Upper Yukon/Tanana Predation Control Implementation Plan and Activities
Division of Wildlife Conservation Report to the Alaska Board of Game
March 2008

Background

Residents of the upper Yukon/Tanana drainages have expressed concern for more than 20 years 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. 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. The plan is in effect for 5 years, and began on January 1, 2005. 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, and to reduce the brown bear population by means and direction included in the Board of Game Bear Conservation and Management Policy (2006-164-BOG). 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

2006–2007 CONTROL PROGRAM

We conducted control activities during regulatory year (RY) 2006 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., RY06 = July 1, 2006–June 30, 2007).

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 74 applications for public wolf control permits and issued 50 permits (21 pilots, 30 gunners). The control program was in effect during October 2, 2006–April 30, 2007. Permittees were allowed to take wolves using aerial shooting or land and shoot methods. They took 23 wolves, and an additional 80 wolves were taken by hunters and trappers (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.

Table 1. Wolf harvest and wolf control take in the Upper Yukon/Tanana Predator Control Area, RY01–RY06.

Regulatory Year	Hunting and Trapping Harvest	Wolf Control 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[1]	80	23	103

[1]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 40 control permits to the public, and registered 22 brown bear bait sites. The control program was in effect during September 1, 2006–June 30, 2007. 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 1 brown bear, and an additional 2 bears were taken by hunters (Table 2). No 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–RY06.

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[1]	2	1	3

[1]Control area expanded to include a larger portion of southcentral Unit 20E.

2007–2008 CONTROL PROGRAM

We are conducting control activities during RY07 under authority of the wolf and brown bear control program adopted by the Board in May 2006.

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 63 applications for public wolf control permits and issued 44 permits (24 pilots, 20 gunners). The control program will be in effect during October 10, 2007–April 30, 2008 or until the wolf population is reduced to the control objective of 88–103 specified in the predator control implementation plan adopted by the Board in May 2006. We estimate that 263–295 wolves will need to be taken to reach the upper end of the control objective. To date, 2 wolves have been taken by control permittees.

Brown Bear Control. We are conducting 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. To date, we have issued 18 control permits to the public, and registered no brown bear bait sites. The control program will be in effect during August 1, 2007–June 30, 2008 or until the brown bear population is reduced to the control objective of 68 bears

specified in the predator control implementation plan adopted by the Board in May 2006. Requirements and restrictions for the take of brown bears included in the Alaska Hunting Regulations apply to the permittees, except that permittees do not have an individual kill limit, they may bait brown bears and take brown bears same-day-airborne at bait stations if the bait stations are registered with our Tok office. In addition, hunting regulations allowed both permittees and unpermitted hunters to sell the raw hide and skull of brown bears taken in the brown bear control area if they obtain a department sale tag and permit.

We estimate that 46–75 brown bears will need to be taken to reach the control objective. To date, permittees have taken 1 brown bear. That bear was not taken at a bait site and a sale permit and tag were issued to the permittee. To date, neither the hide nor skull of this bear has been reported as sold. An additional 3 brown bears have been taken by hunters, with no sale permits or tags issued.

Status of Prey and Predator Populations

CARIBOU POPULATION

Population Composition. Fall 2007 surveys indicated there were an estimated 37 calves per 100 cows. Calves per 100 cows averaged 27 during the prior 5 years.

Population Size. A photo census was successfully completed on the herd in July of 2007, with 38,364 caribou counted. The last photo census was completed since 2003, when 43,375 caribou were counted. Another photo census is planned for June 2008. Herd size in May 2008 is expected to be near 39,000 depending on late winter mortality. Herd size is well 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 was 1,011. Based on our current population estimate and using guidelines in the FCH Harvest Plan, the harvest quota for RY08 will be approximately 850 caribou. Harvest 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 4,630mi^2 area of southern Unit 20E during each fall (2005 – 2007). In this area, the estimated calves per 100 cows were 23, 31 and 26 and yearling bulls per 100 cows 11, 6 and 11 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 2008. Current data suggests the proportion of young moose may be increasing in a portion of southern Unit 20E where the wolf population has been reduced by ≥70% of the precontrol fall population level during 2005-2007.

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 and 4,000-6,100 in 2007. These estimates were based on extrapolations from fall surveys conducted in a 4,630 mi^2 area of southern Unit 20E during 2004–2007 and surveys conducted within a 1,200 mi^2 area of the Yukon Charley Rivers Preserve in northern Unit 20E in 2003. Additional surveys are planned for fall 2008. 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 ≥70% of the precontrol fall population level during 2005-2007.

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 was 149. Based on current 2007 estimates of recruitment and a 4% harvest rate of bulls only, the harvestable surplus was 160-244, 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 mi^2. 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 mi^2). 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, additional wolves were taken by wolf control permittees, hunters and trappers. Using our PredPrey model, we estimated the fall 2006 wolf population in the current wolf control area at 300–425 wolves. The model uses the relationship between spring 2006 wolf, moose and caribou population size to predict a likely growth rate for the wolf population. Mathematical equations which define model functions were taken from published predator-prey studies conducted across North America. Surveys are planned for March 2007 if survey conditions are suitable.

During RY06, additional wolves were taken by wolf control permittees, hunters and trappers. Using our PredPrey model, we estimated the fall 2007 wolf population in the current wolf control area at 366-398 wolves. Surveys are planned for March 2008 if survey conditions are suitable.

Harvest. Hunting and trapping harvest of wolves in the current control area during RY 01–RY06 averaged 66 annually (Table 1). An additional 58, 17 and 23 wolves were taken in the wolf control program during RY04–RY06, respectively.

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 mi^2 portion of the current bear control area. The survey area core population estimate was 48 bears (20.8/1000 km^2). 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. 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.

We are analyzing mark-recapture data to obtain information about bear distribution in relation to large-scale wildfires that occurred in the control area during 2004 (31% of the area). Our analysis indicates that by 2006 essentially no resident bears were present in the burns, and density was very high in adjacent unburned areas. The burns included several key moose calving areas. Lower density of brown bears in those calving areas may have resulted in lower levels of bear predation on calves.

Harvest. Hunting harvest of brown bears in the current control area during RY01–RY06 averaged 7 annually (Table 2). An additional 2, 3 and 1 bears were taken in the bear control program during RY04–RY06, respectively.

Recommendations to Achieve Plan Objectives

We recommend continuing wolf and brown bear 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.

Brown bear reduction objectives have also not been achieved. Control methods currently authorized have not been effective, and more extreme methods such as trapping, snaring, same-day-airborne, or sale of tanned hides are not supported by the department.

However, results of the recent brown bear population survey indicate density within burned portions of the control area is likely lower than initially thought which may benefit moose calf survival in those areas. The control program should continue until a more thorough analysis and interpretation of the survey data is completed.

While the current methods have not been 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. After 3-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.