

N1427 (WRST-RM)

July 6, 1991

Memorandum

To:Mentasta Caribou File, WRST

From:Resource Management Specialist (Wildlife), WRST

Subject:Mentasta Caribou Herd, summer composition survey

On June 28, 1991 I participated in the annual composition survey of the Mentasta Caribou Herd with ADF&G. Craig Gardner flew with Harley McMann in his supercub to get radio fixes on collared caribou and to direct the helicopter to large aggregations of caribou. Bob Tobey and myself were in the huse 800 helicopter piloted by Ken Barns from Soloy Helicopters, Wasilla.

We took off from Gulkana about 0930. We had overcast skies and some windy conditions during the survey, but conditions were generally good for counting caribou from a helicopter. We found large aggregations of caribou just north of the Sanford River on the "Sanford Bench" and south west of Boulder Creek. Although we did a composition count on one small herd of four caribou, we sampled primarily from three or four large aggregations. The sampling procedure was to simply fly the helicopter just over the posterior of as many caribou as possible. An attempt was made to separate each large aggregation into smaller groups for easy classification, however, classification of the entire aggregation was not of concern. We made two or three runs at each aggregation and in so doing classified about 40 to 75% of the caribou in each.

Bob Tobey did all the sex and age classifications. Caribou were classified as either: bull, cow, or calf (collared cows were also recorded). Bob recorded the data by speaking into a tape recorder as he classified. I later tallied the data from his tape and made a copy for our files. I found it difficult to determine the exact number of caribou classified by listening to the tape. The number of bulls and calves were fairly easily determined since there were so few to listen for, but I could not tally fast enough to feel comfortable with the number of cows. For this reason I tallied the number of cows six times and took the average. I also tallied the number of bulls and calves several times, but felt comfortable

with throwing out one outlier for each (tally sheet attached).

The final estimated tally was 485 cows (of which 7 were collared), 114 bulls, and 16 calves for a total sample of 615 caribou (the total June herd count was about 1700 caribou so we sampled approximately 36% of the herd). The composition results work out to 3 calves per 100 cows and 24 bulls per 100 cows.

The number of bulls appears normal, but the number of calves is extremely low. There are several hypotheses as to why:

- 1) Sampling bias - It is possible that the three or four aggregations that were sampled for herd composition were not representative of the total herd. For example, small groups of caribou may have been more spread out over the range due to the cool weather and these small groups may have had better calving success. Kurt Jenkins flew the Mentasta total count on June 18 and noted that in two groups of six caribou, each had three calves. Similarly, when I flew the composition count for the Chisana caribou herd on June 20 we found the herd to be well dispersed and that small groups had higher calf:cow ratios than the large aggregations. A sampling of three or four large aggregations may not be adequate for estimating total herd composition. Other biologists find they need to fly over caribou herds for several days to monitor aggregation behavior. They then pick the peak aggregation period for the composition survey.
- 2) Bad weather on the calving grounds - Bob Tobey thinks that there was more snow that stayed longer and it was colder on the calving grounds than in previous years he could think of. Bad weather could have caused a total bust in the number a calves born and/or surviving.
- 3) Bad weather the previous winter - Craig Gardner suggested that the winter of 1989-90 was so severe many cows could have failed to go in to estrous during the fall of 1990 thus producing no young in spring of 1991.
- 4) Range - Poor range conditions could explain some of the low recruitment in past years. Jim Lieb has strongly suggested we look at the exclosures that were put in several years ago.
- 5) Predation - Local game biologists have consistently suggested that predation is keeping the Mentasta Herd, as well as the Chisana Herd, in a "predator pit". However, Bob Tobey feels that this years bust in the calf:cow ratio is not characteristic of predation since predators could not have built up to such numbers to cause the failure in recruitment.

Although sampling bias may have played a role in the low count, it probably would not explain the total drop in the calf:cow ratio. Bob Tobey has done the counts the same way for many years so that it is unlikely the low count is due to sampling error alone.

I will put together data on past weather patterns to give us an idea on how weather may have affected caribou numbers. There should be reasonably good data from Slana and Gulkana NOAA weather stations plus information on snow pack from the Soil Conservation Services snow courses at Kenny Lake, Dadina Lake, Sanford Lake Chistochina, and Mentasta Pass. We should also consider keeping the Remote Area Weather Station (RAWS) at Klawasi up and running all year or atleast during the calving season.

We should attempt to relocate the caribou exclosures to see whether they are still standing. I will put together what information there is on past readings in and outside of the exclosures.

Some attempt at doing a wolf track survey this winter should be initiated. Although the results of such surveys are often ambiguous, we don't even know where pack home ranges may occur. Snow tracking surveys can begin to build our knowledge of pack range, size, and travel routes.

Bill Route