

Upper Yukon/Tanana Predation Control Implementation Plan and Activities
Division of Wildlife Conservation Report to the Alaska Board of Game
March 2010

Background

Residents of the upper Yukon/Tanana drainages have expressed concern, since the early 1980s, about the chronically low density of the Fortymile Caribou Herd (FCH) and of moose in Units 12 and 20E. They felt the low density of caribou was primarily due to wolf predation and the low density of moose was due to a combination of wolf and brown bear predation. During Board of Game meetings in March 2004 and 2006, the Upper Tanana/Fortymile Fish and Game Advisory Committee and the public provided testimony explaining the problem and requested corrective action.

The Board first adopted the Upper Yukon/Tanana Predation Control Implementation Plan in November 2004 to increase the moose population. The plan authorized control of wolves in Units 12 and 20E and control of brown bears in southcentral Unit 20E. The plan was authorized for 5 years, and began on January 1, 2005. In January 2006, the Board adopted a revised implementation plan in the form of an emergency regulation. The emergency regulation limited wolf control activities to northern Unit 12 and southern Unit 20E and clarified and updated key components of the plan that included: boundaries of the bear control area, wildlife population and human use information, predator and prey population levels and objectives, plan justifications, methods and means, time frame for updates and evaluations, and miscellaneous specifications. In May 2006, the Board further modified the emergency regulation and adopted it as a final regulation. Modifications included: adding a goal to increase the FCH, expanding the wolf control area to encompass the FCH range (all of Unit 20E and portions of Units 12, 20B, 20D and 25C), and expanding the brown bear control area to include more of southcentral Unit 20E. In March 2009, the Board reauthorized the implementation plan with modifications. Modifications included: suspending the bear control portion of the plan on July 1, 2009, because it was determined to be ineffective at removing bears from the control area due to a combination of ineffective methods and a lack of incentive to program participants. The plan is in effect for 5 years, and began on January 1, 2009. The Board authorized the commissioner to issue public aerial shooting permits or public land and shoot permits as methods of wolf removal pursuant to AS 16.05.783. Objectives of the plan, as listed in 5 AAC 92.125, are to:

- Increase the Fortymile Caribou Herd to aid in achieving the intensive management population objective of 50,000–100,000 and harvest objective of 1,000–15,000.
- Increase the moose population in Unit 12 north of the Alaska Highway and in Unit 20E to aid in achieving the geographically proportional intensive management moose population objective of 8,744–11,116 and harvest objective of 547–1,084.

Plan Implementation Activities

2008–2009 CONTROL PROGRAM

We conducted control activities during regulatory year (RY) 2008 under authority of the wolf and brown bear control program adopted by the Board in November 2004 and modified in January 2006 (regulatory year begins on July 1 and ends June 30, e.g., RY08 = July 1, 2008–June 30, 2009).

Wolf Control. We conducted wolf control activities in: that portion of Unit 12 north of the Alaska Highway; that portion of Unit 20D within the Goodpaster River drainage upstream from and including the South Fork Goodpaster River drainage, and within the Healy River, and the Billy and Sand creek drainages; that portion of Unit 20B within the Salcha River drainage upstream from and including the Goose Creek drainage, and within the Middle Fork of the Chena River drainage; all of Unit 20E; and that portion of Unit 25C within the Birch Creek drainage upstream from the Steese Highway bridge, and within the area draining into the south and west bank of the Yukon River upstream from the community of Circle. We received 73 applications for public wolf control permits and issued 53 permits (25 pilots, 28 gunners). The control program was in effect during October 6, 2008–April 30, 2009. Permittees were allowed to take wolves using aerial shooting or land and shoot methods. They took 49 wolves, and an additional 87 and 84 wolves were taken by hunters and trappers and Department of Fish and Game personnel in helicopters, respectively (Table 1). We were unable to reduce the population to 88–103 wolves, as specified in the predator control implementation plan adopted by the Board in May 2006 and reauthorized in March of 2009.

Table 1. Wolf harvest and wolf control take in the Upper Yukon/Tanana Predator Control Area, RY01–RY08.

Regulatory Year	Hunting and Trapping Harvest	Wolf Control Take	F&G Helicopter Take	Total Kill
2001–2002	50	-	-	50
2002–2003	65	-	-	65
2003–2004	56	-	-	56
2004–2005	75	58	-	133
2005–2006	69	17	-	86
2006–2007 ^a	80	23	-	103
2007–2008 ^a	70	27	-	97
2008–2009 ^a	87	49	84	220

^a Control area expanded to include all of the FCH range in Alaska.

Brown Bear Control. We conducted brown bear control activities in that portion of Unit 20E within the South Fork Fortymile River drainage upstream from and including the Butte Creek drainage, the Middle Fork Fortymile River drainage upstream from but not

including the Joseph Creek drainage, and the Sixtymile and North Ladue river drainages. We issued 44 control permits to the public, and registered 20 brown bear bait sites. The control program was in effect during August 1, 2008–June 30, 2009. Requirements and restrictions for the take of brown bears included in the Alaska Hunting Regulations applied to the permittees, except that permittees did not have an individual kill limit, they had the option to bait brown bears and take brown bears same-day-airborne at bait stations if the bait stations were registered with our Tok office. Permittees took 2 brown bears, and an additional 8 bears were taken by hunters (Table 2). Two bears were taken at bait sites. We were unable to reduce the population to 68 bears, as specified in the predator control implementation plan adopted by the Board in May 2006.

Table 2. Brown bear harvest and brown bear control take in the Upper Yukon/Tanana Predator Control Area, RY01–RY08.

Regulatory Year	Hunting	Brown Bear Control Take	Total Kill
2001–2002	6	-	6
2002–2003	9	-	9
2003–2004	11	-	11
2004–2005	8	2	10
2005–2006	7	3	10
2006–2007 ^a	2	1	3
2007–2008 ^a	5	6	11
2008–2009 ^a	8	2	10

^a Control area expanded to include a larger portion of southcentral Unit 20E.

2009–2010 CONTROL PROGRAM

We are conducting control activities during RY09 under authority of the wolf control program reauthorized by the Board in March 2009.

Wolf Control. We are conducting wolf control activities in: that portion of Unit 12 north of the Alaska Highway; that portion of Unit 20D within the Goodpaster River drainage upstream from and including the South Fork Goodpaster River drainage, and within the Healy River, and the Billy and Sand creek drainages; that portion of Unit 20B within the Salcha River drainage upstream from and including the Goose Creek drainage, and within the Middle Fork of the Chena River drainage; all of Unit 20E; and that portion of Unit 25C within the Birch Creek drainage upstream from the Steese Highway bridge, and within the area draining into the south and west bank of the Yukon River upstream from the community of Circle. We received 82 applications for public wolf control permits and issued 57 permits (25 pilots, 32 gunners). The control program will be in effect during October 27, 2009–April 30, 2010 or until the wolf population is reduced to the control objective of 88–103 specified in the predator control implementation plan reauthorized by the Board in March 2009. We estimate that 159–196 wolves will need to be taken to reach the upper end of the control objective. To date, 8 wolves have been taken by control permittees.

Brown Bear Control. The bear control portion of the plan was suspended on July 1, 2009. No permits will be issued for bear control in RY09.

Status of Prey and Predator Populations

CARIBOU POPULATION

Population Composition. Fall surveys indicated there were an estimated 37, 33 and 34 calves per 100 cows in 2007, 2008 and 2009 respectively. Calves per 100 cows averaged 27 during the prior 5 years (fall, 2002–2006).

Population Size. Based on results from a photo census, the July 2009 minimum herd size was estimated at 46,509 caribou. The last successful photo census was completed on the herd in July of 2007, with 38,364 caribou counted. The next photo census is planned for June 2010. The May 2010 herd size is expected to show an increase over 2009, assuming normal to below normal late-winter mortality. Herd size remains below the intensive management objective of 50,000–100,000.

Harvest. Harvest is guided by the FCH Harvest Plan (2006–2012), which was developed by a coalition of fish and game advisory committees and the Eastern Interior Regional Subsistence Advisory Council in cooperation with Yukon First Nations, the Yukon government, US Bureau of Land Management and the Alaska Department of Fish and Game. The plan calls for continuing the present registration permit system with a conservative harvest rate of 2% or 850 animals to facilitate herd growth.

Average annual harvest during RY02–RY06 was 820. Harvest during RY07, RY08 and RY09 was 1,011, 893 and 1,080 respectively. Based on our current population estimate and using guidelines in the FCH Harvest Plan, the harvest quota for RY10 will be approximately 850 caribou. The harvest quota is below the intensive management objective of 1,000–15,000 caribou.

MOOSE POPULATION

Population Composition. Since the beginning of the control program in January of 2005, we conducted surveys in a 4,630mi² area of southern Unit 20E during each fall (2005 – 2008). In this area, the estimated calves per 100 cows were 23, 31, 26, and 30 and yearling bulls per 100 cows 11, 6, 11, and 16 during each of these years respectively. During fall 2000–2004, calves and yearling bulls per 100 cows averaged 18 and 9, respectively. Additional surveys are planned during fall 2010. Current data suggests the proportion of young moose may be increasing in a portion of southern Unit 20E where the wolf population was reduced by $\geq 70\%$ of the precontrol fall population level during 2005–2009.

Population Size. We estimated the moose population size in Unit 12 north of the Alaska Highway and Unit 20E at 2,600–4,300 in 2004, 3,400–5,100 in 2005, 4,000–5,900 in 2006, 4,000–6,100 in 2007, 3,900–5,500 in 2008 and 4,700–6,600 in 2009. These

estimates were based on extrapolations from fall surveys conducted in a 4,630 mi² area of southern Unit 20E during 2004–2009 and surveys conducted within a 1,200 mi² area of the Yukon Charley Rivers Preserve in northern Unit 20E in 2003 and 2006. Additional surveys are planned for fall 2010. The current population is well below the intensive management objective of 8,744–11,116 and is likely stable in the overall area. However, current data suggests the population may be increasing within a portion of southern Unit 20E where the wolf population has been reduced by $\geq 70\%$ of the precontrol fall population level during 2005–2009.

Harvest. Average harvest of moose in Unit 12 north of the Alaska Highway and in Unit 20E during RY02–RY06 was 142. Harvest during RY07, RY08 and RY09 was 151, 189 and 180 respectively. Based on current 2009 estimates of recruitment and a 4% harvest rate of bulls only, the harvestable surplus was 188–264, well below the intensive management harvest objective of 547–1,084.

WOLF POPULATION

Population Size. We estimated the pre-control population in the current wolf control area during fall 2004 was 350–410 in 50–70 packs or approximately 18–2 wolves/1000 mi². This estimate was based on department wolf surveys, wolf research in interior Alaska and Yukon, anecdotal observations, trapper and hunter interviews, and sealing records.

During RY04, wolves were reduced due to predation control activities and hunter and trapper harvest. We estimated the fall 2005 population in the current wolf control area was 300–375 wolves in 50–70 packs (approximately 16–19 wolves/1,000 mi²). This estimate was based on information from wolf research in Interior Alaska and Yukon, wolf control permittee reports, our observations, and sealing records.

During RY05, RY06 and RY07, additional wolves were taken by wolf control permittees, hunters and trappers. Using our PredPrey model, we estimated the fall 2006, 2007, 2008 and 2009 wolf population in the current wolf control area at 300–425, 366–398, 393–431 and 262–299 wolves respectively. The model uses the relationship between spring wolf, moose and caribou population size to predict a likely growth rate for the wolf population to fall. Mathematical equations which define model functions were taken from published predator-prey studies conducted across North America.

Harvest. Hunting and trapping harvest of wolves in the current control area during RY 01–RY08 averaged 69 annually (Table 1). An additional 58, 17, 23, 27 and 49 wolves were taken in the wolf control program during RY04–RY08, respectively. In March 2009, helicopters were used by Department staff to take 84 more wolves to bring the total number of wolves taken from the control area to 220 in RY08.

BROWN BEAR POPULATION

Population Size. In June 2004 we estimated the pre-control brown bear population within the current brown bear control area was 170 bears. The estimate was based on

extrapolation of a density estimate obtained in central Unit 20E during 1986 and on intensive research studies conducted in similar habitats with similar bear food resources during 1981–1998 in Unit 20A, 100 miles to the west.

During May 20–July 18, 2006, we conducted a DNA-based mark-recapture estimate of brown bear numbers in a 2005 mi² portion of the current bear control area. The survey area core population estimate was 48 bears (20.8/1000 km²). The core population is the average number of brown bears within the survey area. Extrapolation of these data resulted in an estimate of 150 bears (111–189) in the entire control area in summers of 2006–2009. This is higher than the 114–143 bears reported to the board in March 2007 and is the result of a more thorough understanding of the differences in bear distribution within the survey area.

Harvest. Hunting harvest of brown bears in the current control area during RY01–RY08 averaged 7 annually (Table 2). An additional 2, 3, 1, 6 and 2 bears were taken in the bear control program during RY04–RY08, respectively.

Recommendations to Achieve Plan Objectives

We recommend continuing wolf control activities as approved by the Board. Wolf reduction objectives have not been achieved for a variety of reasons, including lack of snow cover for tracking wolves and landing aircraft, dense tree cover in parts of the control area, and the high price of aircraft fuel. However, progress is being made, and the program should be continued to allow operations during more favorable snow conditions. In addition, department conducted control is recommended to help achieve wolf reduction objectives in areas where permittee efforts alone are unlikely to result in objectives being met.

Brown bear reduction objectives have also not been achieved. The bear control portion of the UYTPCP was suspended on July 1, 2009, because authorized control methods were not effective and more extreme methods such as snaring, same-day-airborne, or sale of tanned hides were not supported by the Department. However, results of the recent brown bear population survey indicate bear density within burned portions of the control area is likely lower than initially thought which may benefit moose calf survival in those areas. Benefits to moose calf survival associated with the fires of 2004 and wolf control efforts appear to be adequate to make progress toward prey population objectives.

While bear control was not effective under the conditions in this control area, we do not feel brown bear baiting, same-day-airborne at bait-stations and sale of raw hides would necessarily be ineffective in other areas. Following 5-years of implementation, it is clear that the likelihood of success of future bear control programs should be assessed on a case-by-case basis. A specific method, or combination of methods, may prove ineffective in one area, but may be successful in another.