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

Prepared by the Division of Wildlife Conservation
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1) Description of IM Program and Department recommendation for reporting period

A) This report is an interim review X or renewal evaluation ___ for a predation control program authorized by the Alaska Board of Game (Board) under 5 AAC 92.125

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

1 February X (annual report) 1 August ___ (interim annual update[1]) Year_2011

C) Program name(geographic description/GMU and species/herd):
GMU 13 Wolf Predation Control Area/GMU 13/moose

D) Existing program has a separate *Intensive Management Plan*___ / includes an *Intensive Management Plan* in regulation (5AAC 92.125) X. (if a separate *IM Plan* exists, list version: _____ and effective date: _____)

E) Game Management Unit(s) fully or partly included in IM program area:
Units 13(A), 13(B), 13(C), and Unit 13(E)

F) IM objectives for moose:
Population objective for Unit 13 is 17,600 – 21,900 (including Unit 13(D)) and harvest objective for Unit 13 is 1,050 – 2,180 (including Unit 13(D)).

For those Units covered by the Unit 13 wolf predation control area, population objectives for Units 13(A), 13(B), 13(C), and 13(E) are 3,500 – 4,200, 5,300 – 6,300, 2,600 – 3,500, and 5,000 – 6,000 moose respectively and harvest objectives for Units 13(A), 13(B), 13(C), and 13(E) are 210 – 420, 310 – 620, 155 – 350, and 300 – 600 moose respectively.

G) Month and year the current predation control program was originally authorized:
March 2000 by the Board (minimal area covered in Units 13(A), 13(B), and 13(E); Same-day-airborne take first allowed January 2004); plan renewed March 2005 (IM area increased to include Unit 13(C)), plan renewed again October 2010 (current area open to predation control has been stable since 2006; current plan active through 31 October 2016)

H) Predation control is currently active X or temporarily inactive ____ in this IM area

I) If active, month and year the current predation control program began November 2010 or resumed ____ (if more than one predator species, list dates separately)

J) Indicate if an habitat management program funded by the Department or from other sources is currently active in this IM area: (Y/N) Yes

[1] Interim annual updates are limited to sections that changed substantially since the prior annual report. For complete information, see the annual report.

The Alphabet Hills Prescribed Burn plan is active and will be implemented given prescription conditions

K) Size of IM program area (square miles) and geographic description:
- 15,413 square miles
- All lands within Units 13(A), 13(B), 13(C), and that portion of Unit 13(E) east of the Alaska Railroad, except National Park Service and other federal lands where same-day-airborne take of wildlife is not allowed

L) Size and geographic description of area for assessing ungulate abundance within IM area:
Continuous count areas (CA) 3, 5, 6, 10, 13, 14, and 16 across Unit 13 encompassing a total of 3,219 square miles

M) Size and geographic description of area for ungulate harvest reporting (specify if different areas or multiple species):
Unit 13 covering 23,367 square miles

N) Size and geographic description of area for assessing predator abundance (specify if different areas or multiple species):
Unit 13 covering 23,367 square miles

O) Size and geographic description of predation control area (specify if different areas or multiple species):
Total IM area: 15,413 square miles (14,550 square miles open to predation control in 2010-11; closures include populated areas and federal lands where same-day-airborne take of wildlife is not allowed)

P) Criteria for evaluating progress toward IM objectives:
- population abundance
- calf:cow ratios
- bull:cow ratios
- harvest

Q) Criteria for success with this program:
Achieve population and harvest objectives (listed above) with the following composition benchmarks: a minimum of 25 bulls:100 cows for Unit 13, 25 calves:100 cows for Unit 13(A) and 30 calves:100 cows for Units 13(B), 13(C), and 13(E)

R) **Department recommendation for IM program in this reporting period**:
The Department recommends continuation of the program (details provided in sections 6)

2) Prey data

Date(s) and method of most recent [fall/spring] abundance assessment for moose (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; most recent surveys November 2010. Trend count data,

corrected for estimated sightability were extrapolated to estimate unit-wide population abundance in 2010.

Compared to IM area, was a similar trend and magnitude of difference in abundance observed in nearby non-treatment area(s) since program inception (Y/N)? **No** and in the last year (Y/N)? **Unknown.**

Describe comparison if necessary:

Abundance in CAs receiving treatment has increased, whereas CA 15 in Unit 13(D) is adjacent to the current IM area and has been relatively stable since inception of the IM program. CA 15 was not flown in 2009, but was flown in 2010.

Date(s) of most recent age and sex composition survey (if statistical variation available, describe method here and show results in Table 1):

Fall trend count surveys provide age and sex composition data; most recent surveys November 2010.

Compared to IM area, was a similar composition trend and magnitude of difference in composition observed in nearby non-treatment area(s) since program inception (Y/N) No and in the last year (Y/N)? **Unknown**

Describe comparison if necessary:

Same as above

Table 1. Moose abundance, age and sex composition in assessment area (L) since program reauthorization in Year 5 (2005) to reauthorization review in Year 10 (2010) in continuous CAs in the Unit 13 Wolf Predation Control Area. Regulatory year is 1 July to 30 June (e.g, RY 2010 is 1 July 2010 to 30 June 2011).

			Composition (number per 100 females)			
Period	RY	Moose observed (Estimated Abundance)	Young	Yearling bulls	Males	Total *n*
Year 5	2005	3871 (11,910)	18.8	7.3	25.3	3871
Year 6	2006	3845	23.7	8.3	28.9	3845
Year 7	2007	4334	22.1	10.6	30.5	4334
Year 8	2008	4310	19.4	11.6	33.4	4310
Year 9	2009	4875 (14,710)	22.9	9.3	32.8	4875
Year 10	2010	5112 (15,900)	21.4	9.7	28.2	5112

Description of trend in abundance or composition:

Moose across the Unit 13 control area have increased steadily since the IM program renewal in 2005. Cows continue to increase annually across the control area, though bulls declined between 2009 and 2010. Based on extrapolation of fall count area densities, corrected for estimated sightability, moose population estimates were calculated in 2005 by subunit: 2,720 moose in Unit 13(A), 3,970 moose in Unit 13(B), 1,170 moose in Unit 13(C), and 4,050 moose in Unit 13(E). Moose population estimates in 2010 by subunit were: 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).

Table 2. Moose harvest in Unit 13 (assessment area M). Methods for estimating unreported harvest are described in Survey and Inventory reports.

Period	RY	Reported		Estimated		Other mortality[a]	Total
		Male	Female/Unknown	Unreported	Illegal	Vehicle	
Year 5	2005	571	4	25	25	75	700
Year 6	2006	685	4	25	25	75	814
Year 7	2007	644	4	25	25	75	773
Year 8	2008	730	5	25	25	75	860
Year 9	2009	859	3	25	25	75	987
Year 10	2010*	907	1	25	25	75	1033

*2010 data are preliminary

Describe trend in harvest:

The general trend in harvest has been consistently positive across the predator control portion of Unit 13 and relatively stable in Unit 13(D) which is outside the control area. Easily accessible road-side areas continue to receive the most hunting pressure. Harvest has increased in recent years in remote portions of the unit due to any-bull drawing permits for those areas (2009-current).

The reported harvest in Year 5 by subunit was 184, 149, 51, 63, and 109 in 13(A), 13(B), 13(C), 13(D), and 13(E) respectively. An additional 19 moose were reported in Unit 13(Z).

The reported harvest in Year 10 (2010 preliminary) by subunit is 274, 287, 100, 69, and 197 in 13(A), 13(B), 13(C), 13(D), and 13(E) respectively. An additional 7 moose were reported in Unit 13(Z).

3) Predator data

Date(s) winter 2009-10 and method of most recent spring abundance assessment for wolves (if statistical variation available, describe method here and list in Table 3):

The most recent spring abundance estimate for Unit 13 of 180 (spring 2010) was derived over the course of the 2009-2010 winter and is based on wolf and track sightings gathered from staff biologists, hunters, trappers, and pilots, adjusted for documented harvest.

Date(s) fall 2009 and method of most recent fall abundance assessment for wolves (if statistical variation available, describe method here and list in Table 3):

The most recent fall abundance assessment of 272 wolves (fall 2009) was derived using the same methods. The preliminary fall 2010 abundance estimate is 285 – 348.

The wolf population in Unit 13 has been relatively stable since 2006-07. The annual take by all methods has reflected this trend.

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 abundance in relation to the spring objective of 135 – 165 wolves. No less than 135 wolves will remain by 30 April each RY in all of Unit 13. The annual removal since Year 1 (referred to in this report as 2005) has averaged 43% (range = 34% - 49%). If non-lethal predation control methods were used by Department personnel, clarify with footnote in control removal tally.

Period	RY	Fall abundance (variation)	Harvest removal		Dept. control removal	Public control removal	Total removal[a]	Spring abundance (variation)
			Trap	Hunt				
Year 5	2005	309	61	23	0	61	145	157
Year 6	2006	280	47	25	0	33	105	160
Year 7	2007	254	48	9	0	33	90	153
Year 8	2008	273	38	26	0	55	121	144
Year 9	2009	272	40	18	0	23	81	180
Year 10	2010[b]	285-348	4	6	0	77	87	

[a] Additional removal may be unknown method, Defense of Life and Property, vehicle kill, etc.
[b] 2010 data are preliminary

4) Habitat data and nutritional condition of prey species

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

Objective(s): N/A

Area treated and method: N/A

Observation on treatment response (specify which and use table if ongoing program): N/A

Evidence of progress toward objective(s) (choose one: Apparent Statistical)

Similar trend in nearby non-treatment areas (Y/N)? N/A

Describe any substantial changes in habitat not caused by active program (e.g., new wildland fires, flooding, insect mortality of vegetation, etc.): N/A

The only habitat improvement project currently planned in Unit 13 is the Alphabet Hills Prescribed Burn on the border of Units 13(A) and 13(B). This burn is contingent upon meeting burn prescriptions; no burn was conducted during this reporting period.

Winters have been mild and conducive to population growth across Unit 13 in recent years. The last severely deep snow winter across the majority of Unit 13 was 2004-05.

Table 4. Nutritional indicators for moose in assessment area (L) of the Unit 13 Wolf Predation Control Area.

Period	RY	13A West Twinning Rate (radio-collared cows)	13(B)/13(C)/13(E) Twinning rates (random cows)
Year 5	2005		
Year 6	2006	35%	
Year 7	2007	14%	
Year 8	2008	26%	53%
Year 9	2009	27%	50%
Year 10	2010	30%	

Where objectives on nutritional condition were listed in the Intensive Management Plan, Describe trend in condition indices since inception of (a) habitat enhancement or (b) enhanced harvest (clarify which: N/A)(choose Positive, No change, Negative)

Evidence of trend (choose one: Apparent Statistical)

Similar trends in nearby non-treatment areas (Y/N)? N/A

5) Costs specific to implementing Intensive Management

Table 5. 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 the 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).

			Operations and contracting			Total cost
Period	FY	Salary[a]	Federal Aid[b]	Public Funds[c]	Other[d]	
Year 5	2006	15.0				15.0
Year 6	2007	15.0				15.0
Year 7	2008	15.0				15.0
Year 8	2009	15.0				15.0
Year 9	2010	30.0				30.0
Year 10	2011					

[a]State Fish and Game fund matched 1:3 with Federal Aid (see footnote b) except for activities directly involving predator control (state funding only).
[b]Federal Aid in Wildlife Restoration (excise tax on firearms and ammunition)
[c]Capital Improvement Project or General Fund revenue from Alaska Legislature
[d]Grants, donations from private organizations, etc.

6) Department recommendations[2] for annual evaluation (1 February) following Year 10 (*2010*) for the Unit 13 Wolf Predation Control Area—skip in final year and go to section 7

Has progress toward defined criteria been achieved? Yes

Has achievement of success criteria occurred?

Population estimates for Units 13(A) and 13(B) are very close to the low end of the objective range. The population in Unit 13(C) is slowly increasing, but remains well below the objective range. The population estimate in Unit 13(E) is in the low end of the objective range.

Calf-to-cow ratios in general remain below objectives in all subunits (small areas within Unit 13(A) and 13(E) are meeting objectives); ratios appear stable. Bull-to-cow ratios are

[2] Prior sections include primarily objective information from field surveys; Sections 6 and 7 involve professional judgment by area biologists to interpret the context of prior information for the species in the management area.

being met in remote portions of Unit 13(A), 13(B), 13(C), and in all count areas in 13(E). Between 2009 and 2010 bull-to-cow ratios dropped below objectives in road-accessible portions of Unit 13(A), 13(B), and 13(C).

The reported harvest for Unit 13(A) is in the low end of the objective range. The harvest for Unit 13(B) is very close to the low end of the objective range. The harvests for Unit 13(C) and 13(E) are slowly increasing, but both remain well below their objective ranges.

Recommendation for IM practice(s) (specify practices and choose one action for each):
Continue Modify Suspend Terminate

Predation control **Continue**
Habitat enhancement **Continue**
Harvest strategy **Modify -** the harvest strategy may need to be altered to ensure continued improvement in the number of bulls. As the moose population continues to increase, antlerless harvests may become necessary to maintain harvest and population objectives, as well as bull-to-cow ratios, at which time IM efforts will be suspended accordingly. **.**

7) Evaluation (1 February) for program renewal (following final Year 15 [*2015*]) and Department recommendations for the Unit 13 Wolf Predation Control Area

Has progress toward defined criteria been achieved (describe)? _____

Has achievement of success criteria occurred (describe)? _____

Recommendation for IM program (choose one): Continue Modify Suspend Terminate

Rationale for recommendation on overall program: _____

Other recommendations (if continuation is recommended, specific actions on individual practices): _____

8) Appendix: Purpose and context of Department Report

This document provides a standard format for area biologists in the Alaska Department of Fish and Game (Department) to periodically report on progress in intensive management (IM) programs with predation control to the public and the Alaska Board of Game (Board). Predation control programs are authorized in Title 5, Chapter 92, Section 125 of the Alaska Administrative Code (5 AAC 92.125). The Department Report is premised on the 10 November 2010 draft *Guidelines for intensive management of big game in Alaska*, which describes the legal background, scientific principles, and management factors of producing and maintaining elevated harvests of ungulates (caribou, deer, or moose) in selected areas of Alaska. For IM programs initiated or renewed after 1 January 2012, the intent is that details of rationale, decision criteria involving public process and other biological and management factors for specific IM programs will be found in the corresponding *Intensive Management Plan.*

IM objectives for deer and moose are determined by the Board for a game management unit (GMU), whereas those for caribou are determined by herd. The IM program area may be described by geography (drainage) or community(s) if it is focused in a smaller area than the one describing the corresponding IM objectives, or if the area is composed of multiple GMUs. A predation control area may be smaller, and contained within, the IM program area or the area used for assessing predator abundance in a game management unit. Thus, the number of wolves, black bears, or grizzly/brown bears remaining in the larger abundance assessment area on a specific date incorporates the potential for recolonization of the smaller control area by predators on surrounding lands (where hunting and trapping but not control methods are allowed), in addition to reproduction by predators remaining in the control area.

The Department Report to the Board documents evaluation of progress toward IM population or harvest objectives for ungulate or other objectives determined by public process for existing IM programs. Initially these reports will be only for areas with predation control to meet annual reporting requirements (Alaska Statutes, Title 16, Section 50, Part b), but they may be expanded to IM programs that only include ungulate habitat enhancement, diverse strategies for hunter access and ungulate harvest, and outreach programs (see *Guidelines*). Predator harvest is achieved through hunting and trapping regulations, whereas predation control typically removes predators by additional means such as by public participants (by special Department permit) or by Department personnel (non-lethal methods could also be applied). Report information will be used for Department recommendations and Board decisions on continuing, modifying, suspending, or terminating IM programs. The annual report will be issued on 1 February with an interim report on 1 August. These dates account for lag time in entering reported predator removal and ungulate harvest into an electronic database for archive and analysis. The August interim report will have the ungulate harvest and wolf removal from the previous regulatory year, whereas the February annual report will include most of the ungulate harvest from the prior fall and bear removal from the prior regulatory and calendar years. Report information is fora single program, but it may also be presented in a table showing multiple IM programs in a region or all IM programs statewide.