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REPORT PRESENTED TO ALASKA STATE SENATE RESOURCES COMMITTEE

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Some Aspects of Human Use of the Western Arctic Caribou Herd

by
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Alaska Department of Fish and Game

Magnitude of Harvest

The Department of Fish and Game attempted to quantify human harvest of the Western Arctic herd in 1975-76. In order to determine the number of caribou harvested, village data collectors were hired in Anaktuvuk Pass, Pt. Hope, Kivalina, Noatak, Selawik, Noorvik, Kiana, Shungnak and Ambler.

Department biologists obtained estimates from Wainwright, Pt. Lay, Barrow, Nuiqsuit, Meade River, Bettles, Kobuk, Allakaket-Alatna, Hughes and Huslia by personal observation, interviews and input from village councils.

This system worked reasonably well until about January 1976, when the Department believed some emergency reduction in the caribou take was necessary and initiated village meetings to determine how such restrictions would be accepted and complied with. These restrictions were never implemented but their proposal caused a great deal of alarm and most villages quit cooperating in assessing the harvest. Harvest data through January 1976 are summarized in Table A.

The caribou harvest from January through the present is less well documented for reasons mentioned above. At a meeting with NANA Corporation leaders in Kotzebue last Friday (14 May 1976) they said NANA would solicit cooperation of villages in their region for an accurate assessment of the harvest since January. Hopefully refined estimates will be obtained in this manner. In the interim the following rough estimates must suffice.

For Unit 23, Carl Grauvogel, Department area biologist for the unit, estimated as follows:

> With only three collectors remaining on the payroll and as I have not spent much time in Unit 23 since February, our factual harvest information is sparse. However, compiling past hunting trends, recent spot checks, and the "known" harvest from Ambler, Shungnak, and Kobuk, I believe we can make some educated guesses as to the number of caribou killed. The harvest as tabulated by the village collectors is as follows:
>
> | | Ambler | Shungnak | Kiana |
> |---|---|---|---|
> | February | 94 | 110 | 133 |
> | March | 29 | 107 | Unk |
> | April | 76 | 121 | Unk |
> | Total | 199 | 338 | |
>
> The above figures, of course, only reflect minimums but it appears most villages were averaging about 100 caribou a month. Since several thousand caribou wintered in the Kiana Hills, it is not unreasonable to assume villages in the immediate vicinity experienced good hunting. I suspect Kiana, Noorvik and Kotzebue averaged more than 100 a month. Pulling together all factors, I would estimate the harvest from February through April for villages in Unit 23 was as follows (I believe all estimates are minimums.)

Ambler	300	Kotzebue	800
Kiana	500	Noatak	600
Shungnak	400	Kivalina	300
Kobuk	100	Pt. Hope	300
Noorvik	500	Buckland	200
Selawik	400		
		Total	4,400

I believe that Carl's above estimates are probably fairly accurate (at least not excessively liberal) since during early May when I visited Kotzebue and Noatak several residents of each community told me that of the total harvest from September through April well over 50 percent of the total, and possibly 70 percent, at Kotzebue was taken after January. Also, the estimates for Kiana and Noorvik are considerably lower than estimates given to me by people present in the two communities during this period.

From Table A we can see that this suggests 750-1000 animals were taken during the period February through April at Noatak and 1000 to 2300 at Kotzebue.

In addition the communities in Unit 22 harvested an estimated 500 animals during the January-April period; the Unit 24 harvest may have been close to 1000 caribou during the period; communities in Unit 26 likely harvested at least 1000 additional caribou during the period. There is also some indication that the estimated harvest for Barrow through January may have been quite conservative.

Adding the above estimates to the estimated harvest through January we come up with the following:

Harvest from September through January from Table A footnote #7	= 15,000
Harvest since January, Unit 22	= 500
Harvest since January, Unit 23	= 4,400
Harvest since January, Unit 24	= 1,000
Harvest since January, Unit 26	= 1,000
Total	21,900

This figure of 21,900 does not include any crippling loss for the period from January through May and the harvest from May through September is not included. Including these two factors it seems unlikely that the total human kill this year would be substantially less than 25,000 animals. Implications of this level of harvest are spelled out in the Department status report on the Western Arctic herd that was presented to the State Game Board in March 1976.

Waste

Quantifying waste of caribou is very difficult. However, limited quantification and subjective impressions of the extent of waste this year reveal that it is of sufficient magnitude that it cannot be justified or tolerated from either a biological or social/moral/ethical standpoint.

Waste occurs in the following forms:

1. Crippling loss - This sort of loss has been acknowledged for most species of hunted big game animals, but has probably caused more concern in caribou than in any other land mammal. Crippling loss results from many causes such as:

   a. legitimate non-realization that the animal fired at was hit
   b. shooting at long range
   c. flock shooting
   d. shooting with small caliber rifles and improper sights
   e. chasing with snow machines

Canadian biologists have reported that a 20 percent loss is a conservative minimum wounding loss for native hunting of caribou (Kelsall 1968).

Estimates of the wounding loss from sport hunting for the Fortymile herd in Alaska have ranged from 10 to 20 percent during years when migrations were such that large numbers of caribou were available to large numbers of hunters.

2. Mistakenly killed animals - During the rut, many hunters kill bulls by flock shooting or by being unable to differentiate between sexes. At this time the males are losing fat and are strong smelling and tasting. Likewise in mid and late winter bulls and calves are often in poor condition (not fat) and are often mistakenly killed but not utilized if caribou are abundant.

3. Poor or abnormal animals - Animals have traditionally not been utilized when suspected of being abnormal. However, many animals left for this excuse are gut shot or shot up and messy to handle so, if caribou are abundant, they are not used.

4. Non-retrieved animals - Many animals are killed and properly cared for in the field but never retrieved. Some have been partially scavenged and fouled before a hunter returns, so are left. Others are never retrieved as additional animals are killed closer to home. It has been a traditional practice to kill as many animals as possible in the fall as shown in the words of residents "because they are fatter then" and because of the migratory nature of caribou, "If and when we find them we try to get as many as possible knowing that it may be our only chance to get them for a long time." When a great abundance of caribou is present many are killed for choice parts only, e.g. the tongues and heads.

5. Animals killed for trapping bait - It is a common practice to leave caribou carcasses for trapping bait.

6. Animals killed or not properly used because of eroded or underdeveloped ethics - This is a poorly defined category but can be used to include animals killed primarily for fun, out of boredom, or to spite someone or something and illegally using mechanized conveyances. Allegedly, caribou

are run down by snow machines and stabbed on occasion or pursued by snow machine and shot with pistols or .22 automatic rimfire rifles.

7. Some waste occurs after animals are brought home, particularly in years of great abundance. Department personnel witnessed or received reports of instances of each of the above types of waste during the year.

Figure 1 summarizes the best documented instance of waste occurring during 1975-76. It should be emphasized that this was not an isolated case and that the communities involved were not singled out for any particular reason. It just happened to occur in an area where the timing and logistics were such that documentation was facilitated.

The objective of documenting this waste was not to establish the number of animals wasted, but to show that waste was unacceptably extensive. The only area where an attempt was made to see as many carcasses as possible from the air was area B in Figure 1. However, there were likely considerably more carcasses in this area than the 214 counted as evidenced by: 1) we took pictures from the air of several piles of caribou before we began flying transects in the area. One pile of about eight carcasses that we photographed was not seen when we were flying the transects and I was sure we were missing others; 2) there were still some patches of snow where drifting had occurred and several legs, heads and small patches of hide barely showing through the snow suggested that additional carcasses were still buried; 3) it is my subjective impression that most of the carcasses seen were not more than several months old, i.e. ones left in October or November had likely been scavenged and therefore were likely much easier to miss. I marked four carcasses that were left in mid-October in an area near Cape Krusenstern and on this trip no sign of them could be detected (scavengers had likely scattered or consumed the remains). They had received no human use when marked and there was no evidence that humans had "cleaned the area up" later.

Several observations of interest were made on the flight including: (1) A high percentage of the carcasses were in groups or piles often containing as many as five caribou and in one case there were apparently eight in one pile and five more within 50 yards. Of the 214 seen in Area B, 109 were single carcasses and 105 were in groups as follows: 12 groups of 2, 13 groups of 3, 2 groups of 4, 3 groups of 5, 1 group of 6, and the groups mentioned above of 8 + 5; (2) at least 3 piles of caribou were at camp sites with many tin cans and tent poles present; (3) several caribou had spruce poles through them.

We have some direct observations and numerous reports that suggest hundreds of caribou were wasted at several other locations. Combined they constitute a biological threat to the resource.

Appendices I-XII contain additional documentation of waste occurring in other communities in the past several years.

Figure 1. Documentation of caribou waste in the Kiana Hills area during late winter 1976.

A – This area was searched intensively from the ground during late March and, as of March 29, 152 kill sites were located. Of these, 68 (45%) had been fully utilized. Seven (05%) were partially wasted and 77 (51%) had not been used by this date. Of those not yet used, 63-3/8 (41.7%) were judged as being unusable on this date. This would be the minimum waste that would have occurred in this area. If none of the usable carcasses were retrieved, then 80.5 (53%) would be the maximum waste that would have occurred.

B – On 6 May 1976 after snow machine travel was impossible and the retrieval of any additional carcasses was extremely unlikely, a 1 hour and 35 minute survey of area B revealed a minimum of 214 carcasses.

C – On 6 May 1976 this area was covered by air in a very cursory manner to see how large of an area carcasses could be located over. In 35 minutes, 166 additional carcasses were located.

D – In flying 9 miles along this path 100 feet off the ground, 26 carcasses were located.

E – In flying this line 100 feet above the ground, 17 carcasses were found.

It should be acknowledged that human use (subsistence hunting as well as sport or market hunting) has detrimentally affected caribou numbers in the past and problems are still occurring at present. The Canadians have cited over-exploitation of caribou by subsistence users as the major factor in the decline or elimination of several caribou herds (Kelsall 1968, Parker 1975). There are some suggestions for this having occurred in Alaska also (Skoog 1968, Lent 1964, Stefansson 1913, Sonnenfield 1960). It is noteworthy that it is the opinion of most Canadian caribou biologists that overhunting and predation have been responsible for most caribou declines in the last 50 years (Bergerud 1974, Kelsall 1968, Bunnell et al. 1975). The following table and quote from Kelsall, pages 201 and 204, summarize the impact of humans on Canada's mainland caribou population from 1949 through 1955.

Future Plans Pertaining to the Herd

Several research programs are presently being carried out to assess the status of the Western Arctic caribou herd and several more are being proposed. By July 1, 1976 studies with the following objectives will likely be initiated or concluded:

Alaska Department of Fish and Game Studies:

1. Primary Job Objective: To determine herd identity, movements, distribution, traditional migration routes, critical habitats and seasonal patterns of use of caribou inhabiting northwestern Alaska.

Ancillary Objective: To obtain data (primarily seasonal distribution) for use in developing a model of the grazing ecology of the Western Arctic herd in conjunction with the Alaska Cooperative Wildlife Research Unit.

2. Job Objective: To determine the past and present age structure of Alaska's Arctic caribou herds by aging hunter-killed animals by cementum annuli. (These data are essential for using computer simulation for determining management plans.)

3. Job Objective: To ascertain the nature and extent of human utilization of Western Arctic herd caribou.

4. Job Objective: To determine size, composition and productivity of the Western Arctic caribou herd.

5. Job Objective: To investigate the incidence of brucellosis and other diseases in the Western Arctic herd and other caribou herds as necessary.

6. A study to evaluate the abundance of wolves in northwest Alaska and their impact on caribou is being designed.

University of Alaska Studies:

Program I:

Job Objectives:

1. To determine seasonal use patterns of range lands by the Western Arctic herd.

2. To assess quality and relative productivity of these range lands.

3. To map the range lands used by the Western Arctic herd according to vegetation types and quality, the patterns of seasonal use, availability of forage in relation to snow cover, migration routes and calving grounds.

4. To develop a model of the grazing ecology of the Western Arctic herd in collaboration with investigative programs being carried out through the Alaska Department of Fish and Game, the U. S. Fish and Wildlife Service, the University of Alaska and the University of British Columbia.

Program II:

Job Objectives:

I. Grazing Ecology
   a. To investigate the energetics and population ecology of tundra grazers with major emphasis on large ungulates, especially caribou and reindeer.
   b. To map the vegetation of the northwestern quarter of Alaska, to relate vegetation types to seasonal use by grazers and to assess the forage quality of vegetation types.
   c. To investigate the interactions, both from the plant and animal standpoints, of grazers and tundra vegetation.

II. Human Interactions
   a. To assess the existing and potential human utilization of caribou and reindeer through subsistence hunting and animal husbandry.
   b. To assess the relationship of increased development of energy and other northern resources on grazing systems.
   c. To examine recently established new Eskimo communities in relationship to ungulate grazing systems.

III. To develop a system model of human-ungulate-vegetation interactions as a basis for policy decisions governing land use and resource management.

Table 1. Theoretical projection of caribou decline between 1949 and 1955

Year	Spring population estimate	Deficit: 5 percent natural mortality	Deficit: Human kill	Deficit: Crippling loss	Spring population less deficit	Increment: Percent increment after deficit	Increment: Number of animals	Percent deficit since previous year
1949	668,000	33,400	100,000	20,000	514,600	16.4	84,394	
1950	598,994	29,950	79,300	15,860	473,884	7.6	36,015	10.3
1951	509,899	25,495	79,300	15,860	389,244	11.0	42,817	14.9
1952	432,061	21,603	79,300	15,860	315,298	26.6	83,869	15.3
1953	399,167	19,958	65,750	13,150	300,309	15.4	46,248	7.6
1954	346,557	17,328	73,400	14,680	241,149	12.2	29,420	13.2
						14.87		
1955	270,569							21.9
								13.87%X

r = -0.15

Note: The starting point, 668,000 animals in the spring of 1949, is from Banfield (1954). Deficit and increment figures have been calculated on bases specified in the text. Increment has been added to the projected population following deficit since percent increment figures were gathered in late winter or spring of the year following birth of calves. The terminal population, 270,569 caribou in 1955, is 3.0 percent lower than that determined by rangewide census (Kelsall and Loughrey 1955).

"The projections show those factors which were believed to have been instrumental in caribou decline, and indicate their relative importance. Of first importance was the human kill and attendant crippling loss, which alone appear to have removed more caribou than were added to the population between 1949 and 1955. Additional data in support of this belief will be presented later." (Kelsall, 1968:205)

Program III:

Job Objectives:

1. To evaluate past data on other caribou herds in Alaska to determine changes in sex ratios, age structures, and age-specific mortality and recruitment rates as the herds fluctuated in number.

2. To evaluate data available on the Western Arctic caribou herd to determine what changes, if any, are occurring within the herd.

3. To investigate current population parameters of the Western Arctic herd, concentrating primarily on productivity and calf survival and age structures.

Plans to insure better utilization of animals killed:

This program is in its infancy as the severity of the problem is just beginning to be acknowledged by some involved organizations and individuals. Others still refuse to acknowledge the existence of the problem. As with all problems, the first step toward solution is acknowledgment that it exists. In this regard the Department of Fish and Game, members of the State Game Board and representatives of NANA Corporation had a very constructive and productive meeting in Kotzebue May 14, 1976. Existence of the problem was acknowledged and as all present realized that little was to be gained by making accusations or blaming the situation on one another, the meeting was directed to designing a plan to eliminate or minimize the problem in the future. There was a concensus that much of the communication problem that has existed in the past could be eliminated in the future if the Department would establish a line of communication with the appropriate native leaders (in this case NANA Corporation) and as the Department obtains and analyzes data it should be presented to the appropriate people and if they concur with the implications of the data and agree that certain actions are necessary then the native leaders would disseminate the information to their constituents. It was acknowledged that the Department should make every effort possible to keep the leaders informed of what programs are being conducted and to include their participation when logistics allowed.

Hopefully future meetings with North Slope Borough representatives and villages in Doyon's Region where problems exist will be as constructive as the NANA meeting.

Tentatively there appears to be a concensus that the best approach is to contact all state, federal and private agencies that have an interest and responsibility in the problem to pool available resources and establish a coordinated effort. Again I think this approach will be most effective if the local leaders are given the technical and financial assistance to disseminate information and educational programs. Most

agree that voluntary compliance to regulations and restrictions that are shown to be necessary to perpetuate the resource (for the future benefit of people) by local leaders will prove to be most effective. One problem with this approach, however, is a probable time lag (in terms of several years) before such a program might be effective. In the interim an intensified protection effort coordinated with local leaders may prove to be an essential part of the overall approach.

Hopefully, all concerned parties can get together in the next several weeks to formulate and implement a program.

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Appendix I

References of caribou waste received by Department biologists during 1975-76:

In January Harry Reynolds reported that people in Barrow had located from 13-17 wasted caribou outside of town.

At Anaktuvuk Pass, after the public meeting I held, two people (who said nothing in the meeting) talked to me and said the most outspoken people who said they could not get by on a limit of 10 per person per year were ones who wasted caribou. They said that two different outspoken critics of our proposals had left several carcasses lying outside their homes in spring and they spoiled because they had so many.

Several Anaktuvuk Pass hunters, in private conversations with me, admitted that this fall(a year of village-wide caribou shortage) they had killed and left some caribou for wolf bait.

At Ambler, Anaktuvuk Pass and Arctic Village I had older people come to me privately and tell me they were concerned about caribou waste. "They were glad we were going to stop the waste." Many other people have told me of similar experiences in several other communities.

At Ambler (Mr. Douglas) publicly said that the boat hunters from lower down the river were largely responsible for about 500 wasted caribou a couple of years ago at Onion Portage. Bob Hinman had people report large numbers of dead caribou floating down the Kobuk River apparently stemming from this hunt.

Various people at Noatak, Fairbanks (speaking of experiences at Barrow and Anaktuvuk Pass) and Kotzebue told me of deplorable waste or excessively high crippling loss. From J. Doerr I received complaints from Noorvik.

C. Grauvogel said he received complaints from Pt. Hope, Kivalina, Noatak and Shungnak about excessive caribou waste. In several of the areas large numbers of animals were involved.

I received complaints of several hundred wasted caribou this year at Selawik and Noatak and in the Squirrel River-Eli River area from several pilots and residents of the area.

During Grauvogel's three day moose survey he witnessed the following (late March):

1. Carl Grauvogel saw 8-10 carcasses piled in a heap on the Kobuk River about 20 miles from Ambler. They had been heavily scavenged by ravens and foxes, etc. and were judged lost.

2. Five to 10 carcasses scattered in Squirrel River drainage could be wolf kills or human kills.

3. From Noatak village to Kelly River, 20 carcasses were seen near Eli River and lots of snow machine tracks here so concluded it was humans.

B.G.D.I.F. Code: C-4 MORTALITIES (Accidents, predation, pathology, etc.)

SPECIES: Caribou *NAME OF HERD: Western Arctic and other wildl

G.M.U. 22-23

SUBMITTED BY: J. Davis

OBSERVER(S): Carl Grauvogel

Preface each incident with - specific geographic area and date - in parentheses.

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19 75 The following observations made by Carl were related by phone conversation 12/1/75.

1. On 10/31/75 on a Cessna 206 flight out of Pt. Hope with the President of TIGRA Corporation on board, Carl flew for 45 minutes east of Pt. Hope. They saw one pile of 15 caribou on a lake that had not been retrieved. They also saw two singles in the snow (not gutted and not picked up but with snow machine tracks there). There were for sure more caribou left but fresh snow and the aircraft used made location difficult. The
2. Corporation President agreed that there were too many caribou not picked up.

   In late September 1975 at Sheshalik eight animals were found in a pile and none were gutted. In the past few days (late November 1975) they were still there and not gutted.

3. In reference to the memo on Carl's observations near the Nimiuktuk River in Sept. 1975, there were four animals within 300 yards of the river. All were large bulls. Three were not gutted and bloated, a fourth was bloated but had one-quarter taken.

4. January 1973, three moose found on American River (40 miles north of Teller). Two or three 222 cartridges picked up and case turned over to Protection. No case made but Teller residents had shot them. None were gutted and only one-quarter taken. Carl has pictures. Carl has lots of documentation of waste of marine mammals.

If more than four incidents occur, attach separate sheet.

* Including location on herd map.

Appendix III

Caribou Observations, September 1975, Carl Grauvogel

Caribou were observed on the Noatak River from the 11th of September through the 16th, with a day layover in Kotzebue because of inclement weather. We flew along the entire Noatak River starting at the mouth and terminating in the vicinity of the Anisak River, approximately three hours of flying time in a PA-12. There was virtually no sign of caribou crossing the river until we reached the middle of the Grand Canyon at the confluence of the Kiluktavik River. Judging from the depth and the number of trails in the tundra, it appeared that only a few hundred animals had passed in the confines of the canyon itself. Seemingly the "main" part of the migration was funneling down the broad width of the Nimiuktuk Valley crossing the Noatak River approximately in an area five miles in width of either side of the entrance of the Nimiuktuk River.

On the evening of the 11th of September we made a cursory survey of the first 10 miles of the Nimiuktuk Valley and observed approximately 400 caribou, most of them traveling sporadically in the direction of the Noatak River. We set up camp on the river and on the 12th climbed a knoll where we could observe most of the Nimiuktuk Valley and the surrounding hills. Small groups of caribou were widely dispersed throughout the area, most of them gradually moving in a southerly direction toward the Noatak. From 0530 to 1800 that evening approximately 400 animals moved out of the hills and crossed the Noatak River. Due to the relatively small number of animals traveling, no composition counts were conducted, but most of the migrating bands contained cows and calves with perhaps 10 to 15 percent bulls. There were several small bands from four to eight animals which were entirely bulls or all cows with calves. As a rough approximation there were 20 to 40 calves per 100 females.

Hunting pressure along this 10 mile section of the Noatak River was comparatively heavy. Four to six aircraft were operating out of Warren Thompson's camp (6 miles east of the Nimiuktuk River) and several other aircraft were using gravel bars along the Noatak.

There were 10 to 20 boats above the Kelly River, most of them crewed by natives either from Kotzebue or the village of Noatak. Crews from three boats were camped at the mouth of the Nimiuktuk where they were constructing a new plywood cabin. Rifle fire was heard rather continuously throughout a two day period, and apparently a vast majority eminated from hunters touring up and down the river with boats. We talked with several crews who were returning home and they indicated that no one had a problem obtaining a "full load" of meat. Portions of caribou carcasses and "gut" piles were quite evident throughout the area around the Nimiuktuk. As a conservative figure I would say the harvest from the 5th of September through the 16th was 200 animals. Most hunters seemed prone to select bulls. (In a phone conversation Carl had mentioned seeing a number of bloated carcasses that had not been gutted lying around in the tundra fairly close to the river.)

Observations at Anaktuvuk Pass, 8-15 October 1974
William Gasaway, Game Biologist, ADF&G

Approximately 3000 caribou moved south through the Pass with about 2,500 passing on 12 and 13 October 1974. The composition of the group was predominately cows and calves with some bulls. The Eskimos say groups of predominately bull caribou follow the cows by about 5-7 days.

Eskimo hunters killed a minimum of 200 caribou and a maximum of 400 during this period. However, the crippling loss may have totaled 100 animals. Generally, hunters preferred to shoot bulls up to about 12 October at which time cows were usually sought after.

Two dead cows were observed to have large quantities of milk in the udder when cut open. Several other cows had no milk in the udder.

There were five white hunters which visited the area during my stay. They shot 8-10 caribou and shipped the meat out. These hunters were generally connected with programs (health, school, borough).

(Bill said possibly 1000 caribou had passed through earlier this fall but few were killed. He said the Eskimos said they were short on short-haired fall hides for parkas.)

B.G.D.I.F. Code: C-4 MORTALITIES (Accidents, predation, pathology, etc.)

SPECIES: Caribou *NAME OF HERD: Porcupine

G.M.U. 25

SUBMITTED BY: Jim Davis

OBSERVER(S): Dave Rosenau (Renewable Resources Consulting Co.)

Preface each incident with - specific geographic area and date - in parentheses.

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19 72-73

1. During the winter of 1972-73, Dave Rosenau reported that at Arctic Village that 17 rotting caribou were bull-dozed off the runway in the spring. Fort Yukon Air Service said they would not land there until it was done because of the stench.

2. Dave Rosenau found around 40 caribou on foot in a very small radius around the village during this winter. Some of the animals were whole with only the tongue taken, some had only the head taken, some were salvaged only in part.

3. During the winter of 1972-73 Dave figured that 4,000-5,000 Porcupine Herd caribou were taken by hunters in Alaska and adjacent Canada. This was allowing something for waste and crippling loss.

4. The excerpts that follow are taken from an unpublished report written by Renewable Resources Consulting Service biologists after the 1972-73 winter in Arctic Village.

If more than four incidents occur, attach separate sheet.

* Including location on herd map.

I arrived in Arctic in April and it was obvious that many caribou had been killed. Fifteen to 20 caribou were lying at the airport and carcasses were stockpiled in every cache. Two biologists and myself collectively found 40 or 41 carcasses within walking distance of the village not including the animals which were present on the runway. Some had their heads removed for a local delicacy, head soup, but most were intact. Other carcasses were observed nearby the village during survey flights in and out of Arctic and during reconnaissance flights in the Chandalar Valley.

The total harvest for March 1972-March 1973 would be at least 1300 caribou and perhaps as high as 2000 if cripples and wasted animals are included.

An estimate of total waste would be speculative but must have been at least 150 caribou. One biologist who spent time at the village this year thinks that waste may be as high as 500 animals including cripples.

Several of the older residents became very disgusted with the waste and requested for a protection officer. Moris Christie came to Arctic and I believe John Trent was along also to document the waste. No one was arrested. Moses Sam, an oldtimer, gathered 12 to 15 carcasses for dog food nearby the village in May when they began to thaw out.

B.G.D.I.F. Code: C-4 MORTALITIES (Accidents, predation, pathology, etc.)

SPECIES: Caribou *NAME OF HERD: Western Arctic

G.M.U. 23

SUBMITTED BY: Jim Davis

OBSERVER(S): Jim Davis and Carl Grauvogel

Preface each incident with - specific geographic area and date - in parentheses.

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19 75

1. On 10/16/75 W. Griffin, J. Alexander and Jim davis, while flying a caribou survey near the mouth of the Noatak River and Sheshalik, observed a minimum of about 20 caribou carcasses lying around in the tundra. Most of the animals appeared to have been gutted, but perhaps only half were piled up as being cached. It appeared that at least one large bull was long dead and likely going to be
2. totally lost. The head had been severed from the body but was lying there close to the carcass. The carcass appeared to be partly frozen in overflow and partly scavenged.

3.

4.

If more than four incidents occur, attach separate sheet.

* Including location on herd map.

B.G.D.I.F. Code: C-4 MORTALITIES (Accidents, predation, pathology, etc.)

SPECIES: Caribou *NAME OF HERD: Western Arctic

G.M.U. 23

SUBMITTED BY: Jim Davis

OBSERVER(S): Jim Davis and Carl Grauvogel

Preface each incident with - specific geographic area and date - in parentheses.

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19 75

1. While flying a caribou survey on 10/17/75 between the mouth of the Noatak and the mouth of the Kobuk Rivers, we observed over 20 carcasses lying scattered over the tundra - mostly near the mouth of the Noatak River on the south side of the river. It appeared that most of the animals were gutted. No evidence of caching the carcasses.

2.

3.

4.

If more than four incidents occur, attach separate sheet.

* Including location on herd map.

B.G.D.I.F. Code: C-4 MORTALITIES (Accidents, predation, pathology, etc.)

SPECIES: Caribou *NAME OF HERD: Western Arctic

G.M.U. 23

SUBMITTED BY: Jim Davis

OBSERVER(S): Jim Davis

Preface each incident with - specific geographic area and date - in parentheses.

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19 75

1. On October 19, 1975 I walked inland from the coast near Doug Sheldon's cabin on Krusenstern Lagoon about one mile and then south about 1/2 mile and back to the coast in order to classify migrating caribou. From this short hike I located four adult bull caribou that had been killed and gutted. However, one of the carcasses was totally lost when I saw it by scavengers and of the other three, at least 1/4 to 1/2 of the meat
2. had already been lost because of scavenging. There was no human activity in the area so retrieval of the carcasses in the near future seemed improbable. Old snow machine tracks were in evidence and had likely been used to kill the animals. No effort had been made to cache the meat.

3.

4.

If more than four incidents occur, attach separate sheet.

* Including location on herd map.

B.G.D.I.F. Code: C-4 MORTALITIES (Accidents, predation, pathology, etc.)

SPECIES: Caribou *NAME OF HERD: Western Arctic Herd

G.M.U. 26

SUBMITTED BY: Jim Davis

OBSERVER(S): Harry Reynolds and Jim Davis

Preface each incident with - specific geographic area and date - in parentheses.

See attached map.

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19 75

1. The following observations were made on a snow machine trip taken on 10/31/ We had observed some apparent "wanton waste" from the air on 10/30/75 so tc a snow machine trip the next day to investigate. We traveled about 20 mile SE of Barrow on the trip. At the first site we located a dead calf that wa not salvaged at all. It had died early enough in the summer or fall to hav been worked on by flies as there were many larval casings around. The anim (sex unknown) had 4-5 inch long antlers and they were velvet covered. It w small calf. No evidence of cause of death. (Pictures taken)

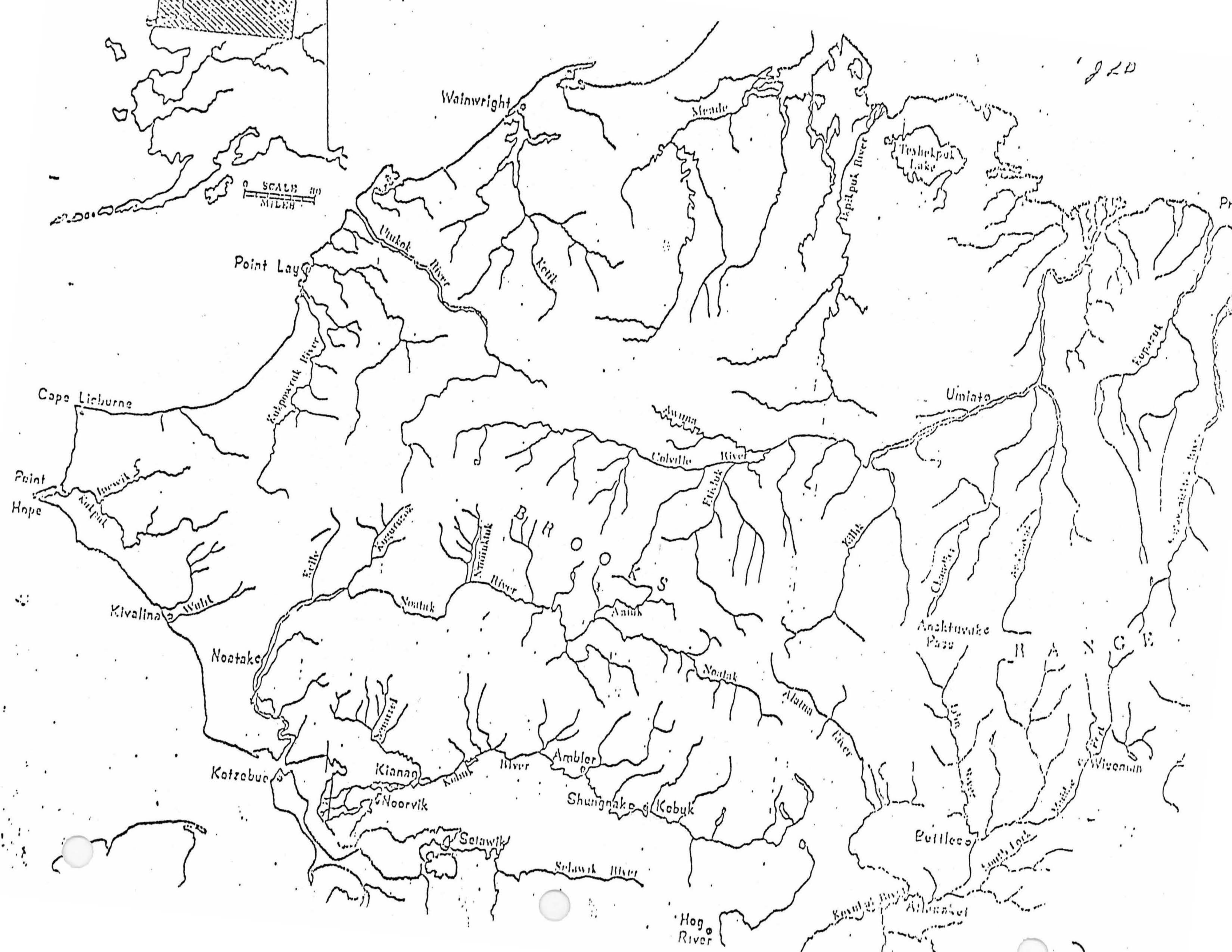
2. At the first kill site we found a whole caribou that had been skinned on or side but not gutted and the offal of a second animal that had been complete retrieved. There was no question that the animal had been shot and left. It was only 5 feet from the entrails of possible the other. Sex could not be determined but it definitely wasn't an adult bull. It ~~was a~~ could have been one or two year old bull, but more likely an adult cow. The foxes had eaten about 50 percent of it. It was likely killed two or more weeks prior. (Pictures tak

3. At the next kill site we found the entrails of three caribou and the only thing not salvaged was the intact whole hide from one caribou. These were likely killed one or two weeks ago. (Pictures taken)

4. At the fourth kill site there were three piles of entrails (i.e. from three animals), there were two hides and one entire carcass left here. The one that was whole had the head cut off but was a female (by genitals). It was not a large animal and pelage suggested a yearling? Foxes had eaten 50 percent of the edible meat. All of the heads were gone. One of the hides was from a calf. The hearts and liver were left in the gut piles of all the animals. (Pictures taken)

If more than four incidents occur, attach separate sheet.

* Including location on herd map.


Wainwright
Meade
Teshekpuk Lake
Ikpikpuk River
SCALE
MILES
Utukok River
Point Lay
Ketik
Kukpowruk River
Cape Lisburne
Umiat
Colville River
Etivluk
Point Hope
Kukpuk
Kivalina
Wulik
Noatak
Noatak River
Kelly
B R O O K S R A N G E
Killik
Anaktuvuk Pass
Chandler
Kuparuk
Alatna River
Kotzebue
Kiana
Kobuk River
Ambler
Shungnak
Kobuk
Noorvik
Selawik
Selawik River
Bettles
Wiseman
Alatna
Hog River

1. What is your overall impression of this first leaflet?

EXCELLENT ✓ GOOD____ FAIR____ POOR____ VERY POOR____ UNDECIDED____

OTHER____________________

2. What do you judge is the overall reaction of your customers to it?

EXCELLENT ✓ GOOD____ FAIR____ POOR____ VERY POOR____ UNDECIDED____

OTHER____________________

3. Would you like to receive supplies of future leaflets?

YES, PLEASE SEND ABOUT 10 NO____

4. Will you need more leaflets than we have sent?

YES, SEND____ MORE NO X

5. Can you suggest any improvements, or do you have any comments:

You forgot to mention (Wanton Waste)
this is a fact. "with in an hours ride
on a snow machine in any direction from
Kotzebue, you can count as high as 100
caribou lying dead and rotting. When Eskimo
kills 50 caribou, he will shoot 50 and take one
or two home. We need better protection in our area
If you don't believe, this is a fact. come
on up. I'll put my money where my
mouth is.

David McCarter [illegible]
Manager
Alaska [illegible] Enterprises
PO Box 45
[illegible]

RETURN TO:

David M. Johnson
Alaska Department of Fish and Game
1300 College Road
Fairbanks, AK 99701

JOE THIS IS ALL THE DESCRIPTIVE STUFF I'VE GOT

NOTES

MARCH 9

SAW NATIVES (?) KILL ONE ANIMAL AFTER RUNNING IT WITH 2 SNOWMOBILES FOR 5-10 MINUTES. 5-6 ANIMALS WERE ALREADY DOWNED AFTER HEARING ABOUT 50 SHOTS IN LESS THAN AN HOUR. 4 SNOWMOBILES AND 5-6 NATIVES WERE INVOLVED IN THE HUNT ALTOGETHER.

MAR 13

5 LIMPING ADULTS

1 LIMPING CALF

SAW + LISTENED TO 2 HUNTERS ON ONE SNOWMOBILE WITH SLED FIRED 13 SHOTS FOR 2 ANIMALS TAKEN (ABOUT 4-500M APART). WENT TO ONE SPOT WHERE ONE ANIMAL HAD BEEN GUTTED AND ONLY HEART LUNGS, + GUTS WERE LEFT. A 100 M AWAY WE FOUND A DOWNED CALF THAT WAS STILL ALIVE AND LEFT. SNOWMOBILE HAD PASSED WITHIN 20 M AND THEY NEVER CAME BACK — MEAT WAS SALVAGED BY US THE NEXT DAY

WATCHED SAME HUNTER FIRE 3 SHOTS

Appendix XI

Field notes from biologists working on the ground in the Kiana Hills area during March 1976.

AT A GROUP MOVING AWAY FROM
AT AT LEAST 300 M. NO HITS OBU
HE DID NOT PURSUE THEM.

TOTAL OF 40-50 SHOTS HEARD TODAY

KLEIN ENCOUNTERED A WOUNDED UNANT
BULL ON THE TOP OF NOGGIN

MARCH 22

HEARD 5 SHOTS AND A SNOWMOBILE
SAW 1 LIMPING ANIMAL COMING OVE
RIDGE, WAS NOT PURSUED.

APR 5 — one of these had a cat
PLUS THE LAST DAY WE SAW
THOSE 2 GET SHOT AND NOT US
AND HE FIRED SEVERAL OTHER TI
AT A GROUP MOVING AWAY AT 300
AND 2 LIMPING ANIMALS (WOUNDE
WERE SEEN IN THAT GROUP. HE
NOT PURSUE BUT MOVED TO 2
PLACES AND SHOT AT LEAST 5
MORE TIMES. DISTURBED OVER 3,000 A
IN 2-3 SQ MILES. DID NOT TAKE ANY
THING HOME WITH HIM. WE SALVAG
HIND 1/4's OF 2 DEAD ANIMALS

From Kiana Hills

3-22-76: 5 bous shot by Noorvik hunter - used a .243 + snowmobile - heard only a few shots - Jack Shea noticed one bou limping after he left (wounding) - All bous gutted & taken from field

3-23-76: 6 bous (2♂ & 4♀ (all preg) shot by Noorvik hunt with A .243 - only took 6 shots or so - probably no wounding - took all bous from field - left guts + liver & heads - only gutted 5 of the bous - (? one bou taken from field ungutted?)

1 other bou shot that day as evidence of a fresh gut pile & snowmobile tracks - found 4 .220 & 1 30-30 Win. empty cartridges about 120 meters from Kill - looked for signs of wound etc. but it got dark - found none

3-24-76: Jack reported to me he saw a snowmobiler shot one anterless bou & chase others near top of Noggin. On 3-27-76 we climbed Noggin but couldn't find carcass or gut pile - probably took bou from field + gut pile got covered

Total including Jack's stuff: (Approxamated)

wasted / total Shot (March 9 - April 6): 3/23-24 = 12.5-13.

Limping & wounded animals: 11 or so

March 25, 1976

The Honorable Jay Hammond
Governor
State Capitol
Juneau, Alaska 99801

Dear Jay:

I was recently exposed to the very real problem of excessive subsistence harvest of caribou from the Western Arctic Herd and the associated waste and I would like to pass on to you my observations and some suggestions.

Saturday, March 20, I returned from spending ten days in the Kiana Hills north of the lower Kokuk River where we are involved in research into the winter feeding ecology of caribou. I was located with two of my grad students about 15 miles north of Noorvik and we had opportunity to observe caribou hunting activities by people from Noorvik and there was also plenty of evidence of hunting earlier in the winter. Several hundred caribou were within a couple of miles of our camp and between 5,000 and 10,000 were acattered over the lowlands south of the Kiana Hills and west of the Noatak River. During March 10-14 there were daily several Noorvik hunters with snowmachines and sleds in the area visible from our camp. The hunters we talked to were selecting for adult females which are in better condition than bulls or young animals at this time and most hunters were easily successful in getting a sled load of six to eight animals per hunt.

The waste that was accompanying this hunting was particularly disturbing and certainly difficult for me to rationalize in view of the present decline in the Western Arctic Herd. We counted 59 unsalvaged caribou carcasses in an approximate two square mile area to the south of our camp. Many of these were calves, bulls or gut-shot animals which were adjacent to gut piles from salvaged animals but were apparently deliberately rejected because their quality was below standard. Others may have been animals crippled during the hunt which later died and a few were cached as if the hunter had intended to return for them but these were already partly or severely scavenged, mainly by ravens and foxes. We observed hunters running the caribou with snowmachines in order to get close to them and then shoot into the running

bands of animals until they were out of range. We saw animals being wounded and escape and we observed hunters dressing out three adult cows adjacent to a downed calf which was still alive but unable to rise. The calf was ignored.

After the 14th strong north winds kept the hunters at home for several days. We did not attempt to do a thorough reconnaissance of the area to determine the total extent of unsalvaged animals. Our efforts were directed toward feeding selectivity by caribou in sites where they were least disturbed by the hunting. However, currently one of our grad students who is working closely with Jim Davis of Fish and Game is in the area salvaging teeth from caribou carcasses and trying to obtain a more accurate estimate of the unsalvaged kill.

I have talked over this problem of wasteful use of the caribou by Natives among both whites and Natives and there is obviously no simple solution. It is doubtful that Natives will comply with more restrictive seasons or bag limits imposed upon them from Juneau. They would probably respect harvest restrictions which they themselves were involved in developing but this will only happen if they are convinced that the problem justified it.

The question of waste is related to rapidly changing cultural values and patterns, including the introduction of the snowmachine, as well as the hold over of old traditions of sharing and the practice of liberal harvest in times of apparent plenty, etc. Young Natives, however, are very sensitive to social pressures, changing technologies and the different value systems which they are increasingly being exposed to. This has, for the most part, only contributed to the problem of excessive harvest and waste as the adoption of technolggy from Western society to aid in hunting has not been accompanied by the adoption of Western hunting ethics.

The only solution to this problem that I can conceive of is through education. Any improvement in communications between bush and urban areas will facilitate the educational process and in t is respect the development of a statewide system of bush TV via satellite offers tremendous potential. But improved communications and wider availability of electronic media in itself will not resolve the problem, indeed the basis of the problem has been the accelerated but unbalanced educational effect of improved communications. What is needed is a cooperative effort between the State government (including the University) and the Native leadership to initiate public service education aimed at specific problems (waste of resources, alcoholism, etc.) utilizing all available public media. If the Natives themselves are involved in the development of such a program which could start off with an increased emphasis on short public service announcements on the bush radio its chances of being effective are virtually assured. But, of course, a more massive effort is required, including environmental education in the schools with emphasis on a land ethic, and much more intensive collaboration with the Native leadership.

I expect to be in Juneau during April 7 and 8 for a meeting of the Growth Policy Council and will be available to discuss this problem with you in more detail at that time if you wish.

With best regards,

Sincerely yours,

David R. Klein
Unit Leader

cc: Mr. James W. Brooks,
Commissioner, ADF&G

DRK/nm