

**Upper Yukon/Tanana Predation Control Implementation Plan and Activities**  
**Division of Wildlife Conservation Report to the Alaska Board of Game**  
**March 2007**

***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 on 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*

### 2005–2006 CONTROL PROGRAM

We conducted control activities during regulatory year (RY) 2005–2006 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., RY05 = July 1, 2005–June 30, 2006).

*Wolf Control.* We conducted wolf control activities in that portion of Unit 12 north of the Alaska Highway and west of the Taylor Highway and in that portion of Unit 20E within all drainages of the South Fork Fortymile River, the North Fork Fortymile River downstream of its confluence with the Middle Fork Fortymile River, the Middle Fork Fortymile River and Ladue River. We received 49 applications for public wolf control permits and issued 35 permits (14 pilots, 21 gunners). The control program was in effect during November 1, 2005–April 30, 2006, with the exception of January 18–27, 2006 when activities were temporarily suspended due to a court injunction. Permittees were allowed to take wolves using aerial shooting or land and shoot methods. They took 17 wolves, and an additional 56 wolves were taken by hunters and trappers (Table 1). We were unable to reduce the population to 50–56 wolves, as specified in the predator control implementation plan adopted by the Board in January 2006.

Table 1. Wolf harvest and wolf control take in the Upper Yukon/Tanana Predator Control Area, RY01–RY05.

Regulatory Year	Hunting and Trapping Harvest	Wolf Control Take	Total Kill
2001–2002	59	-	59
2002–2003	67	-	67
2003–2004	56	-	56
2004–2005	70	58	128
2005–2006	56	17	73

*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 Wall Street Creek drainage. We issued 28 control permits to the public, and registered 4 brown bear bait sites. The control program was in effect during August 10, 2005–June 30, 2006, with the exception of January 18–27, 2006 when activities were temporarily suspended due to a court injunction. 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 and they had the option to bait brown bears if the bait site was registered with our Tok office. Permittees took 3 brown bears, and an additional 7 bears were taken by hunters (Table 2). No bears were taken at bait sites. We were unable to reduce the population to 54 bears, as specified in the predator control implementation plan adopted by the Board in January 2006.

Table 2. Brown bear harvest and brown bear control take in the Upper Yukon/Tanana Predator Control Area, RY01–RY05.

Regulatory Year	Hunting	Brown Bear Control Take	Total Kill
2001–2002	7	-	7
2002–2003	9	-	9
2003–2004	12	-	12
2004–2005	8	2	10
2005–2006	7	3	10

#### 2006–2007 CONTROL PROGRAM

We conducted control activities during RY06 under authority of the wolf and brown bear control program adopted by the Board in May 2006.

*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 62 applications for public wolf control permits and issued 38 permits (16 pilots, 22 gunners). The control program will be in effect during October 2, 2006–April 30, 2007 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 197–322 wolves will need to be taken to reach the upper end of the control objective. To date, 11 wolves have been taken by control permittees.

*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. To date, we have issued 12 control permits to the public, and registered 2 brown bear bait sites. The control program will be in effect during September 1, 2006–June 30, 2007 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 allow permittees to sell the raw hide and skull of brown bears if they obtain a department sale tag and permit.

We estimate that 102 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. However, neither the hide nor the skull have been reported as sold. An additional 2 brown bears have been taken by hunters, with 1 sale permit and tag issued. To date, neither the hide nor the skull of this bear was reported as sold.

### ***Status of Prey and Predator Populations***

#### CARIBOU POPULATION

*Population Composition.* Fall 2006 surveys indicated there were an estimated 34 calves per 100 cows. Calves per 100 cows averaged 21 during the prior 3 years.

*Population Size.* Herd size in early May 2006 was estimated at 39,500. This estimate was derived from the early May 2005 estimate, spring 2005 calving ground surveys, fall 2005 composition counts, and annual mortality rates estimated from the number of radiocollared caribou that died during May 2005–May 2006. No photo census has been completed since 2003, when 43,375 caribou were counted, because of inadequate census conditions. A census is planned for June 2007. Herd size in May 2007 is expected to be near 41,000, depending on late winter mortality. Herd size is well below the intensive management objective of 50,000–100,000 and is stable.

*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 RY01–RY05 was 789. Harvest during RY06 was 848. Based on our current population estimate and using guidelines in the FCH Harvest Plan, the harvest quota for RY07 will be approximately 850 caribou. Harvest is below the intensive management objective of 1,000–15,000 caribou.

#### MOOSE POPULATION

*Population Composition.* We conducted surveys in a 4,630mi<sup>2</sup> area of southern Unit 20E during fall 2006 and estimated 31 calves and 6 yearling bulls per 100 cows in that area. During fall 2000–2005, calves and yearling bulls per 100 cows averaged 19 and 9, respectively. Additional surveys are planned during fall 2007. Data are currently insufficient to evaluate the effect of the wolf control program on the moose population.

*Population Size.* We estimated the moose population size in Unit 12 north of the Alaska Highway and Unit 20E at 4,300–5,200 in 2004, 4,300–5,900 in 2005 and 4,300–6,100 in

2006. These estimates were based on extrapolations from fall surveys conducted in a 4,630 mi<sup>2</sup> area of southern Unit 20E during 2004–2006 and surveys conducted within a 1,200 mi<sup>2</sup> area of the Yukon Charley Rivers Preserve in northern Unit 20E in 2003. Additional surveys are planned for fall 2007. The current population is well below the intensive management objective of 8,744–11,116 and is likely stable.

*Harvest.* Average harvest of moose in Unit 12 north of the Alaska Highway and in Unit 20E during RY01–RY05 was 146. Harvest during RY06 was 147. Based on current 2006 estimates of recruitment and a 4% harvest rate for bulls, the harvestable surplus was 135–201, 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<sup>2</sup>. 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<sup>2</sup>). 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.

*Harvest.* Hunting and trapping harvest of wolves in the current control area during RY 01–RY05 averaged 62 annually (Table 1). An additional 60, 11 and 17 wolves were taken in the wolf control program during the last 3 regulatory years, respectively.

#### BROWN BEAR POPULATION

*Population Size.* We estimated the pre-control brown bear population within the current brown bear control area was 170 bears in June 2004. 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<sup>2</sup> portion of the current bear control area. Preliminary

analysis and extrapolation of the data to the entire control area indicates the core population in the control area is 114–143 bears. This core population is the average number of brown bears within the control area at any one time. The difference between this estimate and our pre-control estimate of 170 is likely due to differences in methodology, rather than removal of bears from the control area or a natural decline in the population. Over the coming year, we will continue data analysis and will include a final population estimate in our March 2008 control program report with recommendations for changes in the control objective if necessary.

*Harvest.* Hunting harvest of brown bears in the current control area during RY01–RY05 averaged 9 annually (Table 2). An additional 2 and 3 bears were taken in the bear control program RY04 and RY05, respectively.

### ***Recommendations to Achieve Plan Objectives***

We recommend continuing wolf and brown bear control activities as approved by the Board. We also recommend development of alternative methods for taking brown bears that will increase effectiveness of the bear control program.