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Subsistence Wildlife Harvests in Brevig Mission, Teller, and White Mountain, Alaska, 2015–2016

by

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Alaska Department of Fish and Game

Division of Subsistence



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Weights and measures (metric)

centimeter	cm
deciliter	dL
gram	g
hectare	ha
kilogram	kg
kilometer	km
liter	L
meter	m
milliliter	mL
millimeter	mm

Weights and measures (English)

cubic feet per second	ft ³ /s
foot	ft
gallon	gal
inch	in
mile	mi
nautical mile	nmi
ounce	oz
pound	lb
quart	qt
yard	yd

Time and temperature

day	d
degrees Celsius	°C
degrees Fahrenheit	°F
degrees kelvin	K
hour	h
minute	min
second	s

Physics and chemistry

<i>all atomic symbols</i>	
alternating current	AC
ampere	A
calorie	cal
direct current	DC
hertz	Hz
horsepower	hp
hydrogen ion activity (negative log of)	pH
parts per million	ppm
parts per thousand	ppt, ‰
volts	V
watts	W

General

Alaska Administrative Code	AAC
all commonly-accepted abbreviations	e.g., Mr., Mrs., AM, PM, etc.
all commonly-accepted professional titles	e.g., Dr., Ph.D., R.N., etc.
at	@
compass directions:	
east	E
north	N
south	S
west	W
copyright	©
corporate suffixes:	
Company	Co.
Corporation	Corp.
Incorporated	Inc.
Limited	Ltd.
District of Columbia	D.C.
et alii (and others)	et al.
et cetera (and so forth)	etc.
exempli gratia (for example)	e.g.
Federal Information Code	FIC
id est (that is)	i.e.
latitude or longitude	lat. or long.
monetary symbols (U.S.)	\$, ¢
months (tables and figures) first three letters (Jan, ..., Dec)	
registered trademark	®
trademark	™
United States (adjective)	U.S.
United States of America (noun)	USA
U.S.C.	United States Code
U.S. states	two-letter abbreviations (e.g., AK, WA)

Measures (fisheries)

fork length	FL
mid-eye-to-fork	MEF
mid-eye-to-tail-fork	METF
standard length	SL
total length	TL

Mathematics, statistics

<i>all standard mathematical signs, symbols and abbreviations</i>	
alternate hypothesis	H _A
base of natural logarithm	e
catch per unit effort	CPUE
coefficient of variation	CV
common test statistics	(F, t, χ^2 , etc.)
confidence interval	CI
correlation coefficient (multiple)	R
correlation coefficient (simple)	r
covariance	cov
degree (angular)	°
degrees of freedom	df
expected value	E
greater than	>
greater than or equal to	≥
harvest per unit effort	HPUE
less than	<
less than or equal to	≤
logarithm (natural)	ln
logarithm (base 10)	log
logarithm (specify base)	log _z , etc.
minute (angular)	'
not significant	NS
null hypothesis	H ₀
percent	%
probability	P
probability of a type I error (rejection of the null hypothesis when true)	α
probability of a type II error (acceptance of the null hypothesis when false)	β
second (angular)	"
standard deviation	SD
standard error	SE
variance:	
population	Var
sample	var

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**SUBSISTENCE WILDLIFE HARVESTS IN BREVIG MISSION, TELLER,
AND WHITE MOUNTAIN, 2015–2016**

by

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The Division of Subsistence Technical Paper Series was established in 1979 and represents the most complete collection of information about customary and traditional uses of fish and wildlife resources in Alaska. The papers cover all regions of the state. Some papers were written in response to specific fish and game management issues. Others provide detailed, basic information on the subsistence uses of particular communities which pertain to a large number of scientific and policy questions.

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ABSTRACT

This report summarizes the results of big game subsistence harvest surveys conducted in Brevig Mission, Teller, and White Mountain in the spring of 2016. Since 1999, the Alaska Department of Fish and Game Division of Subsistence, with support from the Division of Wildlife Conservation, has conducted this limited-scope harvest survey in communities within game management units (GMUs) 22 and 23 that harvest from the Western Arctic caribou herd. The survey asked heads of households in each community about their harvests of caribou, moose, other large land mammals, and furbearers between May 2015 and April 2016. Researchers documented the number, sex, and harvest timing for these subsistence resources, as well as observations, if any, of unhealthy animals. Reported results were expanded to account for unsurveyed households. In the 2015–2016 study year, Brevig Mission hunters harvested an estimated 90 caribou, approximately 35 edible pounds (lb) per person. In Teller, hunters harvested 29 caribou, or approximately 16 lb per capita. White Mountain’s estimated harvest was 65 caribou, or 45 lb per person.

Key words: caribou, moose, brown bears, black bears, furbearers, Brevig Mission, Teller, White Mountain, WAH, Western Arctic caribou herd, subsistence hunting

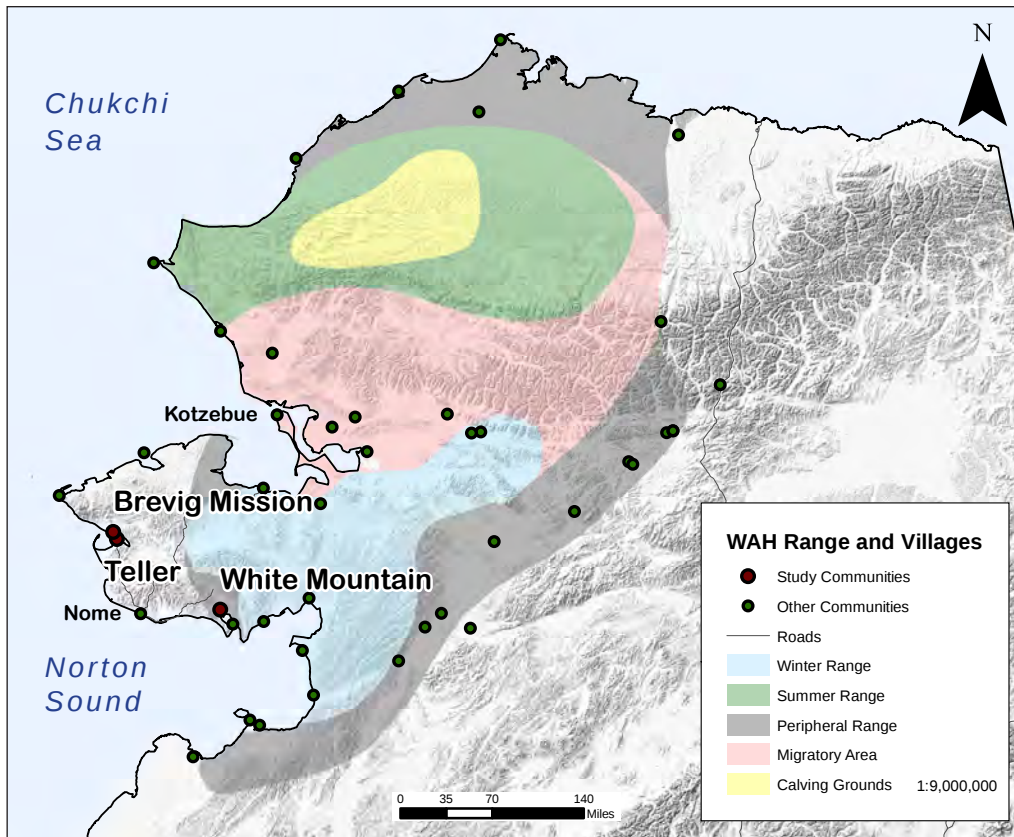


Figure 1.—Western Arctic caribou herd range and communities surveyed, 2016.

INTRODUCTION

Caribou *Rangifer tarandus* are an important subsistence resource for communities in the Northwest, Arctic, and Interior regions of Alaska. People from more than 40 communities, from Wainwright in the north to Kotlik in the south, as well as from the regional centers of Barrow, Kotzebue, and Nome, are known to harvest caribou from the Western Arctic caribou herd (WAH; Figure 1). This herd roams throughout an area of 140,000 square miles (Alaska Department of Fish and Game 2012). The herd is in decline, but is still the largest caribou herd in Alaska. At its peak in 2003, the herd numbered 490,000 caribou. It declined at a rate of 4–6% annually between that census and 2011, when the herd numbered 325,000. The July 2013 census counted 235,000 animals, a decrease of about 27% since 2011 (ADF&G, Division of Wildlife Conservation 2014). In May of 2014, Alaska Department of Fish and Game (ADF&G) reported:

[It] appears that summer and winter weather combined with predators has affected survival during recent years...Disease does not appear to be a factor, caribou have generally been in good body condition throughout this decline, and we don't think harvests initiated it. But, if harvests remain stable, they will increasingly affect the population trend as herd size goes down. (ADF&G, Division of Wildlife Conservation 2014)

As of the last census in 2016, the herd had declined to 201,000 animals; the 5% annual rate of decline between 2013 and 2016 was lower than the estimated 15% annual rate of decline between 2011 and 2013 (Western Arctic Caribou Herd Working Group 2016). Biologists did find that calf production in 2016 was very high, calf weights were greater than any previous year, and the proportion of calves and adult females surviving the winter was the highest recorded since 2007.

The role of caribou in the nutritional, cultural, and economic health of northwestern Alaska communities varies. In some communities, caribou meat is a large portion of the total subsistence harvest each year. In communities where other resources are more abundant, caribou may represent a smaller portion of the total subsistence harvest. Because of location, residents of some communities may have only occasional access to the WAH. In communities located along key migration routes, residents might take caribou during several months of the year. A variety of other factors may also influence caribou harvests each year, including gasoline prices, user conflicts, weather, the success (or lack thereof) in harvesting other subsistence resources, migration timing, and others. Subsistence harvesters adapt to local conditions. Therefore, interannual variation in harvest numbers and characteristics is not uncommon, even within a single community.

It is the statutory responsibility of the ADF&G Division of Subsistence to provide information to the public, agencies, the Alaska Board of Fisheries, and the Alaska Board of Game about the role of subsistence hunting and fishing in the lives of Alaska residents (AS 16.05.094). The division studies and reports on the seasonality, methods, sharing and trading, use areas, cultural and economic values, and trends of subsistence harvests and uses. This information is increasingly necessary as development projects are proposed throughout rural areas of Alaska. Documenting and understanding subsistence harvests is also necessary in order to evaluate reasonable opportunities for customary and traditional uses of wild resources. Other duties of the division set forth in statute include:

- quantifying the amount, nutritional value, and extent of dependency on foods acquired through subsistence hunting and fishing;
- evaluating the impacts of state and federal laws and regulations on subsistence hunting and fishing, and when corrective action is indicated, making recommendations to the department; and
- making recommendations to the Board of Game and the Board of Fisheries regarding adoption, amendment, and repeal of regulations affecting subsistence hunting and fishing.

Subsistence harvest surveys of varying scope have been conducted in over 200 Alaska communities since the division was formed in 1978. This research helps ADF&G estimate subsistence harvests and understand the role of subsistence in local economies. Each year since 1999, ADF&G has gathered big game harvest information in selected Kotzebue and Norton Sound area communities.

METHODS

In 2016, division staff collected subsistence harvest information in 3 communities in the Bering Strait region: Brevig Mission, Teller, and White Mountain. All data were processed and analyzed by the division. Survey data were expanded to account for unsurveyed households.

Survey timing was designed to coincide with the end of a major harvest period. Brevig Mission, Teller, and White Mountain households were asked about their harvest of caribou, other large game and furbearers between May 2015 and April 2016. Fieldwork occurred in all study communities in May 2016. Funding for the big game survey came from ADF&G divisions of Wildlife Conservation and Subsistence.

The division's policy is to seek community approval before conducting local research. Community approval from the traditional councils of all study communities was obtained by the Division of Subsistence. Elizabeth Mikow (Division of Subsistence) traveled to Teller and Brevig Mission in May 2016, where she trained local surveyors and helped administer surveys. Four local residents in Brevig Mission—Jimmy Kiyutelluk, Johnnee Seetot, Matilda Nayokpuk, and Robert Rock, Jr.—were hired to update the household list and complete surveys. In Teller, Jamie Ablowaluk, James Isabell, Etta Kugzruk, and Bridgette Sherman were hired. Nicole Braem and Deanne Lincoln (Division of Subsistence) traveled to White Mountain in May 2016, where they hired Carl Brown and Martin Williams to complete surveys.

SURVEY DESIGN IN 2016

The Division of Subsistence standard method for collecting harvest information in smaller communities is to attempt to survey every household, usually by talking to the head or heads of each household.

Confidentiality is protected by using randomly assigned household numbers instead of names on the survey form. Before starting the project, survey workers compile an updated list of every household present in the community during the study period. Participation in surveys is voluntary—people may refuse to answer any or all questions. Surveyors try to contact each household on up to 3 separate occasions. If no contact is made, then that household is recorded as “no contact.” There are a variety of reasons that a household is marked “no contact:” household members may be out of town during the survey effort; they may have moved to another community; or they may have passed away during or after the study year. Surveyors often go door to door, but make appointments for surveys when necessary.

The big game survey used in 2016 gathered demographic information for each household member: the age, sex, and relationship to the head(s) of household, how many years each person had lived in the community, and whether members were Alaska Native (Table 1).

Table 1.—Demographic characteristics of sampled households, study communities, 2015–2016.

Characteristics	Community		
	Brevig Mission	Teller	White Mountain
Sampled households	54	77	59
Eligible households	82	77	65
Percentage sampled	65.9%	100.0%	90.8%
Household size			
Mean	4.2	3.3	3.0
Minimum	1.0	1.0	1.0
Maximum	18.0	9.0	9.0
Age			
Mean	27.3	26.2	31.3
Minimum ^a	0.0	1.0	0.0
Maximum	82.0	82.0	84.0
Median	23.0	22.0	30.0
Sex			
Estimated male			
Number	183.7	141.0	108.1
Percentage	53.1%	55.3%	54.8%
Estimated female			
Number	162.5	114.0	89.1
Percentage	46.9%	44.7%	45.2%
Alaska Native			
Estimated households ^b			
Number	82.0	77.0	65.0
Percentage	100.0%	100.0%	100.0%
Estimated population			
Number	331.0	255.0	181.8
Percentage	95.6%	100.0%	92.2%

Source ADF&G Division of Subsistence household surveys, 2016.

a. A minimum age of 0 (zero) is used for infants that are less than 1 year of age.

b. The estimated number of households in which at least one head of household is Alaska Native.

The survey (Appendix A) included questions about harvests and uses of caribou, moose *Alces alces*, brown bear *Ursus arctos*, black bear *Ursus americanus*, wolf *Canis lupus*, and wolverine *Gulo gulo* (gray wolves and wolverines are classified as both big game and as furbearers by the Board of Game). In the interest of brevity, other big game species were left off the survey. Harvest amounts for big game resources, excluding furbearers, are reported both in numbers of animals harvested and edible weight (see Table 2 for conversion factors). Researchers also asked about sharing (i.e., if a household gave away a resource to other households or if the household received one). Harvest locations were recorded by ADF&G Division of Wildlife Conservation Uniform Coding Unit (UCU). These units are geographical areas that can vary in size from just a few square miles to several thousand square miles. Respondents were asked about the locations of harvests, the sexes of harvested animals, and the months in which harvests occurred. In this study period, as in the previous year’s survey, respondents were given the option of naming a season of harvest. At times, season of harvest (for example, fall) is the most detail that can be obtained; in previous studies this has been simply recorded as “unknown.” Surveys typically took 5–10 minutes to administer. Cooperative harvests are common in rural Alaska, with hunters sometimes pooling resources, particularly fuel, for the hunting effort. In order to avoid double-counting harvests, harvests are attributed to the household of the hunter who actually shot the animal. For

Table 2.—Usable pounds per unit resource, large land mammals.

Resource	Units	Usable pounds per unit
Black bear	ind	88
Brown bear	ind	86
Caribou	ind	136
Moose	ind	538
Muskox	ind	593
Beaver	ind	20

Sources ADF&G Division of Subsistence and Kawarek, Inc., Subsistence Hunting Harvest Survey GMU 22.

analyze data and prepare tables.

Results from surveyed households were entered into the division's data repository in MS SQL Server. Each survey was entered 2 times by different staff members. As the first step in data validation, the 2 versions were compared and corrected according to the actual values recorded on paper surveys. Once entered and validated, data were then extracted using SPSS v21.0 and analyzed using standard division methods. Harvest amounts and demographic information were extrapolated to unsurveyed households to derive total harvest and human population estimates for the community. Fractional estimates are the direct result of this expansion procedure and are rounded to the nearest tenth in accompanying report tables and usually to whole numbers for discussion in the text. Participation levels, presented in percentages, are derived directly from the sampled data, which are assumed to be representative of participation levels for the entire community.

Harvest estimates and responses to all questions were calculated based upon the application of weighted means (Cochran 1977). These calculations are standard methods for extrapolating sampled data. The formula applied for this method is:

$$X_C = \frac{N}{n} \sum_{i=1}^n x_i$$

where:

x = household harvest

i = i th household in the community

n = number of sampled households in the community

N = number households in the community

X_C = total estimated community harvest

some resources, particularly caribou, that level of detail is difficult to obtain because hunting parties often harvest many animals; in this case, respondents are asked about how many animals were their share of the total harvest.

Sample achievement varied in the 3 communities: 66% of Brevig Mission households, 100% of Teller households¹, and 91% of White Mountain households participated in the survey (Table 1).

ANALYSIS

Since its establishment in 1978, the Division of Subsistence Information Management (IM) team has adopted standards based on observations and findings to analyze subsistence harvest resource data. The base unit for the majority of surveys is the household. IM generates harvest estimates and participation rates at the community level. The statistical program SPSS² is used to

1. No teaching households were present in the Teller at the time of the survey, and there was difficulty in determining how many of these households would have been eligible for the study. For this reason, the sample is composed solely of year-round residents of Teller.
2. Product names are given because they are established standards for the State of Alaska or for scientific completeness; they do not constitute product endorsement.

In addition to harvest estimates, the division reports confidence intervals (CI) to provide some context to the quality and accuracy of the sample. This value represents the relative precision of the mean, or likelihood that an unknown value falls within a certain distance from the mean. In the accompanying tables, the CI is expressed as a percent and applies to both the mean household harvest and total community harvest. The division standard is to use a 95% confidence interval. The formula applied to produce this value is:

$$C.I. \%(\pm) = \frac{t_{(\alpha/2)} \times s_{\bar{x}}}{\bar{x} \times \sqrt{n}} \times \sqrt{\frac{N-n}{N-1}}$$

where:

$t_{\alpha/2}$ = student's t statistic for alpha level ($\alpha = 0.05$) with $n-1$ degrees of freedom. The commonly accepted standard is to use 1.96; however, for very small populations, less than about 140, the appropriate value must be identified from a look-up table (Cochran 1977). Built-in SPSS functions were used to do this by community for this analysis

s = the sample standard deviation

$\bar{x}$ = sample mean for the community

n = sample size for the community

N = total households in the community

As an interim step, the standard deviation (SD), or variance (V; which is the SD squared), was also calculated with the raw, unexpanded data. The standard error (SE), or SD of the mean was also calculated for the community. This was used to estimate the relative precision of the mean, or the likelihood that an unknown value would fall within a certain distance from the mean.

Small CI percentages indicate that an estimate is likely to be very close to the actual mean of the sample. Larger percentages mean that estimates could be further from the mean of the sample.

RESULTS

CARIBOU

Percentages of households that reported use of caribou varied between the 3 study communities. In Brevig Mission, 94% of households reported using this resource, followed by 92% in White Mountain (Table 3). In contrast, 47% of Teller households reported using caribou in 2015–2016. Brevig Mission and Teller are both situated outside of the commonly understood range of the Western Arctic caribou herd, but Brevig Mission residents reported traveling further in pursuit of this resource. Although access to caribou may be more difficult for hunters in communities on the periphery of the range, traditional food distribution networks based on sharing and barter may account for the high levels of use. The percentage of households that hunted caribou also varied between communities. White Mountain had the highest percentage of households attempting to harvest caribou (29%), followed by Brevig Mission (22%), and Teller (18%).

Household success rates (roughly measured by dividing the number of households attempting to harvest caribou by the number of households that achieved a harvest) were relatively high in comparison to the low percentage of households who hunted during the study year. In Brevig Mission and Teller, 83% and 93% of hunting households were successful in their efforts, respectively. In White Mountain, 65% of hunting

Table 3.—Estimated harvest and use of caribou, study communities, 2015–2016.

Community	Percentage of Households					Estimated Harvest		
	Using	Attempting harvest	Harvesting	Giving away	Receiving	Total amount (ind)	Mean amount per household (ind)	Weight per capita (lb)
Brevig Mission	94.4%	22.2%	18.5%	20.4%	79.6%	89.6	1.1	35.2
Teller	46.8%	18.2%	16.9%	13.0%	39.0%	29.0	0.4	15.5
White Mountain	91.5%	28.8%	18.6%	30.5%	78.0%	65.0	1.0	44.8

Source ADF&G Division of Subsistence household surveys. 2016.

households successfully harvested caribou. This rough measure of success does not, however, account for effort: the number of trips made, instances of trips made with no harvest, distance traveled, and the money spent on gasoline and other supplies. The prevalence of sharing subsistence food accounts for the difference between harvest and uses in all 3 study communities. For example, although 19% of households in Brevig Mission harvested caribou, 94% used the resource during the study year.

Total caribou harvest by community ranged from 29 in Teller to 90 in Brevig Mission. Looking at results in terms of per capita harvests (pounds per person) allows comparisons of results between communities with different population sizes as well as results from a single community over time. In terms of this measure, White Mountain harvested the most caribou during the study year: an estimated 45 lb per resident. Brevig Mission harvested the second most caribou (35 lb per capita), followed by 16 lb per person in Teller. Detailed information on the harvest and uses of caribou and all other resources asked about during the survey is available in Appendix B.

The ratio of bulls to cows harvested varied by community, as did harvest timing. For a complete breakdown of caribou harvest by sex and month, see Appendix C. Uncertainty about month of harvest can be attributed to a number of factors, including: the length of the study period, the time between harvest of animals and survey administration, the sheer number of animals harvested by a particular hunter or household (in the case of caribou), and which member of the household answered the survey questions. Although surveyors attempt to speak to the hunters, they are at times unavailable, and another household head may respond to the survey questions. A hunter may be out of town, for example, and although the spouse can provide the number of caribou harvested, he or she may not be able to recall the sex or the exact month the caribou was harvested. Often, the season of harvest (for example, fall) is the most detail that can be obtained.

The vast majority of Brevig Mission's harvest was bulls (97%), and the remaining harvest (3%) was cows (Table C1). Harvests took place in August 2015 as well as November 2015 through April 2016 (Figure 2; Table C1). Harvests in February through April (43 caribou) composed 48% of the total harvest, and harvests in November through January (38 caribou) composed 42% of the total. Fewer harvests (3%) occurred in August. Some respondents were able to recall the season, but not the month of harvest: 7% of the harvest (6 caribou) was taken during the winter.

In Teller, 76% of the harvest was bulls, 7% was cows, and 17% was caribou of unknown sex (Table C2). A majority of the harvest occurred in the fall months: 13 caribou (45% of the harvest) were taken from August to October, and an additional 10 caribou (34%) were harvested during unknown months in the fall season (Figure 3; Table C2). Fewer harvests occurred in June and July (3 caribou, 10% of the harvest), as well as in the summer (2 caribou, 7%) and winter (1 caribou, 3%) months.

The majority of White Mountain's harvest was bulls (54%); the remaining harvest was composed of cows (34%) and caribou of unknown sex (12%; Table C3). Residents harvested 41% (26 caribou) in the winter months of November through February, and an additional 8% (6 caribou) was taken in unknown months during the winter season (Figure 4; Table C3). Thirty-seven percent of the harvest (24 caribou) occurred in the spring months of March and April.

Caribou harvests took place in 10 UCUs near the study communities in 2015–2016 (Figure 5). Harvest by location is broken down by community in tabular form in Appendix D; figures 6–8 show harvest apportioned

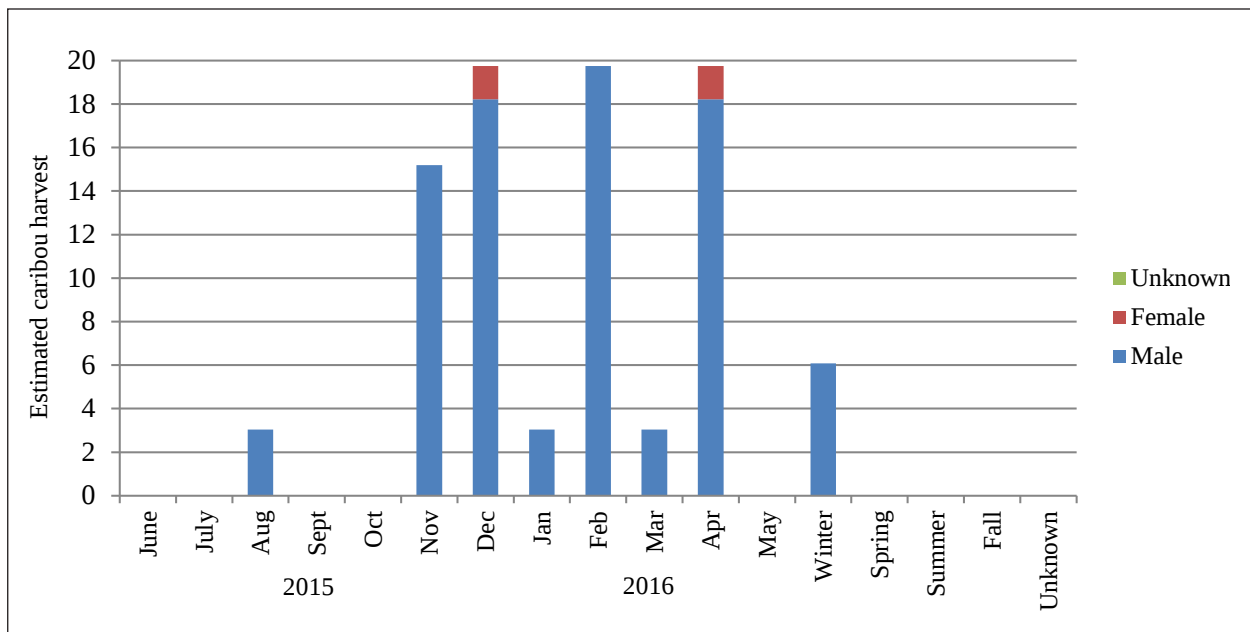


Figure 2.—Caribou harvests by sex and month of harvest, Brevig Mission, 2015–2016.

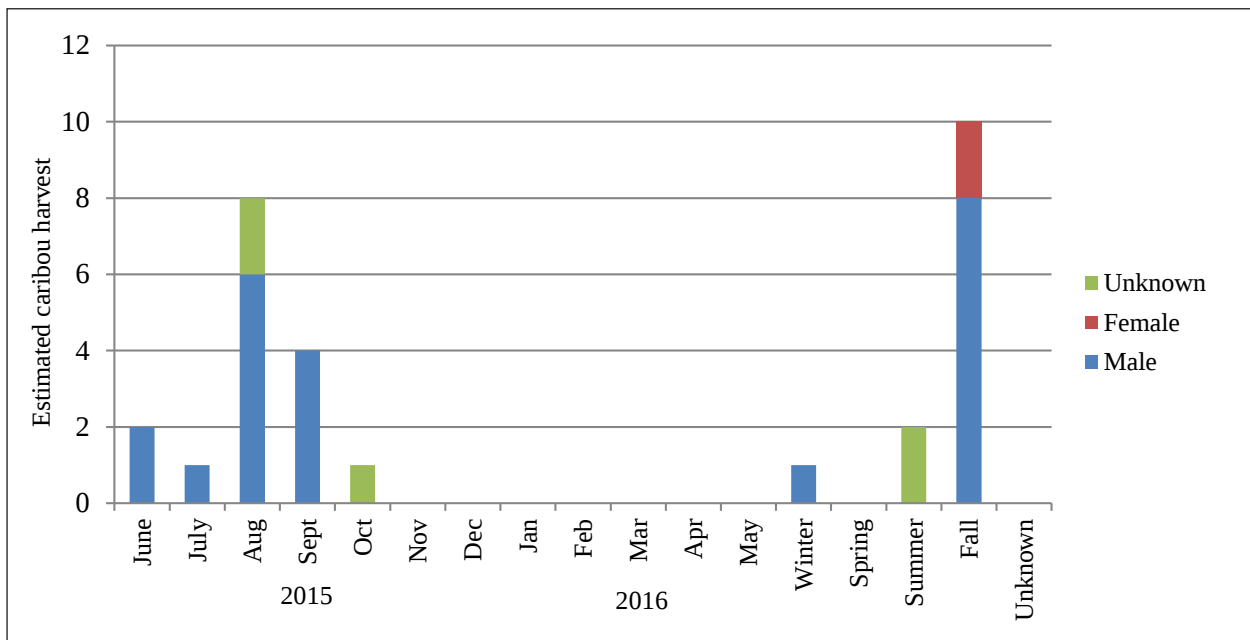


Figure 3.—Caribou harvests by sex and month of harvest, Teller, 2015–2016.

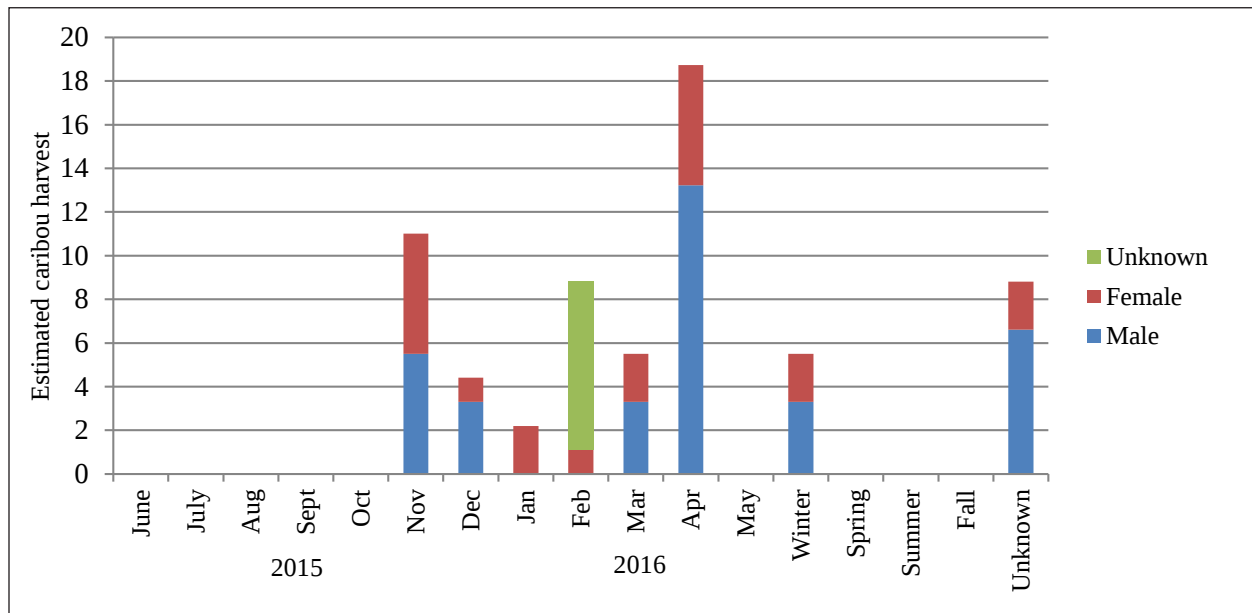


Figure 4.—Caribou harvests by sex and month of harvest, White Mountain, 2015–2016.

to the UCUs for each community separately. The survey did not ask where the caribou were hunted, but rather where they were killed. Thus, these data do not represent the totality of areas searched. Rather, the UCU data indicate the most common generalized harvest areas for the study year. In any year, hunters may use a vastly larger (or smaller) area than reflected in these maps.

In Brevig Mission, hunters harvested caribou across a wider geographic range (Figure 6). Forty caribou (45% of the estimated harvest) were taken in an area to the southeast of the community that includes the Kuzitrin River drainage. Hunters harvested 15 caribou (17%) in a UCU to the north of the area of highest harvest, which includes the Kougarok River. Eleven caribou (12%) were harvested in a UCU adjacent to Brevig Mission that includes the Agiapuk River drainage, and hunters harvested 9 caribou in an area to the northeast of the community that includes the American River. Smaller harvests occurred in a UCU near Shishmaref and another to the southeast of the community near Council; in both locations hunters harvested 6 caribou (7%).

In Teller, caribou hunting locations were confined to 3 UCUs in the vicinity of the community (Figure 7). The vast majority of the harvest occurred in the UCU where Teller is located: hunters harvested 22 caribou (76% of the harvest) in this area. Teller residents harvested 6 caribou (21%) in a UCU to the southeast of the community containing Canyon Creek, and an additional caribou was harvested in an adjacent UCU that contains the Agiapuk River drainage.

In White Mountain, hunters took nearly two-thirds of the harvest (42 caribou) in a UCU to the northeast of the community containing the McCarthy Marsh (Figure 8). The area of second highest harvest (11 caribou, 17%) was to the northwest of the community in a UCU containing the Kuzitrin River drainage. Hunters harvested 9 caribou (14%) in a UCU to the northeast of White Mountain containing Death Valley, and an additional 3 caribou (5%) in the vicinity of Council.

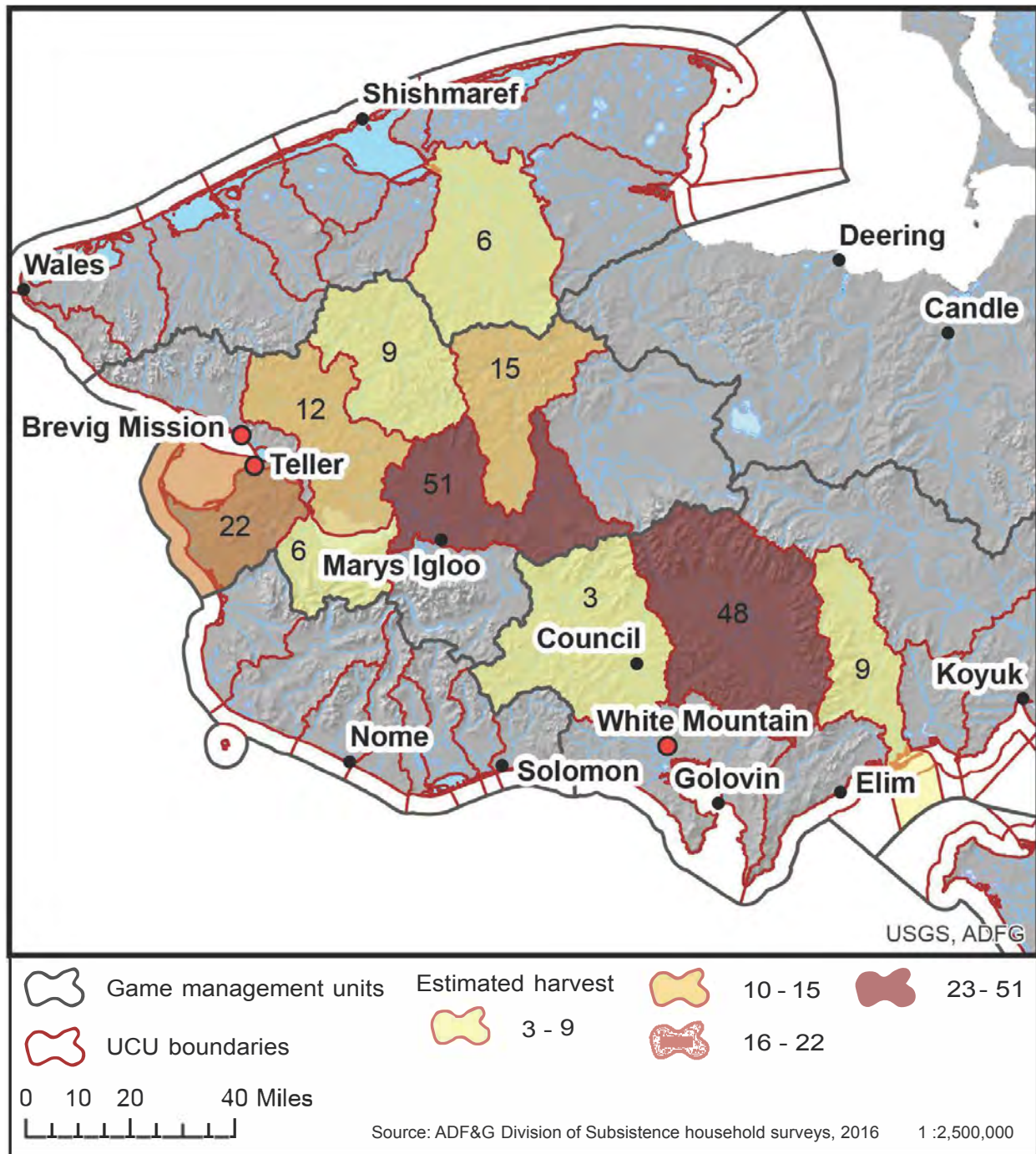


Figure 5.—Caribou harvests by UCU, study communities, 2015–2016.

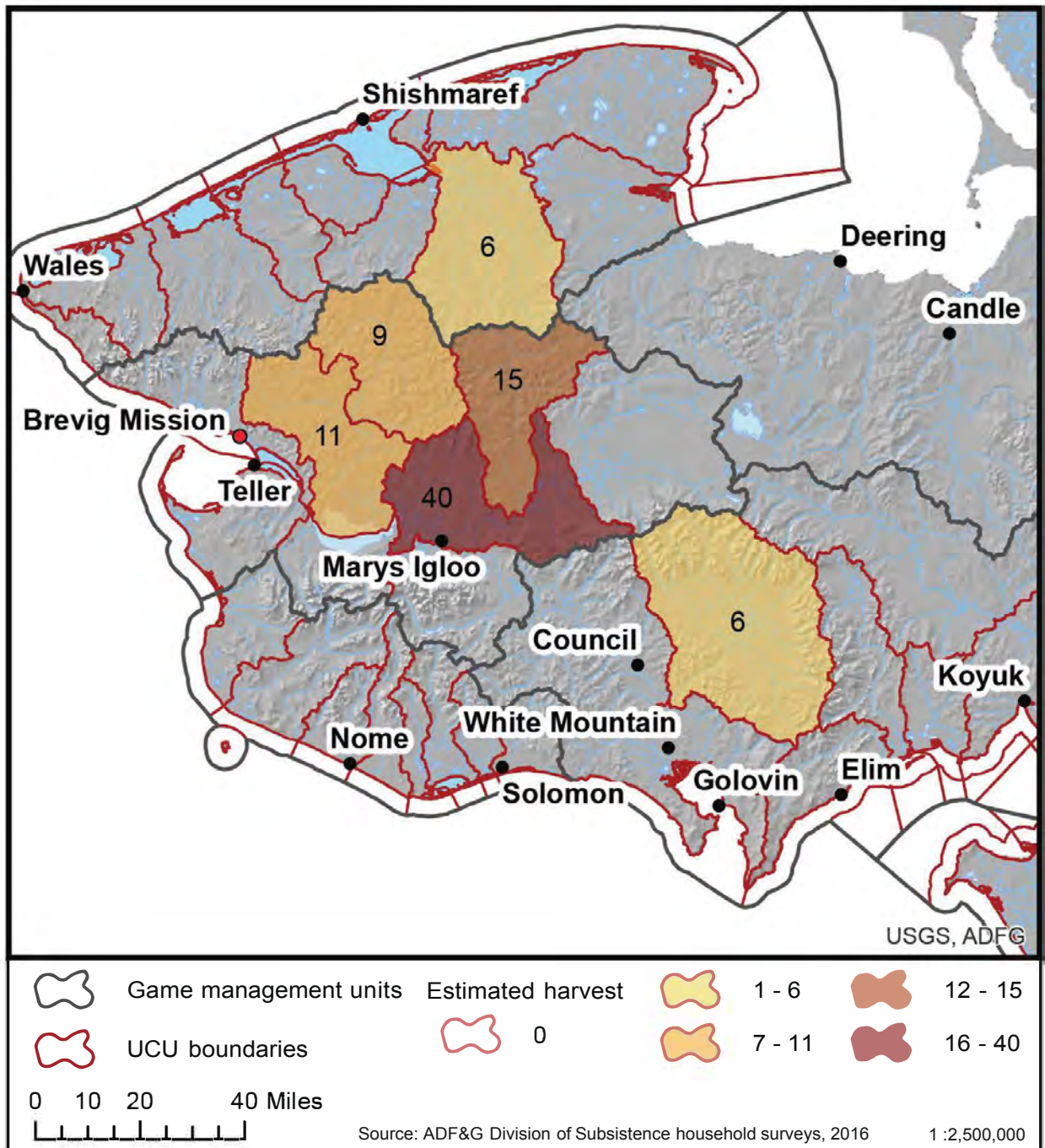


Figure 6.—Caribou harvests by UCU, Brevig Mission, 2015–2016.

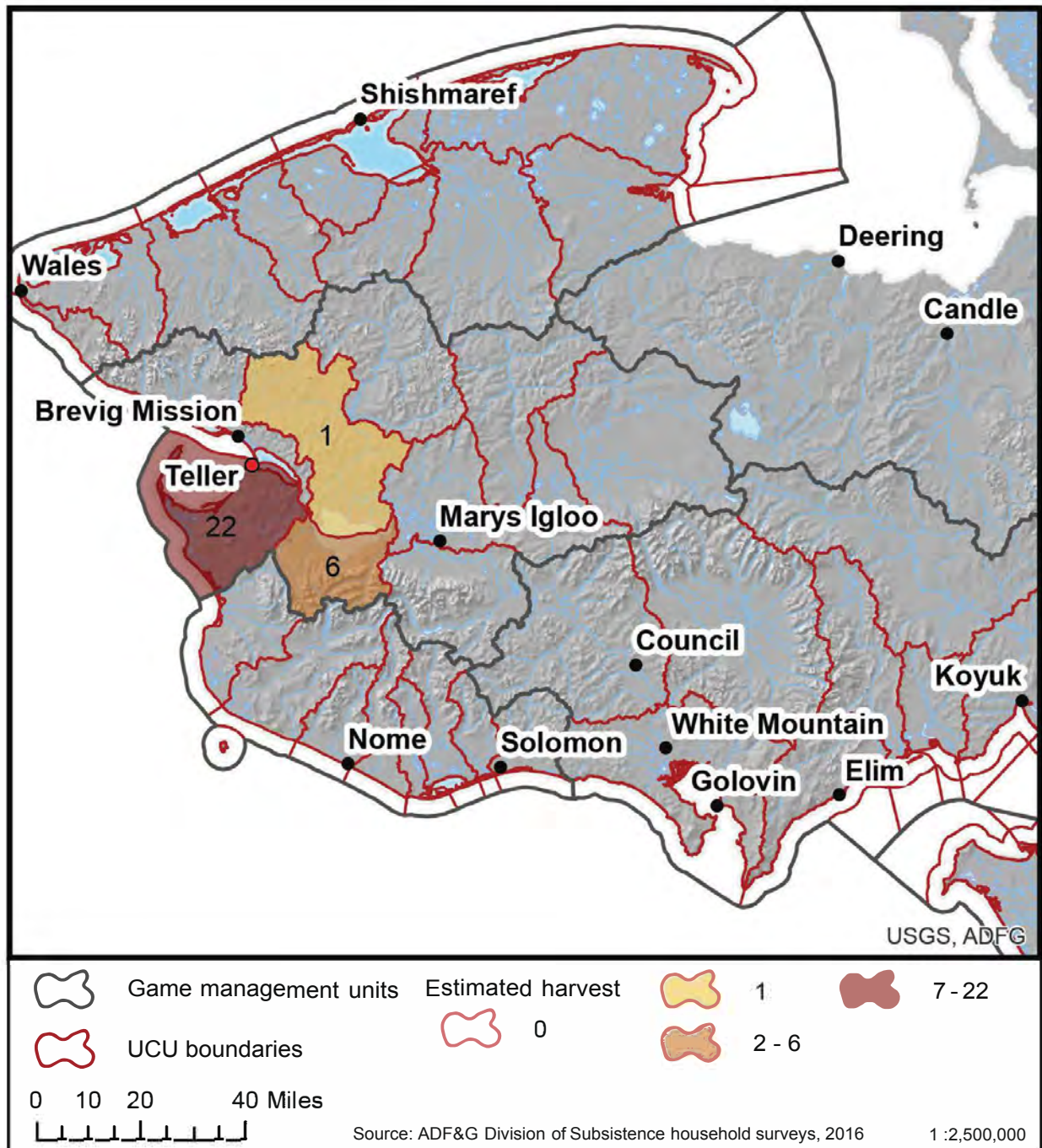


Figure 7.—Caribou harvests by UCU, Teller, 2015–2016.

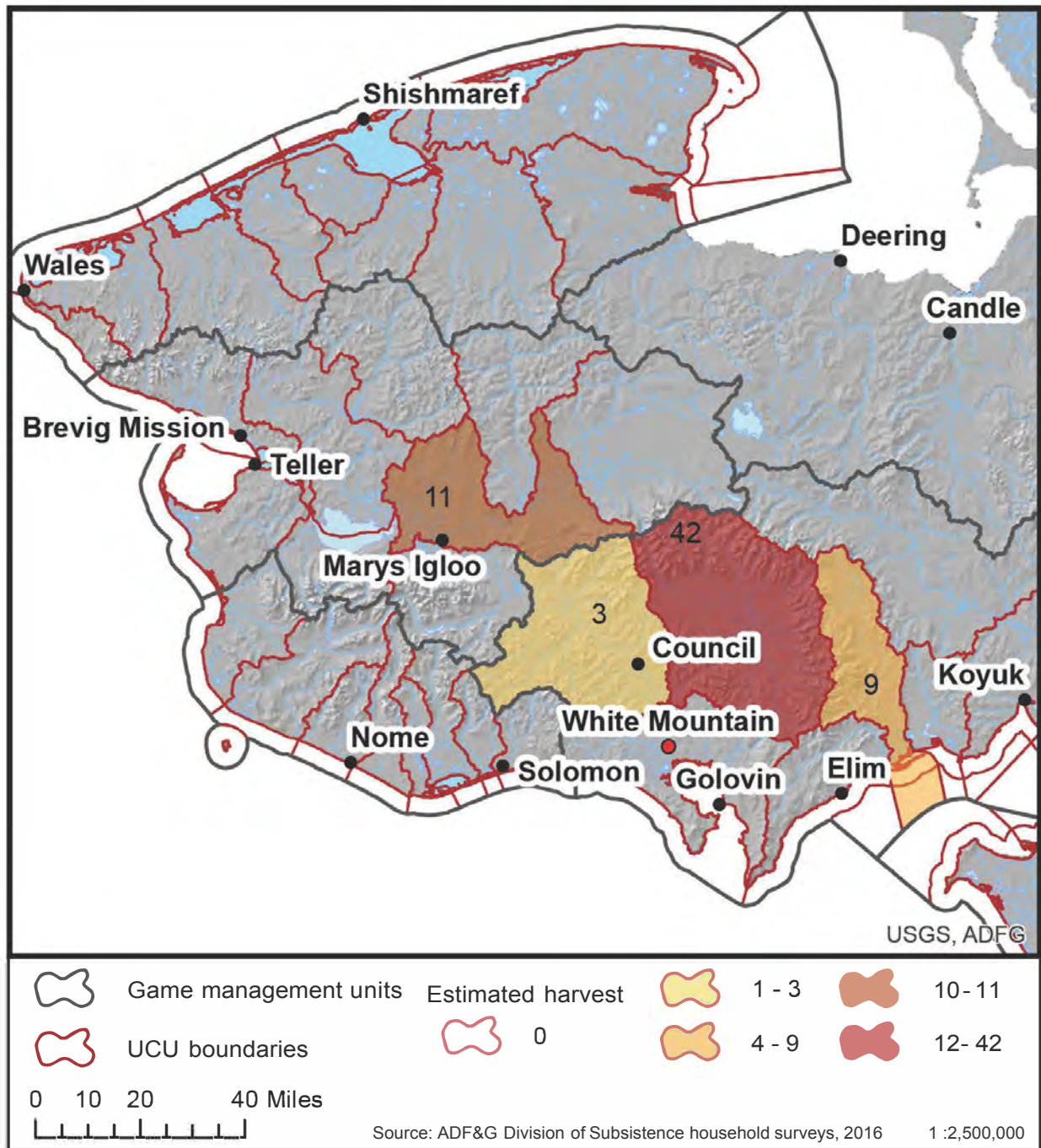


Figure 8.—Caribou harvests by UCU, White Mountain, 2015–2016.

Table 4.—Estimated harvest and use of moose, study communities, 2015–2016.

Community	Percentage of Households					Estimated Harvest		
	Using	Attempting harvest	Harvesting	Giving away	Receiving	Total amount (ind)	Mean amount per household (ind)	Weight per capita (lb)
Brevig Mission	85.2%	35.2%	25.9%	27.8%	64.8%	21.3	0.3	33.0
Teller	54.5%	23.4%	16.9%	11.7%	45.5%	15.0	0.2	31.6
White Mountain	91.5%	49.2%	22.0%	33.9%	72.9%	14.3	0.2	39.1

Source ADF&G Division of Subsistence household surveys, 2016.

MOOSE AND OTHER BIG GAME

Rates of use for moose were similar to those for caribou (Table 4). Ninety-two percent of household in White Mountain reported using moose, as did 85% of Brevig Mission households. Fewer households reported using moose in Teller (55%), however a greater percentage of households used moose than caribou (47%) during the study year (tables 3 and 4). In all communities, a greater percentage of households attempted to harvest a moose compared to caribou. However, success rates were slightly lower: 73% of households who hunted moose in Brevig Mission were successful, 72% in Teller, and 45% in White Mountain. However, harvests were only attributed to the household of the hunter who actually shot the animal, and some of the hunters who did not shoot a moose were part of a successful hunt with another household.

Overall, Brevig Mission households harvested 21 moose (33 lb per capita), Teller households harvested 15 moose (32 lb per capita), and White Mountain residents harvested 14 moose (39 lb per capita; Table 4). In all 3 communities, the majority of the moose harvest occurred in the fall months. In Brevig Mission, 85% of moose were taken in the fall; in Teller, 100%; and in White Mountain, 69% (tables C4, C5, and C6). The remainder of the moose harvest in Brevig Mission and White Mountain occurred in the winter (tables C4 and C6).

Overall, study communities in 2015–2016 reported harvesting moose in 8 UCUs on the Seward Peninsula (Figure 9). All of Brevig Mission’s moose harvests occurred within 3 UCUs in the vicinity of the community (Figure 10). The largest portion of the harvest (11 moose, 52%) occurred in an area to the east of Brevig Mission that contains the Agiapuk River. Hunters harvested 5 moose (23% of the estimated harvest) in the UCU that contains the community. Three moose (14%) were harvested in a UCU to the northeast of the community containing the American River, and respondents could not recall the location of the remaining harvest. Harvest information for study communities presented in tabular form can be found in Appendix D.

In Teller, hunters took 60% of the harvest (9 moose) in the UCU containing the community (Figure 11). A further 4 moose (27%) were harvested to the southeast of the community in an area containing Canyon Creek and the Imuruk Basin. Hunters harvested 1 moose (7%) to the south of Teller.

In White Mountain, the largest portion of the harvest (9 moose, 64%) occurred in the area surrounding the community (Figure 12). Hunters harvested the other 5 moose (36%) in an area to the north of White Mountain containing McCarthy Marsh.

Respondents in all 3 study communities reported no or very limited harvest and use of brown bears during the study year, and no harvest or use of black bears. In Brevig Mission, no households used or attempted to harvest brown bears in 2015–2016 (Table B1). One brown bear was harvested in Teller, and only 3% of households reported using the resource (Table B2). White Mountain hunters harvested 2 brown bears (Table B3).

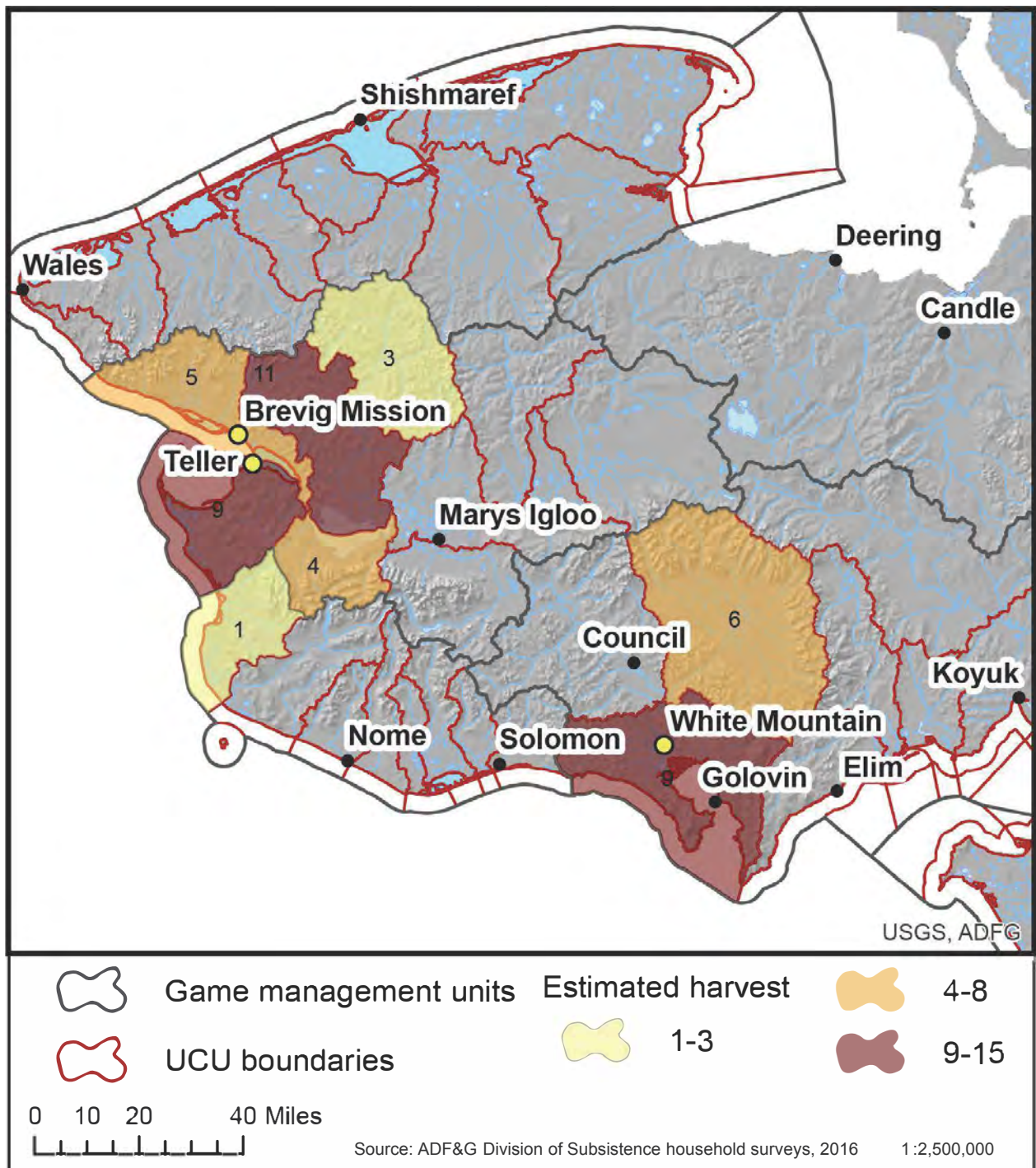


Figure 9.—Moose harvests by UCU, study communities, 2015–2016.

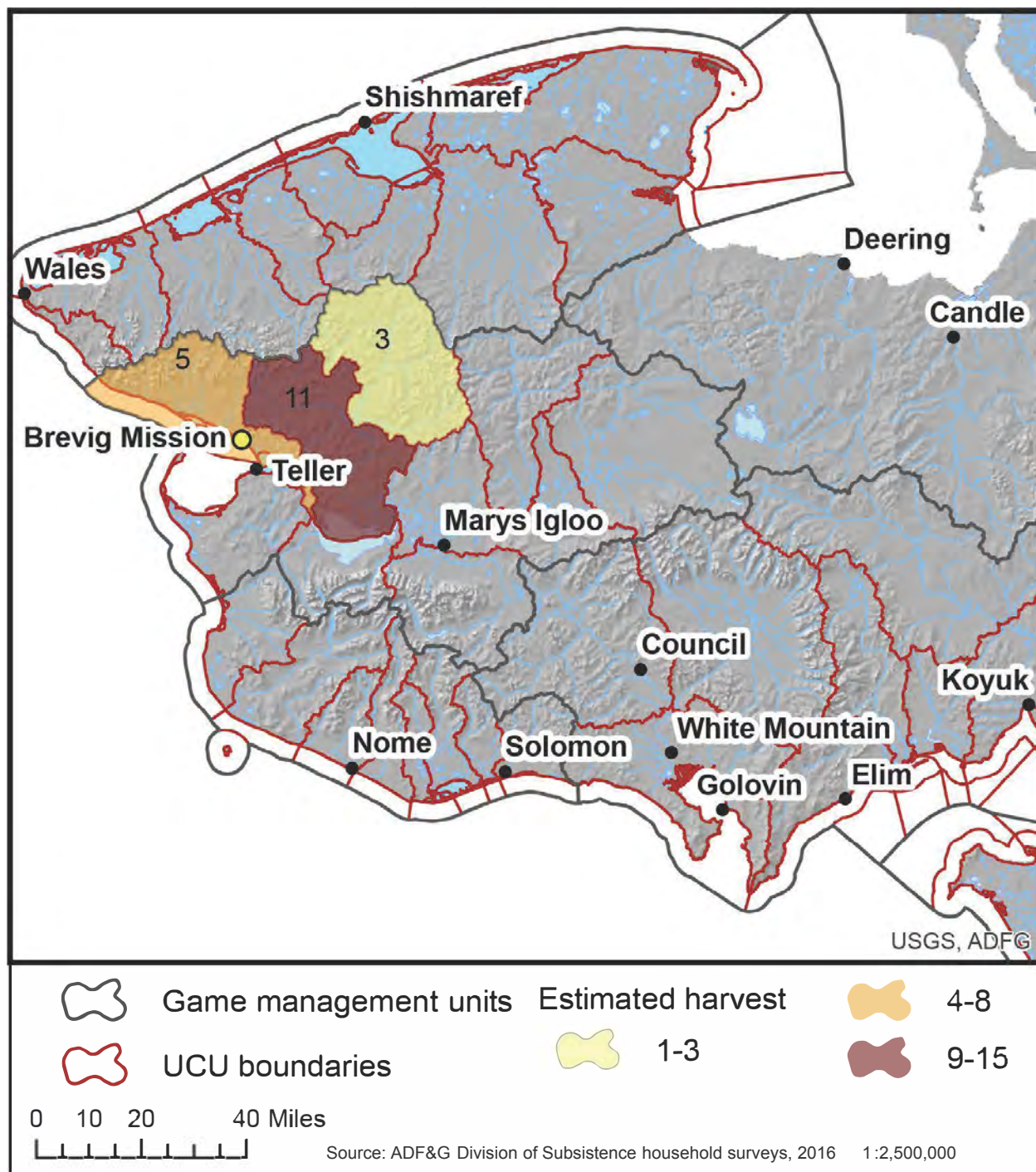


Figure 10.—Moose harvests by UCU, Brevig Mission, 2015–2016.

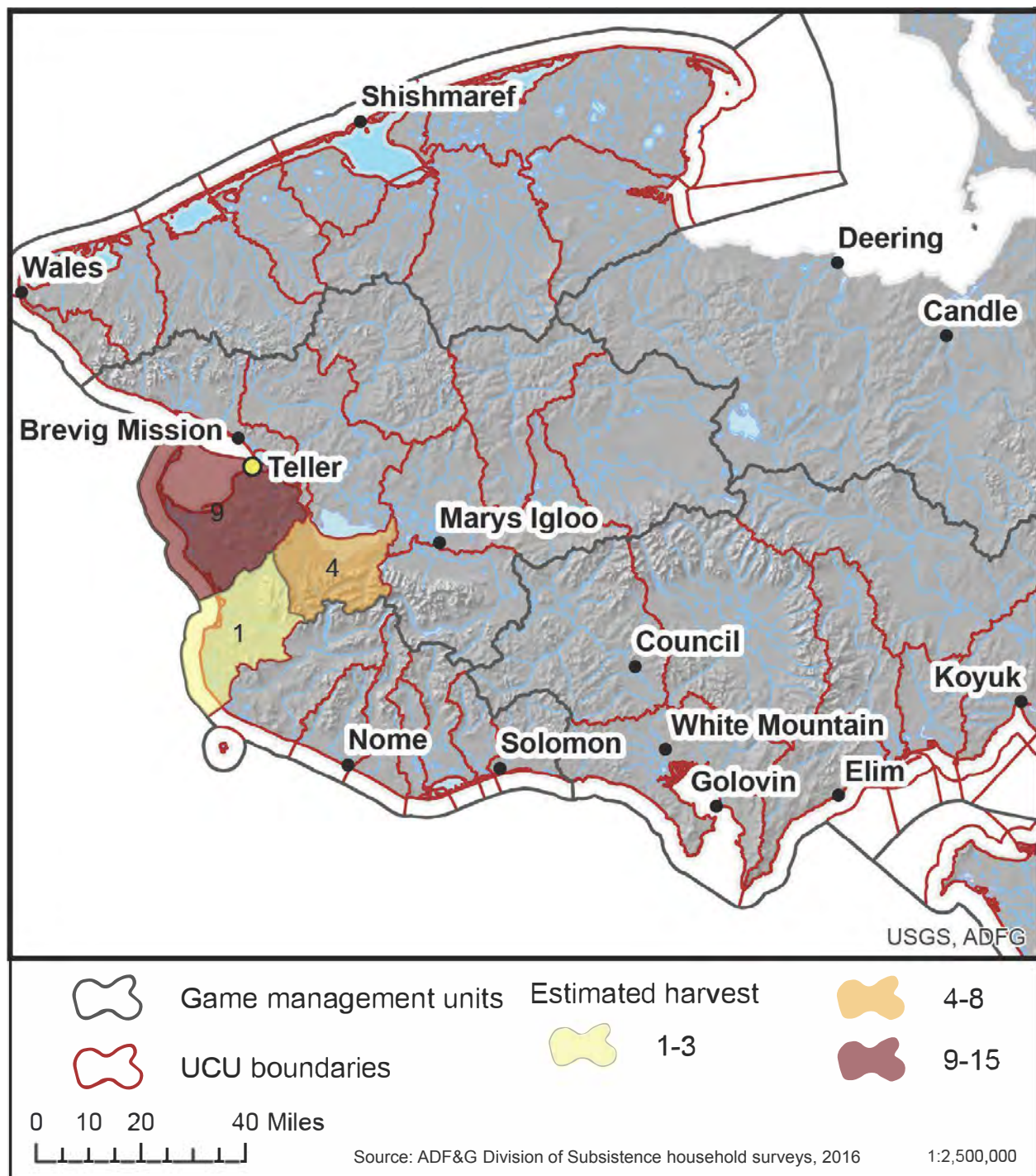


Figure 11.—Moose harvests by UCU, Teller, 2015–2016.

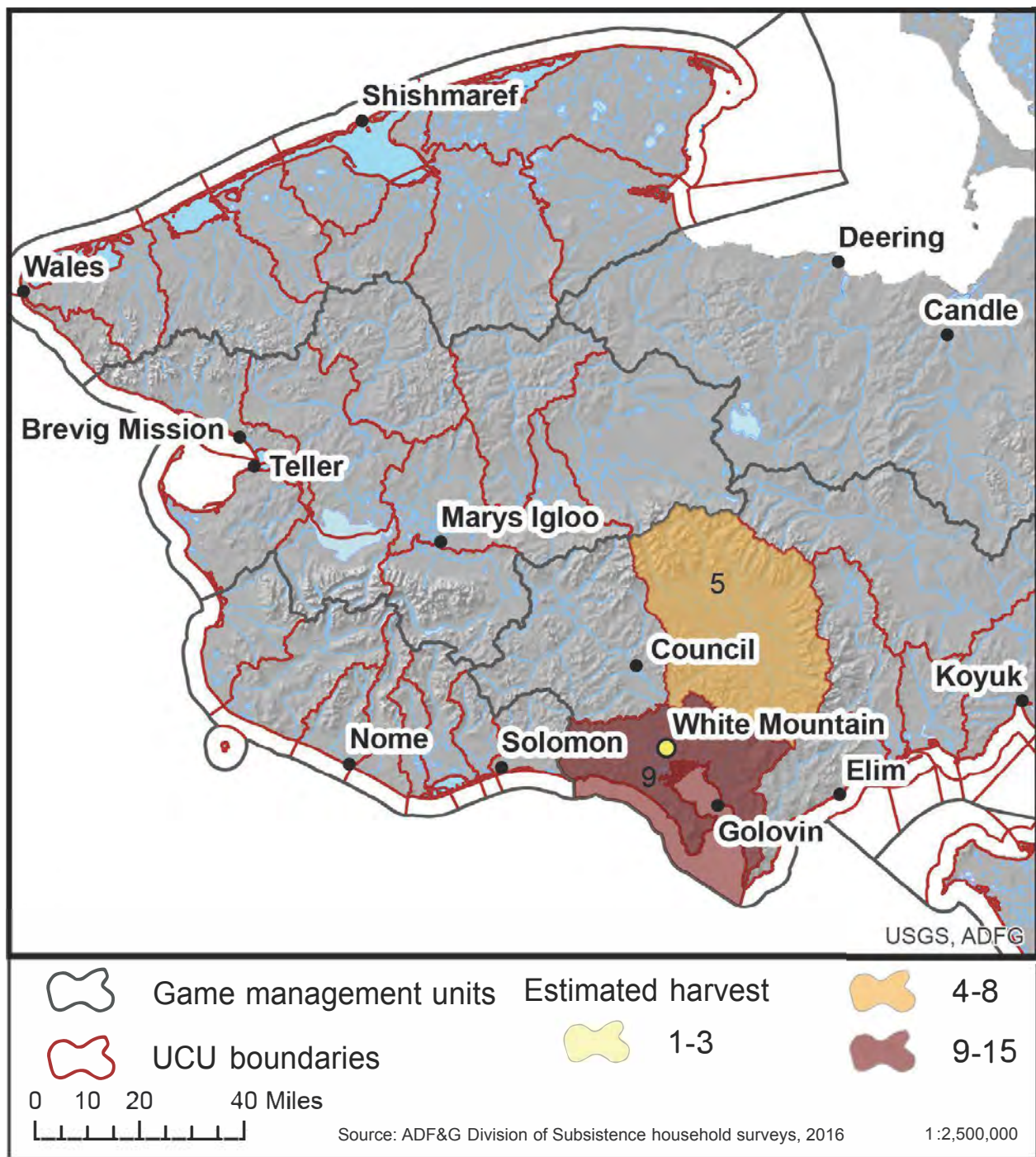


Figure 12.—Moose harvests by UCU, White Mountain, 2015–2016.

FURBEARERS

The survey asked about the harvest and use of 2 big game furbearers: gray wolf and wolverine. Brevig Mission residents harvested 6 wolves, which were used by 6% of households, and 2 wolverines, which were used by 2% of households (Table B1). In Teller, 1 wolverine was harvested during the study year (Table B2). Hunters in White Mountain harvested 1 wolf and 1 wolverine (Table B3).

SUMMARY OF RESPONDENT COMMENTS

Respondents in Brevig Mission, Teller, and White Mountain were asked if they had any comments or concerns, and some similar themes emerged across the 3 study communities. In all 3 communities, some respondents felt the predator populations in the region had increased. Some residents in Brevig Mission and Teller felt that the caribou were a great distance from their communities and difficult to hunt. In White Mountain, several respondents mentioned concerns over moose hunting ranging from the length of the season to the bag limit. A full list of comments can be found in Appendix E.

COMPARING THE 2015–2016 RESULTS WITH PREVIOUS SURVEY DATA

The 2015–2016 study year was the fourth year in which big game harvest information was collected for Brevig Mission and Teller; these communities had been previously surveyed for the 2000, 2005, and 2011–2012 study years (Figure 13; Georgette et al. 2017; Mikow et al. 2014).³ Additional harvest information is available for Brevig Mission from a comprehensive survey conducted for the 1989 study year (Figure 13; Conger and Magdanz 1990). This was also the fourth year of big game harvest information in White Mountain, which had been surveyed before for the 1999, 2005–2006, and 2008–2009 study years (Figure 13; Braem 2012; Georgette 2017).⁴

Because both community size and harvest volumes vary from year to year, per capita harvest is a useful analytical measure for comparison. Although individuals likely use less or more in reality, the per capita approach allows a comparison of how much caribou hunters harvest per person.

Brevig Mission hunters harvested an estimated 35 lb of caribou per capita during the 2015–2016 study year (Table 3). This value is identical to the per capita harvest of caribou in 2000, and larger than the most recent 2011–2012 study year (16 lb per person), the 2005 study year (18 lb), and the 1989 study year (no harvest of caribou; Figure 13; Conger and Magdanz 1990; Mikow et al. 2014).⁵ Moose harvests in Brevig Mission in 2015–2016 (33 lb per person) were the second highest harvests recorded over the 4 study years (Table 4), 10 lb per person lower than the highest recorded harvests in the 2000 study year (43 lb). Smaller harvests were estimated in 1989 (25 lb), 2011–2012 (24 lb), and 2005 (13 lb; Conger and Magdanz 1990; Mikow et al. 2014).⁶

Teller hunters harvested a reported 16 lb of caribou per capita during the 2015–2016 study year (Table 3), representing the highest harvest over the 4 study years (Figure 13). Residents harvested 12 lb per capita in 2000 and 10 lb in 2011–2012, and they had no harvest of caribou in 2005 (Mikow et al. 2014).⁷ For moose, Teller residents harvested 32 lb per capita during the study year (Table 4), which was also the highest recorded harvest. This compares to 14 lb per person in 2000, 11 lb in 2005, and 9 lb during the 2011–2012 study year (Mikow et al. 2014).⁸

White Mountain residents harvested 45 lb of caribou per person during the study year (Table 3), which was the second lowest harvest recorded in the 4 years of data (Figure 13). They harvested 34 lb per person

3. Alaska Department of Fish and Game (ADF&G) Division of Subsistence, Juneau. “Community Subsistence Information System: CSIS.” Accessed November 16, 2017. <https://www.adfg.alaska.gov/sb/CSIS>. Hereafter *ADF&G CSIS*.

4. ADF&G CSIS

5. ADF&G CSIS.

6. ADF&G CSIS.

7. ADF&G CSIS.

8. ADF&G CSIS.

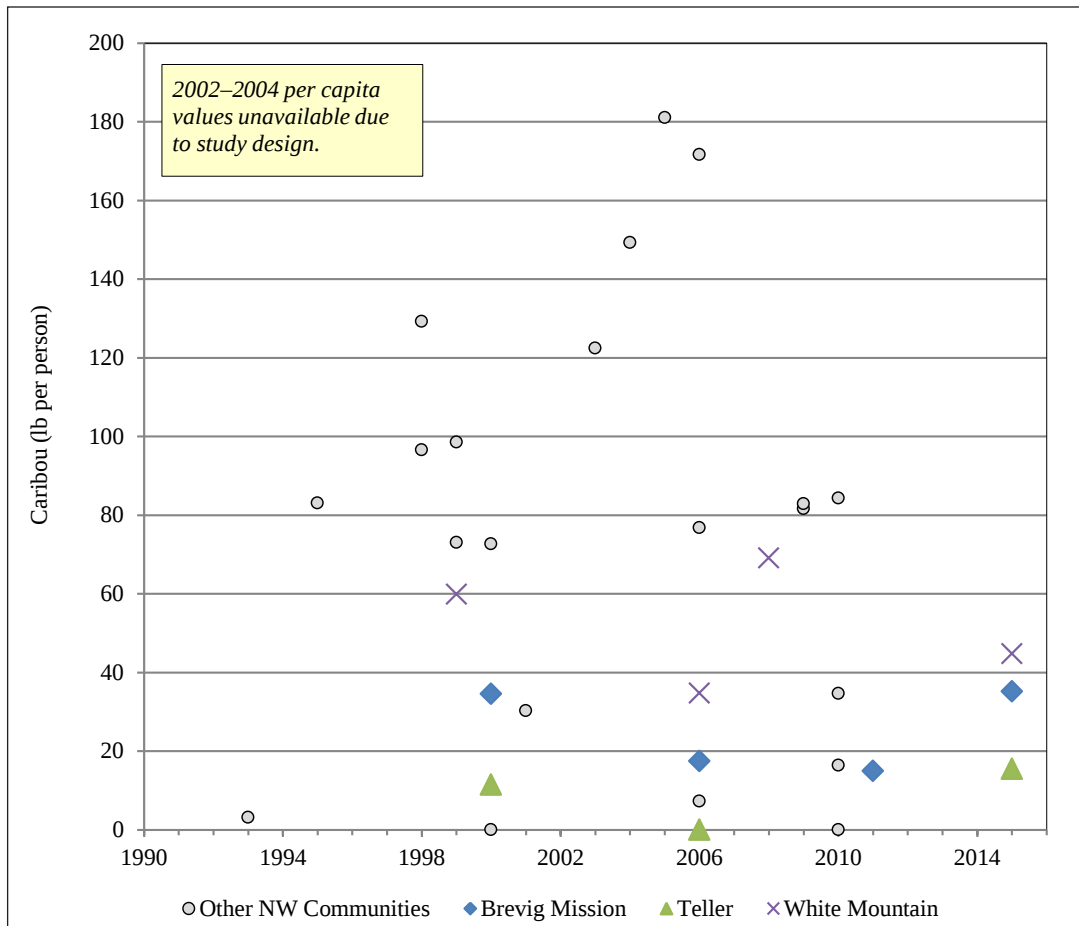


Figure 13.—Per capita harvests of Western Arctic caribou herd, study communities and other Northwest Alaska communities, 1993–2015.

in 2005–2006, 60 lb in 1999, and 69 lb in 2008–2009 (Braem 2012).⁹ Of moose, White Mountain hunters harvested 39 lb per person in 2015–2016, which was similar to per capita harvests in 1999 (43 lb), 2005 (32 lb), and 2008–2009 (41 lb; Table 4; Braem 2012).¹⁰

9. ADF&G CSIS.

10. ADF&G CSIS.

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Mikow, E., N.M. Braem, and M. Kostick

2014. Subsistence wildlife harvests in Brevig Mission, Deering, Noatak, and Teller, Alaska, 2011–2012. Alaska Department of Fish and Game, Division of Subsistence Special Publication No. 2014-02: Fairbanks.

Western Arctic Caribou Herd Working Group

2016. Status of the Western Arctic caribou herd. Caribou Trails (16).

APPENDIX A–SURVEY INSTRUMENT

WESTERN ARCTIC CARIBOU HERD SUBSISTENCE SURVEY

BREVIG MISSION, ALASKA

MAY 2015 to APRIL 2016

COOPERATING ORGANIZATIONS

DIVISION OF SUBSISTENCE
ALASKA DEPT OF FISH & GAME
1300 COLLEGE RD
FAIRBANKS, AK 99701

(877) 646-7320

NATIVE VILLAGE OF BREVIG MISSION

BOX 85024
BREVIG MISSION, AK 99785

(907) 642-4091



We are doing this survey to better understand subsistence in Alaska. Similar surveys have been conducted in more than 100 Alaska communities, including Deering, Buckland, Kotzebue, Kivalina, Noatak, Shungnak, Shishmaref, and Wales. Surveys help us estimate subsistence harvests. Surveys also help us describe the role of subsistence in Alaska's economy.

The survey asks how much game your household harvested last year, where you caught it, and the sex of the animal.

It also asks about how many people lived in your household and their age(s). We will NOT identify your household. We will NOT use this information for enforcement. Participation in this survey is voluntary. If you start a survey, you may stop at any time.

HOUSEHOLD ID:	
COMMUNITY ID:	BREVIG MISSION 69
RESPONDENT ID:	
INTERVIEWER:	
INTERVIEW DATE:	
START TIME:	
STOP TIME:	
DATA CODED BY:	
DATA ENTERED BY:	
SUPERVISOR:	

HOUSEHOLD MEMBERS

HOUSEHOLD ID

First, I would like to know a few things about the people in your household. I want to know only about permanent members of your household, including college or high school students who return home every summer. I am NOT interested in people who lived with you temporarily, even if they stayed several months.

Between MAY 2015 to APRIL 2016...
...who lived in your household?

ID#	How is this person related to head 1? <i>relation</i>	Is this person MALE or FEMALE? <i>circle</i>	How old is this person? <i>age</i>	Is this person Alaska Native? <i>circle</i>	Is this person answering questions on this survey? <i>circle</i>	Comments (OPTIONAL) <i>enter text</i>
HEAD 1	SELF	M F		Y N	Y N	
01	1					

NEXT, enter spouse or partner. If household has a SINGLE HEAD, leave HEAD 2 blank.

HEAD 2	SPOUSE	M F		Y N	Y N	
02	2					

BELOW, enter children (oldest to youngest), grandchildren, grandparents, brothers, sisters, and other household members.

03		M F		Y N	Y N	
04		M F		Y N	Y N	
05		M F		Y N	Y N	
06		M F		Y N	Y N	
07		M F		Y N	Y N	
08		M F		Y N	Y N	
09		M F		Y N	Y N	
10		M F		Y N	Y N	
11		M F		Y N	Y N	
12		M F		Y N	Y N	
13		M F		Y N	Y N	
14		M F		Y N	Y N	
15		M F		Y N	Y N	

PERMANENT HH MEMBERS: 01

BREVIG MISSION: 69

HOUSEHOLD ID

Now I am going to ask about large land mammals such as caribou, moose, and bear.

Do members of your household USUALLY hunt large land mammals for subsistence?..... Y N ☐

Between MAY 2015 to APRIL 2016...

...Did members of your household USE or TRY TO CATCH large land mammals?..... Y N ☐

IF NO, go to the next harvest page.

If YES, continue on this page...

Please estimate how many large land mammals ALL MEMBERS OF YOUR HOUSEHOLD CAUGHT for subsistence use last year. INCLUDE large land mammals you gave away, ate fresh, fed to dogs, lost to spoilage, or got by helping others. If hunting or trapping with others, report ONLY YOUR SHARE of the catch.

[illegible]

❖ If month of harvest is 'unknown', ask if respondent knows the season of harvest and write that in instead.

large land mammals continued on next page...

HARVESTS: LARGE LAND MAMMALS (continued)

HOUSEHOLD ID

	In the last 12 months... did your household...				In the last 12 months, where did members of your HH catch _____?			
	Use?	Try to Harvest?	Give Away?	Receive?	WHERE were they harvested? enter UCU	Were these MALE or FEMALE? circle one	HOW MANY animals were killed? enter number	In what MONTH were these animals harvested? enter one month
MOOSE <i>Tinniikaq</i>	Y N	Y N	Y N	Y N		BULL COW ?		
211800000								
						BULL COW ?		
						BULL COW ?		
						BULL COW ?		
BROWN BEAR <i>Aklag</i>	Y N	Y N	Y N	Y N		BOAR SOW ?		
210800000								
						BOAR SOW ?		
						BOAR SOW ?		
BLACK BEAR <i>Iyyagriq</i>	Y N	Y N	Y N	Y N		BOAR SOW ?		
210600000								
						BOAR SOW ?		
						BOAR SOW ?		

HARVESTS: FURBEARERS

WOLF <i>Amaguq</i>	Y N	Y N	Y N	Y N	n/a
223200000					
WOLVERINE <i>Qavik</i>	Y N	Y N	Y N	Y N	n/a
223400000					

❖ If month of harvest is 'unknown', ask if respondent knows the season of harvest and write that in instead.

LAND MAMMALS: 10

BREVIG MISSION: 69

APPENDIX B—HARVEST AND USE OF LAND MAMMALS

Table B1.—Harvest and use of land mammals, Brevig Mission, Alaska, 2015–2016.

Resource ^a	Percentage of households					Harvest weight (lb) ^b			Harvest quantity (individual)		
	Using	Attempting harvest	Harvesting	Giving away	Receiving	Total	Per household	Per capita	Total	Per household	95% CI (±%)
Land mammals	96.3%	40.7%	31.5%	33.3%	87.0%	23,622.1	288.1	68.2	118.4	1.4	46.8%
Large land mammals	96.3%	40.7%	31.5%	33.3%	87.0%	23,622.1	288.1	68.2	110.9	1.4	47.8%
Black bear	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0%
Brown bear	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0%
Caribou	94.4%	22.2%	18.5%	20.4%	79.6%	12,184.6	148.6	35.2	89.6	1.1	40.6%
Moose	85.2%	35.2%	25.9%	27.8%	64.8%	11,437.5	139.5	33.0	21.3	0.3	20.8%
Small land mammals	5.6%	5.6%	5.6%	0.0%	0.0%	0.0	0.0	0.0	7.6	0.1	69.1%
Wolf	5.6%	5.6%	5.6%	0.0%	0.0%	0.0	0.0	0.0	6.1	0.1	70.6%
Wolverine	1.9%	1.9%	1.9%	0.0%	0.0%	0.0	0.0	0.0	1.5	0.0	117.2%

Source ADF&G Division of Subsistence household surveys, 2016.

a. All species are classified as big game by the Alaska Board of Game.

b. A harvest weight of zero pounds for a resource with a nonzero harvest quantity indicates that the resource was used exclusively for fur and not eaten.

Table B2.—Harvest and use of land mammals, Teller, Alaska, 2015–2016.

Resource ^a	Percentage of households					Harvest weight (lb) ^b			Harvest quantity (individual)		
	Using	Attempting harvest	Harvesting	Giving away	Receiving	Total	Per household	Per capita	Total	Per household	95% CI (±%)
Land mammals	72.7%	29.9%	27.3%	22.1%	62.3%	12,100.0	157.1	47.5	46.0	0.6	0.0%
Large land mammals	72.7%	29.9%	27.3%	22.1%	62.3%	12,100.0	157.1	47.5	45.0	0.6	0.0%
Black bear	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0%
Brown bear	2.6%	1.3%	1.3%	0.0%	1.3%	86.0	1.1	0.3	1.0	0.0	0.0%
Caribou	46.8%	18.2%	16.9%	13.0%	39.0%	3,944.0	51.2	15.5	29.0	0.4	0.0%
Moose	54.5%	23.4%	16.9%	11.7%	45.5%	8,070.0	104.8	31.6	15.0	0.2	0.0%
Small land mammals	1.3%	3.9%	1.3%	0.0%	0.0%	0.0	0.0	0.0	1.0	0.0	0.0%
Wolf	0.0%	2.6%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0%
Wolverine	1.3%	3.9%	1.3%	0.0%	0.0%	0.0	0.0	0.0	1.0	0.0	0.0%

Source ADF&G Division of Subsistence household surveys, 2016.

a. All species are classified as big game by the Alaska Board of Game.

b. A harvest weight of zero pounds for a resource with a nonzero harvest quantity indicates that the resource was used exclusively for fur and not eaten.

Table B3.—Harvest and use of land mammals, White Mountain, Alaska, 2015–2016.

Resource ^a	Percentage of households					Harvest weight (lb) ^b			Harvest quantity (individual)		
	Using	Attempting harvest	Harvesting	Giving away	Receiving	Total	Per household	Per capita	Total	Per household	95% CI (±%)
Land mammals	98.3%	54.2%	30.5%	45.8%	84.7%	16,640.0	256.0	84.4	82.6	1.3	21.3%
Large land mammals	98.3%	52.5%	30.5%	45.8%	84.7%	16,640.0	256.0	84.4	80.4	1.2	21.5%
Black bear	0.0%	0.0%	0.0%	0.0%	0.0%	0.0	0.0	0.0	0.0	0.0	0.0%
Brown bear	3.4%	8.5%	1.7%	0.0%	0.0%	94.7	1.5	0.5	1.1	0.0	43.0%
Caribou	91.5%	28.8%	18.6%	30.5%	78.0%	8,840.0	136.0	44.8	65.0	1.0	17.5%
Moose	91.5%	49.2%	22.0%	33.9%	72.9%	7,705.3	118.5	39.1	14.3	0.2	11.3%
Small land mammals	3.4%	13.6%	3.4%	3.4%	0.0%	0.0	0.0	0.0	2.2	0.0	42.6%
Wolf	1.7%	10.2%	1.7%	1.7%	0.0%	0.0	0.0	0.0	1.1	0.0	60.8%
Wolverine	1.7%	8.5%	1.7%	1.7%	0.0%	0.0	0.0	0.0	1.1	0.0	60.8%

Source ADF&G Division of Subsistence household surveys, 2016.

a. All species are classified as big game by the Alaska Board of Game.

b. A harvest weight of zero pounds for a resource with a nonzero harvest quantity indicates that the resource was used exclusively for fur and not eaten.

APPENDIX C–HARVESTS BY SEX AND MONTH

Table C1.–Caribou harvests by sex and month of harvest, Brevig Mission, 2015–2016.

Community	Sex	2015								2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall		
Brevig Mission	Male	0.0	0.0	0.0	3.0	0.0	0.0	15.2	18.2	3.0	19.7	3.0	18.2	6.1	0.0	0.0	0.0	0.0	86.6
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.0	0.0	3.0
	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	0.0	0.0	0.0	0.0

Source ADF&G Division of Subsistence household surveys, 2016.

Table C2.–Caribou harvests by sex and month of harvest, Teller, 2015–2016.

Community	Sex	2015								2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall		
Teller	Male	0.0	2.0	1.0	6.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	8.0	0.0	22.0
	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	0.0	2.0	0.0	2.0
	Unknown	0.0	0.0	0.0	2.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	0.0	5.0

Source ADF&G Division of Subsistence household surveys, 2016.

Table C3.–Caribou harvests by sex and month of harvest, White Mountain, 2015–2016.

Community	Sex	2015								2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall		
White Mountain	Male	0.0	0.0	0.0	0.0	0.0	0.0	5.5	3.3	0.0	0.0	3.3	13.2	3.3	0.0	0.0	0.0	6.6	35.3
	Female	0.0	0.0	0.0	0.0	0.0	0.0	5.5	1.1	2.2	1.1	2.2	5.5	2.2	0.0	0.0	0.0	2.2	22.0
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7

Source ADF&G Division of Subsistence household surveys, 2016.

Table C4.—Moose harvests by sex and month of harvest, Brevig Mission, 2015–2016.

Community	Sex	2015									2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall			
Brevig Mission	Male	0.0	0.0	0.0	7.6	6.1	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0	21.3
	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	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	0.0	0.0	0.0	0.0	0.0

Source ADF&G Division of Subsistence household surveys, 2016.

Table C5.—Moose harvests by sex and month of harvest, Teller, 2015–2016.

Community	Sex	2015									2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall			
Teller	Male	0.0	0.0	0.0	0.0	7.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	15.0	
	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	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	0.0	0.0	0.0	0.0	

Source ADF&G Division of Subsistence household surveys, 2016.

Table C6.—Moose harvests by sex and month of harvest, White Mountain, 2015–2016.

		2015								2016				Season					
Community	Sex	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall	Unknown	Total
White Mountain	Male	0.0	0.0	0.0	1.1	8.8	0.0	0.0	0.0	4.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	14.3
	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	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	0.0	0.0	0.0	0.0

Source ADF&G Division of Subsistence household surveys, 2016.

APPENDIX D—HARVESTS BY SEX, MONTH, AND LOCATION

Table D1.—Caribou harvests by sex, month, and location of harvest, Brevig Mission, 2015–2016.

Polygon	Sex	2015								2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall		
22BN000402	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1
	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	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	0.0	0.0	0.0	0.0
22DN000202	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	9.1
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	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	0.0	0.0	0.0	0.0
22DN000203	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0	4.6	0.0	0.0	0.0	0.0	0.0	7.6
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	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	0.0	0.0	0.0	0.0
22DN000301	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2	3.0	10.6	3.0	7.6	0.0	0.0	0.0	0.0	0.0	39.5
	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	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	0.0	0.0	0.0	0.0
22DN000303	Male	0.0	0.0	0.0	0.0	0.0	0.0	15.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	15.2
	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	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	0.0	0.0	0.0	0.0
22EH000203	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1	0.0	0.0	0.0	0.0	0.0	6.1
	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	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	0.0	0.0	0.0	0.0
Missing	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	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	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0

Source ADF&G Division of Subsistence household surveys, 2016.

Table D2.—Caribou harvests by sex, month, and location of harvest, Teller, 2015–2016.

Polygon	Sex	2015								2016				Season				Unknown	Total	
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall			
22DN000101	Male	0.0	2.0	0.0	6.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	16.0
	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	0.0	0.0	2.0	0.0	2.0
	Unknown	0.0	0.0	0.0	2.0	0.0	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	4.0
22DN000102	Male	0.0	0.0	1.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0	5.0
	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	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	0.0	0.0	0.0	0.0	0.0
22DN000202	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	1.0	0.0	0.0	0.0	0.0	0.0	1.0
	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	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	0.0	0.0	0.0	0.0	0.0
Missing	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	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	0.0	0.0	0.0	0.0	0.0
	Unknown	0.0	0.0	0.0	0.0	0.0	1.0	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

Source ADF&G Division of Subsistence household surveys, 2016.

Table D3.—Caribou harvests by sex, month, and location of harvest, White Mountain, 2015–2016.

Polygon	Sex	2015								2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall		
22BN302	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	0.0	0.0	6.6	6.6
	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	0.0	0.0	2.2	2.2
	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	0.0	0.0	0.0	0.0
22BN402	Male	0.0	0.0	0.0	0.0	0.0	0.0	5.5	3.3	0.0	0.0	3.3	4.4	3.3	0.0	0.0	0.0	0.0	19.8
	Female	0.0	0.0	0.0	0.0	0.0	0.0	5.5	1.1	2.2	1.1	2.2	0.0	2.2	0.0	0.0	0.0	0.0	14.3
	Unknown	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.7
22BN403	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	0.0	0.0	0.0	0.0	3.3
	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	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	0.0	0.0	0.0	0.0
22D301	Male	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	5.5
	Female	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	0.0	0.0	0.0	0.0	0.0	5.5
	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	0.0	0.0	0.0	0.0

Source ADF&G Division of Subsistence household surveys, 2016.

Table D4.—Moose harvests by sex, month, and location of harvest, Brevig Mission, 2015–2016.

Polygon	Sex	2015								2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall		
22DN000201	Male	0.0	0.0	0.0	1.5	3.0	0.0	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	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	0.0	0.0	0.0	0.0
22DN000202	Male	0.0	0.0	0.0	4.6	1.5	1.5	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.6
	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	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	0.0	0.0	0.0	0.0
22DN000203	Male	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0
	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	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	0.0	0.0	0.0	0.0
Missing	Male	0.0	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	0.0	1.5	0.0	3.0
	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	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	0.0	0.0	0.0	0.0

Source ADF&G Division of Subsistence household surveys, 2016.

Table D5.—Moose harvests by sex, month, and location of harvest, Teller, 2015–2016.

Polygon	Sex	2015								2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall		
22CN000502	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	0.0	1.0	0.0	1.0
	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	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	0.0	0.0	0.0	0.0
22DN000101	Male	0.0	0.0	0.0	0.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	9.0
	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	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	0.0	0.0	0.0	0.0
22DN000102	Male	0.0	0.0	0.0	0.0	3.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0
	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	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	0.0	0.0	0.0	0.0
Missing	Male	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
	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	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	0.0	0.0	0.0	0.0

Source ADF&G Division of Subsistence household surveys, 2016.

Table D6.—Moose harvests by sex, month, and location of harvest, White Mountain, 2015–2016.

Polygon	Sex	2015								2016				Season				Unknown	Total
		May	June	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	Win	Spr	Sum	Fall		
22BN401	Male	0.0	0.0	0.0	0.0	6.6	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.8
	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	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	0.0	0.0	0.0	0.0
22BN402	Male	0.0	0.0	0.0	1.1	2.2	0.0	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5
	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	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	0.0	0.0	0.0	0.0

Source ADF&G Division of Subsistence household surveys, 2016.

APPENDIX E–RESPONDENT COMMENTS

Brevig Mission

I never hunted this year because I was working, but I eat meat from other hunters.

Wish there was more closer

Too many wolves, brown bear. Sometimes caribou and moose. Not like long ago.

Keep up what they are doing.

Reindeer are going with caribou

Try and control the wolf population.

Caribou are too far to hunt.

Both moose and caribou are main diet. Hardly have store bought.

Mind their own business.

Not presently or this time

Teller

Do not hunt.

I don't hunt

Why are the caribou far from here?

Why are the caribou far away?

Where did the reindeer go?? What happened to the saltwater trout? Back in the day 40 to 50 in a net, now 1 or 2 if lucky.

White Mountain

Catch more bears and wolves

Give a cow season once in a while. Seems like there are more musk ox than what "they" say there are.

Wish she'd get more meat.

Want more quota on moose harvest

Hard to tell caribou sex

Moose season is too short

Open season for bulls

At Fed Sub. meeting statewide Anc. 6 days. Fed advisory committee. Argument with OTZ area- WACH regulation. They wanted to set same season for OTZ and OWE region, not practical. Freezes sooner there.

I have concerns about declining subsistence food sources. Many of our animals and birds are very reduced at an alarming rate.

Lengthen the moose harvest season.

What about musk ox

Caribou - catching only female makes no sense. We do hunting spring time. Yearlings die as well. Should start allowing hunting of bulls. Hunting only bulls created a lot of waste.

Should open moose season longer. Get households catch 5 bears. Too many bears

Moose, wish we can have unlimited moose hunting. Open season until amount is harvested.

See a lot of bears, lots of cows with 3, don't hike as much any more.

Found a green (dark) about an 1 inch and a quarter wire inside tissue - 2" long

Source ADF&G Division of Subsistence household surveys, 2016.