Interim Report to the Alaska Board of Game on Intensive Management for Moose with Wolf, Black Bear, and Grizzly Bear Predation Control in Game Management Unit 19A

Prepared by the Division of Wildlife Conservation
August 2013

1) Description of IM Program[1]

A) This report is an interim **evaluation for a predation control program authorized by the Alaska Board of Game (Board) under 5 AAC 92.123**

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

February ___ (annual report) August X **(interim annual update)** Year 2013

C) Program name: Unit 19A wolf and bear predation control program (Fig. 1)

D) Existing program does not have **an associated Operational Plan**

E) Game Management Unit(s) fully or partly included in IM program area: Unit 19A

F) IM objectives for moose population size 7600-9300 **harvest** 400-550

G) Month and year the current predation control program was originally authorized by the Board: March 2004**. Indicate date(s) if renewed:** March 2009

H) Predation control is currently active **in this IM area**.

I) If active, month and year the current predation control program began: December 2004 for wolves July 2012 (regulatory year 2012) for bears

J) A habitat management program funded by the Department or from other sources is currently active in this IM area: No

K) Size of IM program area (square miles) and geographic description: Unit 19A- 9969 mi^2

L) Size and geographic description of area for assessing ungulate abundance: Central Kuskokwim Villages Moose Management Area (MMA)- 3,853 mi^2

M) Size and geographic description of area for ungulate harvest reporting: MMA- 3,853 mi^2

N) Size and geographic description of area for assessing predator abundance: MMA- 3,853 mi^2 ; Unit 19A Bear Control Focus Area (BCFA) – 534 mi^2

O) Size and geographic description of predation control area: MMA- 3,853 mi^2 for wolves BCFA 534 mi^2 for bears

P) Criteria for evaluating progress toward IM objectives: moose abundance and harvest

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

Q) Criteria for success with this program: Progress within the MMA and BCFA that contributes towards achieving the Unit 19A IM moose population objective of 7600-9300 and moose harvest objective of 400-550

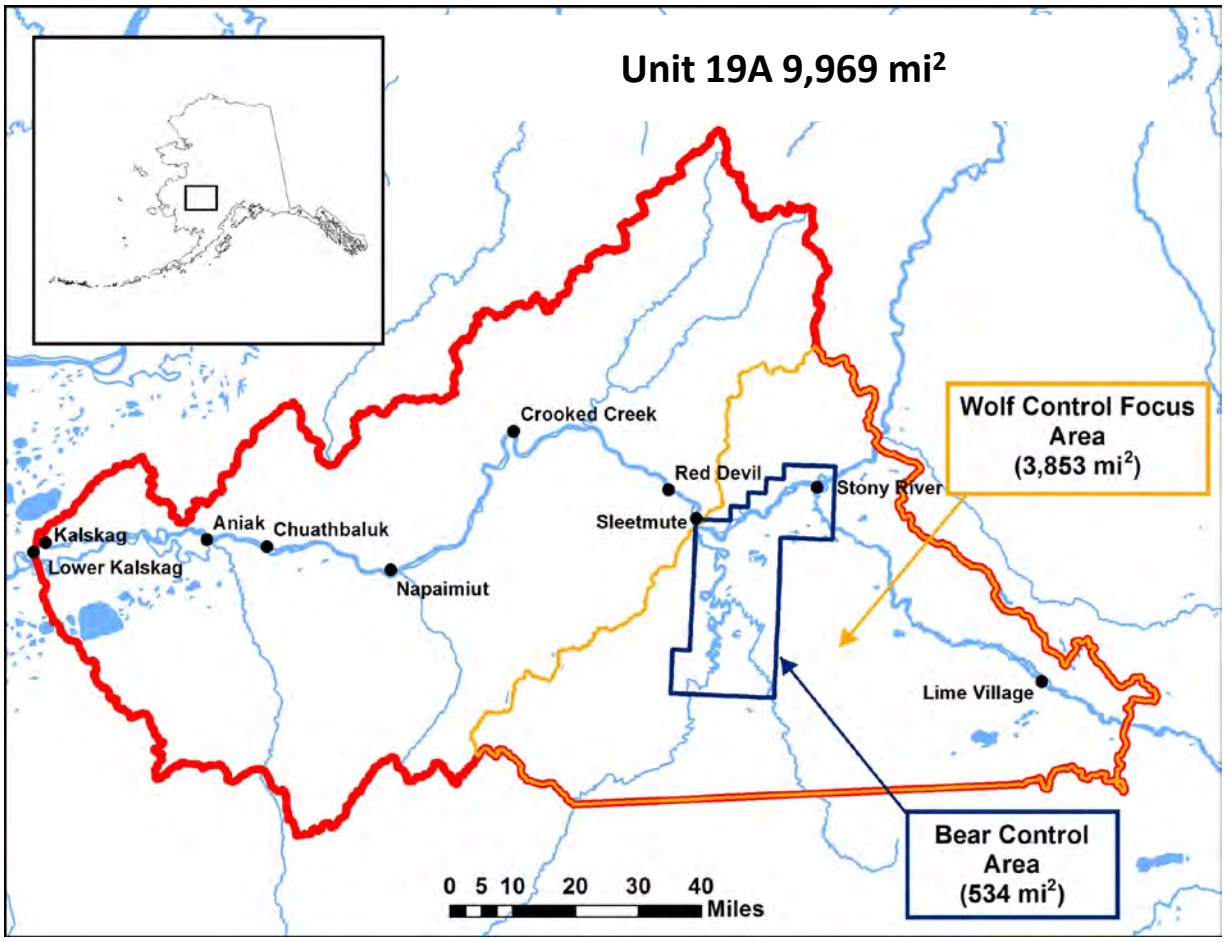

Figure 1. Unit 19A intensive management area and wolf and bear control focus areas. The wolf control focus area is the same geographic area as the Central Kuskokwim Villages Moose Management Area (MMA).

2) Prey data

Date(s) and method of most recent abundance assessment for moose: March 2011-Goespatial moose population estimate (GSPE) in MMA (Table 1)

Compared to IM area, was a similar trend and magnitude of difference in abundance observed in nearby non-treatment area(s) since program inception: Non-treatment area not established

Date(s) of most recent age and sex composition survey: November 2011-east/west line transects in Holitna/Hoholitna Drainages

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: Non-treatment area not established

Table 1. Moose abundance, age and sex composition in Central Kuskokwim Villages Moose Management Area (MMA) since program implementation in year 1 to year. 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)[2]		
Period	RY	Abundance (variation)[1]	Calves	Males	Total *n*
Year 1	2004	1085 moose (± 17%; 90% CI)	--	--	--
Year 2	2005	--	24	8	307
Year 3	2006	--	--	--	--
Year 4	2007	1703 moose (± 28%; 90% CI)	45	35	200
Year 5	2008	--	27	34	124
Year 6	2009	--	36	51	129
Year 7	2010	962 moose (± 18% at 90% CI) 1666 (± 36% 90% CI) –w/scf	19	48	212
Year 8	2011	--	31	38	164
Year 9	2012	--	--	--	--

[1]February/March GSPE surveys (observed moose, not corrected for sightability unless denoted w/scf).
[2]November line transect surveys; 2005 composition survey conducted in a larger geographic area than other years.

Describe trend in abundance or composition: No detectable trend in moose abundance within the MMA

Table 2. Moose harvest in Central Kuskokwim Villages Moose Management Area (MMA) since program implementation in year 1 to year 9. Regulatory year is 1 July to 30 June (e.g, RY 2012 is 1 July 2012 to 30 June 2013). Methods for estimating unreported harvest are described in Survey and Inventory reports.

Period	RY	Reported		Total harvest	Other mortality[a]	Total
		Male	Female			
Year 1	2004	37	--	37	--	37
Year 2	2005	42	--	42	--	42
Year 3	2006	1[b]	--	1	0	1
Year 4	2007	2[b]	--	2	0	2
Year 5	2008	1[b]	--	1	4	5
Year 6	2009	1[b]	--	1	1	2
Year 7	2010	3[b]	--	3	0	3

Period	RY	Reported		Total harvest	Other mortality[a]	Total
		Male	Female			
Year 8	2011	2[b]	--	2	2	4
Year 9	2012	2[b]	--	2	0	2

[a]Mortuary harvest
[b]Hunting season closed, except within the Lime Village Management Area

Describe trend in harvest: Declined due to hunting season closure in most of the MMA

Describe any other harvest related trend if appropriate: None

3) Predator data

Wolves

Date(s) and method of most recent spring abundance assessment for wolves in the MMA: April 2013-private pilot interviews and state pilot observations

Date(s) and method of most recent fall abundance assessment for wolves in the MMA: April 2013- calculated for fall 2012 by subtracting total removal from MMA from spring 2013 abundance estimate

Other research or evidence of trend or abundance status in wolves: Pre-control wolf estimate was modeled at 75 – 100 in MMA

Table 3. Wolf abundance and removal in Central Kuskokwim Villages Moose Management Area (MMA) since program implementation in year 1 to year 9. Removal objective is to reduce wolf numbers as low as possible in the MMA and to maintain 30-36 in all of Unit 19A to ensure wolves persist in the unit. The fall RY 2012 modeled wolf population estimate for all of Unit 19A is 87-117. Regulatory year is 1 July to 30 June (e.g, RY 2010 is 1 July 2010 to 30 June 2011)

Period	RY	Fall abundance[a]	Harvest removal		Dept. control removal	Public control removal	Total removal	Spring abundance
			Trap	Hunt				
Year 1	2004	--	3	0	0	40	43	--
Year 2	2005	44-46	2	0	0	36	38	5-7[b]
Year 3	2006	--	0	0	0	7	7	--
Year 4	2007	27	0	3	0	12	15	12[b]
Year 5	2008	--	1	0	0	19	0	--
Year 6	2009	--	0	0	0	2	2	--
Year 7	2010	30	1	0	0	10	11	19[b]
Year 8	2011	21	0	0	0	8	8	13[c]
Year 9	2012	24	2	0	0	0	0	22[c]

[a] Calculated by subtracting total removal from MMA spring abundance during each RY.
[b] Abundance based on aerial reconnaissance survey.
[c] Abundance based on private and department pilot observations.

Black Bears

Date(s) and method of most recent spring abundance assessment for black bears in the BCFA: May 2012-modeled based on known bear densities in similar habitats.

Date(s) and method of most recent fall abundance assessment for black bears in the BCFA: None

Other research or evidence of trend or abundance status in black bears: Estimated population of 2500–3000 black bears in Unit 19A is based on known bear densities in similar habitats in other game management units in Interior Alaska. MILLER S., G.C. WHITE, R.A. SELLERS, H.V. REYNOLDS, J.W. SCHOEN, K. TITUS, V.G. BARNES, JR., R.B. SMITH, R.R. NELSON, W.B. BALLARD, AND C.C. SCHWARTZ. 1997. Brown and black bear density estimation in Alaska using radiotelemetry and replicated mark-resight techniques. *Wildlife Monographs* 133. *in* BOUDREAU T.A. 2005. Units 19, 21A and 21E black bear management report. Pages 218–222 in C. Brown, editor. Black bear management report of survey and inventory activities 1 July 2001–30 June 2004. Alaska Department of Fish and Game. Project 17.0. Juneau, Alaska.

Table 4. Black bear abundance and removal in Bear Control Focus Area (BCFA) since bear control was implemented in Year 9. Removal objective is to reduce bear numbers as low as possible within the BCFA. The spring RY 2012 estimated black bear population for all of Unit 19A is 2,475–2,970. Regulatory year is 1 July to 30 June (e.g. RY 2012 is 1 July 2012 to 30 June 2013).

Period	RY	Spring abundance (95% CI)	Harvest removal		Dept. control removal		Total removal	Fall abundance
			FA[a]	SPR[b]	FA	SP		
Year 9	2012	135–160[c]	0	2	0	84[d]	86	--

[a] Fall
[b] Spring
[c] Based on known bear densities in similar habitats
[d] Includes one bear killed but not recovered

Brown Bears

Date(s) and method of most recent spring abundance assessment for brown bears in the BCFA: May 2012-modeled based on known bear densities in similar habitats.

Date(s) and method of most recent fall abundance assessment for brown bears in the BCFA: None

Other research or evidence of trend or abundance status in black bears: Estimated population of 200 brown bears in Unit 19A is based on known bear densities in similar habitats in other game management units in Interior Alaska. MILLER S., G.C. WHITE, R.A. SELLERS, H.V. REYNOLDS, J.W. SCHOEN, K. TITUS, V.G. BARNES, JR., R.B. SMITH, R.R. NELSON, W.B. BALLARD, AND C.C. SCHWARTZ. 1997. Brown and black bear density estimation in Alaska using radiotelemetry and replicated mark-resight techniques. *Wildlife Monographs* 133. *in* BOUDREAU T.A. 2005. Units 19, 21A and 21E black bear management report. Pages 218–222 in C. Brown, editor. Black bear management report of survey and inventory activities 1 July 2001–30 June 2004. Alaska Department of Fish and Game. Project 17.0. Juneau, Alaska.

Table 5. Brown bear abundance and removal in Bear Control Focus Area (BCFA) since bear control was implemented in Year 9. Removal objective is to reduce bear numbers as low as possible within the BCFA. The Spring RY 2012 estimated brown bear population for all of Unit 19A is 200. Regulatory year is 1 July to 30 June (e.g. RY 2012 is 1 July 2012 to 30 June 2013).

Period	RY	Spring abundance (95% CI)	Harvest removal		Dept. control removal		Total removal	Fall abundance
			FA[a]	SPR[b]	FA	SP		
Year 9	2012	10–15[c]	0	0	0	5	5	--

[a] Fall
[b] Spring
[c] Based on known bear densities in similar habitats

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: No active habitat enhancement.

Table 6. Nutritional indicators for moose in Central Kuskokwim Villages Moose Management Area (MMA) since program implementation in year 1 to year 9. Regulatory year is 1 July to 30 June (e.g, RY 2012 is 1 July 2012 to 30 June 2013).

Period	RY	Twinning Rate (% of radiocollared cows with calf that had twins) (*n*)	Twinning Rate (% of uncollared cows with calf that had twins) (*n*)
Year 1	2004	43(7)	--
Year 2	2005	--	--
Year 3	2006	--	64(11)
Year 4	2007	--	75(4)
Year 5	2008	--	--
Year 6	2009	--	--
Year 7	2010	--	--
Year 8	2011	--	--
Year 9	2012	54(26)	60(15)

5) Costs specific to implementing Intensive Management

Table 7. 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 19A. 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).

		Predation control[a]		Other IM activities		Total IM cost	Research cost[d]
Period	FY	Time[b]	Cost[c]	Time	Cost		
Year 7	2011	0.4	3.5	5.2	47.2	50.7	0.0
Year 8	2012	0.5	3.9	2.0	31.8	35.7	0.0
Year 9	2013	9.7	408.7	2.0	29.2	437.9	0.0

[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).