

**Annual Report to the Alaska Board of Game on
Intensive Management for Fortymile Caribou
with Wolf Predation Control**

**in the Upper Yukon-Tanana Predation Control Area
of Game Management Units 12, 20B, 20D, 20E and 25C**

**Prepared by the Division of Wildlife Conservation
February 2017**



1) **Description of IM Program¹**

A) **This report is an annual evaluation for a predation control program authorized by the Alaska Board of Game (Board) under 5 AAC 92.113**

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

February (annual report) Year 2017

C) **Program name: Upper Yukon-Tanana Predation Control Program (UYTPCP).**

D) **Existing program has an associated Operational Plan**

E) **Game Management Unit(s) fully or partly included in IM program area: Units 12, 20B, 20D, 20E and 25C.**

F) **IM objectives for Fortymile caribou herd (FCH): population size 50,000–100,000 and harvest 1,000–15,000.**

G) **Month and year the current predation control program was originally authorized by the Board: November 2004. Indicate date(s) if renewed: March 2009 and February 2014**

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

I) **If active, month and year the current predation control program began: January 2005**

J) **A habitat management program funded by the department or from other sources is currently active in this IM area: No**

K) **Size of IM program area (square miles) and geographic description: The area encompasses 18,750 mi² 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 (Fig. 1). However, within this area, predation control activities have not been authorized by the National Park Service within Yukon-Charley Preserve (2,833 mi²).**

¹ For purpose and context of this report format, see *Intensive Management Protocol, section on Tools for Program Implementation and Assessment*

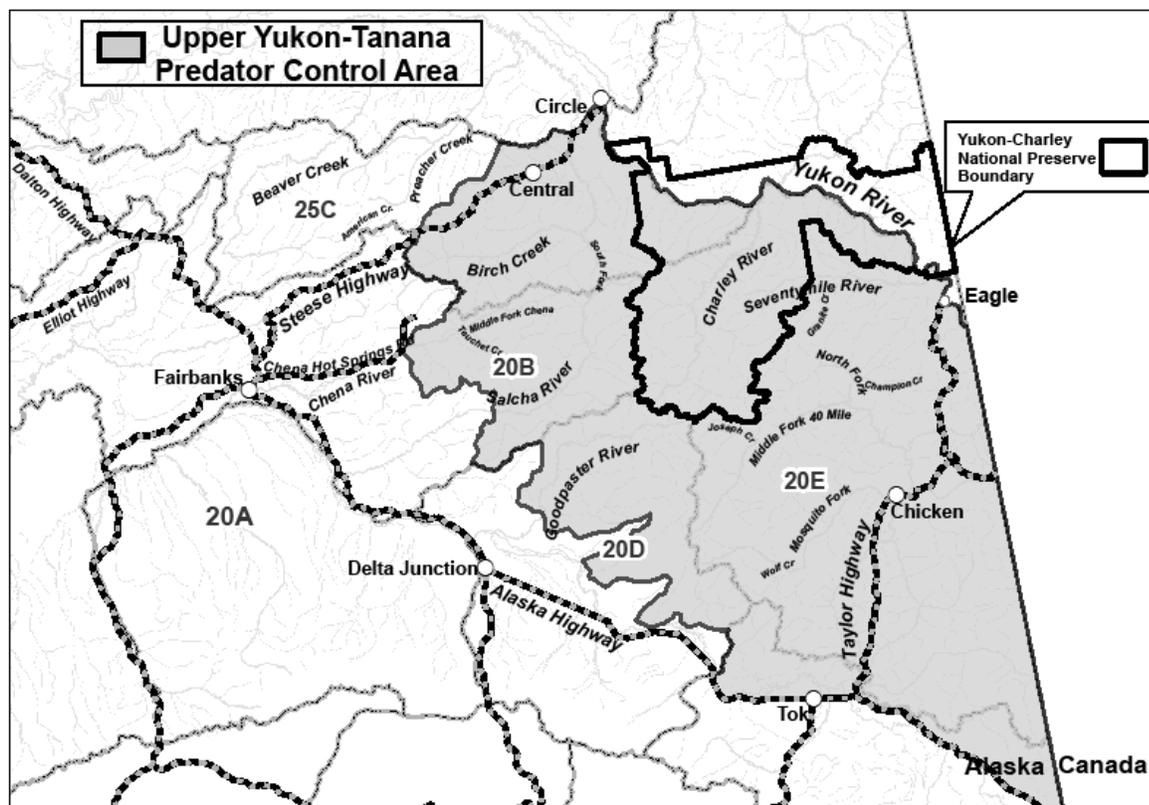


Figure 1. Upper Yukon–Tanana Predator Control Program Area (18,750 mi²). Predation control activities have not been authorized by the National Park Service within the Yukon-Charley Preserve portion (2,833 mi²) of the control program area.

L) **Size and geographic description of area for assessing ungulate abundance:** Caribou: 25,217 mi² Fortymile Caribou hunt area (Fig. 2).

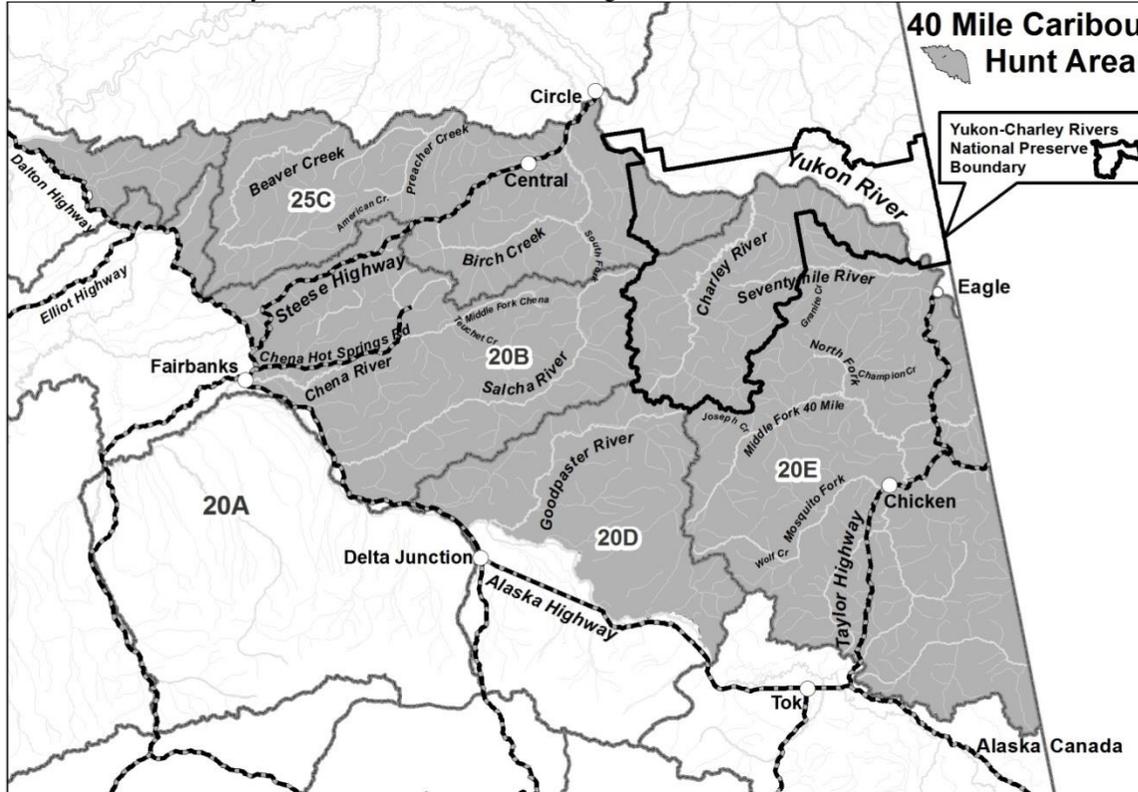


Figure 2. Fortymile Caribou Herd Hunt Area in Alaska (25,217 mi²).

M) **Size and geographic description of area for ungulate harvest reporting:** Caribou–FCH hunt area, 25,217 mi².

N) **Size and geographic description of area for assessing predator abundance:** Upper Yukon–Tanana Predation Control Area (UYTPCA), 18,750 mi².

O) **Size and geographic description of predation control area:** UYTPCA, 18,750 mi². However, predation control activities have not been authorized by the National Park Service within the Yukon-Charley Preserve portion (2,833 mi²) of the control program area.

P) **Criteria for evaluating progress toward IM objectives:** Caribou abundance and harvest.

Q) **Criteria for success with this program:** FCH population = 50,000–100,000 and harvest = 1,000–15,000 caribou.

2) Prey data

Date(s) and method of most recent abundance assessment for: Caribou – June 2010 photocensus (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: Non-treatment area not established.

Date(s) of most recent age and sex composition survey for: Caribou – October 2016 composition survey (Table 1).

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: Non-treatment area not established.

Table 1. Fortymile Caribou Herd (FCH) abundance, age and sex composition in FCH hunt area since the herd was added to the control program in year 3. Regulatory year is 1 July through 30 June (e.g., Regulatory year 2004 = 1 July 2004 through 30 June 2005).

Period	Regulatory year	Abundance	Composition (number per 100 cows)		
			Calves	Bulls	Total <i>n</i>
Year 1	2004	--	--	--	--
Year 2	2005	--	--	--	--
Year 3	2006	43,837 ^a	34	43	4,995
Year 4	2007	44,673 ^a	37	36	5,228
Year 5	2008	46,510 ^b	33	37	4,119
Year 6	2009	51,675 ^b	34	59	4,503
Year 7	2010	--	32	43	7,169
Year 8	2011	--	25	42	3,949
Year 9	2012	--	22	40	4,832
Year 10	2013	--	28	38	3,921
Year 11	2014	--	25	34	4,794
Year 12	2015	--	35	53	5,663
Year 13	2016	--	32	48	3,288

^a Modeled population estimate.

^b Minimum population estimate from photocensus.

Describe trend in abundance or composition: 2–4% annual rate of increase during regulatory years 2004-2009, based on modeling and photocensus results.

Table 2. Fortymile Caribou Herd (FCH) harvest in FCH hunt area during years 1 through 13. The FCH was added to the control program in year 3. A regulatory year is 1 July through 30 June (e.g., Regulatory year 2004 = 1 July 2004 through 30 June 2005).

Period	Regulatory year	Reported on registration permit				general harvest report	Estimated			Total
		M	F	Unk	Total		Un-reported	Illegal	Yukon harvest	
Year 1	2004	592	243	11	846	12	5	5	0	868
Year 2	2005	557	182	2	741	4	5	5	0	755
Year 3	2006	601	247	4	852	12	5	5	0	874
Year 4	2007	746	262	4	1,012	20	5	5	0	1,042
Year 5	2008	681	217	0	898	9	5	5	0	917
Year 6	2009	881	192	10	1,083	11	5	5	0	1,104
Year 7	2010	630	89	6	725	4	5	5	15	764
Year 8	2011	935	125	6	1,066	18	5	5	15	1,119
Year 9	2012	1,081	190	26	1,297	9	5	5	15	1,341
Year 10	2013	1,152	14	20	1,186	65 ^a	5	5	60	1,321
Year 11	2014	684	278	12	974	30 ^b	5	5	15	1,039
Year 12	2015	793	236	14	1,043	17 ^c	5	5	30	1,100
Year 13	2016	622	329	9	960	20 ^d	5	5	5	

^a Includes 65 harvested in Unit 25B.

^b Includes 20 harvested under Fortymile Youth Permit Hunt DC851 in early August.

^c Includes 14 harvested under Fortymile Youth Permit Hunts YC831 and YC833 in early August.

^d Includes 17 harvested under Fortymile Youth Permit Hunts YC831 early August.

Describe trend in harvest: Harvest controlled by fixed annual harvest quota. Annual quota was 850 caribou/year during regulatory years 2006 through 2009 (RY06-RY09; A regulatory year is 1 July through 30 June, meaning RY06 = 1 July 2006 through 30 June 2007), 795 caribou/year in RY10, and 1,000 caribou/year during RY11–RY16.

Describe any other harvest related trend if appropriate: None.

3) Predator data

Date(s) and method of most recent spring abundance assessment for wolves: May 2016 modeled estimate.

Date(s) and method of most recent fall abundance assessment for wolves: October 2015 – ADF&G Pred–Prey model which uses the relationship between spring wolf, moose and caribou population sizes to predict a likely growth rate for the wolf population from spring to fall. Mathematical equations which define model functions were taken from published predator–prey studies.

Other research or evidence of trend or abundance status in wolves: None.

Table 3. Wolf abundance and removal in the Upper Yukon-Tanana Predation Control Area since program implementation in year 1 to year 12. Removal objective is 60–80% of pre-control fall abundance in year 1 of wolf predation control program, so estimated or confirmed number remaining by 1 May each regulatory year in the predation control area must be at least 88. Regulatory year is 1 July through 30 June (e.g., Regulatory year 2004 = 1 July 2004 through 30 June 2005).

Period	Regulatory year	Fall abundance (range)	Harvest removal		Dept. control removal	Public control removal	Total removal	Spring abundance (range) ^a
			Trap	Hunt				
Year 1	2004	380 ^{bc} (350–410)	52	23	N/A	60	135	245 (215–275)
Year 2	2005	335 ^c (300–370)	58	10	N/A	17	85	250 (215–285)
Year 3	2006	362 ^c (300–425)	73	7	N/A	23	103	259 (197–322)
Year 4	2007	382 ^c (366–398)	57	14	N/A	27	98	284 (268–300)
Year 5	2008	372 ^d	82	11	84	49	226	146
Year 6	2009	235 ^e	31	4	15	10	60	175
Year 7	2010	274 ^c (262–285)	26	11	0	25	62	212 (200–223)
Year 8	2011	329 ^c (315–342)	62	17	56	8	145	184 (170–197)
Year 9	2012	386 ^c (368–403)	41	12	40	78	171	215 (197–232)
Year 10	2013	356 ^c (338–373)	44	10	31	31	116	240 (222–257)
Year 11	2014	374 ^c (357–393)	38	10	33	24	105	269 (252–288)
Year 12	2015	408 ^c (390–426)	55	14	19	29	117	291 (273–309)

^a Fall estimate minus all known wolf kills.

^b Pre-control population estimate.

^c Fall modeled estimate.

^d Revised fall modeled estimate using results from a March 2009 reconnaissance survey and regulatory year 2008 removal data. The original fall modeled estimate was 393–431.

^e Revised fall modeled estimate using results from a March 2010 reconnaissance survey and regulatory year 2009 removal data. The original fall modeled estimate was 262–299.

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: Habitat enhancement was not recommended in the Operational Plan and has not been conducted.

Table 4. Nutritional indicators for Fortymile Caribou Herd (FCH) in FCH hunt area since the herd was added to the control program in year 3 to year 12. A regulatory year is 1 July through 30 June (e.g., Regulatory year 2004 = 1 July 2004 through 30 June 2005).

Period	Regulatory Year	Spring Birthrates (% of cows \geq36 months old that gave birth)
Year 1	2004	--
Year 2	2005	--
Year 3	2006	89
Year 4	2007	90
Year 5	2008	70
Year 6	2009	70
Year 7	2010	86
Year 8	2011	82
Year 9	2012	88
Year 10	2013	63
Year 11	2014	85
Year 12	2015	74

5) Costs specific to implementing Intensive Management

Table 8. Upper Yukon-Tanana program cost (\$1,000 = 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 Upper Yukon–Tanana Predator Control Area during year 7 to year 12. Fiscal year (FY) is also 1 July to 30 June but the year is one greater than the comparable Regulatory Year (e.g., Fiscal year 2011 is 1 July 2010 to 30 June 2011).

Period	Fiscal Year	Predation control^a		Other IM activities		Total IM cost	Research cost^d
		Time^b	Cost^c	Time	Cost		
Year 7	2011	0.4	3.5	12.7	166.4	169.9	67.1
Year 8	2012	3.9	242.5	12.0	154.0	396.5	80.3
Year 9	2013	2.3	136.1	11.8	150.0	286.1	12.0
Year 10	2014	1.6	96.0	16.3	207.4	303.4	98.0
Year 11	2015	1.3	153.5	18.0	308.9	462.4	148.7
Year 12	2016	0.9	86.1	20.1	392.2	478.3	232.0

^aState or private funds only.

^bPerson-months (22 days per month)

^cSalary plus operations

^dSeparate from implementing IM program but beneficial for understanding the ecological or human response to management treatment (scientific approach that is not unique to IM).

6) **Department recommendations for annual evaluation (1 February) following Year 12 for UYTPCP**

Has progress toward defined criteria been achieved? Yes. The FCH increased at 2% annually during 2003–2010, based on modeling and photo census results.

Has achievement of success criteria occurred? Yes. The modeled caribou population estimate of 51,675 is within the IM population objective of 50,000–100,000, and the harvest objective of 1,000–15,000 was achieved many years.

Recommendation for Predation Control: Continued control is currently being conducted to maintain the caribou population within objectives and to more consistently achieve the harvest objective.