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 2014

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_2014_

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 November – December to determine sex and age composition of moose. The most recent surveys were conducted in November 2013. Trend count data, corrected for estimated sightability were extrapolated to estimate unit-wide population abundance.

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:

Moose abundance in CAs receiving treatment more than doubled through 2012, whereas abundance in the adjacent non-treatment area (CA 15 in Unit 13D) has remained relatively stable.

Table 1a. Moose abundance, age and sex composition in assessment area (L) since program implementation in Year 10 **(not exclusively limited to inception of predation control) to reauthorization review in** Year 15. **Regulatory year is 1 July to 30 June (e.g, RY2012 is 1 July 2012 to 30 June 2013).**

			Composition (number per 100 females)			
Period	RY	Moose Observed (Estimated Abundance)	Calves	Yearling Males	Males	Total *n*
Year 8	2008	4,310 (13,680)	22	11	31	4,334
Year 9	2009	4,875 (14,640)	23	9	33	4,875
Year 10	2010	5,112 (15,870)	21	10	28	5,112
Year 11	2011	5,432 (16,620)	23	10	32	5,432
Year 12	2012	5,230 (16,305)	16	7	31	5,230
Year 13	2013	5,217 (15,645)	27	5	32	5,217

Describe trend in abundance or composition:

Moose across the Unit 13 treatment area have generally increased since IM 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

inception. Observed numbers of cows peaked in 2012. Between 2012 and 2013, cow numbers increased further in Unit 13(A), but may have declined slightly in the remainder of the treatment area. Observed bull numbers increased substantially during the early years of the program, peaking in 2011. Based on extrapolation of fall count area densities, corrected for estimated sightability, moose population estimates were calculated in 2010 by subunit prior to reauthorization: 3,490 moose in Unit 13(A), 5,280 moose in Unit 13(B), 1,700 moose in Unit 13(C), and 5,430 moose in Unit 13(E). Moose population estimates in 2013 by subunit were: 4,000 moose in Unit 13(A), 4,930 moose in Unit 13(B), 1,770 moose in Unit 13(C), and 4,950 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 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	174 (1,950)	15	2	67	174
Year 13	2013	133 (1,510)	12	3	89	133

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

Period	RY	Reported		Estimated				
		Male	Female	Unreported	Illegal	Total harvest	Other mortality[a]	Total
Year 8	2008	730	5	25	25	785	75	860
Year 9	2009	859	3	25	25	912	75	987
Year 10	2010	937	1	25	25	988	75	1063
Year 11	2011	945	1	25	25	996	100	1096
Year 12	2012	705	7	25	30	767	75	842
Year 13	2013	713	2	25	30	770	75	845

[a]Vehicle/Train.

Describe trend in harvest: Moose harvests increased in the treated area of Unit 13 through 2011, but declined in the last two years. Harvest has been variable, but relatively stable in Unit 13(D) which is not part of the treatment area. Harvest pressure has increased in the treatment area since 2009 due to regulatory changes providing additional harvest opportunities.

The reported harvest in Year 13 by subunit is 255, 201, 49, 67, and 140 in 13(A), 13(B), 13(C), 13(D), and 13(E) respectively. An additional 3 moose were reported in Unit 13(Z)

for a total of 715 moose.

3) Predator data

Date(s) spring 2014 **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 322 wolves (RY2013; fall of 2013) 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) in area N	Harvest removal from area N		Dept. control removal from area O	Public control removal from area O	Total removal[a] from area N (% from area O)	Spring abundance (variation) in area N
			Trap	Hunt				
Year 8	2008	273	38	26	0	55	121 (76%)	144
Year 9	2009	272	42	18	0	23	83 (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	0	59 (69%)	191
Year 13	2013	320	26	16	0	60	102 (48%)	-

[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 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
Year 13	2013	122 (130)	26	7	71	122

Similar trend in nearby non-treatment areas?

The habitat improvement area is a small burn, and composition is based on a small count area (65 square miles). 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 2012. Bull ratios in CA 5 have stabilized since 2008 due to increased harvest opportunities (average = 41 bulls:100 cows). Bull ratios are higher in the treatment area likely due to the relative inaccessibility of the small burn area. Ratios reached a high of 107 bulls:100 cows in 2012. Calf ratios have been similar between the two areas.

Describe any substantial change in habitat not caused by active program: No major habitat changes have occurred in this area in recent years.

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 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)
Year 13	2013	44% in 13B (n=18)	19% in 13A west (n=32) 42% in 13C (n=24)

[a] Only cows 3 years of age and older were monitored. The term parturient refers to a cow observed with a calf.
[b] Only four flights were conducted in RY2011 (spring 2012), and some twins may have been missed.

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 and RY2013 to improve the likelihood of documenting actual twinning rates.

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 greater than the comparable RY (e.g, FY 2010 is 1 July 2009 to 30 June 2010).

		Predation Control[a]		Other IM activities		Total IM	Research
Period	FY	Time[b]	Cost[c]	Time	Cost	cost	cost[d]
Year 11	2012	0.0	0.0	2.5	25.0	25.0	25.6
Year 12	2013	0.0	0.0	1.75	14.3	14.3	0.0
Year 13	2014	0.0	0.0	1.0	8.9	8.9	6.0

[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).