a a a a$

GMU	Trend-area	Small bull (≤50")	Large bull (>50")	Cow	Calf	Bull: cow	Calf: cow	Total moose
	<ul> <li>Park Border</li> </ul>							
9C	<ul> <li>Big Creek</li> </ul>	29	21	119	19	42:100	15:100	188
	<ul> <li>Angle/Takayofo</li> </ul>							
9E	• Kejulik	7	7	14	3	100:100	21:100	31
9E	• Ugashik • Blue Mountain	5	2	18	3	38:100	16:100	28
9E	• Mother Goose • Flats A • Flats B	17	9	54	5	48:100	9:100	85
9E	Cinder River	13	1	25	0	56:100	0:100	39
9E	NA (outside established trend- areas)	11	5	34	9	47:100	26:100	59
	% Bull	% Cow	% Calf					

9C	27	63	10
9E	32	60	8
Total	30	61	9





**Figure 2**. Locations and relative densities of observed moose in Mother Goose, Flats A, Flats B, and Cinder River trend areas,2012, Alaska Peninsula, Alaska, USA.





**Figure 3**. Locations and relative densities of observed moose in Park-Border, Big Creek, and Angle-Takayofo trend areas, and along the King Salmon River, 2012, Alaska Peninsula, Alaska, USA.





Figure 4. Locations and relative densities of observed moose in the Ugashik and Blue Mountain trend areas, 2012, Alaska Peninsula, Alaska, USA.



