

**SUBSISTENCE HARVEST OF LAND MAMMALS,
YUKON FLATS, ALASKA
MARCH 2010-FEBRUARY 2011**



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ABSTRACT

This report summarizes the harvest and sharing of moose, caribou, black bear, brown bear, wolves, lynx, and marten during the 12-month period from March 2010 to February 2011 in select communities along the upper Yukon River in the Yukon Flats, Alaska. Participating Tribal Governments were Beaver Village Council, Chalkyitsik Village Council, Circle Village Council, Denduu Gwich'in Tribal Government (Birch Creek), Gwichyaa Zhee Gwich'in Tribal Government (Fort Yukon), Stevens Village Council, and Venetie Village Council.

Information on the number of animals harvested, the sex, location and month of harvests, and the percentage of households hunting, harvesting, and sharing each resource is presented. Data were collected through household surveys administered by tribal natural resources technicians in each community.

This is the third year of community harvest estimates data collection in the Yukon Flats. Surveys were completed in a total of 301 of 379 households (79%). Findings show that moose continue to be the primary big game resource harvested in Yukon Flats communities. An estimated 95.5 moose were harvested during the study year. Survey findings also demonstrate that strong food sharing networks continue to operate as an essential part of the subsistence economies in these communities, with only 20% of households reporting harvesting moose, 32% receiving moose, and 59% giving moose.

The community-based surveys were funded in part by the self-governance Annual Funding Agreement between the Council of Athabascan Tribal Governments (CATG) and the U.S. Fish and Wildlife Service (USFWS) for selected programs, functions, services, and activities of the Yukon Flats National Wildlife Refuge (YFNWR). Project completion was possible through a partnership with Department of Agriculture and Resource Economics, University of Saskatchewan.

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INTRODUCTION

This report summarizes the traditional and customary harvest and use of moose, caribou, black bear, brown bear, wolf, lynx, and marten for the 12-month period from March 2010 to February 2011 by residents of seven Yukon Flats communities: Fort Yukon, Venetie, Stevens Village, Chalkyitsik, Birch Creek, Beaver, and Circle. Data collection methods utilized by CATG since 1993 included household surveys and reported hunter harvest, resulting in published harvest data reports since 2003

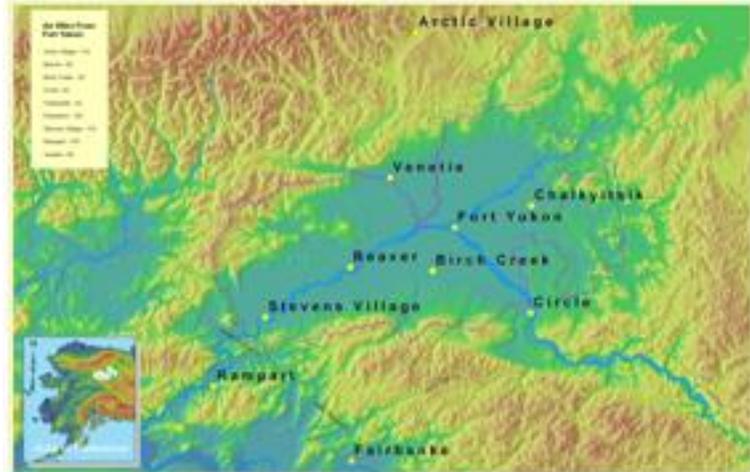


FIGURE 1: MAP OF THE YUKON FLATS REGION

(Fleener and Thomas 2003, 2005; Thomas 2004, 2007, 2008). This project represents the third year of using standard household survey methods (Van Lanen et al. 2012) to establish community harvest estimates. Accurate harvest estimates are among the essential pieces of information needed for the sound management of wildlife populations.

TABLE 1. COMMUNITY SURVEY SUMMARY								
Community	Type of Design*	Estimated Community Population**	Total Number of Households	Household Sample Goal	Number of Surveyed Households	Percent of Households Sampled	Unable to Contact	Declined Survey
Beaver	Census	77.0	31	100%	25	81%	4	2
Birch Creek	Census	27.0	12	100%	8	67%	3	1
Chalkyitsik	Census	75.0	22	100%	7	32%	7	8
Circle	Census	101.0	23	100%	11	49%	8	4
Fort Yukon	Sample	598.0	209	50%	173	83%	NA	NA
Stevens Village	Census	73.0	21	100%	20	95%	1	0
Venetie	Census	181.0	61	100%	57	93%	4	0
All Communities		1,132	379	100%	301	79%	27	15
* Surveyors only recorded one household member for all surveys in that village.								
** Household estimates provided by CATG 2011								
Source: Council of Athabascan Tribal Governments, Household Surveys 2011								

In Alaska wildlife populations are important traditional and customary food resources. According to the Federal Subsistence Management Program, “the state’s rural residents harvest approximately 22,000 tons of wild foods each year – an average of 375 pounds per person... Nowhere else in the United States is there such a heavy reliance upon wild foods” (<http://alaska.fws.gov/asm/about.cfm>). Harvest data serve to document and monitor levels of subsistence use as required under the state statute AS 16.05.094.

CATG's *Yukon Flats Moose, Bear, Waterfowl, and Furbearing Harvest Data Collection Final Summary Report, Technical Document 08-02* documents the economic importance of subsistence in the region, and the impact of declining resources:

Although successful hunting was down with only 25.49% of households harvesting bear, moose, or wolf, sharing continues to be an important aspect of life in the Yukon Flats with 85.58 % of the households that harvested meat sharing with other households and 76.71% of the households in the Yukon Flats receiving meat. The number of households in the Yukon Flats using moose or bear meat remains...93.6% of the households. Six of the seven villages surveyed reported...100% of households using moose and/or bear meat (from RESULTS: pg. 7).

We received similar comments from numerous hunters regarding the 2008 moose harvest in relation to the 2007 moose harvest. Overall harvest numbers were down this year again... This decrease is of great concern to Yukon Flats residents (from Discussion: pg.12).

The low moose population on the Yukon Flats is of great concern to local residents. Low numbers of moose prompted the formation of the Yukon Flats Moose Management Committee, who developed the Yukon Flats Moose Management Cooperative Moose Management Plan in 2002 (ADF&G Division of Wildlife Conservation et al.). The Plan's Goals:

1. Increase the harvestable surplus of bull moose in key hunting areas near local communities by reducing mortality from bear and wolf predation.
2. Double the size of the moose population in key hunting areas and, if possible within the entire planning area, in the next ten years.
3. Develop cooperative management programs involving state, federal, and tribal management organizations to help improve local harvest monitoring & reporting.
4. Prepare and distribute information about causes for the low moose population and encourage public participation in the effort to increase moose numbers.
5. Develop cooperative management programs that increase user involvement in management and support local efforts to increase moose numbers.
6. Integrate scientific & traditional ecological knowledge & develop programs to fill information needs.

In an effort to meet these Management Goals, the Planning Committee recognized that "increasing the moose population can only be accomplished with the support of elders, tribal councils, and hunters." The Plan is designed to promote an increase the moose population in the following ways:

1. Reduce predation on moose.
2. Minimize illegal cow harvest and reduce cow harvest for ceremonial purposes.
3. Inform & educate hunters on low population and ways individuals can make a difference.
4. Improve harvest reporting to document traditional & customary needs and improve management.
5. Use of both traditional knowledge and scientific information.

PROJECT GOALS AND OBJECTIVES

The specific purpose for the harvest survey project identified by CATG and the USFWS YFNWR as established in the self-governance annual funding agreement is to document subsistence harvest of wildlife species by season, month, and geographic location for the March 2010 to February 2011 harvest season. By documenting the subsistence harvest, this project will support the Refuge purpose to provide opportunity for continued subsistence harvest as mandated by the Alaska National Interest Lands Conservation Act. This project incorporates survey requirements across programs to prepare a comprehensive report of subsistence use on the Yukon Flats.

Objectives as established in the Wildlife Harvest Data Collection Project Work Description:

1. Train a person in each village of the following villages: Stevens Village, Beaver, Venetie, Birch Creek, Fort Yukon, Chalkyitsik, and Circle in interview techniques and use of the survey form.
2. Estimate the number of game animals harvested by species and approximate geographic location (to drainage or township level when possible). Locations will be used by Refuge staff to refine population survey areas (such as moose survey areas) to reflect population levels in areas actually hunted.
3. Estimate the percentage of households using, harvesting, hunting, receiving, and giving away subsistence harvested animals.
4. Estimate the number of active hunters and trappers in each village.
5. Communicate the objectives of the Yukon Flats Moose Management Plan to residents of Yukon Flats villages.

Under Tribal mandate CATG participates in harvest data collection to protect and sustain traditional and customary use in the Yukon Flats. Harvest Data is needed to:

1. To provide accurate harvest numbers to demonstrate real subsistence need in the Yukon Flats;
2. To produce scientifically sound data informing management and regulatory decision-making arenas;
3. To impact regulations and management decisions to protect and accommodate Traditional & Customary use in the Yukon Flats.

Community-based research of harvest estimates are one of the most critical pieces of information available to agencies and organizations in developing management strategies for an area and animal population.

Therefore this project maintains the same purpose as the first CATG published harvest data collection report (Thomas and Fleener 2005):

This project was designed specifically in response to Yukon Flats Tribes, Eastern Interior Regional Advisory Council (EIRAC), Yukon Flats Fish & Game Advisory Committee, Yukon Flats National Wildlife Refuge (YFNWR) and Alaska Department of Fish & Game (ADF&G) concerns about the Yukon Flats' declining moose population, rising calf and adult moose mortality by bear and wolf predation, increasing subsistence need for moose meat, and the lack of accurate harvest data. The primary intent of this project is to provide information that will help guide decision-making of the CATG Natural Resource managers, and the Yukon Flats Moose Management Planning Committee, a committee made up of Yukon Flats residents, ADF&G Wildlife Conservation, and Yukon Flats NWR staff (from Background: pg. 3).

METHODS

The primary method for collecting harvest information was through systematic household survey. Consisting of stand-alone, non-repetitive household surveys, the survey design and data analysis followed a model used by ADF&G, Division of Subsistence (Van Lanen et al. 2012). Approval for the survey project was obtained from the Tribal Governments in each community prior to data collection. Subsequently CATG staff worked with individual Tribal Governments to select a local resident who would conduct the community-based research surveys during face-to-face interviews. Tribal natural resources technicians implementing surveys for the 2010-2011 survey year are identified in the Acknowledgements section. Tribal natural resource technicians, in concert with their tribal councils, were responsible for compiling current household lists for their communities prior to the survey effort.

Given the integral role that community research assistants would have to the overall success of this project, considerable attention was devoted to training. Following project approval, local tribal natural resources technicians who served as community-based research assistants travelled to Fort Yukon to participate in training with CATG staff. Carrie Stevens, CATG, and Tobi Maracle, Masters of Environmental Science University of Saskatchewan trained community based research assistants and cooperatively developed the survey tool (APPENDIX A). Training for this project was held June 1st to 3rd, 2011 in Fort Yukon. During the course of the training, community research assistants: 1) were introduced to the research project, including relevance, rationale, and potential outcomes; 2) reviewed the survey questions and offered revisions based on local knowledge; 3) were instructed on how to record responses and check surveys in the field; 4) were instructed on basic conflict resolution in the case respondents reacted negatively to particular questions; 5) informed about ethics and performance expectations; and 6) took part in role-playing exercises of survey delivery and coding of responses. The objectives of pretesting were to make sure that community researchers correctly understood all questions and the survey instrument captured the full range of possible responses. In addition to harvest information, basic household demographic data were recorded. Our objective was to survey all CATG households (census) and no less than a 50% random sample of Fort Yukon households. Following the orientation, community researchers returned to their home communities where they administered harvest surveys throughout the summer of 2011.

Notwithstanding the recall abilities of community hunters, recall bias was carefully considered during the administration of surveys and presentation of results. Recognizing this potential bias, data quality control procedures were carefully observed throughout our analysis. This involved allowing the necessary time for data checking and reviewing survey results with the individual research assistants. The harvest numbers and other household information were routinely cross-checked through data re-entry, visual comparison of data list and collection instrument, and review of data sheets and interview schedules by research coordinators in Fort Yukon to ensure accuracy and consistency in data entry. Harvest data were recorded in a relational database and stored and backed up on a secured server. Survey data were analyzed with the Statistical Package of the Social Sciences (SPSS). Preliminary harvest tables were reviewed and verified by staff of the CATG Natural Resources Department.

SURVEY FINDINGS

	Beaver	Birch Creek	Chalk	Circle	Fort Yukon	Steven Village	Venetie	Total
Moose	6.2	4.5	18.8	22.4	36.1	2.1	5.4	95.5
Caribou	0.0	0.0	0.0	0.0	6.0	0.0	44.1	50.1
Black Bear	2.5	0.0	0.0	10.2	7.2	0.0	0.0	19.9
Brown Bear	1.2	1.5	0.0	0.0	1.2	0.0	0.0	3.9
Wolves	1.2	0.0	0.0	10.2	1.2	0.0	0.0	12.6
Lynx	0.0	0.0	53.1	71.4	103.6	26.3	0.0	254.4
Marten	0.0	4.8	0.0	0.0	24.1	0.0	0.0	28.9

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

MOOSE

As demonstrated in previously reported harvest surveys conducted by CATG (Fleener and Thomas 2003, 2005; Thomas 2004, 2007, 2008), moose continued to be a staple traditional and customary food resource in all seven communities in 2010 - 2011. Overall, 35% reported attempting to harvest moose, with only 20% reporting harvesting moose (Table 3). In total 150 hunters reported attempting to harvest a moose with only 85.3 reporting a successful harvest, yielding 95.5 moose taken amongst the seven participating villages in the Yukon Flats (Table 3). All moose were reported to be harvested in the fall season of August and September. The estimated harvest level among all seven villages is at a rate of 0.07 moose per person; this may indicate a combination of low moose population in the region and/or underreporting of actual harvest.

It is important to note that the percentage of households reporting harvesting moose ranged from 5% in Stevens Village to 97% in Circle. When 95.5 moose is divided by the 60 interviewed households we see that those 60 households harvested 1.5 moose per household illustrating the important impact of ‘super-hunters’ on the social economies of Yukon Flats communities (Van Lanen et al. 2012). Survey findings also demonstrate that strong food sharing networks continue to operate as an essential part of the subsistence economies in these communities, with only 20% of households reporting harvesting moose, 32% receiving moose, and 59% giving moose. Inter-village sharing networks, sharing networks that extend into urban centers, and the re-sharing of food that had been shared could account for these variances. Thus there is a need to better understand the inter-village sharing patterns.

Between March 2010 to February 2011, the total community harvest of moose was estimated at 95.5, consisting of 93.1 bulls, 0 cows, and 2.4 unknown sex (Table 4). All moose were reported to be harvested within legal hunting seasons, during the fall hunt in the months of August and September. The most moose were taken in the largest community of Fort Yukon, with a community estimate of 36.1 moose. The lowest harvest was taken in Stevens Village, with a community estimate of 2.1 moose.

The survey provides a means for measuring hunter effort through the average amount of hunter time required to harvest each moose. Participants were asked how many people in their household participated in moose hunting and how many days each of those individuals spent hunting for moose. Each day an individual spends in the field hunting for moose is defined as

one hunter day. Increasing hunter time, or effort per harvested moose, is an index of a low moose density which, when dispersed, causes hunters to spend more time to harvest similar numbers of moose. The overall decrease in moose population and density from 1999-2010 in the Yukon Flats is documented and summarized in Figure 2 (Lake, 2010).

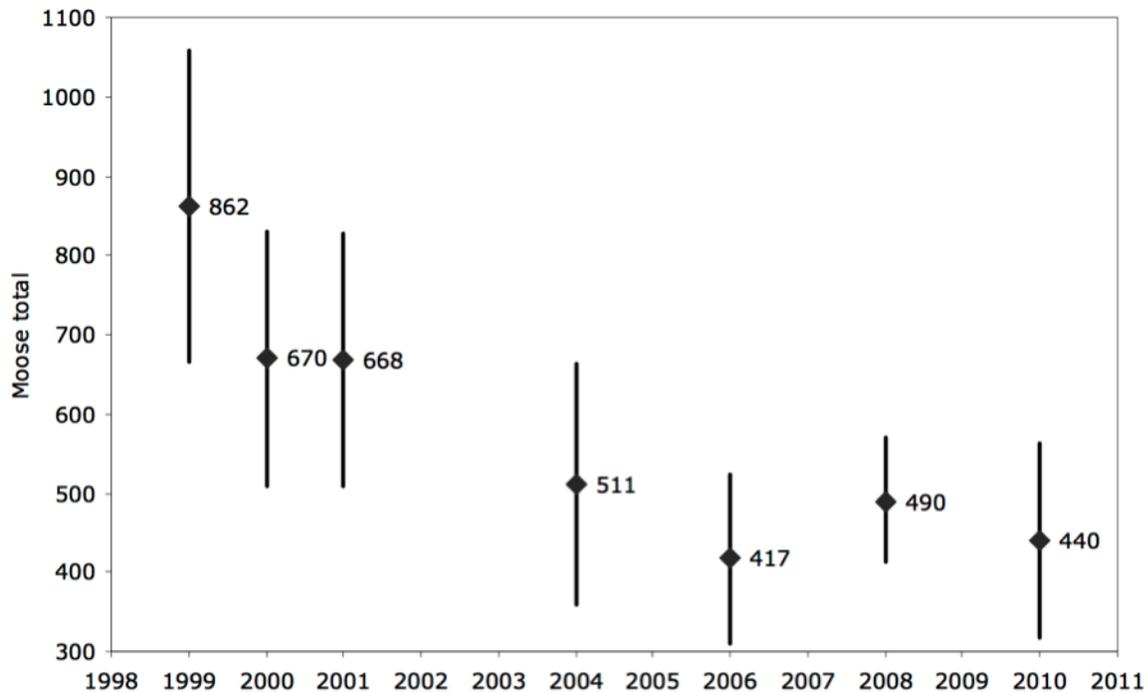


FIGURE 2: MOOSE POPULATION IN THE WESTERN YUKON FLATS 1999-2010 (SOURCE: USFWS LAKE 2010)

The locations of moose harvests were also collected, by community, and are summarized by game management unit (GMU), subunit, and uniform coding unit (UCU) in Table 5. Of the 95.5 moose harvested by the seven survey communities, 1 moose was harvested in GMU 25A, 12.4 were harvested in GMU 25B, and the majority (48.5 moose) were taken in GMU 25D. The most moose were harvested within GMU 25D, UCU Y00-0105, with an estimated 18.9 moose harvested. This UCU is located along the Yukon River corridor down river from the village of Fort Yukon.

An estimated 136.1 individuals spent a total of 1,066.4 hunter days in pursuit of moose. This data is presented in Table 6. To put this number of hunter days in perspective, it is equivalent to approximately 3 years and is a clear testament to the importance of harvesting moose as a traditional and customary food resource in the Yukon Flats. Within the seven villages, all hunters in successful and unsuccessful households spent an average of 11.2 hunt days for each moose harvested. Successful hunters in all villages spent an average of 7.7 days for each moose harvested. Hunters in Chalkyitsik and Circle reported the lowest number of hunter days per moose harvested with 3.0 and 8.7 respectively. Hunters in Stevens Village had the highest number of hunter days per moose harvested at 30.3 days.

TABLE 3. LEVELS OF PARTICIPATION IN THE USE AND HARVEST OF MOOSE, MARCH 2010 TO FEBRUARY 2011***

	Participation of Households**				Estimated Harvest Levels								Estimated Hunter Information					
	Att (%)	Harv (%)	Rec (%)	Gav (%)	Harvested Amount			95% Confidence Limits			Pounds (Edible)*		Total			Successful		
					Total	Per		Of Total Harvest			Total							
						HH	Pers	% CL	Low	High	Per Capita	Harvest	Number	%of Pop	Hvst/Hunter	Number	Hvst/Hunter	
All	38%	22%	33%	16%	95.5	.25	.08	8	88.2	104.3	45.5	51,570	136.1	12%	.7	84.25	1.13	
Beaver	40%	16%	12%	4%	6.2	.20	.08	45	3.4	9.0	43.5	3,348	12.3	16%	.5	4.9	1.3	
Birch Creek	38%	25%	87%	13%	4.5	.38	.17	93	0.3	8.7	90.0	2,430	4.5	17%	1.0	3.0	1.5	
Chalk.	57%	57%	14%	57%	18.8	.85	.25	92	1.5	36.2	135.4	10,152	12.5	17%	1.5	12.5	1.5	
Circle	100%	97%	18%	18%	22.4	.97	.22	0	23.0	23.0	119.8	12,096	24.5	24%	.91	22.4	1.0	
Fort Yukon	28%	17%	40%	15%	36.1	.17	.06	14	31.1	41.4	32.6	19,494	57.8	10%	.62	35.0	1.03	
Stevens Village	50%	5%	45%	10%	2.1	.10	.03	46	1.1	3.1	15.5	1,134	10.5	14%	.2	1.05	2.0	
Venetie	35%	9%	14%	11%	5.4	.09	.03	22	4.2	6.5	16.1	2,916	21.4	12%	.25	5.4	1.0	

* Stanek et al, 2007. Harvest and Use of Wild Resources in Tyonek and Beluga, Alaska (2005-2006). ADFG Technical Report No. 321.

1 moose = 540 lbs of edible food.

** The calculations are based on first, the actual number of households that reported Attempted Harvest, Actual Harvest, being a Recipient of a harvest, or Giving a percentage of a harvest. Those actual reported numbers are extended based on the total number of surveyed households for each community. Then extended (extrapolated) numbers were then converted to percentages of all community households. All calculations are consistent throughout the tables.

*** The figures in the table represent percentages of ALL households.

Source: Council of Athabascan Tribal Governments, Household Surveys 2011

TABLE 4. ESTIMATED MOOSE HARVEST BY SEX AND MONTH, MARCH 2010 TO FEBRUARY 2011

Community	Sex	April	May	June	July	August	September	October	November	December	January	February	March	Unknown	Total
Beaver	All	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	6.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2
	NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Birch Creek	All	0.0	0.0	0.0	0.0	1.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	1.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5
	NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chalkyitsik	All	0.0	0.0	0.0	0.0	0.0	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	18.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	18.8
	NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Circle	All	0.0	0.0	0.0	0.0	2.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	2.0	20.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.4
	NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fort Yukon	All	0.0	0.0	0.0	0.0	2.4	33.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.1
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	1.2	32.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.7
	NT	0.0	0.0	0.0	0.0	1.2	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4
Stevens Village	All	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1
	NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venetie	All	0.0	0.0	0.0	0.0	1.1	3.2	0.0	0.0	1.1	0.0	0.0	0.0	0.0	5.4
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	1.1	3.2	0.0	0.0	1.0	0.0	0.0	0.0	0.0	5.4
	NT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	All	0.0	0.0	0.0	0.0	7.0	87.4	0.0	0.0	1.1	0.0	0.0	0.0	0.0	95.5
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	5.8	86.2	0.0	0.0	1.1	0.0	0.0	0.0	0.0	93.1
	NT	0.0	0.0	0.0	0.0	1.2	1.2	0.0	2.4						

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

TABLE 5. ESTIMATED HARVEST OF MOOSE BY GMU AND UNIFORM CODING UNIT, MARCH 2010 TO FEBRUARY 2011

GMU UCU	Beaver	Birch Creek	Chalkyitsik	Circle	Fort Yukon	Stevens Village	Venetie	Total	Percent
Grand Total	6.2	4.5	18.8	22.4	36.1	2.1	5.4	95.5	100%
Subtotal GMU 25A	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	.01
25A Y03-0202	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25A Y03-0601	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.0	1.0
Subtotal GMU 25B	0.0	0.0	9.3	0.0	2.0	0.0	1.0	12.4	.13
25B P02-0201	0.0	0.0	0.0	0.0	1.0	0.0	0.0	1.0	.08
25B P02-0301	0.0	0.0	9.3	0.0	1.0	0.0	1.0	11.4	.92
Subtotal GMU 25C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25C Y04-0401	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal GMU 25D	3.7	4.5	9.5	0.0	27.7	2.1	1.0	48.5	.50
25D P00-1101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D P00-1102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D P01-1401	0.0	0.0	0.0	0.0	2.4	0.0	0.0	2.4	.05
25D P02-1501	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D P02-1502	0.0	0.0	6.3	0.0	0.0	0.0	0.0	6.3	.13
25D P03-1601	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	.025
25D Y00-0101	3.7	0.0	0.0	0.0	1.2	2.1	0.0	7.0	.14
25D Y00-0105	0.0	0.0	3.2	0.0	15.7	0.0	0.0	18.9	.39
25D Y00-0106	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	.025
25D Y00-0201	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D Y00-1101	0.0	0.0	0.0	0.0	4.8	0.0	0.0	4.8	.10
25D Y03-0501	0.0	0.0	0.0	0.0	1.2	0.0	1.0	2.2	.05
25D Y03-0801	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D Y04-0901	0.0	4.5	0.0	0.0	0.0	0.0	0.0	4.5	.09
25D Y04-0905	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D Y05-1001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown Location	2.5	0.0	0.0	22.4	6.4	0.0	2.4	33.7	.35

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

Community	Total Reported Harvest	All Hunters			Successful (Harvesting) Households			Hunting Days/ Moose Hvst All HH**
		Number of Hunters	Estimated Days Hunted	Hunting Days/Hunter	Number of Hunters*	Estimated Days Hunted	Hunting Days/Hunter	
All	95.5	136.1	1066.4	7.8	84.25	648.8	7.7	11.2
Beaver	6.2	12.3	127.2	10.3	4.9	66.7	13.6	20.5
Birch Creek	4.5	4.5	53.7	12	3.0	43.3	14.4	12
Chalkyitsik	18.8	12.5	56.3	4.5	12.5	56.3	4.5	3.0
Circle	22.4	24.5	193.8	7.9	22.4	173.5	7.7	8.7
Fort Yukon	36.1	57.8	426.5	7.4	35.0	273.5	7.8	11.8
Stevens Vill.	2.1	10.5	63.7	6.4	1.05	1.05	1.05	30.3
Venetie	5.4	21.4	145.2	6.8	5.4	34.4	6.4	26.9

* A maximum of one hunter is counted per moose harvested.
** HH represents "all hunters".

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

CARIBOU

Caribou harvests in the Yukon Flats area vary greatly depending upon the movements of the Porcupine and Fortymile caribou herds' proximity to adjacent villages. As a result, there can be large variances in historical annual caribou harvest trends in the Yukon Flats. The 2010 - 2011 survey documented an estimated total community harvest of 50.1 caribou for the seven participating villages, 3% of households (Table 7). The caribou were primarily harvested in the community of Venetie (44.1), with a few being taken by Fort Yukon residents (6) (Table 7). The percentage of households attempting to harvest caribou ranged from 0% in most villages, to 30% in Venetie (Table 7). Receiving of caribou by 7% of the households in region demonstrates that sharing of harvest occurs in the Yukon Flats.

Table 8 shows the caribou harvest by month and sex. The 2010 - 2011 caribou harvest consisted of 35.25 bulls and 14.85 cows, with caribou being taken during seven months of April, August, September, November, January, February, and March. The locations of caribou harvests are summarized by GMU, subunit, and UCU in Table 9. Harvested caribou were primarily taken by hunters in GMU 25D, in UCUs Y05-1001 and Y00-1101.

TABLE 7. LEVELS OF PARTICIPATION IN THE USE AND HARVEST OF CARIBOU, MARCH 2010 TO FEBRUARY 2011

	Participation of Households				Estimated Harvest Levels								Estimated Hunter Information				
	Att (%)	Harv (%)	Rec (%)	Gav (%)	Harvested Amount		95% Confidence Limits			Pounds (Edible)*		Total			Successful		
					Total	Per		Of Total Harvest			Total		Number	% of Pop	Hvst Per Hunter	Number	Hvst/Hunter
						HH	Pers	% CL	Low	High	Per Capita	Harvest					
All	6%	3%	7%	3%	50.1	.13	.04	38	31.1	68.7	6.6	7,515	30.6	3%	1.6	13.4	3.7
Beaver	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Birch Creek	0.0	0.0	8	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chalk.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Circle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fort Yukon	2%	1%	8%	1%	6.0	.03	.01	54	2.8	9.3	1.5	900	4.8	.008%	1.25	4.8	1.25
Stevens Village	0.0	0.0	10%	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venetie	30%	15%	10%	16%	44.1	.72	.24	21	34.7	53.0	36.5	6,615	25.8	14%	1.7	8.6	5.13

*Stanek et al, 2007. Harvest and Use of Wild Resources in Tyonek and Beluga, Alaska (2005-2006). ADFG Technical Report No. 321.
1 caribou = 150 lbs of edible food.

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

TABLE 8. ESTIMATED CARIBOU HARVEST BY SEX AND MONTH, MARCH 2010 TO FEBRUARY 2011															
Community	Sex	April	May	June	July	August	September	October	November	December	January	February	March	Unknown	Total
Beaver	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Birch Creek	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chalkyitsik	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Circle	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fort Yukon	All	0.0	0.0	0.0	0.0	3.6	1.2	0.0	0.0	0.0	0.0	0.0	1.2	0.0	6.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	3.6	1.2	0.0	0.0	0.0	0.0	0.0	1.2	0.0	6.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stevens Village	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venetie	All	1.1	0.0	0.0	0.0	1.1	0.0	0.0	4.3	5.4	14.0	12.8	5.4	0.0	44.1
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.15	1.1	1.0	10.6	0.0	0.0	14.85
	Male	1.1	0.0	0.0	0.0	1.1	0.0	0.0	2.15	4.3	13.0	2.2	5.4	0.0	29.25
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	All	1.1	0.0	0.0	0.0	4.7	1.2	0.0	4.3	5.4	14.0	12.8	6.6	0.0	50.1
	Female	0.0	2.15	1.1	1.0	10.6	0.0	0.0	14.85						
	Male	1.1	0.0	0.0	0.0	4.7	1.2	0.0	2.15	4.3	13.0	2.2	6.6	0.0	35.25
	Unknown	0.0	6.0	0.0	0.0	0.0	0.0	0.0							

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

GMU - UCU	Beaver	Birch Creek	Chalk.	Circle	Fort Yukon	Stevens Village	Venetie	Total	Percent
Grand Total	0.0	0.0	0.0	0.0	6.0	0.0	44.1	50.1	100%
Subtotal GMU 25A	0.0	0.0	0.0	0.0	1.2	0.0	1.7	2.9	6%
25A Y05-0501	0.0	0.0	0.0	0.0	1.2	0.0	1.7	2.9	6%
25A Y05-0902	0.0	0.0	0.0	0.0	0.0	0.0	0.0	.0	0.0
Subtotal GMU 25B	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2%
25B P00-0501	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	2%
Subtotal GMU 25D	0.0	0.0	0.0	0.0	0.0	0.0	29.6	29.6	61%
25D Y05-1001	0.0	0.0	0.0	0.0	0.0	0.0	25.2	25.2	50%
25D Y00-1501	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D Y05-1101	0.0	0.0	0.0	0.0	0.0	0.0	5.4	5.4	11%
Subtotal GMU 25C	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
25C Y04-0501	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0
Unknown Location	0.0	0.0	0.0	0.0	3.6	0	11.8	15.4	31%

Source: Council of Athabascan Tribal Governments, Household Surveys 2011

BLACK BEAR

For 2010-2011, an estimated total of 19.8 black bears were harvested by hunters in the seven survey communities (Table 10). Within the seven communities surveyed, 19.9% of households reported attempting to harvest black bears, with 17.9% reporting a successful harvest (Table 10). Region wide, most of the black bears were harvested in August (8.5) followed by July (4.5); these months are when many households are active due to moose season and fishing. No early spring bears were reported to be harvested.

Black bears display low variability in their denning dates in Interior Alaska. Black bears enter their winter dens by late September and emerge from their dens by early May. Black bear pelts and meat are generally considered to be prime in the fall and spring just prior to and immediately following denning. However with most harvest in July and August suggesting black bears are being harvested for other reasons, such as predator management.

Black bear harvests consisted of 16.1 males and 1.25 females (Table 11). Locations of black bear harvests for each community are summarized by GMU, subunit, and UCU in Table 12. Seventy-six percent of the black bear harvest locations were not reported, with 24% being reported taken in GMU 25D.

TABLE 10. LEVELS OF PARTICIPATION IN THE USE AND HARVEST OF BLACK BEAR, MARCH 2010 TO FEBRUARY 2011

	Participation of Households				Estimated Harvest Levels								Estimated Hunter Information					
	Att (%)	Harv (%)	Rec (%)	Gav (%)	Harvested Amount		95% Confidence Limits			Pounds (Edible)*		Total			Successful			
					Total	Per		Of Total Harvest			Total		Number	%of Pop	Hvst/Hunter	Number	Hvst/Hunter	
						HH	Pers	% CL	Low	High	Per Capita	Harvest						
All	5%	5%	1%	1%	19.8	.05	.02	20	16.2	24.1	1.01	1,148.4	21	2%	.94	17.9	1.1	
Beaver	8%	8%	4%	4%	2.5	.08	.03	63	0.9	4.0	1.88	145.0	2.5	3%	1.0	2.5 (2)	1.0	
Birch Creek	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Chalk.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Circle	44%	44%	0.0	9%	10.1	.44	.10	73	2.9	18.0	5.8	585.8	10.2	10%	1.0	8.2 (4)	1.23	
Fort Yukon	3%	3%	2%	0.0	7.2	.03	.01	33	4.9	9.6	.70	417.6	7.2	1%	1.0	7.2 (6)	1.0	
Stevens Village	5%	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	1.05	1%	0.0	0.0	0.0	
Venetie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0	

*Stanek et al, 2007. Harvest and Use of Wild Resources in Tyonek and Beluga, Alaska (2005-2006). ADFG Technical Report No. 321.
 1 Black Bear = 58 lbs of edible food.

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

		April	May	June	July	August	September	October	November	December	January	February	March	Unknown	Total
Community	Sex														
Beaver	All	0.0	0.0	0.0	1.25	0.0	0.0	0.0	0.0	0.0	0.0	1.25	0.0	0.0	2.5
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.25	0.0	0.0	1.25
	Male	0.0	0.0	0.0	1.25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.25
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Birch Creek	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chalkyitsik	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Circle	All	0.0	0.0	0.0	2.0	6.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	2.0	6.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.1
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fort Yukon	All	0.0	0.0	2.4	1.2	2.4	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	7.2
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	1.2	1.2	1.2	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	4.8
	Unknown	0.0	0.0	1.2	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4
Stevens Village	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venetie	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	All	0.0	0.0	2.4	4.5	8.5	2.0	0.0	0.0	1.2	0.0	1.25	0.0	0.0	19.8
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.25	0.0	0.0	1.25
	Male	0.0	0.0	1.2	4.4	7.3	2.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	16.1
	Unknown	0.0	0.0	1.2	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

TABLE 12. ESTIMATED HARVEST OF BLACK BEAR BY GMU AND UNIFORM CODING UNIT, MARCH 2010 TO FEBRUARY 2011

GMU - UCU	Beaver	Birch Creek	Chalkyitsik	Circle	Fort Yukon	Stevens Village	Venetie	Total	Percent
Grand Total	0.0	2.5	0.0	10.1	7.2	0.0	0.0	19.7	100%
Subtotal GMU 25C	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25C Y00-0601	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25C Y04-0401	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Subtotal GMU 25D	0.0	0.0	0.0	0.0	4.8	0.0	0.0	4.8	24%
25D P01-1401	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D P00-1101	0.0	0.0	0.0	0.0	2.4	0.0	0.0	2.4	12%
25D Y00-0101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D Y00-0105	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	6%
25D Y00-0106	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2	6%
25D Y03-0801	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D Y04-0901	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25D Y05-1001	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Unknown Location	0.0	2.5	0.0	10.1	2.4	0.0	0.0	15.0	76%

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

BROWN BEAR

Yukon Flats hunters reported taking 3.9 brown bears in 2010 - 2011, with approximately one bear taken in Beaver, Birch Creek, and Fort Yukon and 1% of households reported attempting to harvest brown bears (Table 13). Hunter effort shows that only 3.9 households reported attempting to harvest and 3.9 were successful. It can be concluded that brown bear were infrequently encountered during this harvest year, that underreporting has occurred, and/or that brown bear hunting was opportunistic only.

It was reported that 1.5 was harvested in June, and 2.4 in July (Table 14). Again, as with black bear harvest timing suggests that bears were taken not for pelts or meat when they are in high quality, but for predator management purposes.

TABLE 13. LEVELS OF PARTICIPATION IN THE USE AND HARVEST OF BROWN BEAR, MARCH 2010 TO FEBRUARY 2011

	Participation of Households				Estimated Harvest Levels								Estimated Hunter Information				
	Att (%)	Harv (%)	Rec (%)	Gav (%)	Harvested Amount		95% Confidence Limits			Pounds (Edible)*		Total			Successful		
					Total	Per		Of Total Harvest			Total						
						HH	Pers	% CL	Low	High	Per Capita	Harvest	Number	%of Pop	Hvst/Hunter	Number	Hvst/Hunter
All	1%	1%	0.0	0.0	3.9	.01	.003	48	2.06	5.83	.52	585	3.9	.003	1.0	3.9	1.0
Beaver	4%	4%	0.0	0.0	1.2	.04	.02	91	0.1	2.4	2.3	180	1.2	.02	1.0	1.2	1.0
Birch Creek	13%	13%	0.0	0.0	1.5	.13	.06	133	-0.5	3.5	8.3	225	1.5	.06	1.0	1.5	1.0
Chalk.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Circle	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fort Yukon	1%	1%	0.0	0.0	1.2	.01	.003	82	0.2	2.2	.3	180	1.2	.002	1.0	1.2	1.0
Stevens Village	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venetie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0	0.0	0.0

*Stanek et al, 2007. Harvest and Use of Wild Resources in Tyonek and Beluga, Alaska (2005-2006). ADFG Technical Report No. 321.
1 Brown Bear = 150 lbs of edible food.

Source: Council of Athabascan Tribal Governments, Household Surveys 2011

TABLE 14. BROWN BEAR HARVESTS BY SEX AND MONTH, MARCH 2010 TO FEBRUARY 2011

Community	Sex	April	May	June	July	August	September	October	November	December	January	February	March	Unknown	Total
Beaver	All	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Birch Creek	All	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chalkyitsik	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Circle	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fort Yukon	All	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Stevens Village	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venetie	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	All	0.0	0.0	1.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	1.5	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.9
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

WOLVES, LYNX, MARTEN

Hunters and trappers residing in the seven participating communities were surveyed to compile data that measures the levels of wolf harvest. A total of only 12.6 wolves were estimated to be harvested within the area during March 2010 to February 2011, with the majority of 10.2 wolves being taken by Circle residents (Table 15). Stevens Village and Venetie reported no harvest, nor even attempts to harvest wolves. Thirteen percent of Birch Creek households and 4% of Chalkyitsik households reported attempting to harvest but were unsuccessful in harvesting any wolves. Only 15.2 total households reported actively hunting wolves, with 10.6 reporting success. This indicates an approximate 70% harvest rate among active wolf hunters.

Hunters and trappers residing in the seven participating communities were surveyed to compile data that measures the levels of lynx harvest. A total of 254.4 lynx were estimated to be harvested within the area during March 2010 to February 2011, with the majority of 103.6 lynx being taken by Fort Yukon residents (Table 17). Beaver, Birch Creek, and Venetie reported no attempts to harvest lynx. Six point two percent (6.2%) of Chalkyitsik households, 4.1% of Circle households, 6% of Fort Yukon Households, and 2.1% of Stevens Village households reported attempting to harvest, with all attempting households (18.4%) successful. This indicates 100% successful harvest rate among active lynx trappers.

Hunters and trappers residing in the seven participating communities were surveyed to compile data that measures the levels of marten harvest. A total of 28.9 marten were estimated to be harvested within the area during March 2010 to February 2011, with the majority of 24.1 marten being taken by Fort Yukon residents (Table 17). Beaver, Chalkyitsik, Circle, Stevens Village, and Venetie reported no attempts to harvest marten. One point two percent (1.2%) of Birch Creek households and 1.2% of Fort Yukon Households reported attempting to harvest, with all attempting households (2.4%) successful. This indicates 100% successful harvest rate among active marten trappers.

TABLE 15. LEVELS OF PARTICIPATION IN THE USE AND HARVEST OF WOLVES, MARCH 2010 TO FEBRUARY 2011

	Participation of Households				Estimated Harvest Levels						Estimated Hunter Information				
	Att (%)	Harv (%)	Rec (%)	Gav (%)	Harvested Amount		95% Confidence Limits				Total			Successful	
					Total	Per		Of Total Harvest							
						HH	Pers	% CL	Low	High	Number	%of Pop	Hvst/Hunter	Number	Hvst/Hunter
All	4%	3%	0.0	0.0	12.6	.03	.01	48	2.06	5.83	11.1	1%	1.1	10.6	1.2
Beaver	4%	4%	0.0	0.0	1.2	.04	.01	91	0.1	2.4	1.2	2%	1.0	1.2	1.0
Birch Creek	13%	0.0	0.0	0.0	0.0	0.0	0.0	133	-0.5	3.5	1.5	6%	0.0	0.0	0.0
Chalk.	14%	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	3.1	4%	0.0	0.0	0.0
Circle	9%	9%	0.0	0.0	10.2	.44	.10	--	--	--	4.1	4%	2.5	4.1	2.5
Fort Yukon	1%	1%	0.0	0.0	1.2	.01	.002	82	0.2	2.2	1.2	.002%	1.0	1.2	1.0
Stevens Village	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0
Venetie	0.0	0.0	0.0	0.0	0.0	0.0	0.0	--	--	--	0.0	0.0	0.0	0.0	0.0

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

Community	Sex	April	May	June	July	August	September	October	November	December	January	February	March	Unknown	Total
Beaver	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	1.2
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Birch Creek	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Chalkyitsik	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Circle	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.2	2.0	0.0	10.2
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.2	2.0	0.0	8.2
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fort Yukon	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.2
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.2
Stevens Village	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Venetie	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	All	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	9.4	2.0	0.0	12.6
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	2.0
	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.4	2.0	0.0	9.4
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	1.2

Source: Council of Athabaskan Tribal Governments, Household Surveys 2011

TABLE 17. HARVEST USE PATTERNS OF LYNX AND MARTEN IN THE YUKON FLATS, MARCH 2010 TO FEBRUARY 2011

	Species	HH Attempt to Harvest	HH Harvested	Received	Gave	Estimated Total Harvest	CL%	Low	High
Beaver	Lynx	0.0	0.0	2.5	0.0	0.0	--	--	--
	Marten	0.0	0.0	4.9	0.0	0.0	--	--	--
Birch Creek	Lynx	0.0	0.0	9.0	0.0	0.0	--	--	--
	Marten	1.2	1.2	0.0	0.0	4.8	133	-1.5	10.5
Chalk	Lynx	6.2	6.2	0.0	0.0	53.1	140	-21.5	128.3
	Marten	0.0	0.0	0.0	0.0	0	--	--	--
Circle	Lynx	4.1	4.1	0.0	0.0	71.4	108	-5.8	152.2
	Marten	0.0	0.0	0.0	0.0	0.0	--	--	--
Fort Yukon	Lynx	6.0	6.0	0.0	0.0	103.6	41	60.8	147.0
	Marten	1.2	1.2	0.0	0.0	24.1	82	4.4	44.0
Stevens Village	Lynx	2.1	2.1	0.0	0.0	26.3	34	17.5	35.0
	Marten	0.0	0.0	0.0	0.0	0.0	--	--	--
Venetie	Lynx	0.0	0.0	8.6	0.0	0.0	--	--	--
	Marten	0.0	0.0	4.3	0.0	0.0	--	--	--
Total	Lynx	18.4	18.4	20.1	0.0	254.4	23	196.9	316.6
	Marten	2.4	2.4	9.2	0.0	28.9	78	6.39	50.94

Source: Council of Athabascan Tribal Governments, Household Surveys 2011

REPORTED BARRIERS TO WILDLIFE HARVESTING

Household surveys asked heads-of-households to identify the primary barriers or impediments that kept members of their household from harvesting wildlife resources during the survey period.

Those identified impediments are shown in Figure 3 and (7 in total) include the prohibitive cost of fuel and other harvesting equipment (63, 13%), time limitations associated with attendance in school\training programs (42, 9%), or participation in wage earning employment (190, 41%), physical and health related challenges that limited one’s ability to engage in harvesting activities (92, 20%), the general lack of interest among household members to harvest (47, 10%), the limited availability of wildlife resources (most notably moose and salmon) (25, 5%), and the demands of childcare and other domestic responsibilities (9, 2%). In-depth community comparative analysis is planned for future publications.

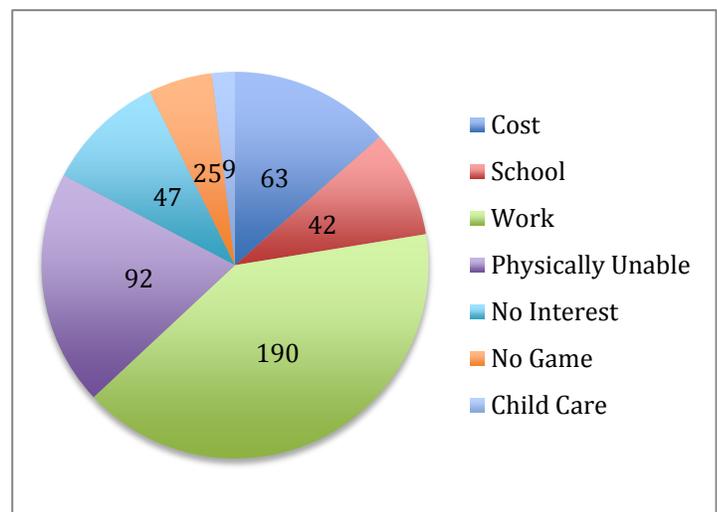


FIGURE 3: REPORTED BARRIERS TO HARVEST

DISCUSSION

Community-based harvest surveys within the Yukon Flats continue to be a valuable asset for resource managers and local residents. Survey numbers continue to indicate that subsistence resources continue to be a vital part of the Yukon Flats way of life and economy. Harvest household survey goals were lower than expected this survey year in Birch Creek, Chalkyitsik, and Circle. Local research assistants observed low participation rates which may be due to several factors, including: timing of survey postponed due to a delay project funding; migratory lifestyle of village residents making them inaccessible at time of survey; apathy due to lack of visible results from previous surveys; and confusion due to survey implementation from various agencies.

As noted in earlier harvest survey studies (Brown et al, 2004), the harvest ticket system for reporting big game harvests in Alaska may substantially underestimate harvests of rural resident hunters (cf. Andersen and Alexander 1992). Andersen and Alexander compared harvests reported through harvest tickets to subsistence baseline studies for nine interior Alaskan communities during the regulatory year 1987-1988. On average, the harvest tickets reported represented approximately 28% of the harvest estimates documented in the community baseline studies (Andersen and Alexander 1992).

Andersen and Alexander contend harvest tickets do not represent accurate harvests by rural communities for a variety of reasons:

1. Some individuals hunt and harvest without ever obtaining a license or harvest ticket;
2. The harvest ticket system is not compatible with local patterns of group hunting and sharing networks that characterize many local subsistence-based communities;
3. Hunting is typically done by groups and harvests are shared between these households;
4. Select hunters ('super-households or super-hunters') may be responsible for providing moose meat for a large, extended family of several inter-related households in addition to his or her own; and
5. One moose may not feed a household heavily reliant on wild foods to meet their needs (Andersen and Alexander 1992).

While surveys using the methods in this project continue to provide useful information it is believed that the numbers reported are low due the continued fear of criminalization of local users by the federal and state systems. Although survey numbers are assumed to be low they are believed to be closer to accurate than those derived from state and federal harvest tickets and permits. Standard methods for the collection of harvest data, such as harvest tickets, permits, and sealing, are difficult to obtain in the Yukon Flats. The accuracy of harvest data collection could be further improved by a quarterly survey delivery that is matched with increased education on the importance of harvest data collection and that participating in the survey will not result in criminalization. By improving the education of local harvesters on how the data is used in conjunction with quarterly survey delivery, the accuracy of harvest and importance of food sharing networks could be further defined.

TABLE 18. ESTIMATED/REPORTED MOOSE HARVEST WITHIN THE YUKON FLATS 1993-2011										
	Arctic Village	Beaver	Birch Creek	Chalkyitsik	Circle	Fort Yukon	Rampart	Stevens	Venetie	Totals
1993 ¹	13	9	1		10	21	2	9	30	95
1994 ¹	4	4	8		14	35	4	6	16	91
1995 ¹	15	10	7		7	95	11		25	170
1996 ¹	8	10	7		4	8			8	45
1997 ¹	8		29		2	41	9		20	109
1998 ¹	4		7		3	5		3		22
2002/03 ¹	44	18	14		8	51	4	10	7	156
2004 ²		12	8	9	3	28		11	19	90
2004/05 ³		17	11	15	10	34	1	17	21	126
2005/06 ⁴		13	14	38	15	122		2	21	225
2007 ⁵		11	3	13	5	52		3	7	94
2008 ⁵		5	1	15	7	29		3	17	77
**2008-2009 ⁶		2.1	5.3	8.3	5	60.7		1.4	22.3	105.1
**2009-2010 ⁶		8.8	5	7.2	10	64.2		4.6	23.6	123.4
**2010-2011 ⁷		6.2	4.5	18.8	22.4	36.1		2.1	5.4	95.5
* Canyon Village harvest included with Fort Yukon for the 3 years of existing data										
¹ Craig Fleener & Bruce Thomas, <i>Yukon Flats Moose, Bear, Wolf Harvest Data Collection, August 2003</i>										
² Bruce Thomas, <i>CATG 2004 Wildlife Harvest Survey</i>										
³ Craig Fleener & Bruce Thomas, <i>Yukon Flats Moose, Bear, Wolf Harvest Data Collection, June 2005</i>										
⁴ Craig Fleener & Bruce Thomas, <i>Yukon Flats Moose, Bear, Wolf Harvest Data Collection, April 2007</i>										
⁵ Bruce Thomas, <i>Yukon Flats Moose, Bear, Waterfowl, and Furbearing Harvest Data Collection Final Summary Report, 2008</i>										
⁶ Jaime VanLanen, Carrie Stevens, Bryan Maracle, Caroline Brown, & David Koster, <i>Subsistence Land Mammal Harvests and Uses, Yukon Flats, Alaska: 2008-2010 Harvest Report and Ethnographic Update</i>										
⁷ Carrie Stevens & Bryan Maracle, <i>Subsistence Harvest of Land Mammals, Yukon Flats, Alaska 2011-2012</i>										
** For these survey years, community harvest estimates were derived from household survey methodology.										

Table 18 summarizes reported and estimated moose harvest data from 1993 to 2011. As can be seen in this table, there are significant variances of moose harvest by community and region over the study period. To accurately understand these variances, a more in depth analysis is necessary. Survey methods and implementation varied greatly from year to year, including: reported harvest by community, reported harvest by household and estimated community harvest methods. Many factors impacting harvest levels have also been noted over survey years, including: weather patterns and water levels, moose population and density, and cost of hunting such as fuel prices. Additionally noted factors for variances in harvest numbers are noted here, such as fear of criminalization or hunter recall. To appropriately analyze this historic table all factors above would need to be carefully considered. This is an area for future study.

As can be seen in Table 3, participation in attempted harvest, harvest, and use (giving and receiving) of moose vary greatly amongst Yukon Flats communities in 2010-2011. In 2010-

2011 100% of Circle households are estimated to have attempted harvesting moose, while in Fort Yukon only 28% are estimated to have done so. In 2010-2011 97% of Circle households are estimated to have harvested moose, while in Stevens Village only 5% are estimated to have done so. Estimated use also varies greatly in 2010-2011, with 87% of Birch Creek households estimated to have received moose, while only 12% of Beaver households estimated to have done so. In 2010-2011 57% of Chalkyitsik households are estimated to have given moose, while only 4% of Beaver households are estimated to have done so. Without contextualization, it is difficult to draw conclusions from these statistics. These variances can also be seen in historical data from 2008-2009 and 2009-2010 (Van Lanen et al. 2012). These variances can be attributed to numerous factors, such as the barriers reported above (Figure 3), as well as others such as climate, habitat, water levels, or unforeseen personal circumstances.

Compared across years, 2008-2009, 2009-2010, and 2010-2011, there is a level of consistency amongst all Yukon Flats household attempts to harvest moose at 41.1%, 47.1% and 38% respectively, as well as all Yukon Flats household harvest of moose at 22.7%, 25.8%, and 22% respectively (Table 3 and Van Lanen et al. 2012). This consistency suggests the continued importance of moose as a food source in the region, as well as the difficulty in successful harvest.

One benefit of the estimated community harvest method is the ability to compare results across regions. Consistent with 2008-2009 (.2) and 2009-2010 (.3) findings, estimated per household level of moose harvest in 2010-2011 amongst all Yukon Flats households was .25 (Table 3 and Van Lanen et al. 2012). As documented, this demonstrates similar harvest levels to the central Kuskokwim which has extremely low moose densities (Van Lanen et al. 2012). This suggests that it is much more difficult to harvest moose in the Yukon Flats due to low density populations than in other parts of the interior such as the GASH (Grayling, Anvik, Shageluk, and Holy Cross) and Middle Yukon – Koyukuk regions which estimate harvest at rates of .60 and .61 per household respectively (Van Lanen et al. 2012).

Additionally, hunter effort can be compared across regions with the Middle Yukon/Koyukon averaging 9.1 days effort per harvested moose, the GASH averaging 7.2 days, the Central Kuskokwim averaging 18.1 days, and the Yukon Flats averaging 8.4 days from 2008-2011 (Table 6 and Van Lanen et al. 2012). In the Yukon Flats, where the moose population surveys and estimated per household level of moose harvest suggest low moose densities, the level of moose hunter effort is equivalent to regions with higher moose densities (Van Lanen et al. 2012). This could suggest that Yukon Flats hunters have become adept and efficient at hunting within their region despite low moose density populations (Van Lanen et al. 2012).

A NOTE ON SURVEY METHODS AND LIMITATIONS

Due to the sporadic nature of harvest reporting and various reporting methods (harvest tickets, permits, and house-to-house surveys) it is difficult compare harvest levels across years, particularly noting the large harvest reporting differences reported from year to year. Changes in reported harvest levels should not only be attributed to changing interests in hunting but can be attributed to a variety of unexamined factors, including: environmental conditions, wildlife populations, socio-economic conditions, and weaknesses in reporting methods.

The survey method utilized in the community estimate household surveys uses a memory recall

strategy in which male and female heads of households were asked to recall the number of animals harvested by household members during the preceding year. This approach, however, is not without its limitations. First, this survey strategy assumes that the number of species harvested is committed to memory at the time of harvest, and remains fixed during the intervening period. While this may be less of an issue for recalling the harvest of large ungulates (e.g., moose), the risk of recall failure may be far greater for resources such as fish, small game, and waterfowl. This may be due to the quantity, duration, and routine fashion in which these resources are harvested.

Harvest surveys results do not provide information regarding the social, economic and ecological circumstances which impact wildlife harvesting. This information is critical to sufficiently and adequately inform future management decisions. This is a shortcoming of harvest studies, which fail to fully acknowledge the social and ecological context in which wildlife harvesting takes place, or the formal and informal institutions that may influence resource use.

For example, analyzing hunter effort only by utilizing statistics may lead to erroneous conclusions. When comparing the number of hunter days of successful hunters (7.7 days) to unsuccessful hunters (11.2) one might conclude that unsuccessful hunters are expending 45% more effort to hunt and are still unsuccessful (Table 3), reinforcing the ‘superhunter’ concept and supporting a community harvest system. Though logical in quantitative analysis, the conclusion is limited in scope and does not take into account the numerous factors affecting successful or unsuccessful harvest by hunters.

Rasmussen illustrates this in his analysis of Netsilik Eskimos, “Numbers, like language, can be a very powerful tool that, if used indiscriminately and without reflection, can marginalize Aboriginal peoples and their TK”(1931). The point is further emphasized by Crampton who stated, “Western scientists should not criticize what they see as unsubstantiated judgments in native science based on several generations of experience, when they are speculative about their judgments based on few measurements made over a short time-scale” (1991:68). Rasmussen provided an elegant illustration when attempting to elicit actual seal harvest numbers from Netsilingmiut hunters in 1922.

Initially, Rasmussen’s attempt to solicit this information was unsuccessful. However, it soon dawned on Rasmussen to provide hunters with a pencil so that each could draw the number of seals that he procured over the last few months. What was drawn, however, was not only the exact number of seals (in sequence) that each hunter had killed, but numerous minor differences among each seal. Had Rasmussen queried each hunter about what these differences meant – had he not been so preoccupied with the numbers – he might have learned something about the age, sex, health, physical condition, parasite load, diet, habitat, ice conditions, kill location, kill effort, etc. of each seal and how it was used and shared among community members, thus revealing information about hunting group structure and organization. These lines of inquiry might have also lead him to ask about changes or variations in these parameters through time (e.g., year to year) and space (1931:230).

Therefore, inquiring about the context in which harvesting occurs in addition to harvest numbers alone, can be seen as equally if not more important for understanding the harvesting patterns among Yukon Flats households and communities.

RECOMMENDATIONS

Accurate data is considered instrumental in appropriate and effective harvest and species management, thus making accurate and regular harvest data collection important research tasks. Closing the gap between affordability and data quality is a challenge to be addressed if community-based monitoring of harvest is to continue.

Current study design allows for tribal natural resource technicians to conduct community-based research thru household surveys only once annually. This method does not allow for accurate or adequate reporting of harvest or sharing, placing an overly burdensome and difficult task of recall upon the households surveyed. To collect quality and accurate data, harvest surveys should be conducted more frequently, quarterly at minimum.

An alternative survey design incorporating individual reporting via harvest calendars has also been suggested. This study design would warrant some research and development to be effective in collecting data. Currently similar methods are used by the Alaska Department of Fish and Game for salmon harvest. The return rate for these surveys would need to be analyzed. To collect accurate and thorough data with a high return rate the following would need to be considered in study design: development of the calendar reporting tool that includes contextualization and sharing, mode and schedule for deployment and return of the reporting tool, education and outreach of individual households for participation in reporting, and incentives for participation.

As noted in the discussion, multiple agencies and organizations conduct studies and surveys related to traditional and customary use, or subsistence harvest, within the Yukon Flats. This has been seen to create confusion. Community member confusion arises amongst those whose data are being collected as well as overlapping research by agencies and organizations. It is therefore recommended that a single entity located within the region serve as the coordinating body within the Yukon Flats for these study efforts, to ensure adequate outreach to those surveyed, efficient use of survey funds, and the elimination of a duplication of research effort.

Quantitative data must be supplemented with additional, more qualitative, information. Moreover, successful and sustainable management of wildlife resources in the Yukon Flats necessitates an integrative understanding since the foundation of management success is trust, communication and understanding between manager and harvester alike.

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APPENDIX A SURVEY TOOL

**THE COUNCIL OF ATHABASCAN
TRIBAL GOVERNMENTS
TRADITIONAL & CUSTOMARY USE SURVEY**



SURVEY YEAR
MARCH 2010 TO FEBRUARY 2011

NATURAL RESOURCES DEPARTMENT
Post Office Box 283
Fort Yukon, Alaska, 99740

COMMUNITY
COMMUNITY ID
RESPONDENT ID
HH #
INTERVIEW DATE
START TIME
STOP TIME
INTERVIEWER
DATA CODED BY
DATA ENTERED BY
SUPERVISOR

CATG HARVEST SURVEY (2010 - 2011) HH _____ COMMUNITY _____ INTERVIEWER _____ DATE _____

HH <small>(Circle those answering questions on this survey)</small>	SEX <small>(circle)</small>	AGE A: 0-15 B: 16-30 C: 31-40 D: 41-50 E: 51-65 F: 66+	PERM. HH MEMBER? <small>(circle)</small>	ALASKA NATIVE? <small>(circle)</small>	WHICH MONTHS DID THIS PERSON HUNT AND/OR FISH IN 2010-2011		WHICH MONTHS WAS THIS PERSON EMPLOYED IN WAGE LABOUR IN 2010-2011?		HUNTER EFFORT		IF NOT ABLE TO HUNT OR FISH IN 2010-11, WHY?																												
					2010						2011						IN 2010-2011 DID THIS PERSON HUNT/FISH/ or TRAP? <small>(circle)</small>	IN 2010-2011 ESTIMATE HOW MANY DAYS SPENT HUNTING/ FISHING/ or TRAPPING <small>(enter a #)</small>	TOO YOUNG	NO EQUIPMENT	SCHOOL	WORK	DISABLED	SICK	NO GAME	NO INTEREST	OTHER												
					M	A	M	J	J	A	S	O	N	D	M	A												M	J	J	A	S	O	N	D	N	Y		
1	M	F		N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D														
2	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												
3	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												
4	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												
5	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												
6	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												
7	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												
8	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												
9	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												
10	M	F		N	Y	N	Y	M	A	M	J	J	A	S	O	N	D	M	A	M	J	J	A	S	O	N	D												

IN 2010-2011 DID MEMBERS OF YOUR HH...				ANIMAL #	SEX	LOCATION (UCU)	IN 2010-2011, HOW MANY BEAR DID YOUR HOUSEHOLD HARVEST?												HUNTER EFFORT	GAVE				RECEIVED				
USED FOR OTHER USES THAN FOOD	TRY TO HARVEST THIS ANIMAL	(circle)	(circle)				2010						2011							ESTIMATE # OF DAYS SPENT HUNTING BEAR	Amt (lbs)	TO WHO (Relationship)	HH#	Community	Amt (lbs)	FROM WHO (Relationship)	HH#	Community
							MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY										
BROWN BEAR							enter number by sex, location, and month of take												(enter a #)									
	N	Y	N	Y	1		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					2		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					3		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					4		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					5		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
BLACK BEAR							enter number by sex, location, and month of take												(enter a #)									
	N	Y	N	Y	1		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					2		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					3		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					4		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					5		M	A	M	J	J	A	S	O	N	D	J	F	F	U								

DID YOUR HOUSEHOLD GET ENOUGH MOOSE FOR SUBSISTENCE THIS YEAR: YES: _____(1) NO: _____(2)

DID YOUR HOUSEHOLD GET ENOUGH CARIBOU FOR SUBSISTENCE THIS YEAR: YES: _____(1) NO: _____(2)

DID YOUR HOUSEHOLD GET ENOUGH BEAR FOR SUBSISTENCE THIS YEAR: YES: _____(1) NO: _____(2)

COMMENTS: _____

FURBEARER

DO MEMBERS OF YOUR HOUSEHOLD USUALLY HUNT FURBEARERS FOR SUBSISTENCE? YES: _____(1) NO: _____(2)

BETWEEN 2010 TO 2011 DID MEMBERS OF YOUR HOUSEHOLD GIVE, RECEIVE, OR TRY TO HARVEST FURBEARERS? YES: _____(1) NO: _____(2)
 (IF NO, GO TO NEXT HARVEST SECTION - FISH. IF YES, CONTINUE ON THIS PAGE)

IN 2010-2011 DID MEMBERS OF YOUR HH...				ANIMAL #	SEX	LOCATION (UCU)	IN 2010-2011, HOW MANY WOLVES DID YOUR HOUSEHOLD HARVEST?												HUNTER EFFORT	GAVE				RECEIVED				
USED FOR OTHER USES THAN FOOD	TRY TO HARVEST THIS ANIMAL	(circle)	(circle)				2010						2011							ESTIMATE # OF DAYS SPENT HUNTING WOLF	Amt (lbs)	TO WHO (Relationship)	HH#	Community	Amt (lbs)	FROM WHO (Relationship)	HH#	Community
							MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY										
WOLF							enter number by sex, location, and month of take												(enter a #)									
	N	Y	N	Y	1		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					2		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					3		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					4		M	A	M	J	J	A	S	O	N	D	J	F	F	U								
					5		M	A	M	J	J	A	S	O	N	D	J	F	F	U								

IN 2010-2011 DID MEMBERS OF YOUR HH...				LOCATION (UCU)	IN 2010-2011, HOW MANY (_____) DID YOUR HOUSEHOLD HARVEST?												HUNTER EFFORT	GAVE				RECEIVED				
USED FOR OTHER USES THAN FOOD	TRY TO HARVEST THIS ANIMAL	(circle)	(circle)		2010						2011							ESTIMATE # OF DAYS SPENT HUNTING (____)	Amt (lbs)	TO WHO (Relationship)	HH#	Community	Amt (lbs)	FROM WHO (Relationship)	HH#	Community
					MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER	JANUARY	FEBRUARY										
LYNX					enter location, & number of each harvested under month of take												(enter a #)									
	N	Y	N	Y																						
MARTEN																										
	N	Y	N	Y																						
SHOWSHOE HARE																										
	N	Y	N	Y																						
MUSKRAT																										
	N	Y	N	Y																						

