# Annual Report to the Alaska Board of Game on Intensive Management for Caribou with Wolf Predation Control in GMUs 9B, 17B&C, and 19A&B, the Mulchatna Caribou Herd

**Prepared by the Division of Wildlife Conservation**
**February 2013**

## 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

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

February X (annual report) August ___ (interim annual update[2]) Year_2013_____

C) Program name: GMUs 9B, 17B&C, and 19A&B
Mulchatna Caribou Herd

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 Units (GMUs) fully or partly included in IM program area:
GMUs 9B, 17B&C, and 19A&B

F) IM objectives for caribou: population size 30,000-80,000 harvest 2,400-8,000.

G) Month and year the current predation control program was originally authorized by the Board:
The plan was initially authorized in March 2011 for GMUs 9B and 17B&C and was modified in March 2012 to include GMUs 19A&B.

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

I) If active, month and year the current predation control program began:
March 1, 2012 in Regulatory Year (RY) 2011 (RY 2011 = July 1, 2011 through June 30, 2012).

J) 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:
39,683 sq. miles, in GMUs 9B, 17B&C, and 19A&B.

L) Size and geographic description of area for assessing ungulate abundance:
Approximately 50,000 sq. miles and includes the range of the Mulchatna Caribou Herd.

M) Size and geographic description of area for ungulate harvest reporting:
Approximately 50,000 sq. miles and includes the range of the Mulchatna Caribou Herd.

[1] For purpose and context of this report format, see *Agency Protocol for Intensive Management of Big Game in Alaska*.
[2] The interim annual update may be limited only to sections that changed substantially since prior annual report

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

The wolf assessment area in GMUs 17 and 9B is a 7,612 sq. mile area defined by corners (N60 34.0 W158 25.0, N60 34.0 W155 55.0, N59 18.0 W158 25.0, and N59 18.0 W155 55.0).Wolf numbers are also monitored in the eastern portion of GMU 19B by Region IV staff and in GMU 19A by Region III staff.

O) Size and geographic description of predation control area:

The predation control area measured approximately 2,870 sq. miles during RY 2011 and as planned for 2012. It encompassed an area from Tikchik Mountain (N 60 03.00, W 158 18.00) east to Sleitat Mountain (N 60 03.00, W 157 04.00), southeast to the Koktuli Hills (N 59 48.00, W 156 18.00) southwest to Lower Klutuk Creek (N 59 19.00, W 157 04.00), west to the Muklung Hills (N 59 19.00, W 158 18.00) and then north returning to Tikchik Mountain (see Figure).

P) Criteria for evaluating progress toward IM objectives:

- Fall calf-to-cow ratios,
- Fall bull-to-cow ratio, and
- Caribou abundance.

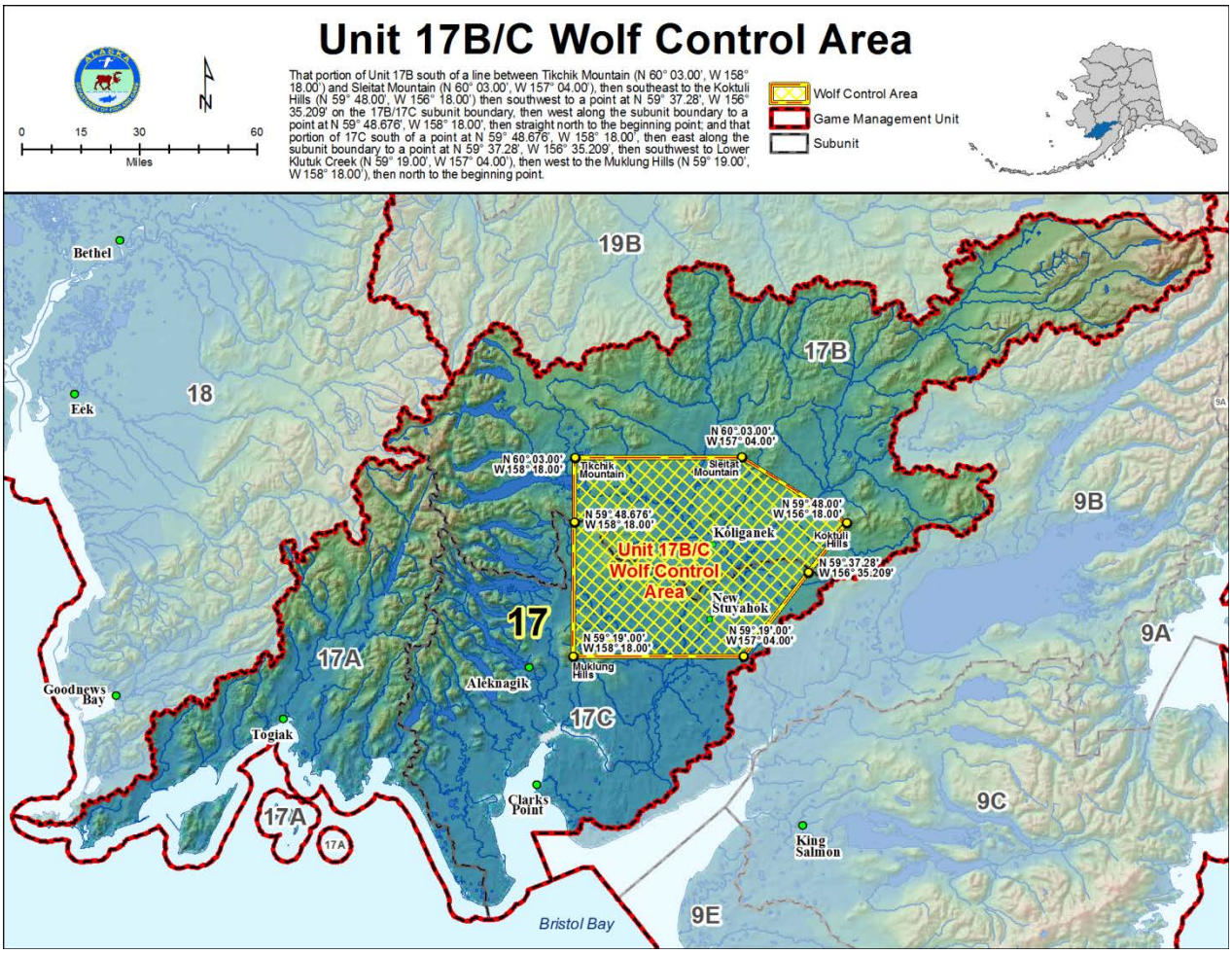
Q) Criteria for success with this program:

- Fall bull-to-cow ratio can be maintained at a minimum of 35 bulls:100 cows
- Fall calf ratio can be sustained above 30 calves:100 cows,
- The population can grow at a sustained rate of 5% annually
- Caribou harvest objectives are met.

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

The Department recommends continuation of the predation control program during RY2012 calving season while monitoring the herd progress towards IM objectives (details provided in sections 6).

Figure. Map of the Mulchatna Caribou Herd Predation Control Area in Game Management Unit 17, Spring 2012 (RY 2011).




## 2) Prey data

Date(s) and method of most recent summer abundance assessment for caribou (if statistical variation available, describe method here and show result in Table 1)

> Last successful photo-census of post-calving aggregation conducted on July 7, 2008. Photo-census counts scheduled each summer since 2008 have been unsuccessful due to a combination of poor weather conditions and lack of post-calving aggregations. During a short, favorable weather window on July 6-7, 2012, a modified photo survey was conducted to provide a minimum count of caribou as well as to evaluate the survey method. The modified survey focused on locating and counting only groups associated with radiocollared animals to provide an estimate of abundance and associated variance (Rivest et al. 1998).
>
> 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) N/A and in the

last year (Y/N) N/A? Describe comparison if necessary:

Not Applicable: This program was initiated in March, 2012 (RY11). It is too early to determine trends in abundance that resulted from these activities.

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

October 5-6, 2012

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) N/A and in the last year (Y/N) N/A? Describe comparison if necessary:

Similar increases in calf ratios were observed in eastern segment of MCH where wolf control is not being conducted and the western segment where wolf control is being conducted in 2012 (8 and 10 calves:100 cows in the non-treatment and treatment areas, respectively) (see Table 1). However the calf:100 cow ratio for western segment substantially above what is generally considered needed for positive recruitment. This program was initiated in March 2012 (RY2011), and it is too early to determine trends in bull ratios.

**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 2017 in Mulchatna Caribou Herd Predation Management Area. Regulatory year is 1 July to 30 June (e.g, RY 2010 is 1 July 2010 to 30 June 2011).

*Eastern Segment of the MCH (No Predator Control)*

| | | Composition (number per 100 cows) | | |
|---|---|---|---|---|
| Period | RY | Calves | Bulls | Total *n* |
| Year 0 | 2010 | 17 | 13 | 2,581 |
| Year 1 | 2011 | 14 | 18 | 2,649 |
| Year 2 | 2012 | 22 | 17 | 2,217 |
| Year 3 | | | | |
| Year 4 | | | | |

*Western Segment of the MCH (Active Predator Control)*

| | | Composition (number per 100 cows) | | |
|---|---|---|---|---|
| Period | RY | Calves | Bulls | Total *n* |
| Year 0 | 2010 | 23 | 23 | 2,011 |
| Year 1 | 2011 | 28 | 34 | 1,995 |
| Year 2 | 2012 | 38 | 29 | 2,636 |
| Year 3 | | | | |
| Year 4 | | | | |

*All Areas Combined*

| | | | Composition (number per 100 cows) | | |
|---|---|---|---|---|---|
| Period | RY | Abundance (variation) | Calves | Bulls | Total *n* |
| Year 0 | 2010 | - | 20 | 17 | 4,592 |
| Year 1 | 2011 | - | 19 | 22 | 5,282[a] |
| Year 2 | 2012 | 25,000-35,000[b] | 30 | 23 | 4,853 |
| Year 3 | | | | | |
| Year 4 | | | | | |

[a] Includes caribou not assigned to the Eastern or Western Segment of the MCH.
[b] Preliminary estimate of abundance based on the Rivest methodology (Rivest et al. 1998).

Describe trend in abundance or composition:

Not Applicable: This program was initiated in March 2012 (RY2011). It is too early to determine trends in abundance resulting from these activities. Less than one year of time has occurred since treatment, so any trends would be, at most, preliminary.

**Table 2**. Caribou 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 0 | 2010[b] | 249 | 220 | Unk | Unk | 449 | Unk | 449 |
| Year 1 | 2011[b] | 223 | 238 | Unk | Unk | 470 | Unk | 470 |
| Year 2 | | | | | | | | |
| Year 3 | | | | | | | | |
| Year 4 | | | | | | | | |
| Year 5 | | | | | | | | |

[a]Clarify (vehicle mortality, Defense of Life and Property, Mortuary, etc.).
[b]Data from harvest report cards, July 30, 2012.

Describe trend in harvest:

There has been a decline in the reported harvest since 1999. The majority of harvest shifted geographically from GMU 17 to GMU 18 and chronologically from fall to late winter. The majority of hunters shifted from nonresidents and nonlocal residents (i.e. people who live outside the herd's range) to local residents (i.e. people who live within the herd's range), and of those, primarily residents of GMU 18.

Describe any other harvest related trend if appropriate:

Reported harvest has changed from greater than 75% bulls to approximately equal bull:cow harvest. Method of transportation has changed from greater than 80% aircraft to an increasing majority of transportation used being snowmachine.

## 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 3):

A minimum abundance estimate survey was conducted in February, 2012.

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

Not Applicable: Fall abundance has not been estimated due to logistical and weather constraints.

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

Long-time local residents and local air taxi pilots report higher frequency of wolf sightings in the area. There has also been a continued increase in harvest by hunters and trappers suggesting that wolves remain abundant.

**Table 3**. Wolf abundance objectives and removal in wolf assessment area (N) of Mulchatna Caribou Herd 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.

Subunits 9B and 17B&C

| 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 | Minimum Spring abundance (variation) in area N |
|---|---|---|---|---|---|---|---|
| | | Trap | Hunt | | | | |
| Year 1 | 2011 | 25 | 69 | 0 | 11 | 104 | 14 |
| Year 2 | | | | | | | |
| Year 3 | | | | | | | |
| Year 4 | | | | | | | |
| Year 5 | | | | | | | |
| Year 6 | | | | | | | |

[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):

Not Applicable: There are no demonstrated methods to improve caribou habitat and no reason to believe 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: Not Applicable

**Table 4**. Nutritional indicators for caribou in assessment area (L) of the Mulchatna Caribou herd Predation Management Area..

| Period | RY | Pregnancy Females >2 yrs age[a] | Female Calf Weights at 10.5 months in lbs. (n) |
|---|---|---|---|
| Year 0 | 2010 | (May 2011) 79% | (April 2011) 124 (20) |
| Year 1 | 2011 | (May 2012) 78% | (April 2012) 119 (13) |
| Year 2 | | | |
| Year 3 | | | |
| Year 4 | | | |
| Year 5 | | | |
| Year 6 | | | |

[a] Pregnancy rate is based on known-aged animals from a collared sample of adult female caribou. Pregnancy status is determined in May based on observed characteristics of pregnancy (antler retention, udder development, and/or presence of a calf at heel).

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: N/A

Evidence of trend: N/A

Similar trend in nearby non-treatment areas? 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 Mulchatna Caribou Herd 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 1 | 2012 | 0.0 | 0.0 | 34.0 | 2.0 | 36.0 | 415.0 |
| Year 2 | | | | | | | |
| Year 3 | | | | | | | |
| Year 4 | | | | | | | |
| Year 5 | | | | | | | |
| Year 6 | | | | | | | |

[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[3] for annual evaluation (1 February) following Year 1 (RY11) for the Mulchatna Caribou herd Predation Management Area

Has progress toward defined criteria been achieved?

Yes, fall composition ratios for both calves:100 cows and bulls:100 cows have improved, however no abundance estimate is available to evaluate success of that criteria.

Has achievement of success criteria occurred?

No, however this is only the second year of the program

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

Continue Same Day Airborne Wolf Control Program in control area (O)

[3] 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.

**7) Evaluation (1 February) for program renewal (following final Year 6 [RY 2016]) and Department recommendations for the Mulchatna Caribou herd 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): _____