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 2020

1) Description of IM Program[1]

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 2020

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 suspended **in this IM area**.

I) If active, month and year the current predation control program began: Not active

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 mi^2 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 mi^2).

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

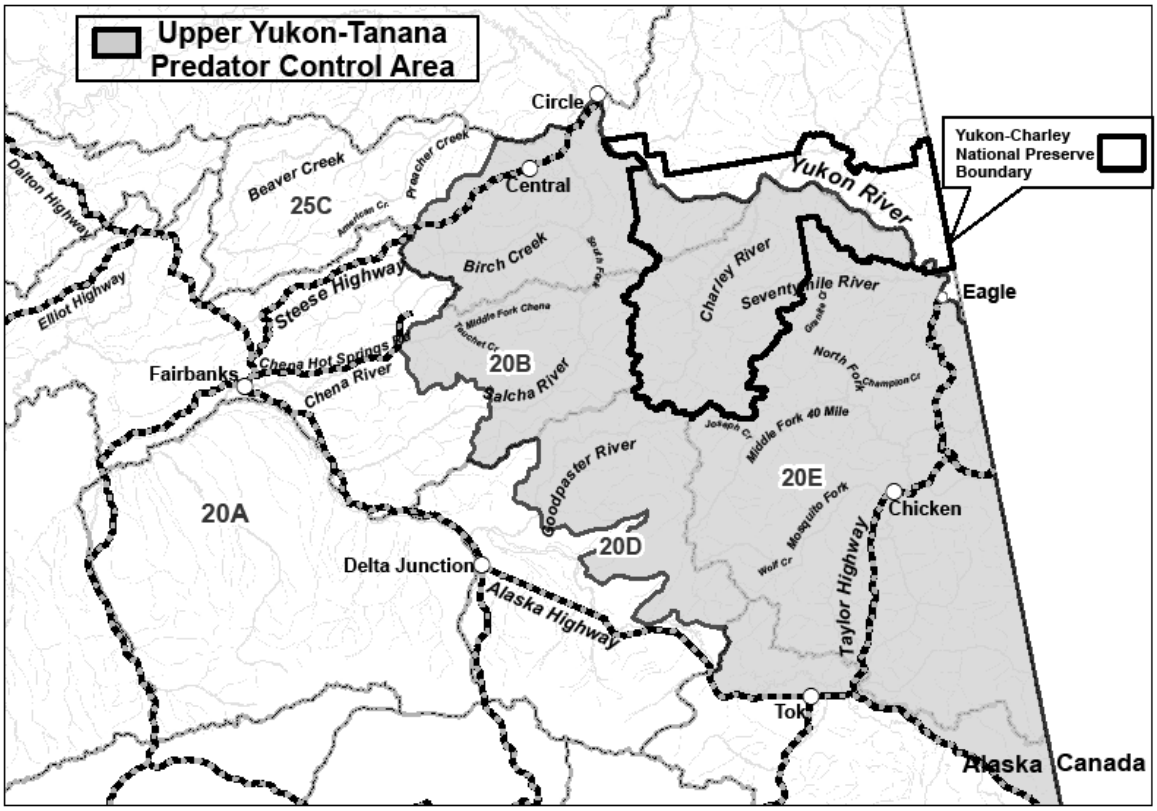

Figure 1. Upper Yukon–Tanana Predator Control Program Area (18,750 mi^2). Predation control activities have not been authorized by the National Park Service within the Yukon–Charley Preserve portion (2,833 mi^2) of the control program area.

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

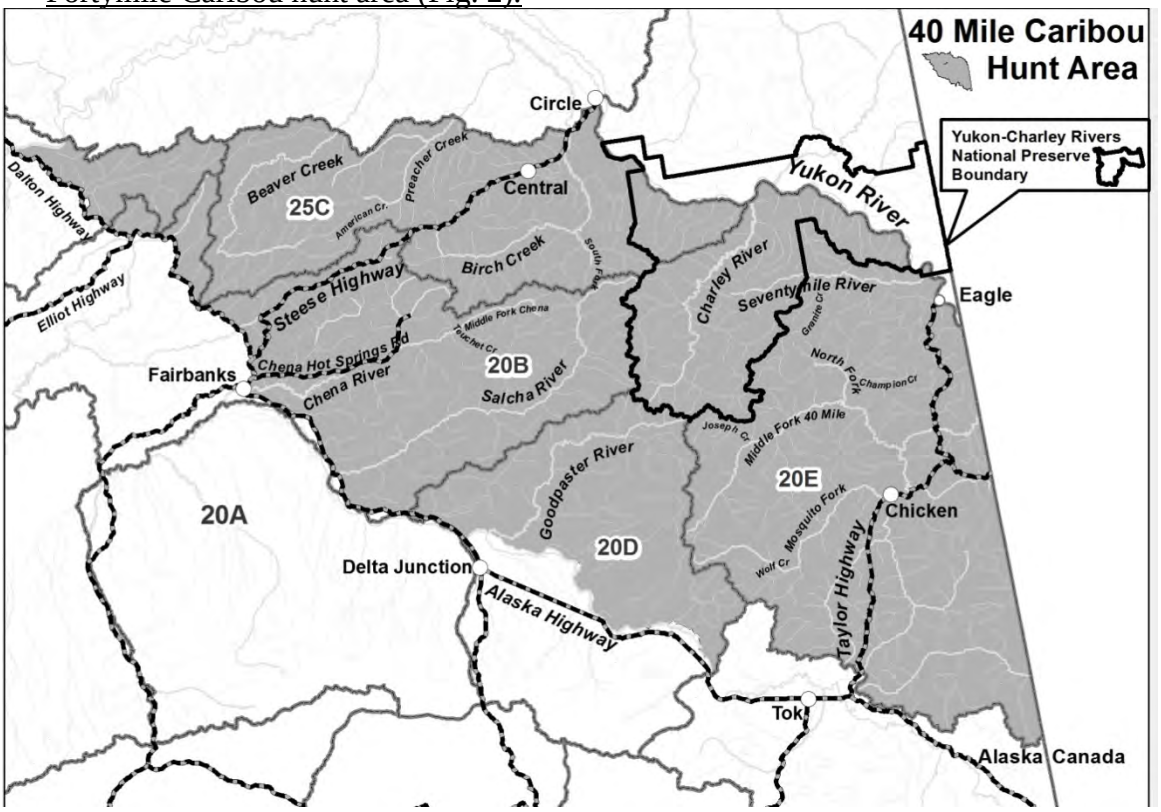

Figure 2. Fortymile Caribou Herd Hunt Area in Alaska (25,217 mi^2).

M) Size and geographic description of area for ungulate harvest reporting: Fortymile Caribou Herd (FCH) hunt area; 25,217 mi^2.

N) Size and geographic description of area for assessing predator abundance: Upper Yukon–Tanana Predation Control Area (UYTPCA);18,750 mi^2.

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

R) Department recommendation for IM Program during this reporting period: Conduct evaluation of program.

2) Prey data

Date(s) and method of most recent abundance assessment for: Caribou – July 2017 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 2018 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).

	Regulatory		Composition (number per 100 cows)		
Period	year	Abundance	Calves	Bulls	Total *n*
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
Year 14	2017	73,009[b]	--	--	--
Year 15	2018	--	18	51	4,429
Year 16	2019	--	--	--	--

[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 and 10% annual rate of increase during regulatory years 2010 through 2016, based on minimum counts from photocensus results.

Table 2. Fortymile Caribou Herd (FCH) harvest in FCH hunt area during years 1 through 14. 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).

		Reported on registration permit				Youth	General	Estimated		
Period	Regulatory year	M	F	Unk	Total	draw permit	harvest report	Other[b]	Yukon harvest	Total
Year 1	2004	592	243	11	846	-	12	10	0	868
Year 2	2005	557	182	2	741	-	4	10	0	755
Year 3	2006	601	247	4	852	-	12	10	0	874
Year 4	2007	746	262	4	1,012	-	20	10	0	1,042
Year 5	2008	681	217	0	898	-	9	10	0	917
Year 6	2009	881	192	10	1,083	-	11	10	0	1,104
Year 7	2010	630	89	6	725	-	4	10	15	764
Year 8	2011	935	125	6	1,066	-	18	10	15	1,119
Year 9	2012	1,081	190	25	1,296	-	12	10	15	1,333
Year 10	2013	1,152	14	20	1,186	-	75[a]	10	60	1,331
Year 11	2014	690	283	14	987	-	19	10	15	1,031
Year 12	2015	830	291	10	1,131	14	8	10	30	1,193
Year 13	2016	648	334	8	990	17	3	10	5	1,025
Year 14	2017	1,314	637	1	1,952	18	10	10	5	1,995[c]
Year 15	2018	1,940	495	4	2,439	22	13	10	30	2,514
Year 16	2019	1,644	987	26	2,657	22	8	10	30	2,785[cd]

[a] Includes 65 harvested in Unit 25B.
[b] Includes estimated unreported and/or illegal harvest.
[c] Includes caribou harvested under RC857; 23 in RY17 and 58 in RY19
[d] Preliminary data. Winter federal hunt is ongoing at time of this report.

Describe trend in harvest: Harvest controlled by fixed annual harvest quota. Annual quota was 850 caribou/year during regulatory years 2006 through 2009 (RY2006–RY2009; A regulatory year is 1 July through 30 June, meaning RY2006 = 1 July 2006 through 30 June 2007), 795 caribou/year in RY2010, 1,000 caribou/year during RY2011–RY2016, 1,750 caribou during RY2017, 2,030 during RY2018 and 2,180 during RY2019.

Describe any other harvest-related trend if appropriate: None.

3) Predator data

Date(s) and method of most recent spring abundance assessment for wolves: March 2018 modeled estimate.

Date(s) and method of most recent fall abundance assessment for wolves: October 2018 – 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 since year 1. 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)
Year 13	2016	451[c] (431–471)	109	21	88	18	236	215 (195–235)
Year 14	2017	391[c] (372–409)	61	10	50	19	140	251 (232–269)
Year 15	2018	408[c] (390–427)	34	7	--	--	41	367 (349–386)

[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: No enhancement recommended by the Operational Plan and no active habitat enhancement conducted.

Table 4. Nutritional indicators for Fortymile Caribou Herd (FCH) in FCH hunt area since year 1. 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 >36 months old that gave birth)	Spring Birthrates of 3-year-olds (% of cows =36 months old that gave birth)
Year 1	2004	85	33
Year 2	2005	80	82
Year 3	2006	91	83
Year 4	2007	90	88
Year 5	2008	77	30
Year 6	2009	77	29
Year 7	2010	85	67
Year 8	2011	89	62
Year 9	2012	88	83
Year 10	2013	69	37
Year 11	2014	92	60
Year 12	2015	81	25
Year 13	2016	91	89
Year 14	2017	67	32
Year 15	2018	84	38

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 since year 7. 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).

		Predation control[a]		Other IM activities		Total IM	Research
Period	Fiscal Year	Time[b]	Cost[c]	Time	Cost	cost	cost[d]
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
Year 13	2017	2.3	287.7	20.1	392.2	679.9	234.0
Year 14	2018	2.8	182.3	24.5	345.3	527.6	336.7
Year 15	2019	0.0	0.0	22.5	256.0	256.0	405.2

[a]State or private funds only.
[b]Person-months (22 days per month)
[c]Salary plus operations. Beginning in Fiscal Year 2019, Other IM activities includes normal survey and inventory work, which is typically more robust in an IM program than standard survey and inventory work.
[d]Separate 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 15 (February 2020) for UYTPCP

Has progress toward defined criteria been achieved? Yes. The FCH increased 2–4% annually during regulatory years 2004–2009, based on modeling and photocensus results and increased 10% annually during regulatory years 2010–2017, based on minimum counts from photocensus results.

Has achievement of success criteria occurred? Yes. The July 2017 minimum count of the caribou population was 73,009, which is within the IM population objective of 50,000–100,000. In addition, harvest within Alaska has been within the IM harvest objective of 1,000–15,000 during most of the years the program has been active.

Recommendation for Predation Control: Predator control activities have been suspended in the UYTPCA so that the department can evaluate the effects of predation control on the FCH and wolves in the area. We will continue monitoring the results of the program through caribou harvest and caribou and wolf population parameters. This predation control program expires June 30, 2020 and will be reevaluated at the Region III Board of Game meeting in March, 2020.