SUMMARY OF 1997 FARO MOOSE SURVEY RESULTS

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Fish and Wildlife Branch
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We did a moose count of Game Management Subzone (GMS) 4-45, near Faro, in early December, 1997. This area runs south from the Tay River to encompass Mount Aho and the mountain block north of Mount Mye (see the attached map). It covers a total of about 967 square kilometers (373 square miles). This is the first time we have surveyed moose in this area.

Ken Frankish, the area Conservation Officer, recently identified the mountain block in the northern part of this area as an important rutting and post-rutting area for moose. He also noted that it is as an important hunting area for Faro residents.

A description of how we do moose counts is presented in the Yukon Government publication entitled "Yukon Moose". To receive a copy of this publication contact your local Department of Renewable Resources Field Services Office or the Department of Renewable Resources Moose Management Unit at 10 Burns Road, Whitehorse; phone (867) 667-5787 or (867) 667-8863.

A summary of our survey results is provided in the attached table.

An initial estimate of moose abundance in GMS 4-45, based on our survey results is 566 moose (density = 586 moose for every 1000 square kilometers). However, this estimate does not make allowance for moose that we failed to see during our survey. We find that we generally miss about ten percent of the moose in an area when we survey. If we add ten percent to our survey estimate to allow for moose missed during the survey, there are probably about 620 moose in the area (density = 640 moose for every 1000 square kilometers).

This is the highest moose abundance recorded to date in the Yukon. Similar size areas elsewhere in the Yukon have one-tenth to one-half as many moose. A few examples are: a similar size area west of Carmacks would have only about 40 moose; in the Mayo area there would be about 120 moose; and south of Dawson there would be about 235 moose. Even the Finlayson Lake area, after seven years of wolf control, had only about 370 moose in a similar size area.

If we look only at the sub-alpine plateau north of Mount Mye, which has been identified as an important moose rutting area, moose abundance would be even higher, probably close to 1 moose for each square kilometer. It is clearly a moose rutting and post-rutting area of Territory wide significance.

This concentration of moose in the sub-alpine areas during the rut makes them vulnerable to over-harvest. Between 1993 and 1996 hunters report harvesting an average of 15 moose per year in GMS 4-45. However, Ken Frankish believes the actual total harvest each year has been closer to 20 moose and, in some years, has been as high as 25 moose. He bases his estimate on the number of hunters he knows who took moose out of the area

each year. He believes that the difference between the reported harvest and his estimates of the true harvest is largely due to hunters mistakenly reporting that they harvested their moose in adjacent game management subzones.

Our *Moose Management Guidelines* state that, in most cases, an annual harvest of about three to four percent of a moose population can be taken in areas with natural numbers of wolves and bears without harming the moose population. This is based on studies done in Yukon and Alaska. Based on this guideline, GMS 4-45 can probably sustain a maximum harvest of about 20 to 25 moose per year. If the estimated annual harvest of 20 to 25 moose is correct, this would mean that we are already at the sustainable harvest limit for this population. Any increase in the harvest would probably cause the population to decline.

Of the 566 moose we estimated from the survey, 291 were mature cows, 88 were mature bulls, 84 were yearlings and 101 were calves. We could not determine the age/sex of 2 of the moose seen. The number of calves and yearlings in this population would normally be sufficient to maintain a stable population. However, there are just 30 mature bulls for every 100 mature cows in this population. This is the minimum number of bulls we want to have in any moose population to ensure that all the cows are bred. Below this level, management actions must be taken to ensure the number of bulls in the population does not decline further.

This low ratio of bulls to cows, combined with the high harvest rate, raises concerns about the long term well-being of this moose population. In the Yukon, similar low ratios of bulls to cows have only been seen in areas which had declined or were declining to low levels. For example, in the early 1980s the moose population in the Haines Junction area declined by nearly half. There were about 35 mature bulls for every 100 mature cows in the local moose population during that period. A similar decline occurred in the area south of Whitehorse in the late 1980s when the ratio dropped to about 30 bulls for every 100 cows. The reported moose harvest in each of these areas was high (10% to 12% of the moose population each year) prior to the decline in the bull:cow ratio and moose abundance.

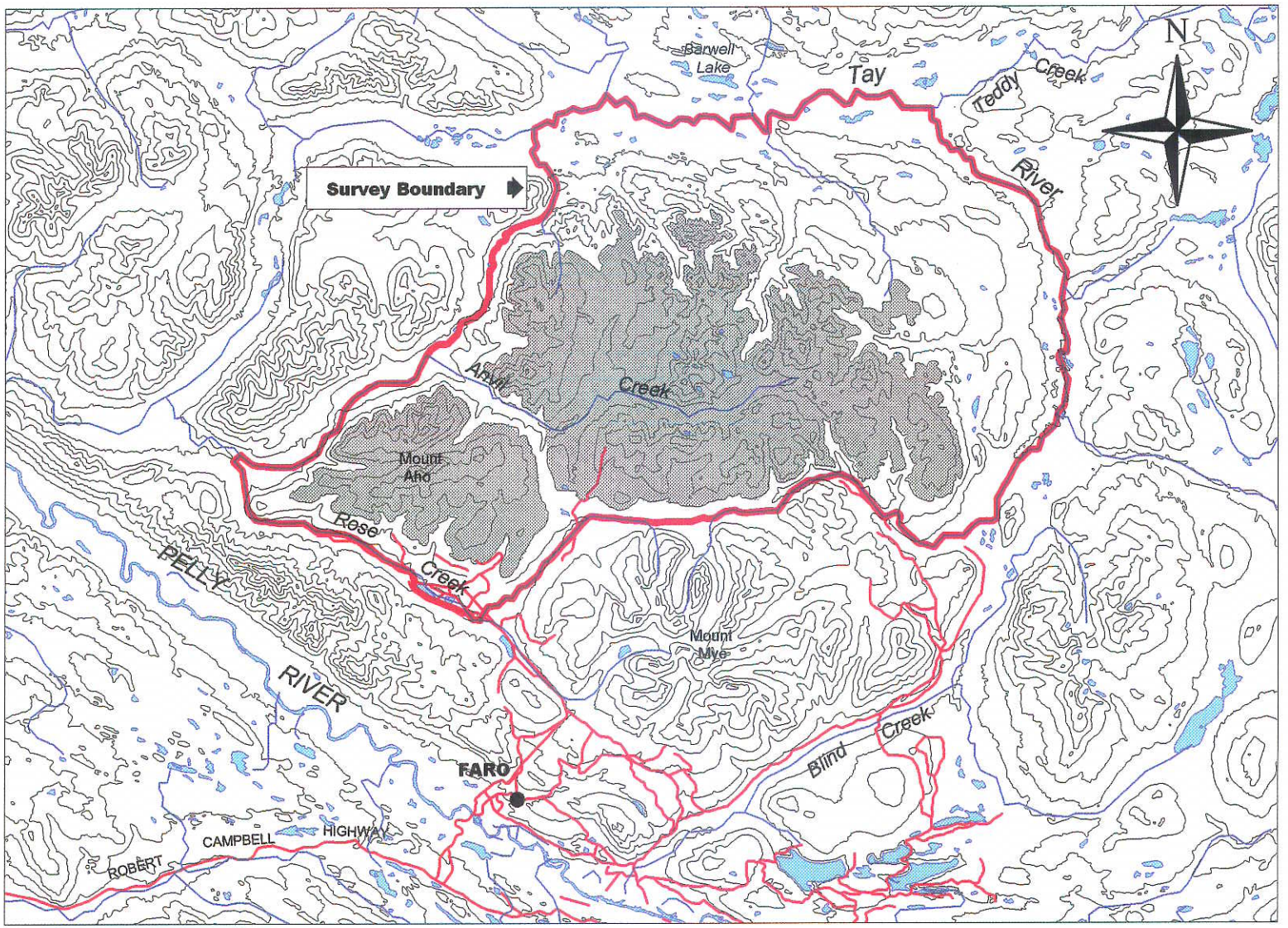
The declines in overall moose abundance in these areas was due to the direct and indirect effects of hunting combined with natural predation. The indirect effects of hunting are caused by hunters taking food away from predators. The predators then kill more cows, yearlings and calves. The problem is made worse if hunters and predators continue to take the same number of moose as the population declines.

In summary, this area has very high moose abundance. Moose concentrate in the sub-alpine areas during and after the rut. This makes them vulnerable to over-harvest. The estimated harvest and the low number of bulls in the population suggests that we are probably at the sustainable harvest limit for this population. Careful monitoring and management will be needed to ensure the long term welfare of this important moose population.

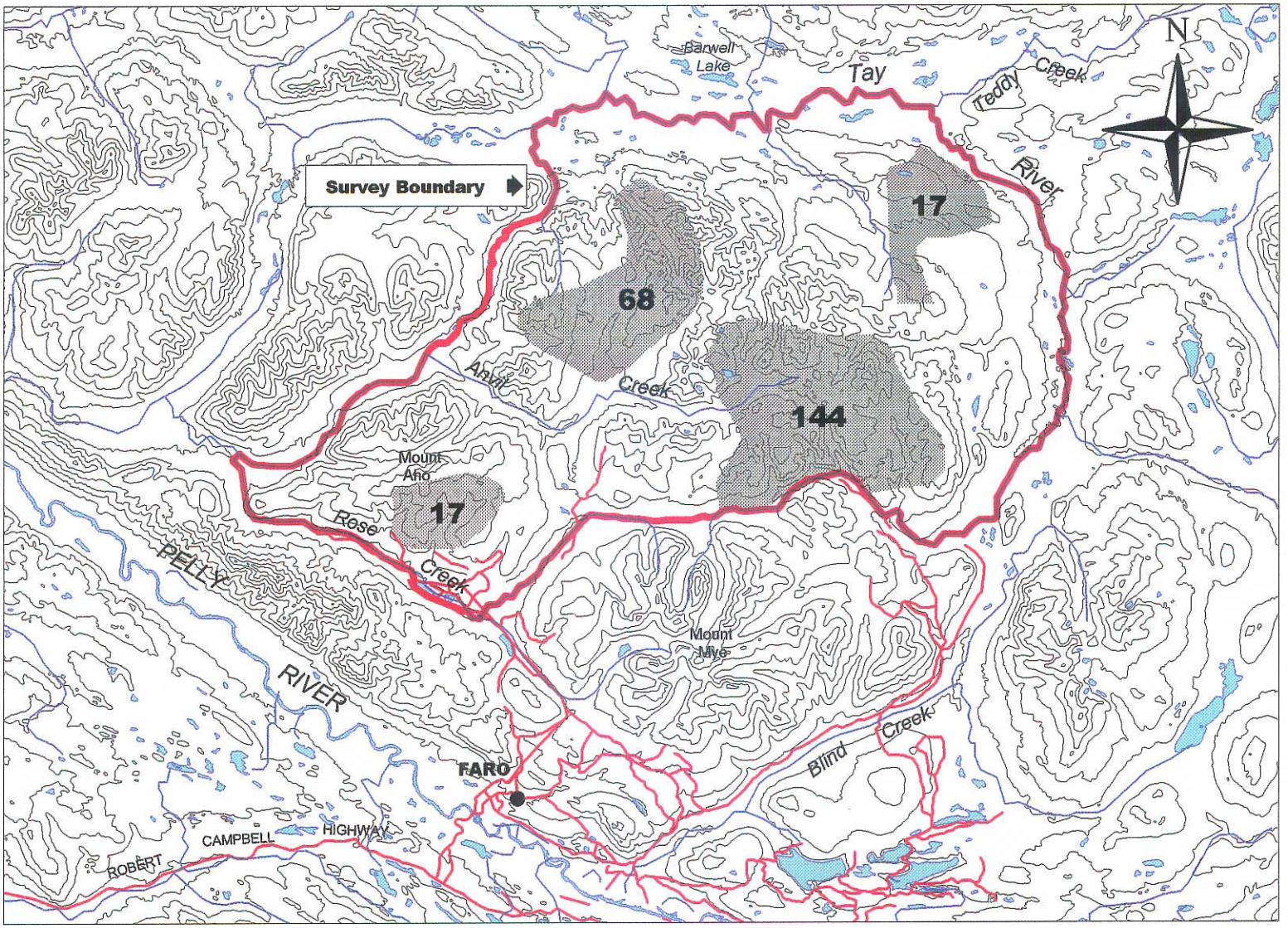
Table 1; Summary of 1997 Faro Moose Survey Results

POPULATION CHARACTERISTICS	**1997**
Estimated Abundance (90% C.I.)	
Total Moose	566 (452 - 681)[1]
Density (Moose per 1000 Km^2)	586
Estimated Composition	
Mature Bulls (≥ 30 months)	88
Mature Cows (≥ 30 months)	291
Yearlings (Approx. 18 months)	84
Calves	101
Unknown age/sex	2
Estimated Ratios	
Mature Bulls per 100 Mature Cows	30
Yearlings per 100 Mature Cows	29
Calves per 100 Mature Cows	35
Mature Bulls: % of Total Population	16%
Mature Cows: % of Total Population	51%
Yearlings: % of Total Population	15%
Calves: % of Total Population	18%
Twinning Rate	7%
SURVEY CHARACTERISTICS	
Stratification	
Survey Dates	Dec. 8 - Dec. 11
Area searched (Km^2)	966.7
Time used in search (minutes)	451
Search Intensity (min. per Km^2)	0.47
Moose seen	236
Moose seen per minute	0.52
Census	
Survey Dates	Dec. 9 - Dec. 13
Area Searched (Km^2)	282.9
Percentage of total area searched	29%
Time used in search (minutes)	580
Search Intensity (minutes per Km^2)	2.05
Moose seen	232
Moose seen per minute	0.4

1. Includes no correction for moose missed during the survey (i.e., no Sightability Correction Factor incorporated).



Faro Moose Rutting Areas, 1997



Faro Moose Concentration Areas, 1997