Interim Report to the Alaska Board of Game on Intensive Management for Moose with Wolf Predation Control in Game Management Unit 13

Prepared by the Division of Wildlife Conservation
August 2013

Interim annual updates are limited to sections that have changed substantially since the prior annual report in February. For complete information, see the prior annual report.

1) Description of IM Program[1] and Department recommendation for reporting period

A) This report is an annual evaluation for a predation control program authorized by the Alaska Board of Game (Board) under 5 AAC 92.121

B) Month this report was submitted by the Department to the Board:

February ___ (annual report) August _X_ (interim annual update[2]) Year_2013_

2) Prey data

Date(s) and method of most recent fall **abundance assessment for moose in Unit 13 (if statistical variation available, describe method here and show result in Table 1)**

Fall trend count surveys are conducted annually in November and December to determine abundance as well as sex and age composition of moose. The most recent surveys were conducted in November 2012. A total of 102 survey hours were flown within Count Areas (CA) receiving treatment with an additional 7 hours flown in non-treated CA15. Established CAs cover 30% of available moose habitat within Unit 13. The total observed moose density from annual counts is consistent year to year with minimal annual variation, sufficient to accurately characterize population composition, abundance and trend within the unit. Count data, corrected for estimated sightability (1.1 Sightability Correction Factor) were extrapolated to estimate population abundance for the control area well as non-treated Unit 13(D) (Table 1b).

Compared to IM area, was a similar trend and magnitude of difference in abundance observed in nearby non-treatment area(s) since program inception N [*Y/N*] **and in the last year** Y [*Y/N*]? **Describe comparison if necessary:**

Observed moose abundance in some CAs receiving treatment has more than doubled, and abundance in every CA receiving treatment has consistently increased since program inception (overall observed abundance increased from 1.0 moose/mi^2 in 2001 to 1.6 moose/mi^2 in 2012 within the treatment count areas). Abundance in non-treated CA 15 in Unit 13(D), which is adjacent to the current control area, has been relatively stable (0.6 moose/mi^2 were observed in 2001, with 0.5 moose/mi^2 observed in 2012; range 0.4-0.6 moose/mi^2).

Observed moose abundance in CAs receiving treatment remained relatively stable over the past year (1.7 moose/mi^2 in 2011 compared to 1.6 moose/mi^2 in 2012), with lower calf numbers being the main difference in 2012. Within CA 15 no trend was evident (0.5 moose/mi^2 in 2011 and 2012).

Table 1a. Moose abundance, age and sex composition in assessment area (L) since program

[1] For purpose and context of this report format, see *Intensive Management Protocol, section on Tools for Program Implementation and Assessment*

[2] The interim annual update may be limited only to sections that changed substantially since prior annual report [*e.g., only Tables 3 and 6 in areas with a fall ungulate survey and only wolf control*]

implementation in Year 7 **(not exclusively limited to inception of predation control) to reauthorization review in** Year 15. **Regulatory year is 1 July to 30 June (e.g, RY2010 is 1 July 2010 to 30 June 2011).**

			Composition (number per 100 females)			
Period	RY	Moose Observed (Estimated Abundance)	Calves	Yearling Males	Males	Total *n*
Year 7	2007	4334 (13,000)	22	11	31	4334
Year 8	2008	4310 (13,680)	19	12	33	4310
Year 9	2009	4875 (14,710)	23	9	33	4875
Year 10	2010	5,112 (15,900)	21	10	28	5112
Year 11	2011	5,432 (16,960)	23	10	32	5432
Year 12	2012	5,232 (16,245)	16	7	31	5230

Describe trend in abundance or composition:

Moose across the Unit 13 control area have steadily increased since the control program started. Since 2001, cows have steadily increased across the control area (48% increase 2001–2012 or 4% annual average). The observed number of bulls increased substantially during the early years of the program (93% increase 2001–2009, or 12% annual average), though have stabilized since 2009 due to increased harvest opportunities. Bull ratios steadily increased from 20 bulls:100 cows in 2001 to a high of 33:100 in 2008. Ratios have averaged 31:100 since 2009, with the highest bull ratios in relatively inaccessible hunt areas. Calf numbers have slowly increased since program inception (56% increase 2001–2012, or 5% annual average), largely due to increased numbers of reproductive cows. Calf ratios have varied annually, averaging 20 calves:100 cows (range = 15–24). Overall, the observed abundance across the control area has increased by 60% (5% annually). Based on extrapolation of fall count area densities, corrected for estimated sightability (1.1 Sightability Correction Factor), moose population estimates have been calculated annually. In 2012, estimates by subunit were as follows: 3,650 moose in Unit 13(A), 5,350 moose in Unit 13(B), 1,675 moose in Unit 13(C), and 5,570 moose in Unit 13(E).

Table 1b Moose abundance, age and sex composition in comparison area, Unit 13(D), CA15.

			Composition (number per 100 females)			
Period	RY	Moose Observed (Estimated Abundance)	Calves	Yearling Males	Males	Total *n*
Year 7	2007	-	-	-	-	-
Year 8	2008	171 (1,940)	17	15	79	171
Year 9	2009	-	-	-	-	-
Year 10	2010	201 (2,280)	23	12	72	201
Year 11	2011	172 (1,950)	10	7	62	172
Year 12	2012	172 (1,950)	14	2	67	172

Table 2. Moose harvest in assessment area (M). Methods for estimating unreported harvest are described in Survey and Inventory reports.

Period	RY	Reported		Estimated		Total harvest	Other mortality[a]	Total
		Male	Female	Unreported	Illegal			
Year 7	2007							
Year 8	2008	730	5	25	25	785	75	860
Year 9	2009	857	3	25	25	910	75	985
Year 10	2010	937	1	25	25	988	75	1063
Year 11	2011	945	1	25	25	996	100	1096
Year 12	2012	700	3	25	25	753	100	853

[a]Vehicle/Train.

Describe trend in harvest: Moose harvests have generally increased in the control area, but have been relatively stable in Unit 13(D) which is outside the control area. Harvest pressure increased between 2009 and 2011 due to regulatory changes that provided additional harvest opportunities. In 2012 harvest across the unit was down considerably.

3) Predator data

Date(s) spring 2013 **and method of most recent spring abundance assessment for wolves (Table 3):**

The most recent spring abundance estimate of 191 wolves in Unit 13 (RY2012; spring of 2013) was derived over the course of the 2012-2013 winter and is based on wolf and track sightings gathered from staff biologists, hunters, trappers, and pilots, adjusted for documented harvest.

Date(s) fall 2012 **and method of most recent fall abundance assessment for wolves (Table 3):**

The most recent fall abundance assessment for Unit 13 of 266 wolves (RY2012; fall of 2012) was derived using the same methods.

Table 3. Wolf abundance objectives and removal in wolf assessment area (N) of the Unit 13 Wolf Predation Control Area. The annual removal objective in Unit 13 depends on the fall wolf abundance . The goal is to reduce the number of wolves in the predation control area (O) to meet the spring wolf objective, so estimated or confirmed number remaining in the wolf assessment area (N) by spring (30 April) each RY is 135-165.

Period	RY	Fall abundance (variation)	Harvest removal from area N	Dept. control removal	Public control removal	Total removal[a] from area N (% from area	Spring abundance (variation)

		in area N	Trap	Hunt	from area O	from area O	O)	in area N
Year 7	2007	254	49	9	0	64	91 (70%)	152
Year 8	2008	273	38	26	0	55	121 (76%)	144
Year 9	2009	272	40	18	0	23	81 (67%)	180
Year 10	2010	314	46	10	0	103	159 (92%)	146
Year 11	2011	204	16	35	0	40	91 (80%)	104
Year 12	2012	266	37	21	0	40	58 (69%)	191

[a]Additional removal may be Defense of Life and Property, vehicle kill, etc.

4) Habitat data and nutritional condition of prey species

Where active habitat enhancement is occurring or was recommended in the Operational Plan, describe progress toward objectives:

Objective(s): No specific objectives have been specified

Area treated and method: No area was treated during this report period

Observation on treatment response:

The only recent large scale habitat improvement project that has occurred in Unit 13 is the 41,000 acre Alphabet Hills Prescribed Burn in 2003 and 2004 on the border of Unit 13(A) and 13(B). Further burning under this plan is still being pursued, though is contingent upon meeting burn prescriptions and having available aerial support resources.

Table 4. Moose abundance, age and sex composition in habitat improvement area, Unit 13(A) Alphabet Hills Prescribed Burn count area (65 square miles).

			Composition (number per 100 females)			
Period	RY	Moose observed (Estimated Abundance)	Calves	Yearling bulls	Males	Total *n*
Year 7	2007	68 (75)	8	34	71	68
Year 8	2008	116 (128)	14	21	51	116
Year 9	2009	209 (230)	29	6	62	209
Year 10	2010	186 (205)	24	24	88	186
Year 11	2011	109 (120)	24	8	94	109
Year 12	2012	136 (150)	13	5	107	136

Similar trend in nearby non-treatment areas?

The habitat improvement area is a small burn, and composition is based on the number of moose observed within the burn. Annual variability is high. The nearest adjacent count area is CA 5, which is substantially larger (846 square miles) and contains more variable moose habitat. Because these areas are adjacent, moose in western CA 5 may be experiencing some benefit from the

habitat improvement area. The highest density observed in the treatment area was 3.2 moose per square mile in 2009, though the highest density observed for CA 5 was 2.1 moose per square mile in 2010. Bull ratios have increased in both areas since 2006. Bull ratios in CA 5 have stabilized due to increased harvest opportunities. Bull ratios continue to rise in the treatment area likely due to the relative inaccessibility of the small burn area. Except for the low observed in 2007, calf ratios were similar throughout.

Describe any substantial change in habitat not caused by active program: No other substantial change in habitat has occurred recently in this area.

Table 5. Nutritional indicators for moose in assessment area (L) of the Unit 13 Wolf Predation Control Area.

Period	RY	Twinning Rate (radiocollared parturient cows[a])	Twinning rates (random parturient cows) Prior to 1 June
Year 7	2007	14% in 13A west (n=51)	-
Year 8	2008	25% in 13A west (n=32)	28% in 13A west (n=79); 50% in 13E (n=unk)
Year 9	2009	38% in 13A west (n=24)	13% in 13A west (n=24)
Year 10	2010	33% in 13A west (n=18)	-
Year 11[b]	2011	33% in 13A west (n=12) 11% in 13B (n=9)	-
Year 12	2012	30% in 13A northwest and 13E south (n=44) 18% in 13B (n=17)	20% in 13A northwest and 13E south (n=40)

No objectives on nutritional condition were listed in the *Intensive Management Plan*, and there is no *Operational Plan* for this area.

Evidence of trend: There was an apparent increase in twinning rates during the first several years of the Intensive Management program. In recent years, it appears twinning may have stabilized. Low rates in Unit 13(B) in RY2011 may be attributable to the minimal number of flights and undocumented early calf mortality. Flights were increased in RY2012, though the observed twinning rate of 18% is still below that observed for radio-collared moose in 13A northwest and 13E south. The rate is similar to the 20% observed for random parturient cow moose in 13A northwest and 13E south.

Similar trend in nearby non-treatment areas: Unknown

5) Costs specific to implementing Intensive Management

Table 6. Cost ($1000 = 1.0) of agency salary based on estimate of proportional time of field level staff and cost of operations for intensive management activities (e.g., predator control or habitat enhancement beyond normal Survey and Inventory work) performed by

personnel in the Department or work by other state agencies (e.g., Division of Forestry) or contractors in Unit 13 Wolf Predation Control Area. Fiscal year (FY) is also 1 July to 30 June but the year is one <u>greater</u> than the comparable RY (e.g, FY 2010 is 1 July 2009 to 30 June 2010).

Period	FY	Predation Control[a]		Other IM activities		Total IM cost	Research cost[d]
		Time[b]	Cost[c]	Time	Cost		
Year 11	2012	25.0		2.5	25.0	25.0	25.6
Year 12	2013			1.75	14.3	14.3	

[a]State or private funds only.
[b]Person-months (22 days per month)
[c]Salary plus operations
[d]Separate from implementing IM program but beneficial for understanding of ecological or human response to management treatment (scientific approach that is not unique to IM).