

**Annual Report to the Alaska Board of Game on
Intensive Management for Moose
with Wolf Predation Control
in Unit 15A**

**Prepared by the Division of Wildlife Conservation
February 2016**



- 1) **Description of IM Program 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 92.118**
 - B) **Month this report was submitted by the Department to the Board:** March 2016
 - C) **Program name:** Unit 15A Moose
 - D) **Existing program has an associated Operational Plan:** Operational Plan for Intensive Management of Moose in Game Management Unit 15A During Regulatory years 2012-2017.
 - E) **Game Management Unit(s) fully or partly included in IM program area:** Unit 15A
 - F) **IM objectives for Moose:** Population size 3,000-3,500. Harvest 180-350.
 - G) **Month and year the current predation control program was originally authorized by the Board:** January 2012, revised at the March 2013 Alaska Board of Game (BOG) meeting.
 - H) **Predation control is currently active in this IM area:** Yes
 - I) **The current predation control program began:** November 2013.
 - J) **A habitat management program funded by the Department or from other sources is currently active in this IM area:** Yes
 - K) **Size of IM program area (square miles) and geographic description:** 1,314 mi², Unit 15A
 - L) **Size and geographic description of area for assessing ungulate abundance:** 1,314 mi², Unit 15A
 - M) **Size and geographic description of area for ungulate harvest reporting:** 1,314mi², Unit 15A
 - N) **Size and geographic description of area for assessing predator abundance:** 1,314 mi², Unit 15A
 - O) **Size and geographic description of predation control area:** Originally control efforts were limited to approximately 49 mi² on Salamatof and Kenai Native Associations lands in Unit 15A. During RY2015, 14 mi² of Kenia Peninsula Borough and State lands were added, which increased the total control area to 63 mi².
 - P) **Criteria for evaluating progress toward IM objectives:** An increase in calf:cow ratio and no further decline in the moose population.
 - Q) **Criteria for success with this program:** The overall program will be successful when we attain IM population and harvest objectives in Unit 15A.

- R) Department recommendation for IM program in this reporting period:**
 Reevaluate program if progress is not made towards reducing the wolf population this winter (Section 6).

Refer to one or more scaled maps in the Operational Plan for areas described in this section

2) Prey data

Date(s) and method of most recent abundance assessment for Moose:

When conditions allow, moose abundance assessments are conducted through a minimum triannual GSPE population estimate and annual composition surveys that includes 6 count areas. Moose data for RY2012 include a November 2012 composition survey and a February 2013 GSPE population estimate. Data for RY2013 is from a November/December composition survey. Data for RY2014 was collected During December 2014; however, it was limited to 1 count area (2). Data for RY2015 is from November/December composition counts (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: Our control area is too small to effectively make comparisons between treatment and non-treatment areas using current techniques. We have not detected any differences between areas to date.

Date(s) of most recent age and sex composition survey: November 22 – December 4, 2015.

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: Our control area is too small to effectively make comparisons between treatment and non-treatment areas using current techniques. We have not detected any differences between the areas to date.

Table 1. Unit 15A moose abundance, age, and sex composition in the assessment area (L) since program implementation in year 1 through review in year 2017. Regulatory year is 1 July to 30 June (e.g. RY2012 is 1 July 2012 to 30 June 2013).

| | | Composition (number per 100 cows) | | | | |
|--------|-------------------|-----------------------------------|--------|-----------|-------|----------------|
| Period | RY | Abundance (variation) | Calves | Yearlings | Males | Total <i>n</i> |
| | 2012 | | 25 | | 30 | 372 |
| | 2012 | 1569 ($\pm 13.4\%$; 95% C.I.) | | | | |
| Year 1 | 2013 | | 25 | | 29 | 332 |
| Year 2 | 2014 ^a | | 33 | | 10 | 86 |
| Year 3 | 2015 | | 18 | | 33 | 232 |
| Year 4 | 2016 | | | | | |
| Year 5 | 2017 | | | | | |

^a During RY2014 we were only able to survey one count area (CA2) due to lack of snow cover. During RY2012, RY2013, and RY2015 we combined data from six count areas in Unit 15A.

Describe trend in abundance or composition: There are no data available for treatment areas alone. Data for RY2012, RY2013, and RY2015 (years when we completed all traditional count areas) are from a sub-sample of all of Unit 15A, and some of the count areas include portions of the treatment area. For all count areas, bull:cow ratios have been relatively stable and calf:cow ratios decreased in RY2015 compared to RY2012 and RY2013. There are no census data available for comparisons.

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

| Period | RY | Reported | | Illegal ^b | Total harvest | Other mortality ^a | Total |
|---------------------|------|----------|--------|----------------------|---------------|------------------------------|-------|
| | | Male | Female | | | | |
| | 2012 | 9 | 0 | 1 | 9 | 107 | 116 |
| Year 1 | 2013 | 36 | 0 | 8 | 36 | 93 | 129 |
| Year 2 | 2014 | 48 | 0 | 9 | 48 | 68 | 119 |
| Year 3 ^c | 2015 | 33 | 0 | 8 | 33 | 63 | 97 |
| Year 4 | 2016 | | | | | | |
| Year 5 | 2017 | | | | | | |

^a vehicle mortality and mortuary.

^b illegal harvest includes both reported and unreported

^c preliminary data

Describe trend in harvest: Please refer to Figure 4 on page 6 of the Operational Plan for Intensive Management of Moose in Unit 15A. The increased harvest from RY2012 compared to RY2013 and RY2014 was primarily attributed to a change in antler configuration for a legal bull that allowed additional take. In RY2012, a legal bull had to have an antler spread of at least 50 inches or at least 4 brow tines on at least one side. In RY2013 and RY2014, a bull with no more than a spike on at least one side was added to the RY2012 definition for a legal bull to harvest. The reported harvest increased by 12 bulls from RY2013 to RY2014, but the increase is within expected annual variation so it would be premature to say we can detect a trend at this time. Data for RY2015 are considered preliminary at this time so any comparison would be premature.

Describe any other harvest related trend if appropriate: During 2012, 309 individuals reported hunting in Unit 15A and the reported harvest was 9 bulls (3% success rate). During RY2013, 525 individuals reported hunting in Unit 15A and the reported harvest was 36 bulls (7% success rate). During RY2014, 540 individuals reported hunting in Unit 15A and reported harvest was 48 bulls (9% success rate). Data for RY2015 (33 bulls) are considered preliminary at this time.

3) Predator data: Wolves

Dates and method of most recent spring abundance assessment for wolves:

Survey data for RY2010 were collected in March 2011, for RY2011 in November 2011, and for RY2012 in February 2013. All of Unit 15A was flown and the total numbers are based on the number of wolves observed and an assessment of tracks observed. A partial survey was

conducted during December 2013 and no surveys were completed during 2014 or fall of 2015 due to lack of adequate snow cover. Our limited data suggests wolf numbers have remained relatively constant since 2010 (Table 3.). The spring abundance is our best estimate of what remained post-harvest. For this report, hunting mortality is included under trapping because it is difficult to distinguish between the two. Only a few wolves are taken under the hunting regulation. We believe 10-20 wolves spend at least some of their time in the areas open to wolf control.

Dates and method of most recent fall abundance assessment for wolves:

Fall abundance was estimated by adding the estimated number of wolves removed prior to the date the wolf survey was flown to the number of wolves counted during the survey.

Other research or evidence of trend or abundance status in wolves: Interviews with trappers and information from trapper surveys reflect concurrence with estimated abundance.

Table 3. Population estimates and human caused mortalities for wolves in Unit 15A. Removal objective is 100% of pre-control fall abundance from control area (49 mi² RY2013-2015, expanded to 63 mi² in RY2016) in year 1 of wolf predation control program, and an estimated or confirmed number remaining by spring (30 April) each RY in all of Unit 15A (1,314 mi²) of at least 15.

| Period | RY | Fall abundance | Harvest removal from Unit 15A | Dept. control removal from Unit 15A | Public control removal from Unit 15A | Total removal from Unit 15A ^b | Spring abundance |
|--------|-------------------|--------------------|-------------------------------|-------------------------------------|--------------------------------------|--|------------------|
| | | | Trap Hunt | | | | |
| | 2010 | 53-63 | 15 | | | 15 | 38-48 |
| | 2011 | 60-62 | 10 | | | 10 | 50-52 |
| | 2012 | 60-65 | 23 | | | 23 | 45-50 |
| Year 1 | 2013 | 45-60 ^a | 4 | | 3 | 7 | 40-50 |
| Year 2 | 2014 | 45-60 ^c | 13 | | 0 | 13 | 35-50 |
| Year 3 | 2015 ^d | 45-60 ^c | 2 | | 0 | 2 | N/A |

^aThis is an estimate based on a partial survey of Unit 15A and other reported sightings.

^bHarvest data was obtained from the State Winfonet database.

^cNo surveys flown, however there is no indication there were significant changes to previous year.

^dPreliminary data.

Black Bear

There are no identified Intensive Management control efforts for black bears. The latest estimate for black bear abundance occurred in the mid-1980's. Extrapolating data from that time period resulted in a current estimate of 700-900 black bears in Unit 15A. It is not known if these data accurately portray current black bear numbers in this area, but black bears do occur throughout the unit.

Brown Bear

There are no identified Intensive Management control efforts for brown bears. The Kenai National Wildlife Refuge completed a study in 2013 estimating the brown bear population on the Kenai Peninsula during 2010. Using their density calculation (42/1000km²), there were approximately 142 brown bears in Unit 15A in 2010.

The most significant action affecting brown bear mortality in Unit 15A is the recent liberalizations of hunting seasons and bag limits. Prior to Fall 2012 the hunting season was managed through a limited drawing permit season with a 1 bear/4 years bag limit. In January 2012, the BOG liberalized hunting opportunity for Kenai brown bears by adding a fall registration hunt with an unlimited number of permits and season dates of October 1 – November 30. The BOG further liberalized brown bear hunting opportunity in March 2013 including expanded season dates of September 1 – May 31, a bag limit of 1 bear/regulatory year, and maintained the unlimited number of registration permits. The BOG set a cap (to begin in calendar year 2014) on human caused brown bear mortalities of 70 human caused mortalities annually, and during January 2014 allowed for the harvest of brown bears at registered black bear baiting stations. During calendar years 2013, 2014, and 2015 the total human caused brown bear mortalities in Unit 15A were 20, 13, and 6 respectively.

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): Increase available moose browse through mechanical treatment and work with other agencies to develop a long term habitat management strategy. The department received funding to expand this effort in the future and is cooperating with other agencies and native organization to develop a long term plan.

Area treated and method: Timber (mainly spruce, aspen, and some birch) was harvested on about 85 acres in Unit 15A. Portions of that area were scarified and approximately 1,000 birch seedlings were planted during spring of 2013. Expenditures for this project (\$100,000) are included in the “Cost” column under “Other IM activities” for FY2013 in Table 4.

Observation on treatment: Initial visits to the site indicate good survival of the planted seedlings and regeneration of early successional species has started. Moose browsing is evident in the area, but the area treated is small. We have not detected any effect on the moose population we can attribute to the treatment.

Evidence of progress toward objectives: Department staff will continue to work with other government and private companies or organizations to develop a long term habitat management strategy.

Nutritional indicators for moose in assessment area (L) of the Unit 15A Intensive

management area: Current research efforts addressing moose productivity and body condition are in the early stages and data are not summarized at this time. Preliminary data indicate that adult cow moose are in relatively poor condition in Unit 15A compared to adult cows in Unit 15C, based on body condition indices.

5) Costs specific to implementing Intensive Management

Table 4. 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 15A Intensive 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 2012 is 1 July 2011 to 30 June 2012.

| Period | FY | Predation control ^a | | Other IM activities | | Total IM cost ^c | Research cost ^d |
|--------|------|--------------------------------|-------------------|---------------------|-------------------|----------------------------|----------------------------|
| | | Time ^b | Cost ^c | Time | Cost ^c | | |
| | 2012 | | | 12 | 35.5 | 35.5 | 150 |
| | 2013 | | | 13 | 136.3 | 136.3 | 250 |
| Year 1 | 2014 | 5 | 34 | 11 | 30.9 | 64.9 | 150 |
| Year 2 | 2015 | 1 | 10 | 1 | 10 | 20.0 | 162 |
| Year 3 | 2016 | 1 | 12 | 1 | 12 | 24 | 154 |
| Year 4 | 2017 | | | | | | |
| Year 5 | 2018 | | | | | | |

^aState or private funds only.

^bPerson-months (22 days per month).

^cSalary plus operations. Salary includes 0.5 mo. WBII 0.5 mo. WBIII (incl. benefits).

^dSeparate from implementing IM program but beneficial for understanding of ecological or human response to management treatment (scientific approach that is not unique to IM). FY 15 includes 12K from AKW-5 grant for coordination of habitat enhancement for wildlife. FY 16 includes 4K in salaries spent from AKW-5 on coordination of habitat enhancement.

6) Department recommendations for annual evaluation (1 February) following Year 3 for Unit 15A Intensive Management

Has progress toward defined criteria been achieved: No, we have not detected any changes to the moose population or harvest in Unit 15A. There has been no discernable change in the calf-to-cow ratios from composition surveys completed during the past 3 years. Research conducted in Unit 15A has noted condition and productivity of collared animals consistent with nutritional stress and no discernable change to calf survival has been detected. The department completed initial habitat improvements (85 acres) and will continue discussions with private organizations and government agencies to develop a long term habitat improvement plan.

Has achievement of success criteria occurred: No, we conducted composition surveys during fall 2013 and fall 2015 (composition surveys were not conducted in 2014 due to inadequate

snow cover), and we recorded a decrease in the calf:cow ratio from 25 calves:100 cows in 2013 to 18 calves:100 cows in 2015. This decrease was recorded even though we had a mild winter (relative to snow depths) during 2014. The last moose census we conducted in Unit 15A was in February 2013 (we did not conduct a census in subsequent years due to inadequate snow cover) so we do not have additional census data to determine if there were any changes in moose numbers. We observed fewer moose during composition surveys flown in fall 2015 compared to fall 2013 (308 and 432 respectively). All indications are we have not made any progress towards achieving IM population or harvest objectives.

Recommendation for IM practice(s):

Predation Control: Continue and Evaluate

The department recommends continuing the program during the winter of 2015-16. If progress is not made towards reducing the wolf population, the department will recommend a reevaluation of the Unit 15A program and a possible suspension of wolf control activities in 2016. Wolf control activities have primarily been hampered by the size of the control area and poor snow conditions. The department issued permits for the wolf control portion of the program and the public took 3 wolves by aerial shooting between December 2013 and March 2014. A private contractor was hired to attempt ground based trapping efforts within the control area during 2014. There were no subsequent ground based IM efforts to remove wolves in the control area due to the ineffectiveness of the efforts in 2014. A total of 3 wolves have been removed by control efforts during the first 2.5 years of this program, so the predator control portion of this IM effort has been ineffective.

Habitat enhancement: Continue

A \$1.0 million federal aid award for moose habitat (AKW-5 Habitat Enhancement for Wildlife) was secured for FY2015-2019. The department is coordinating with an interagency group on the Kenai Peninsula to direct some of these funds towards habitat projects in Unit 15A. The project design focuses on developing fuel breaks near communities to provide fire management agencies more options to allow wildfires to burn and use prescribed fire when conditions are appropriate. Allowing wildfires and prescribed fires to burn will promote regeneration of hardwoods for the benefit of moose and other wildlife. Project planning for these funds began in FY 2015 and creating a fuel break around the northeast corner of Sterling is scheduled for FY 2016-2017. This will be the first of several planned fuel breaks, which will ultimately enhance the ability for the Kenai National Wildlife Refuge (KNWR) to use prescribed fire on Refuge lands in Unit 15A. In FY 2015, \$12,000 was spent on staff to coordinate with Alaska DNR, KNWR, and other agencies to prepare the Sterling Fuel Break for bid. This federal aid award will pay for \$80,000 of contractual services in FY 2016-2017 to treat approximately 135 acres. Another \$60,000 is planned for subsequent projects.

Harvest strategy: Continue

The Operational Plan states that any moose added to the population from the control efforts will be reallocated to harvest. When we detect a difference we will submit a proposal to the

board of game (either during a regular scheduled meeting or through an agenda change request) to address the surplus. The only moose currently available for harvest in Unit 15A are bulls with a spike on at least one side, or a 50 inch antler spread, or 4 or more brow tines on at least one side.