Annual Report to the Alaska Board of Game on Intensive Management for Caribou with Wolf Predation Control in the Northern Alaska Peninsula, Game Management Units 9C and 9E, Northern Alaska Peninsula Caribou Herd.

Prepared by the Division of Wildlife Conservation
February 2018

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 92.111[2]

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

February X **(annual report)** **August** ___ **(interim annual update[3])** **Year** 2018

C) Program name:
Northern Alaska Peninsula Predation Management Area

D) Existing program does not **have an associated *Operational Plan***, it does however have a detailed Intensive Management Plan in regulation (5 AAC 92.111).

E) Game Management Unit(s) fully or partly included in IM program area: Subunits 9C and 9E.

F) IM objectives for caribou: population size 6,000–15,000 **harvest** 600–1,500.

G) Month and year the current predation control program was originally authorized by the Board: March 2010

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

I) If active, month and year the current predation control program began: N/A

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

K) Size of IM program area (square miles) and geographic description:
19,461 square miles and includes all the mainland portions of subunits 9C and 9E.

L) Size and geographic description of area for assessing ungulate abundance:
19,461 square miles including all the mainland portions of subunits 9C and 9E.

M) Size and geographic description of area for ungulate harvest reporting:
19,461 square miles including all the mainland portions of Subunits 9C and 9E.

N) Size and geographic description of area for assessing predator abundance:

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

[2] [*Regulatory numbers for existing IM programs formerly under 5AAC92.125 were divided into groups and given new numbers in October 2012 (see IM Plan template--Version 3, January 2013)*]

[3] 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*]

5,384 square miles including portions of subunits 9C and 9E.

O) Size and geographic description of predation control area:

10,347 square miles including all Alaska Peninsula drainages south of the south bank of the Naknek River and the southern boundary of Katmai National Park to a line from the southernmost head of Port Moller Bay to the head of American Bay (*see* Figure 1).

P) Criteria for evaluating progress toward IM objectives:

- Fall bull:cow ratio
- Fall calf:cow ratio
- Caribou abundance
- Caribou harvest

Q) Criteria for success with this program:

- The fall bull:cow ratio can be maintained at a minimum of 35 bulls:100 cows
- The population can grow at a sustained rate of 5% annually
- Harvest objectives can be met

R) Department recommendation for IM program in this reporting period:

The Department recommends continuation of the suspension of the predation control program during RY2017 while monitoring the herd progress towards IM objectives (details provided in sections 6).

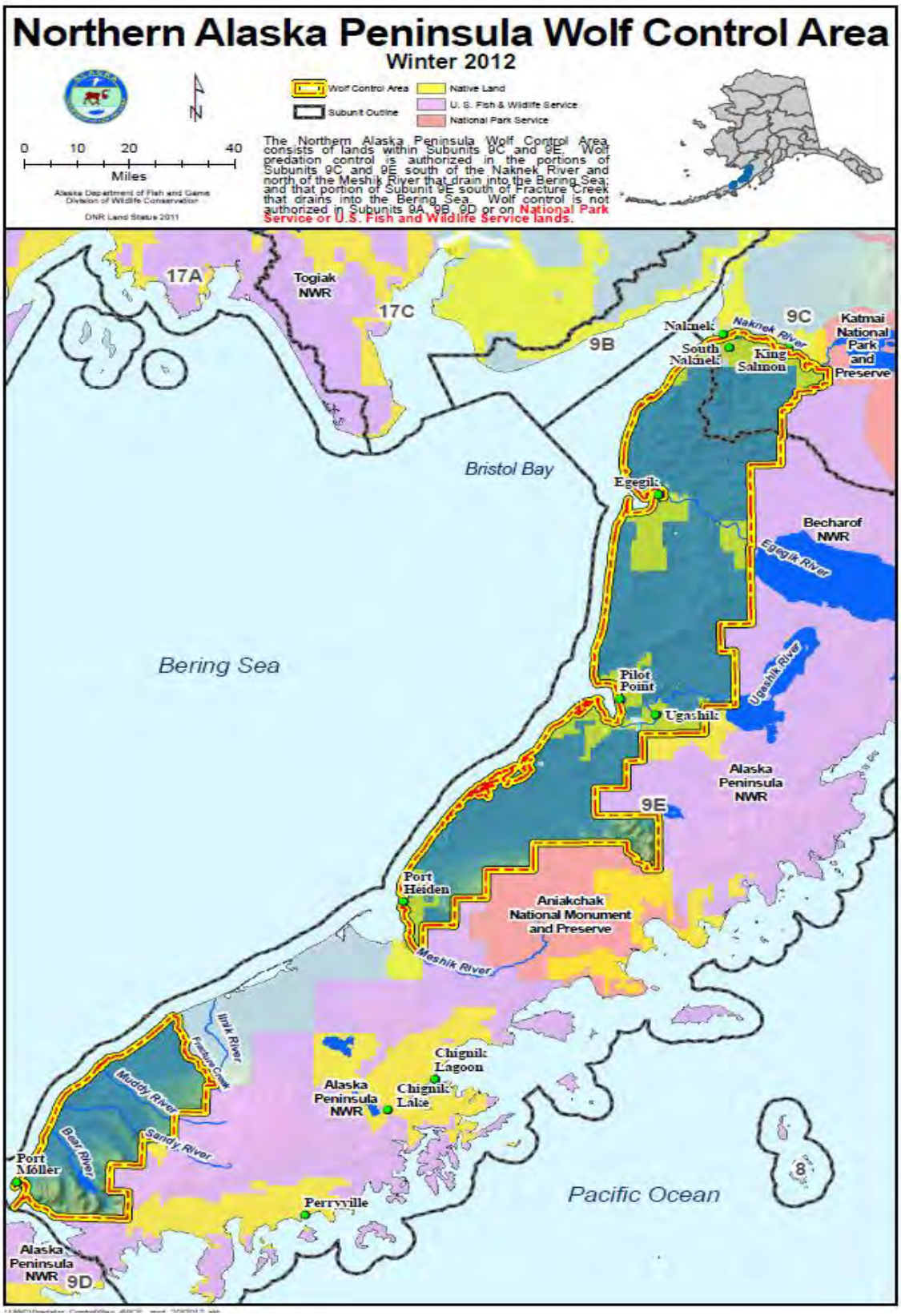

Figure 1. Northern Alaska Peninsula Wolf Control Area (O).

2) Prey data

Date(s) and method of most recent summer abundance assessment for the Northern Alaska Peninsula Caribou Herd (NAP): October 25 & 27, 2016; Population size is extrapolated from the number of caribou and percent of collared caribou observed during the October composition survey. The current year (RY2017) October surveys were not conducted due to severe, non-flyable weather.

Compared to IM area, was a similar trend and magnitude of difference in abundance observed in nearby non-treatment area(s) since program inception and in the last year (Y/N) N/A

Describe comparison if necessary: N/A

Dates of most recent age and sex composition survey (if statistical variation available, describe method here and show result in Table 1): October 25 & 27, 2016. The current year (RY17) October surveys were not conducted due to severe, non-flyable weather.

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 and in the last year (Y/N)? Not Applicable; this program was not implemented until January 2012 (RY2011). In subsequent years, permitted pilots and gunners for the most part were unable to access the wolf control area due to inadequate weather conditions.

Table 1. **Caribou abundance, age and sex composition in assessment area (L) since program implementation in year 1 (not exclusively limited to inception of predation control) to reauthorization review in year 10 (2020) in** the Northern Alaska Peninsula Predation Management 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	Abundance	Young	Males	Total *n*
Year 0	2010	-	18	25	1,795
Year 1	2011	2,500 – 3,000	20	26	2,395
Year 2	2012	-	22	28	1,352
Year 3	2013	2,400	21	31[a]	2,076
Year 4	2014	2,700	34	40	2,295
Year 5	2015	2,950	29	38	2,122
Year 6	2016	-	24	70	2,611
Year 7	2017[b]	-	-	-	-

[a] Model-based adjustment of bulls probably miscategorized during survey by a new observer.

[b] Due to severely inconducive weather, the survey was not conducted.

Describe trend in abundance or composition: The fall bull-to-cow, calf-to- cow ratios

and abundance have all increased from the low numbers observed in the mid-2000s. However, active wolf removal was not initiated until January 2012 (RY11), and same-day-airborne wolf control was ineffective due to inadequate weather conditions (i.e., , so the increasing trend is not associated with wolf control activities.

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

		Reported		Estimated		Total	Other	
Period	RY	Male	Female	Unreported	Illegal	harvest	mortality[a]	Total
Year 0	2010	0	0	0	15	15	3	18
Year 1	2011	0	0	0	15	15	3	18
Year 2	2012	0	0	0	15	15	2	17
Year 3	2013	0	0	0	15	15	4	19
Year 4	2014	0	0	0	15	15	4	19
Year 5	2015	0	0	0	15	15	3	18
Year 6	2016	74	8	0	15	97	0	97

[a] Mortuary, Ceremonial, and Cultural-Educational Harvest Permits.

Describe trend in harvest:

Caribou hunting of the NAP remained closed RY2005 through RY2015 although a small number of ceremonial and cultural-educational permits harvest permits were issued in RY2010–RY2015 after calf recruitment rates began improving. With increased calf:cow and bull:cow ratios and herd population, a Tier II draw hunt(TC505) was opened in RY16. There were 189 permits issued; 125 permittees hunted and harvested 74 males and eight females.

Describe any other harvest related trend if appropriate:

Not Applicable; hunting seasons were closed RY2005 through RY2015.

3) Predator data

Date(s) and method of most recent spring abundance assessment for wolves (if statistical variation available, describe method here and list in Table 2):

The wolf population is being evaluated through a cooperative wolf collaring study with United States Fish and Wildlife Service (USFWS). Wolf density in Unit 9E and the southwest portion of Unit 9C was 6–7 wolves/1,000 km^2 (16–18 wolves/1,000 mi^2) (Brna and Verbrugge 2013; Watts et al. *in prep*).

Date(s) and method of the most recent fall abundance assessment for wolves (if statistical variation available, describe method here and list in Table 2):

The wolf population is being evaluated through a cooperative wolf collaring study with USFWS.

Other research or evidence of trend or abundance status in wolves:

Wolf sightings remain common throughout the Northern Alaska Peninsula.

Table 3. Wolf abundance objectives and removal in wolf assessment area (N) of the Northern Alaska Peninsula Predation Management Area. Removal objective is to annually remove 100 % of the wolves in the wolf predation control area (O), so estimated or confirmed number remaining in the control area (O) by the May calving season each regulatory year is 0.

Period	RY	Harvest removal from area N		Dept. control removal from area O	Public control removal from area O	Total removal[a] from area N	Spring abundance (variation) in area N
		Trap	Hunt				
Year 0	2010	29	3	0	0	32	-
Year 1	2011	16	80	0	10	106	-
Year 2	2012	9	9	0	5	23	-
Year 3	2013	11	27	0	0[b]	38	-
Year 4	2014	13	10	0	1	24	-
Year 5	2015	9	33	0	0	45[c]	-
Year 6	2016	21	0	0	0	22[d]	-

[a] Additional removal may be Defense of Life and Property, vehicle kill, etc.
[b] In RY2013 there was no public control removal from the area due to weather conditions hazardous to flying and tracking.
[c] Includes 3 wolves harvested to unrecorded method.
[d] Includes 1 wolf harvested by unknown method and of unknown sex.

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):

Not Applicable; there are no demonstrated methods to improve caribou habitat, and no evidence that habitat is limiting the caribou population.

Area treated and method: Not Applicable

Observation on treatment response: Not Applicable

Evidence of progress toward objective(s) (choose one: Apparent Statistical):
Not Applicable

Similar trend in nearby non-treatment areas? Not Applicable

Describe any substantial change in habitat not caused by active program (e.g., new

wildland fires, flooding, insect mortality of vegetation, etc.): Not Applicable

Table 4. **Nutritional indicators for caribou in assessment area (L)** of the Northern Alaska Peninsula Predation Management Area.

Period	RY	Pregnancy Rate (Females ≥ 2 yrs old)	Male Calf Weights (kg)	Female Calf Weights (kg)
Year 0	2010	77%	-	-
Year 1	2011	81%	8.4	8.1
Year 2	2012	-	-	-
Year 3	2013	66%	-	-
Year 4	2014	76%	-	-
Year 5	2015	71%	-	-
Year 6	2016	73%	-	-

Where objectives on nutritional condition were listed in the Operational Plan, describe trend in condition indices since inception of (a) habitat enhancement or (b) enhanced harvest: Not Applicable

Evidence of trend (choose one: Apparent Statistical): Not Applicable

Similar trend in nearby non-treatment areas? Not Applicable

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 Northern Alaska Peninsula Predation Management 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).**

Period	FY	Predation control[a]		Other IM activities		Total IM cost	Research cost[d]
		Time[b]	Cost[c]	Time	Cost		
Year 0	2010						
Year 1	2011						
Year 2	2012	0.0	0.0	0.4	22.0	22.0	0.0
Year 2	2013	0.0	0.0	0.5	6.0	6.0	0.0
Year 3	2014	0.0	0.0	0.5	6.0	6.0	0.0
Year 4	2015	0.0	0.0	0.5	6.0	6.0	0.0
Year 5	2016	0.0	0.0	0.5	6.0	6.0	0.0
Year 6	2017	0.0	0.0	0.0	0.0	0.0	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).

6) Department recommendations[2] for annual evaluation (1 February) following Year 3 for the Northern Alaska Peninsula Predation Management Area—skip in final year and go to section 7

Has progress toward defined criteria been achieved?

There has been a general slow increase in bull-to-cow and overall caribou numbers since 2008. The bull-to-cow ratio has exceeded the management objective of 35 bulls:100 cows since 2013. The calf-to-cow ratio increased through 2015, then decreased somewhat in 2016. However, as the active wolf removal did not begin until January 2012 (RY11) and had minimal participation due to inconducive weather conditions, these data are not associated with wolf control activities.

Has achievement of success criteria occurred?

Success in achieving criteria has occurred but cannot be attributed to the IM program. Bull-to-cow ratios, calf-to-cow ratios and caribou numbers have slowly increased to the point that a Tier II season to take advantage of surplus bulls was implemented in 2016.

Recommendation for IM program (choose one): Continue Modify **Suspend** Terminate Same-Day-Airborne Wolf Control Program in control area (O).

7) Evaluation (1 February) for program renewal (following final Year 6 [RY2016]) and Department recommendations for Northern Alaska Peninsula Predation Management 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): _____

[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.