

Historical Movements and Distribution of the
Western Arctic Caribou Herd--An Overview, 1983

Compiled by Patrick Valkenburg, James L. Davis, and Paul F. Karczmarczyk

During the past several years various people have expressed interest in having all of the available information on Western Arctic Caribou Herd movements and distribution compiled. We have therefore attempted to comply with this request, at least for the most part. There is always a danger in re-interpreting historical information, however, so we strongly recommend that serious students return to original sources to avoid this problem. For most people and especially those involved in caribou management, the following overview and compilation should suffice. We strongly recommend that caribou managers obtain Skoog's (1968) thesis also. It remains the single most important treatise on the history of caribou in Alaska.

Written records of caribou abundance date back only to the nineteenth century. From then until 1949, records of abundance and distribution were largely incidental. From 1949 until 1959 the U.S. Fish and Wildlife Service began to monitor caribou populations with aircraft to try to distinguish subpopulations. It is only since then that much information has accrued on range use and migration routes.

Although Skoog (1968) gives an overview of the information from 1949 to 1968, more detailed information is available, and we have summarized it here. A compilation of the old USFWS reports is available in the Fairbanks ADF&G office. Historical information on caribou use of the Selawik/Buckland winter range was compiled by Robin O'Connor in 1978, and this summary is attached as Appendix I.

The WAH was expanding during the 1940s, and caribou began to visit the Kobuk drainage again during that decade. In 1946, for the 1st time in decades, caribou were available to hunters from Selawik. Between 1949 and 1954, caribou wintered regularly in the Kobuk Valley. Before this, Kobuk Valley people traveled to the upper Noatak to get caribou. Between 1949 and 1954 caribou also wintered between Kotzebue and Kivalina and in the central Brooks Range. In 1954 John Cross, pilot for Wien, recognized the pattern of movement of the WAH that we see today. This is the 1st indication that the WAH was recognized as an entity, and people began referring to the herd as the "Kobuk-Noatak caribou," the "Arctic Herd," or the "Western Arctic Herd."

Regular use of the Selawik/Buckland drainage began in 1955, but in 1956-57 and 1957-58 all but about 50,000 caribou wintered on the arctic coastal plain or northern foothills of the Brooks Range between Howard Pass and the Sagavanirktok River. In January 1958 transects were flown in the foothills and coastal plain and pilots estimated 150,000 there. This did not include the foothill area east of the Chandler River and "untold thousands" were reported to be there. Also in 1958 the search for Clarence Rhode and Stan Frederickson between 24 August and 31 November yielded much information on caribou. The 1st systematic effort to estimate WAH numbers also came in 1958. Twenty-seven hours of line

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transects were flown on the calving grounds, and 225,000 caribou were thought to be there. No information is available during 1959 and 1960 due to the transfer of authority to the Alaska Department of Fish and Game. In 1960, however, Lent (1966) began the 1st in-depth study of the WAH, and ADF&G began to study disease in the herd.

The winters of 1961-62 and 1963-64 were noted as being bad. Deep snows delayed the spring migrations and some calving occurred as far south as the Kobuk. During 1963-64 calving was also noted on the north side of the Brooks Range as far east as the Anaktuvuk River. During the 1960s, however, information was not much better than during the 1950s. Of particular importance during the 1960s was the extensive use of the coastal fall migration route between Point Hope and Kotzebue during 1963, 1964, and 1968. This route was not used again until 1975. Most of the herd was thought to be wintering in the Selawik Hills in 1965. Information from 1965 to 1970 was poor.

Use of the John River and upper Koyukuk apparently peaked in the late 1960s and continued until 1973, although little mention is made of caribou in this area during the 1960s. With the decline of the herd in the early 1970s, several changes in migration routes occurred. Caribou largely abandoned the upper Koyukuk and there was only a trickle of animals through Anaktuvuk Pass from 1974 through 1977.

We have summarized all of the above information and more in a series of 28 figures. Figures 27 and 28 are an historical overview. Annual narrative accounts from ADF&G files since 1975 are included below.

Movements and Distribution of the Western Arctic Herd Since 1975

Winter 1974-75. The major winter concentrations of caribou during 1975 (January to April) were located in the Selawik Flats along the Selawik and Kugarak Rivers, and southwest to the vicinity of Buckland. We cannot estimate the total number of caribou that wintered in this area but probably the majority of the herd was there. Caribou were scattered farther to the east along the south slope of the Brooks Range but we made no extensive flights to determine total numbers (see Table 3 and Fig. 1).

Spring 1975. Spring migration in 1975 was not well documented. John Coady saw 1,500-2,500 caribou apparently moving north along the Hunt River in April. Animals that wintered in the Selawik Flats usually:
1) cross the Kobuk River between Ambler and Kiana and continue north, or
2) cross Selawik Lake and travel north nearer the coast. They probably used both of these routes in 1975.

In late May caribou were still migrating along the Colville, Itkillik, and Etivluk Rivers, moving northwest (Ray Cameron, pers. commun.).

Summer 1975. The herd calved near the "traditional" area between Noluck Lake, the upper Kukpowruk River, and the Utukok River and the core calving area was identical to that reported by Lent (1964) (Fig. 2). Immediately after calving, about 14 June, caribou started moving slowly west but then turned south and east, and remained in the southern edge

of the calving area. Toward the end of June they began a definite westward movement which resulted in an estimated 45,000 animals along the Ipewik, Kukpak, upper Pitmegea, and upper Kukpowruk drainages. During the 2nd week of July this definite movement ceased and the caribou became more concentrated. Reynolds estimated that 64,500 were present between the Ipewik River, the Pitmegea River, and Cape Lisburne. During this time Davis searched the crest of the Brooks Range during an 8.3-hour flight and saw only 4 caribou. These 2 observations, plus the fact that observers on the Meade and Colville Rivers saw very few caribou, indicated that nearly the entire population was in the Cape Lisburne area in middle to late July.

This large concentration of animals dispersed to the northeast of Cape Lisburne in August. We made few observations in August because the weather was poor for flying.

Fall 1975. Although the bulk of the herd apparently moved south, some caribou remained near the coast in the vicinity of Point Lay and Wainwright. The southward migration was principally along 2 paths. Grauvogel observed 15-20,000 animals moving down the Nimiuktuk River to the Noatak River. He thought these caribou probably crossed the Baird Mountains and went down the Salmon River and Hunt River. This movement started in early September and reached the Kobuk River around midmonth, when Nelson Walker of Kotzebue reported "lots" of caribou crossing upriver from Kiana. After they crossed the Kobuk River, the caribou presumably continued to the Selawik Flats-Buckland Hills area. Farther to the west about 30,000 caribou traveled south along the coast and reached Cape Krusenstern by mid-October. These animals crossed the mouth of the Noatak River and many remained all winter in the Kiana Hills, where Dr. David Klein of the Alaska Cooperative Wildlife Research Unit reported several thousand in late 1975.

Some caribou remained on the North Slope. Reynolds estimated that 5,000 animals were within 40-50 miles of Barrow in October. Reynolds also reported that 1,000 or 2,000 remained near Wainwright all year long. Several thousand caribou were present in the Teshekpuk Lake area.

Winter 1975-76. Most caribou again wintered in the Selawik Flats. We did not obtain winter counts but Klein estimated the group wintering in the Kiana Hills at 10,000 animals.

Again this year only scattered groups used the eastern part of the winter range in the Koyukuk drainage; the largest group being 3-4,000 that remained on the Tinayguk River.

Spring 1976. Two main routes were used on the spring migration. Enoch Sherman of Noatak reported many thousands traveling up the Noatak River in late April and May. These were probably caribou that had wintered in the Kiana Hills. They traveled up the Noatak River past the mouth of the Kelly River and it is likely that they continued up the Kuguruk or Nimiuktuk Rivers to the calving area. Caribou that wintered in the Selawik Flats crossed the Kobuk River between Ambler and Kiana and proceeded up the Hunt River, Salmon River, and other rivers draining into the Kobuk River. Caribou from the Norutak Lake-Alatna Hills area

were moving west by late March, and these animals probably traveled north via Walker Lake or the Reed River.

Summer 1976. The area where the herd calved was larger than what they have usually used since the early 1960s. While most calving took place in nearly the same area as 1975, there were many caribou calving as far east as Liberator Lake. Most calves were born west of the Eskimo Hill area on the Utukok River (Fig. 4) in the traditional core calving area.

Although most animals were within the calving area, some small groups of less than 100 were seen near Kivalina, Selawik, and Noorvik in mid-June. Sappington (1976) reported very few caribou outside the calving area in Naval Petroleum Reserve-A during June and July. Those seen were in groups of 5 or less except for about 2,000 near Teshekpuk Lake. The latter are considered by H. Helmericks to be a resident, sedentary group.

Postcalving movements were predictable and followed nearly the same pattern as those of 1975. The caribou milled about the calving area in June, moved to the Cape Lisburne area in July, and then dispersed northeastward beginning in early August. Sappington reported that caribou were widely spread in NPR-A during August. Six thousand had apparently traveled east along the Colville, turning north near the Killik River. Reynolds saw about 1,000 animals west of Chandler Lake in August, and these may have remained there to winter. Some caribou also dispersed south toward the Brooks Range, and some crossed the mountains and remained along the upper Noatak River in late summer.

Fall 1976. There was no mass fall migration in 1976; an estimated 25-35,000 caribou remained on the North Slope, mostly north of 70°N toward Anaktuvuk Pass and Chandler Lake in early October, and some moved as far as the Tinayguk River. Farther west, Davis observed trails which indicated that another few thousand caribou had traveled south through Howard and Nigu Passes.

The migration was later than usual, and virtually no caribou were south of the Kobuk River by mid-October. Caribou did begin crossing the Kobuk River then, but only about 3,000 migrated south across the middle Kobuk River. Warren Thompson of Kotzebue estimated that 1,000 caribou crossed the mouth of the Noatak in mid-November. About 12,000 animals were seen in migration to the Selawik Flats, and counts in April 1977 showed about 14,000 to be in that area. These caribou must have arrived via 1 of the 2 routes mentioned.

The 1976 fall migration was not only unusually late but some animals (estimated by Johnson to be thousands) went much farther south than in recent years. Many thousands reached the upper Buckland River and some went as far south as the middle Koyuk River before turning north to the southern Selawik Flats.

Winter 1976-77. From January through April 1977 caribou from the WAH were distributed in 2 main areas (Table 5 and Fig. 5). The largest group, consisting of 20-35,000 animals, wintered between the Colville River delta and Wainwright north of 70°N latitude. A 2nd large group

consisting of 14,000 caribou wintered on the southern and eastern portion of the Selawik Flats and adjacent uplands and the Buckland River drainage. Other smaller groups totaling about 5,000 animals were scattered over the south slope of the central Brooks Range.

Some caribou that wintered on the south side of the Brooks Range began to move northwest by early March. Trails of several hundred migrating caribou were seen in several areas: 1) from Easter Creek westward to the Nigu River, 2) north across Walker Lake from areas to the south, and 3) north across Selby Lake from areas to the south near the Kobuk River. The latter migrations were observed about 10 April by residents of Walker and Selby Lakes. Caribou in the Selawik Flats were beginning northward migrations as late as 15 April and were probably heading toward the Kobuk River near Ambler. Migrating caribou were observed on 3 May crossing the Kobuk River between Ambler and Shungnak, and trails indicated that several thousand had already crossed the river. Trails of these caribou observed by Area Biologist Pete Shepherd, McGrath, on 12 May indicated that the caribou had moved down the Cutler River, across the Noatak River, and up the Anisak River where the vanguard of the groups was located at the crest of the DeLong Mountains. These caribou probably reached Noluck Lake by 17 May because on that date an air taxi operator observed 500 caribou there.

Smaller wintering groups in the central Brooks Range migrated north along 2 routes. Shepherd observed trails that indicated several hundred caribou moved from the upper Nigu River to the upper Etivluk River and then to Desperation Lake where they joined caribou migrating from the south in early May. Other caribou moved through Howard and Nigu Passes and west along the northern foothills of the Brooks Range. Shepherd believed that caribou taking this route would join those from the south shortly after 12 May.

On the Arctic Slope, caribou north of 70°N latitude did not make lengthy movements between January and late April. The largest concentrations observed in April were southeast of Wainwright and southwest of Teshekpuk Lake. In April large numbers of caribou probably occurred throughout most of the area north of 70°N between the Colville River delta and Kuk River, but poor weather precluded searching. From January through early May an area from the crest of the Brooks Range north to 70°N, and from the Driftwood airstrip narrowing eastward along the Colville River to Umiat was nearly devoid of caribou. We were unable to locate the routes that the caribou wintering south of Wainwright and Teshekpuk Lake used to migrate to the calving area.

Fall 1977. Caribou were widely spread on the coastal plain, but documentation of late summer movements is nonexistent. The fall migration was also poorly documented, but judging from where the caribou wintered, traditional western Brooks Range routes were probably used (Cutler, Redstone, Hunt River, Miluet Creek) by caribou going to the Selawik and Buckland Hills. No large migration occurred along the west coast, although at least 2,000-2,500 caribou wintered between Point Hope and Cape Krusenstern. Caribou appeared near Bettles and Allakaket in small numbers and these probably came through Anaktuvuk Pass or the Hunt Fork of the John River; hundreds also went to the Tinyguk and North Fork of

the Koyukuk. Fall movements on the north slope of the Brooks Range were not well documented, but caribou appeared to have abandoned the upper Colville, Utukok, and upper Meade Rivers by late September. Some caribou were present around the lower Killik River and middle Chandler River area in October, but these may have been contiguous with ones wintering on the Kuparuk River. No doubt there is some mixing of the Central and Western Arctic Herds (WAH) from summer through spring during the last few years, although the evidence is rather scanty.

Winter 1977-78. Information about caribou distribution for this period comes largely from flights from 8-15 October by Valkenburg and Johnson; 2-3 November by Valkenburg; late November by Harms and Johnson (Selawik area) and Valkenburg and Magoun (north slope/Colville area); early January by Johnson (Selawik, Point Hope); and extensive flying in April by Valkenburg, Rood, and Jacobson. Also, a census using randomly selected transect lines was flown in April. Figure 1 depicts winter distribution and numbers present in each area.

Results of the April 1978 transect survey of the area north of 70° and west of the Colville are as follows:

<u>Area</u>	<u>Number present</u> (80% confidence limits, assuming 100% sightability)
west of 158°W long.	19,588 ± 2,413
between 158° and 156°W long.	5,861 ± 792
east of 156°W long.	5,544 ± 661
total on North Slope	30,993 ± 3,596

A minimum of 26,000 caribou crossed the middle Kobuk in late September and used the winter range to the south. All estimates of wintering caribou from different areas were lumped together, and the total was approximately 60,000. This left about one-third of the herd unaccounted for. We believe that most of the unaccounted-for animals were probably in the Buckland, Kobuk, and Selawik drainages, and to a less extent on the north side of the central Brooks Range. It is important to understand that estimates of wintering caribou are usually low. There was no evidence for large (thousands) wintering groups in any other area of the WAH's range.

Spring and Summer 1978. Spring movements in 1978 were poorly documented. Caribou probably drifted north along traditional routes in the western and central Brooks Range. No reports of large numbers came from the lower Noatak, and movements on the North Slope went largely unnoticed. Calving distribution during the peak of calving (6/8/78) was similar to 1977. In the main calving area about 15,000 caribou were counted on the north side of the Utukok. About 17,000 calved in the Avingyak-south Utukok area. There were probably more caribou calving north of the Utukok in 1978 than in 1977. Movement of animals on the calving ground after June is typically counterclockwise for animals coming from the southeast, and in a southwesterly direction for animals coming from the north. This seems to have been the pattern since 1977 at least. Judging by the changing proportion of cows with hard antlers to

antlerless cows, the peak of calving has been about 2 days earlier each year since 1977. Because chronology of movement has been the same each year since 1977, the area in which most calves were dropped has moved north. Scattered calving took place over a wide area, and a few widely scattered cows were present to the north and west on the coastal plain. Movements from the calving area were in the typical southwesterly direction. A refined APDCE photo census was done on 6 July 1978, and about 93,000 (actual count) caribou were distributed in 11 groups ranging from the Lisburne Hills to Noluck Lake (see map). These groups were moving rapidly east. An additional 500 were seen during the transect and quadrat surveys in July (see Davis, Valkenburg, and Harbo 1978).

Fall 1978. Information came from periodic surveys of Unit 23 by D. A. Johnson and reconnaissance for the composition counts in mid-October on the North Slope and the central Brooks Range. The Squirrel, Hunt, and Redstone Rivers were the major pathways used in early October. Caribou crossed the Kobuk sporadically during the first 3 weeks of October and there did not seem to be a big mass migration as in 1977. Use of the Squirrel River was probably heavier this year than in the past 2, but the total number of caribou in the Selawik and Buckland Hills may have been less. Migrations on the North Slope went largely unnoticed, but caribou were abundant to the north and west of Umiat in mid-October. At the same time, there were scattered caribou in the northern foothills of the Brooks Range from the Etivluk River east. Only a dribble came through Anaktuvuk Pass and none of these went as far south as Bettles, but probably remained as widely scattered, very small bands in the central Brooks Range.

Winter 1978-79. Information this year was particularly poor, due mostly to a lack of money for spring calf survival counts and little money for Unit 23 surveys.

At least 17,200 caribou wintered in the Selawik and Buckland Hills, and at least 1,100 were located between Cape Krusenstern and Point Hope inland to the Noatak. Small groups were present along the Noatak west of about the Nimiuktuk River. Again this year there were large numbers on the coastal plain, but, except for the Point Lay-Wainwright area, there is no documentation. Caribou distribution was contiguous from the Killik River east to Schrader Lake on the north side of the Brooks Range. There were no great concentrations here and many animals were probably from the Central Arctic Herd, but total numbers were probably in the thousands. In an apparent departure from recent tradition, at least 10,000 caribou wintered on the middle Nigu. Since the population in 1978 was estimated to be 90,000-100,000, only one-third of the herd was actually counted on the winter range. The missing caribou were probably along the arctic coastal plain, the northern foothills of the Brooks Range east of the Killik River, and in the Selawik and Buckland Hills. The southeastern portion of the winter range (Koyukuk drainage) was essentially abandoned. Some caribou were present near Prospect and Old Man Camps, although they could have been from the Ray Mountains or Porcupine Herds.

Spring 1979. The spring migration was not documented by ADF&G personnel. Reports of caribou crossing the Kobuk were received by David Johnson, and it appeared that the "traditional" movement north across the Kobuk occurred. In early May large numbers of bulls and yearlings remained in the southern Selawik Flats and along the Selawik River. Few cows were left by then.

We observed caribou on the calving ground from 10 to 15 June 1979. Almost all calving took place north and east of the Utukok, with some to the south and west between Avingak Creek and the Utukok. Some also took place on the upper Colville, north of Noluck Lake (see map). Counting was done on 14 and 15 June after many of the animals had moved southwest away from the areas in which calving was heaviest. We counted and estimated 66,651 caribou, of which an estimated 50,900 were cows. By 17 June the movement reached the forks of the Kukpowruk River immediately west of Igloo Mountain. The caribou continued west until late June and then turned east as they have done every year during at least the last decade. In mid-July large groups crossed the Utukok River going east. One group of at least 10,000 went past Driftwood airstrip, but most groups passed about 15 miles upriver.

Fall 1979. Documentation of movements after July has traditionally been poor and this year was no exception. Large groups were sighted sporadically. One in late July was guessed to be 50,000 on the lower Nigu River. At least 1 other large group was seen to the southwest of Umiat in early August. In mid-August pilots reported widely scattered caribou all over the coastal plain west and northwest of Umiat, and some hunters shot caribou on the Colville between the Killik and Etivluk Rivers.

The movement to the Kobuk was early. The 1st animals crossed between the Hunt River and Ambler around 20 September, and the peak crossing was about 25 September. There were no good estimates of numbers, but no reason to believe that any great change occurred over last year. The movement was somewhat unusual in that the animals, at least those in the latter part of the movement, recrossed the Kobuk and headed east up the north bank of the river. They got to about the Beaver River and then turned west again about 1 November. Of 21 radio collars placed on caribou during the Kobuk crossing, about two-thirds of the ones relocated in late October were found on the upper Kobuk. The remaining one-third were relocated on more traditional winter range in the Selawik Hills and Tagagawik River drainage. At least 20,000 were thought to be on the upper Kobuk. In October, Dave Rue of Ambler said another wave of caribou came down the Redstone/Miluet Creeks and joined with the 1st group (the latter part of which contained our collared animals. In late November through early January the caribou center of abundance shifted southwest.

Winter 1979-80. Radio-collaring of WAH caribou began in 1979, enabling more detailed study of caribou movements and distribution. About 25 radio-collared caribou were present south of the Kobuk but none were known to be on the arctic coastal plain. At the beginning of the winter it appeared that the WAH animals would be equally divided between winter ranges south of the Kobuk and the arctic coastal plain between Point Lay and the Colville Delta. During late November, however, thousands of

caribou (perhaps half of those wintering on the coastal plain) moved south into the foothills and Brooks Range. Lines of caribou passed through the Driftwood area in late November apparently moving from the coast near Point Lay to the Kugarurak River. Where they subsequently wintered is unknown. Farther east, caribou used the upper Itkillik, Nanushuk, Anaktuvuk, Chandler, John, Tinayguk, Kevuk Creek, April Creek, and Easter Creek drainages in small numbers. A substantial number used the Anaktuvuk Pass area south to Publituk Creek on the John. Several thousand also were present around Etivluk Lake on the Upper Nigu River.

The migration to the Selawik/Buckland winter range crossed the Kobuk mainly around Onion Portage between mid-September and the 1st week of October. Most of these caribou turned east, recrossed the Kobuk, and moved upriver on the north side to the Selby Lake vicinity before going south again toward Purcell Mountain and the Buckland, Tagagawik, Ungalik, Inglutalik, and Shaktoolik Rivers. The Shaktoolik drainage was the southern limit of the migration and most animals that traveled there were bulls. The open plateaus between Wrench Lake and the Selawik Hills, and the Selawik Hills themselves, were very heavily used in 1979-80. The Selawik Hills continued to support the highest density of wintering caribou in the range of the WAH.

Up to a few thousand caribou wintered within 20 miles of the coast from Cape Krusenstern to Point Hope.

Spring 1980. Spring migration peaked about 10 April near Ambler. Most caribou used the Hunt River and adjacent ridges when moving north although many used the Redstone, Miluet, and Ambler Rivers. Elsewhere the migration was poorly documented.

Summer 1980. Radio-collared caribou were tracked to the calving grounds and the documentation of calving distribution was aided by following these caribou. Most collared caribou passed northeast of Noluck Lake between 15 May and 20 May. A photo census in July revealed about 140,000 in the herd. Postcalving movements were typical and have been very predictable over the years. Caribou leave the calving grounds going southwest past Igloo and Poko Mountains and then through the area around Mount Kelly and Windy Lake. From there weather seems to influence the movements, and the postcalving aggregations can be found anywhere between the Kivalina River on the south, the Kokolik River on the east, usually in early July, and the west coast. The aggregations move rapidly east through the Brooks Range on either side of the crest sometimes as far as the Killik before going north to the rolling tundra adjacent to the coastal plain. These late summer movements have not been as closely documented but are based on a few radio-tracking flights and incidental observations.

Fall 1980. A majority of the WAH was suspected to have migrated across the Noatak beginning in late August. The first wave of caribou crossed the Kobuk River in early September and several crossings occurred during the month, but the movement was not well monitored. Most caribou crossed in the vicinity of Onion Portage but some also crossed upstream from Kiana.

Winter 1980-81. Winter ranges south of the Kobuk were very heavily used. As many as 80,000 to 100,000 caribou could have been there. Many caribou spent the early part of the winter in the upper Buckland, upper Tagagawik, and headwaters of the Box, Kateel, Ungalik, Inglutalik, and Shaktoolik Rivers. As winter progressed, most caribou moved north and concentrated between Wrench Lake and the Selawik Hills. In March, groups as large as 20,000 were seen in the eastern end of the Selawik Hills.

Some caribou again used the arctic coastal plain between the Colville Delta and Point Lay and about 5,000 wintered on the Nigu River in the vicinity of Etivluk Lake. A few wintered in the central Brooks Range.

Spring 1981. Spring migration began in late March and continued through April. The main route from the southern winter ranges was again past Ambler up the Hunt, Redstone, and Miluet drainages. Caribou largely avoided forested areas on the route north. Perhaps the most heavily used route was again along the Kobuk River west of Ambler, onto the tundra near the "Kennicott" cabin, and across the open tundra to the ridges between the Hunt River and Akillik River. Northern migration routes were not documented. Caribou wintering on the arctic coastal plain began a leisurely drift west toward the calving area in late March.

Summer 1981. Calving distribution in 1981 was similar to recent years in most respects although more caribou calved farther north and east than in recent years. There was a fairly high density of calving caribou north to the Avalik River and scattered calving on the southern coastal plain east to the vicinity of Square Lake well site northwest of Umiat. Many of the caribou collared near the Price and Oumalik Rivers in April remained on the coastal plain to calve, but most went west to the main calving area. Postcalving movements were not well monitored because no census was done in 1981. Movements appeared similar to previous years.

Fall 1981. Most WAH caribou spent the month of August on the arctic coastal plain or the rolling hilly tundra immediately to the south. Beginning about 20 August several thousand moved south through Howard Pass, across the Noatak River, and then down the Salmon, Hunt, and Redstone drainages. The first crossings of the Kobuk occurred in early September, but caribou continued crossing until early October. Movements in other parts of the range were not well documented. Several thousand caribou passed Umiat going southeast in late September, probably in route to Anaktuvuk Pass or other parts of the central Brooks Range.

Winter 1981-82. Caribou used all major winter ranges in 1981-82, but use of the Selawik, Buckland, and Tagagawik drainages, and Selawik Hills was thought to be less than any year since intensive monitoring began in 1976. About 20% of all radio-collared caribou wintered there. Another major difference between this winter and previous ones was the widespread distribution of animals. Small numbers of caribou were spread throughout the Point Hope/Kivalina, Squirrel River, Nimiuktuk River, Killik River, Easter Creek, April Creek, Kevuls Creek, and central Brooks Range east of the John River. Judging from the distribution of

radio-collared individuals, about one-third or more of the WAH wintered on the arctic coastal plain north of 70° latitude. Conspicuously, however, none used the Etivluk Lake area of the Nigu River, which has been a regular wintering area for several thousand animals since 1977 at least.

Spring 1982. Spring migration from the southern winter ranges was somewhat delayed. Most caribou did not pass the Kobuk villages until after mid-April. About 20 April, migration of those wintering in the central Brooks Range and northern foothills was well underway. Thousands of caribou were seen migrating across the northern foothills from east to west on 22 April.

Summer 1982. Distribution of calving caribou in 1982 was very similar to that of 1981. As the herd has increased over the years since 1976, the calving areas have been expanding to the east and north. In 1982 the eastern limit of the main calving area was near Liberator Lake and the upper Awuna River. Many caribou calved as far north as the Avalik River and many scattered caribou again calved in the vicinity of the Oumalik and Price Rivers and as far east as Judy Creek. Whether these are all WAH caribou is unknown, but it appears from radio-collar relocations that there is at least a considerable amount of interchange between these and WAH caribou.

Postcalving movements were closely monitored during the 1982 photo census. Movements were similar to previous years but some large post-calving movements moved east across the upper Kivalina and Wulik Rivers, farther south than previously documented. By 10 July most postcalving aggregations started east, paralleling the DeLong Mountains either on the north or south sides. Late summer distribution was not monitored but there is no reason to believe that unusual movements occurred. Most caribou probably spent late summer in their usual area along the Colville or between the Colville River and the arctic coast.

Fall 1982. Movement to winter ranges south of the Kobuk seemed to come in 2 waves. The first in mid-September when roughly 10,000 crossed near Onion Portage, and the second about 10 October when many more thousand moved through the Ambler, Redstone, Miluet, and Hunt drainages.

Movements southeast through the Umiat area were again very noticeable in September 1982 as they were in 1981. People at Umiat remarked about the similarity of these movements to those which occurred prior to the herd's decline.

Winter 1982-83. Based on results of radio-tracking 55 individuals, it appeared that the WAH was distributed equally in 3 main wintering areas. These were the same major winter ranges that have been used since 1975: 1) Selawik Hills/Buckland drainage, 2) central Brooks Range, and 3) arctic coastal plain. This year, however, many caribou apparently moved south from the coastal plain to the northern foothills of the Brooks Range between the Killik River and the Trans-Alaska Pipeline. The upper Itkillik was very heavily used. Four radio-collared individuals thought to be Teshekpuk caribou were wintering with WAH caribou in the central Brooks Range, as were 2 radio-collared Central Arctic

caribou. Some caribou again used the Kivalina/Point Hope area and the upper Squirrel River.

SUMMARY

Although the records indicate that caribou movements are somewhat unpredictable, 2 generalizations can be made about past range use patterns. The 1st is that to some extent range use is dependent on herd size. The larger the herd, the more widely they range (Fig. 1-5). The 2nd generalization is that WAH caribou seem to prefer windblown, open winter range and the more forested taiga areas are apparently 2nd choice. The reason for this probably hinges on food availability rather than quantity or quality and may also be a response to possibly higher predation pressure in forested situations. For this reason, it appears that the Seward Peninsula was once prime caribou range. If the WAH becomes much larger than it is now (171,000), it is likely that caribou will again begin to use the area. More specific conclusions about food habits and preferred winter ranges are beyond the scope of this compilation.

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<u>Year</u>	<u>Comment/Observation</u>	<u>Reference (page #)</u>
1784	Cook carefully explored Norton Sound.... On the beach below were caribou and fox tracks, driftwood and abundant fresh water.	Cook and King 1784:478
1827	In August 1827 Beechey came to the American shore near Cape Rodney.... They noted a huge accumulation of driftwood on the beach, and several herds of caribou on the tundra between the beach and the hills.	Beechey 1831:531 <u>in</u> Ray 1975:84
1830-1870's	A large caribou population occurred along the Bering Sea coast from Bristol Bay to Norton Sound. It probably was on the increase during the 1830's; reached a peak by the 1860's or perhaps earlier; and was starting to decline in numbers by the early 1870's. During the peak, this apparently huge population ranged over a wide area, including the Kuskokwim-Yukon lowlands and even Nunivak Island (reached, no doubt, via the ice pack). The main movement pattern was north-south across the Yukon and Kuskokwim Rivers extending probably north to the Seward Peninsula, definitely south to the Kilbuck Mountains.	Skoog 1968:230
1833	The Russian Glayunov found caribou to be common in the highlands between Norton Sound and the Yukon River during the fall of 1833.	Vanstone 1959 <u>in</u> Skoog 1968:227
1833-43	Judging from Russian accounts, the animals were numerous there [lower Yukon R., hills between Yukon R. and Norton Sound and the Seward Peninsula] as early as 1833 and were still abundant in 1843.	Vanstone 1959, Lutz 1960 <u>in</u> Skoog 1968: 240
1837-1870	Caribou were abundant in the area embracing the Seward Peninsula and the hills east of Norton Sound to the Yukon River until the early 1870's. By then it appeared that the main population had shifted northward and eastward with remnants remaining to the south (Kilbuck Mtns.) as well. This Norton Sound group probably was a separate herd from that farther north, wintering over the Seward Peninsula, calving somewhere north and west of Anvik and the Yukon River and ranging southward....	Skoog 1968:251

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1850-1900	<p>The caribou, which was the primary land resource utilized by the Eskimos, was also decreasing.</p> <p>The reasons for this decline are not altogether clear. It would appear the caribou population which inhabited the Seward Peninsula may have been an overflow population of the WACH from their center of habitation in the Central Brooks Range.</p>	<p>Skoog 1968:244 Burch 1972 <u>in</u> Stern et al. 1977:34</p>
1854	<p>February 19: There were many caribou in the area [inland Seward Peninsula] and he (Hobson) said that he could have bought 1,500 lbs. of meat had he so desired. "The snow is literally cut to pieces by deer's tracks. Show-e-yok, at present, is indeed the land of plenty, their stages are literally loaded with venison, and there is an immense quantity buried about the place."</p>	Ray 1975:154
1860	<p>By the 1860's huge migrations were reported moving north-south along highlands east of Norton Sound and across the lower Yukon and Kuskokwim Rivers--north in the fall and south in early summer.</p>	Nelson and True 1887 <u>in</u> Skoog 1968:240
1860's	<p>There may have been other reasons besides firearms for the depopulating of Seward Peninsula caribou herds. Perhaps there was a natural shift of the herds to the south, which accords with the statement of one of my Malemuit Koyuk informants who traced her family's advent on Norton Sound from the Buckland area "to the 1870's" when her grandfather followed a huge caribou migration. The date may have been earlier--in the 1860's--however, or at the same time that Alluyianuk and others moved south from the Kobuk.</p>	Ray 1975:174
1866-67	<p>When the American Telegraph explorers visited Alaska in 1866-67, reindeer [caribou] were found everywhere and herds containing thousands of individuals were no uncommon sight. They were very abundant on the hills and valleys bordering upon Norton Sound, but today their former abundance is indicated only by the number of antlers scattered over the country and the well marked trails worn on the hillsides or leading across the valleys....</p>	Nelson and True 1887:28 <u>in</u> Lent 1966:482

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1867	Based on Dall's observation in June 1867 of some 4,000 skins of recently killed caribou calves in a village near Anvik (Nelson and True 1887), I would presume that the calving grounds of this herd lay to the north. How far north the herd ranged is not known but it was apparent that the Seward Peninsula was utilized.	Skoog 1968:240
1868-1869	Despite Dall's statement that the caribou had left the Seward Peninsula by 1868 because of the introduction of firearms, Kauwerak continued as a living village, and in 1882 had five houses and a men's house. At Zagoskin's time, "innumerable herds of deer feed all along the shore of Norton Sound," and even during the 60's, despite the introduction of firearms, large herds were still to be found around Unalakleet and on the coast to the south, and were caught in snares and nooses in winter in ravines and valleys. Charles W. Raymond also observed in 1869 that back of the coast between the mouth of the Yukon and St. Michael the valleys swarmed with caribou, "herds of which are seen feeding on almost every hill."	Dall 1970:147, Jacobsen 1884:245, Raymond 1870:8, and Zagoskin 1967:99 <u>in</u> Ray 1975:174
1872-74	Elliott mentioned no trade in reindeer skins during 1872-74 at trading posts on Kotzebue and Norton Sounds, Nunivak and the lower Kuskokwim River and Delta, while pointing out the heavy trade in such skins at Nushagak and Ugashik.	Elliott 1875:46-50 <u>in</u> Skoog 1968:229
1875-95	Large numbers of caribou remained in the Kilbuck Mountains to the south and in the Kuskokwim Mountains to the southeast, with substantial numbers still present, apparently on the Seward Peninsula.	Stern et al. 1977:229
1880	Natives at Wales and Port Clarence (west end of the Seward Peninsula) are fishers and reindeer hunters.	Petrov 1881:58 <u>in</u> Skoog 1968:242
1880	By 1880 there were very few caribou left on the Seward Peninsula and by 1890 there were few animals that could be found at all except near the "center of habitation" of the WACH in the Central Brooks Range.	Skoog 1968:210 <u>in</u> Stern 1977:35
1880's	Caribou were rather scarce along the northwest arctic coast from the Seward Peninsula to Cape Lisburne.	Skoog 1968:243

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1883	Natives in all the villages along the Yukon River about Kaltag upstream to Ruby hunted caribou..."on the tundra north of the river."	Schwatka 1885a & b <u>in</u> Skoog 1968:242
1890	Caribou were extremely rare along the entire western coast from Bristol Bay to Point Hope, on the Seward Peninsula, in the hills east of Norton Sound, and in the region drained by that section of the Koyukuk River lying below the John River.	U.S. Census Office 1893 <u>in</u> Skoog 1968:244
1890	Formerly in the Kotzebue Sound district numbers of deer made yearly visits.	U.S. Census Office 1893:146 <u>in</u> Skoog 1968:240
1890	Sheldon Jackson noted the starving condition of the people in all the villages along the Bering Sea, an observation which resulted 2 years later in the first introduction of reindeer from Siberia to the Seward Peninsula. He reported that there were no caribou for the natives to hunt and caribou clothing had become uncommon; nearly all skins came from reindeer in Siberia.	Jackson 1892 <u>in</u> Skoog 1968:244
1892-1914	Reindeer herding industry was introduced to Alaska.	Stern et al. 1977:25
1894	Hobson left the Rattlesnake with provisions for 38 days and orders to keep a journal which contains the only existing firsthand account of villages in the interior of northern Seward Peninsula and of 19th century caribou hunting.	Ray 1975:152
1899	In 1899 Moffit observed that caribou must have been abundant there [Seward Peninsula] at one time because of "the great number of antlers scattered over the tundra and the heaps of bones near old deserted native igloos...they followed permanent well-beaten trails along the crests of the ridges...." The abundance of shed antlers indicated that the area was used during the winter.	Moffit 1905:77 <u>in</u> Skoog 1968:240

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1900's	Caribou remained scarce in the southern portions of Region III throughout the early 1900's.	Schrader and Brooks 1900; Mendenhall 1902; Jackson 1903, 1906; Moffit 1905 <u>in</u> Skoog 1968:246
1909	Animals reported at the base of the Seward Peninsula by Smith and Eakin probably were feral reindeer.	Smith and Eakin 1911:33 <u>in</u> Skoog 1968:246
1916	By 1916 there were over 1,200 Eskimo herd owners in Alaska; however, the average herd size amounted to less than 50 reindeer per owner. Range problems were also beginning to appear and many small herds mingled and strayed.	Stern et al. 1977:27
1920	Observers also report a deterioration of range at this time due to over-grazing. The coastal strip 10 or so miles wide and the areas nearest the villages were badly deteriorated.	Lantis 1950:31 <u>in</u> Stern 1977:28
1930's	Alaska's reindeer population was very large in the 1930's and has since declined; in some cases entire herds escaped or were neglected, and eventually became feral.	Skoog 1968, Davis et al. 1978:8
1930's	In the mid-1930's caribou once again were being sighted along the Bering Sea north of the Seward Peninsula, and the reindeer herders for the first time began to have serious losses of reindeer due to wandering bands of caribou.	Rood 1942 <u>in</u> Skoog 1968:242
1930's	Sometime after 1930, caribou began to return to areas along the Chukchi Sea.	Stern et al. 1977:35
1935	Westward from John River, upper Koyukuk district, caribou do not normally occur.	Murie 1935:64 <u>in</u> Skoog 1968:248
1937	20,000 reindeer were near Shaktolik at the end of the Lomen operation about 1937 and many of these supposedly wandered into the mountains.	Skoog 1963b:30

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1950-70	Caribou using the western migration routes wintered along the lower and middle Kobuk River valley and in the Selawik Flats and Buckland Hills.... Undoubtedly, since 1950 the Selawik Flats and surrounding hills have provided more sustenance for wintering caribou than any other area.	Davis et al. 1978:2
1950-71	Each year since 1950 the Arctic Herd has wintered mostly to the south, extending from the Waring Mtns., Baird Mtns. and lower Koyukuk River eastward to the Wiseman area.	Lent 1966; McGowan 1966; Glenn 1967; Skoog 1968; Hemming and Glenn 1968, 1969; Hemming and Pegau 1970 <u>in</u> Hemming 1971
1955-57	In the winter the snow was deep and crusted south of the Brooks Range and very few animals reached the forest zone.	Olson 1958a, 1958b <u>in</u> Hemming 1971
1955	Arrival at headwaters of Buckland River, November: 20,000 caribou.	Olson 1957
1955	Nov.-Dec.: A large segment, estimated at 20,000 caribou, moved south and west to the Huslia River. Other segments spread out through the Waring Mountains, south of the Kobuk River, across the Selawik Flats and up the Selawik River more than 50 miles. Here they remained through March and into April.	Olson 1957
1955	There was an unusually large migration south of the Baird Mountains. That year caribou wintered in large numbers as far south as the Buckland River; one resident of Kiana estimated that 100,000 caribou crossed the Kobuk River headed south.	Olson 1959 <u>in</u> Lent 1966:503
1956	April 5: 10,000 caribou minimum between head of Buckland River and Huslia River.	Olson 1957
1956	April 19: 2,000 caribou observed in Selawik area.	Olson 1957
1957	During the winter there were no caribou south of the Brooks Range in northwest Alaska.	Olson 1958b:48

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1958	During winter and spring months, caribou were widely distributed throughout western arctic Alaska with no significant concentration or movements detected.... Except for an estimated 50,000 animals in the upper Noatak valley, most of the caribou in this area were again spread out into small, widely dispersed groups by fall and early winter.	Olson 1958a:58
1958	...found 5,000 caribou at the Hog River and 2,000 more on the upper Kobuk valley as far west as the head of the Selawik River. No caribou were found west of this.	Olson 1958a:62
1959-75	Reported location of "major wintering areas" of WAH between 1959 and 1975 includes Selawik Flats/Buckland Hills area during all but 1962-63, 1968-69 and "a few" in 1970-71.	Davis et al. 1978:3
1960-61	In 1960, 25,000 caribou were distributed through the mountains and foothills of the western Brooks Range and 15,000 were in the taiga of the Koyukuk Plateau. In 1961 the number using the Brooks Range for winter feeding was reduced to less than 5,000 and those in the taiga increased to 60,000.	Lent 1966:492
1960-61	Caribou on the average had farther to travel to the calving grounds in 1961 than in 1960 but spring movements began earlier in 1960 than in 1961 and caribou used more pathways in 1960 than in 1961. Thus, distance from the calving ground, as such, did not influence the time of northward departure.	Lent 1966:492
1961	Caribou concentration on winter range in 1961 was 15,000 for south of the Selawik River.	Lent 1966:508
1962-63	May 1, 1962 - April 30, 1963: the Arctic herd (northwest Alaska) had 200,000 caribou. In addition, there are about 1,000 caribou and/or feral reindeer at the base of the Seward Peninsula.	Skoog 1963b
1963	Only three groups of caribou encountered on two survey flights (Feb. 11 and Apr. 10, 1963), all three near headwaters of the Kateel and Gisasa River and these totaled 75-80 animals. Information from local hunters, however, indicated a population of 800-1,200. The principal hunting pressure stems from Shaktolik. Presumably, this population contains more reindeer blood than it does caribou.	Skoog 1963b:30

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1963-64	During winter 1963-64, however, the herd [WAH] extended farther south and east than they have for years. Segments of the herd wintered at the base of the Seward Peninsula in the drainages of the lower and middle Koyukuk River.	Skoog 1963c:8
1963-64	The main movements occurred during November and December, but caribou were accessible to the residents of the coastal villages from October to February, and thus a rather large kill occurred. By late January 1964 the herd was pretty much settled on the wintering grounds, which extended from the base of the Seward Peninsula eastward as far as Venetie on the lower Chandalar River. The enormous area utilized by the herd that winter reflects well the huge size of the population.	Skoog 1963c:9
1963-64	Arctic caribou displayed a general shift to the east in their movements throughout the year as compared to movement patterns observed in past years. Throughout winter 1963-64 caribou were available to hunters from Kotzebue and the lower Noatak, Kobuk and Selawik Rivers. An estimated 20,000 were killed in 1963 and 5,000 during the first 4 months of 1964.	Lentfer 1965
1963-64	Segments of the herd [WAH] wintered at the base of the Seward Peninsula, on the drainages of the lower and middle Koyukuk River....	Lentfer 1965
1964	By late January, the herd was pretty much settled on the wintering grounds which extended from the base of the Seward Peninsula eastward as far as Venetie or lower Chandalar.	Skoog 1964:9
1965	A small segment of the Arctic herd wintered near the mouth of the Kobuk River near Kiana and Selawik villages.... A portion of 50-55,000 animals moved up the Kobuk River and a large segment moved into the Buckland River area west of the Selawik River. In moving through these areas, the caribou were joined by approximately 250 reindeer from a herd at Cape Krusenstern and 500-750 more from reindeer herds on the northern part of Baldwin Peninsula.... By October 15, residents of Kotzebue were harvesting caribou. The caribou continued up the Kobuk and Selawik Rivers with a large segment moving as far south as the Buckland River.	McGowan 1966:7
1965	Arrival of caribou near Selawik during fall migration on October 15.	Glenn 1967:4

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1965-66	During the winter the majority of caribou which wintered in the western arctic did so south of the Kobuk River...In the southwestern part of their range two large wintering areas were in use from January through March: Pah River Flats and the headwaters of the Selawik River west to the Tagagawik River. Selawik hunters traveled 25-40 miles southeast from the villages for caribou during the first 3 months of 1966.	Glenn 1967:3
1966	All the herds [reindeer] east of Kotzebue Sound failed by 1966, caribou largely being held responsible for the failures.	Stern et al. 1977:29
1966	Selawik hunters traveled 25-40 miles southeast from the villages for caribou during the first 3 months of 1966.... The northward migration started about the middle of March. By April 1 the caribou that had wintered on the drainages of the Selawik River moved to the west and the kill increased steadily as caribou moved north on either side of the village. Residents of Ambler, while camped at "Hot Springs" on the headwaters of the Selawik River, observed thousands of caribou migrating northwest through the Sheklukshuk Mountain Range.	Glenn 1967
1966	Two large segments of the Arctic caribou herd wintered south of the Kobuk River in the Pah River Flats and along the headwaters of the Selawik River. The northward movement to the calving grounds began about the middle of March.	Glenn 1967:i
1966	Arrival of caribou in Selawik, November 29.	Glenn 1967:4
1966-67	From December 1966 through January 1967 Selawik hunters reported the best hunting 15-20 miles north-northeast of the village; February and March found the heaviest hunting pressure 20-40 miles east-southeast of Selawik.	Hemming and Glenn 1968:18
1967	Caribou were available throughout the winter to villages along the coast of the Chukchi Sea and drainages of the Kobuk, Selawik and Noatak Rivers. Time of arrival of caribou near Selawik village during fall migration was November 15.	Hemming and Glenn 1968:18

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1968	Arctic Herd--so far essentially one calving area continues to be used, and therefore but one herd is designated. In addition, there is a group of about a thousand animals at the base of the Seward Peninsula whose status is unknown; these animals possibly may be feral reindeer, or merely a remnant group from the Arctic Herd.	Skoog 1968:291
1969	Winter: The main caribou wintering areas (January-April) were south of the Brooks Range between Selawik and Allakaket, including the Waring Mountains, Purcell Mt., Lockwood Hills, upper Pah River valley and lower Alatna River valley.	Hemming and Pegau 1970:3
1969	The largest concentration moved into the Kobuk River valley, passing near Kobuk, Shungnak and Ambler and continuing up on to the Purcell Mt. area where they are accessible to the people of Selawik.	Pegau 1970
1970	During late winter, caribou were available to residents of Selawik and had normal harvest.	
1971	The Kakaruk's largest reindeer herd, estimated in 1971 to be the largest private herd in Alaska with 4,878 reindeer (Bureau of Indian Affairs), roamed the hills where caribou (the wild reindeer) had lived in the 19th century.	Ray 1975:ix
1972	During fall a major portion of the herd passed near Kotzebue, Kiana, Noatak, Noorvik and Selawik. During the winter a major portion of the herd wintered southeast of Buckland and a limited number were taken by residents of Buckland, Koyuk and Elim. A smaller segment (less than 5,000) wintered between Noatak and Selawik and this group was heavily hunted by residents of Noatak, Kotzebue, Kiana, Noorvik and Selawik. During 1972 the harvest was above normal at... Selawik and Buckland. It was average at...Koyuk, Elim, Shaktoolik and Unalakleet.	Pegau 1974:219
1973	Spring: residents of Selawik had a higher than normal harvest. In the fall hunters from Selawik had about normal harvest due to widespread dispersal of caribou during winters. Snowfall was light during the winter of 1973-74. The caribou were dispersed throughout many parts of GMU 23, 24 and 26....	Pegau 1975

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1974-75	The major winter concentrations of caribou during 1975 (January-April) were located in the Selawik Flats along the Selawik and Kugaruk Rivers, and southwest to the vicinity of Buckland. We cannot estimate the total number of caribou that wintered in this area but probably the majority of the herd was there. Caribou were scattered farther to the east along the south slope of the Brooks Range but we made no extensive flights to determine total numbers.	Davis et al. 1978:8
1974-75	Groups of wintering caribou in 1974-75: Selawik drainage--2-3,000, Kugaruk River--large number.	Davis et al. 1978:9
1975	Spring migration in 1975 was not well documented. John Coady saw 1,500-2,000 caribou apparently moving north along the Hunt River in April. Animals that wintered in the Selawik Flats usually: 1) cross the Kobuk River between Ambler and Kiana and continue north or 2) cross Selawik Lake and travel north nearer the coast. They probably used both of these routes in 1975.	Davis et al. 1978:8
1975	Fall: After they crossed the Kobuk River, the caribou presumably continued to the Selawik Flats-Buckland Hills area.	Davis et al. 1978:12
1975	Village harvest of WAH during September and October 1975: Buckland-200 and Selawik-400 caribou.	Unpubl. data, Alaska Dept. Fish and Game
1975-76	Winter: Most caribou again wintered in the Selawik Flats. We did not obtain winter counts but Klein estimated the group wintering in the Kiana Hills at 10,000 animals.	Davis et al. 1978:12
1975-76	Large number of wintering caribou observed May 1st in Selawik Flats.	Davis et al. 1978:12
1976	Summer: Although most animals were within the calving area, some small groups of less than 100 were seen near Kivalina, Selawik and Noorvik in mid-June.	Davis et al. 1978:15-17
1976	The fall migration was not only unusually late, but some animals (estimated by Johnson to be thousands) went much farther south than in recent years. Many thousands reached the upper Buckland River and some went as far south as the middle Koyuk River before turning north to the Selawik Flats.	Davis et al. 1978:17

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1976	Dec. 8, 1976: 2,560 caribou south of Selawik River, east of Selawik Lake to Haycock. The major route of travel toward this area appears to be up the south fork of the Buckland River and then up Kutusuk Creek and over the divide. Movement into the Buckland drainage system appears to be directly up the Tagawik River and then a general spreading out in the area north of Wrench Lake.	Unpubl. data, Alaska Dept. Fish and Game
1977	Feb. 18, 1977: old caribou concentration area east of Buckland approximately 50 miles. Caribou have been by the Tagawik River and Wrench Lake since last November.	Unpubl. data, Alaska Dept. Fish and Game
1977	In late February 1977: possibly 1,500 caribou in Buckland area.	Unpubl. data, Alaska Dept. Fish and Game
1977	On March 10, 1977, approximately 10 miles north and northeast of Purcell Mt. there were 2,700 caribou and approximately 20 miles west of Purcell Mt. there were 4,200 caribou.	Unpubl. data, Alaska Dept. Fish and Game
1977	Mid-April: At the southern and eastern edge of the Selawik Flats and surrounding hills, an estimated 14,000 caribou were seen in two groups.	Unpubl. data, Alaska Dept. Fish and Game
1977	During the last week of September, 20,000-30,000 caribou crossed the Kobuk River near Ambler. Because the animals in the Kobuk Valley moved to the Selawik Flats and upper Buckland River, it is likely that residents of Selawik, Noorvik and Buckland will be able to harvest these animals during the spring season.	Unpubl. data, Alaska Dept. Fish and Game, 1977
1977	October 11: 1,120 caribou in the Selawik Flats area.	Unpubl. data, Alaska Dept. Fish and Game
1977	October 13-19: estimated 26,000-30,000 caribou total in Selawik Flats area.	Unpubl. data, Alaska Dept. Fish and Game
1977	October 23: 179 caribou in the Selawik Flats.	Unpubl. data, Alaska Dept. Fish and Game

<u>Year</u>	<u>Comment/Observation</u>	<u>Reference</u>
1977	November: 30,000 caribou east of Buckland.	Unpubl. data, Alaska Dept. Fish and Game
1977	Our knowledge to date (mid-November) suggests that in GMU 23 about 30,000 animals are wintering in an area bounded by the Sheklukshuk Hills on the north, Purcell Mt. on the east, the Tagagawik River and upper Buckland River on the southwest, and on the shore of Selawik Lake on the west.	Unpubl. data, Alaska Dept. Fish and Game, 1977
1977	November 19: 12,392 caribou between Selawik and Buckland.	Unpubl. data, Alaska Dept. Fish and Game
1977	At the present time, there are 15 reindeer herds in northwestern Alaska. All of them are confined to the Seward Peninsula and adjacent regions. On the Seward Peninsula, total numbers of reindeer are now estimated to be less than 20,000.	Stern 1977:29
1977-78	Thousands of WAH animals wintered on the base of the Seward Peninsula. Their movements extended almost to the Unalakleet River. Circumstantial evidence from preceding years suggested the possibility of 1,000-5,000 resident animals east of Norton Sound. No evidence of resident caribou was found in summer 1977, suggesting a possibility of egress to the WAH.	Unpubl. data, Alaska Dept. Fish and Game, 1977
1977-78	April 1978: Confirmed fall 1977 estimate that about one-half of WAH wintered in the Kobuk Valley and Selawik Flats.	Unpubl. data, Alaska Dept. Fish and Game
1978	Jan. 5-8: total in Kobuk Valley/Selawik was 12,012.	Unpubl. data, Alaska Dept. Fish and Game
1978	The Seward Peninsula presently supports a population of reindeer in excess of 15,000 (unpubl. data, BLM) and many are probably never or seldom rounded up by the herders. Any <u>Rangifer</u> found west of the Kiwalik R. are likely to be feral or domestic reindeer.	Davis et al. 1978:8

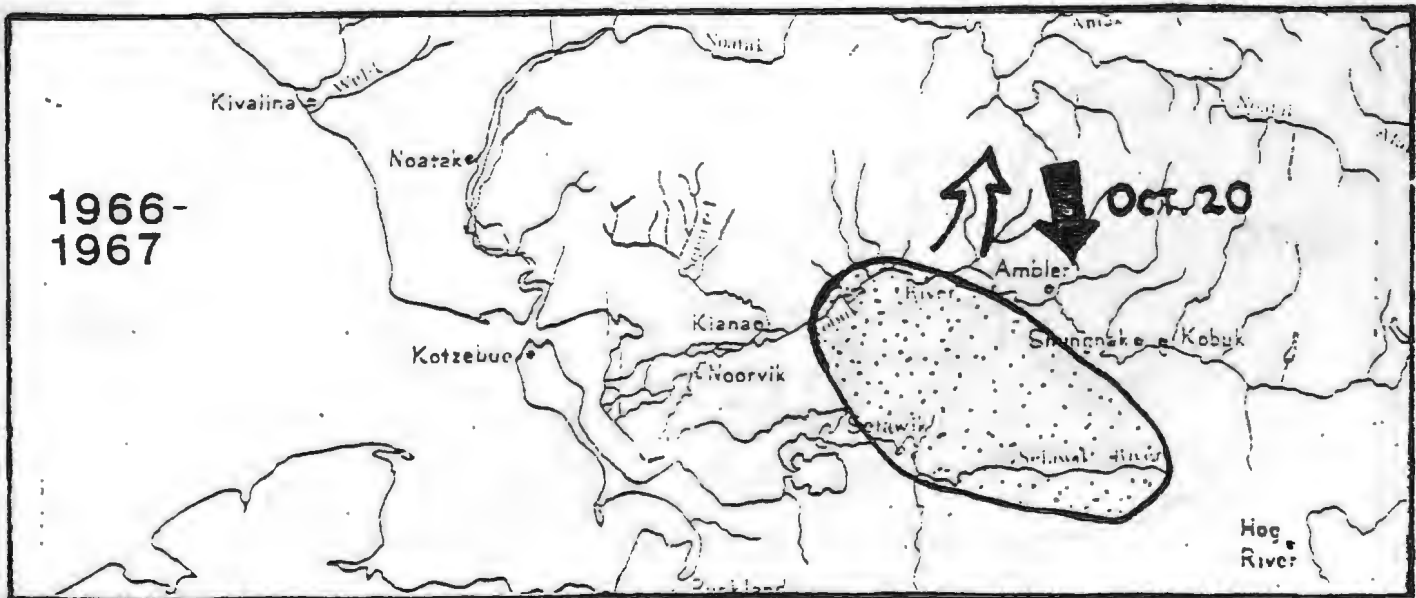
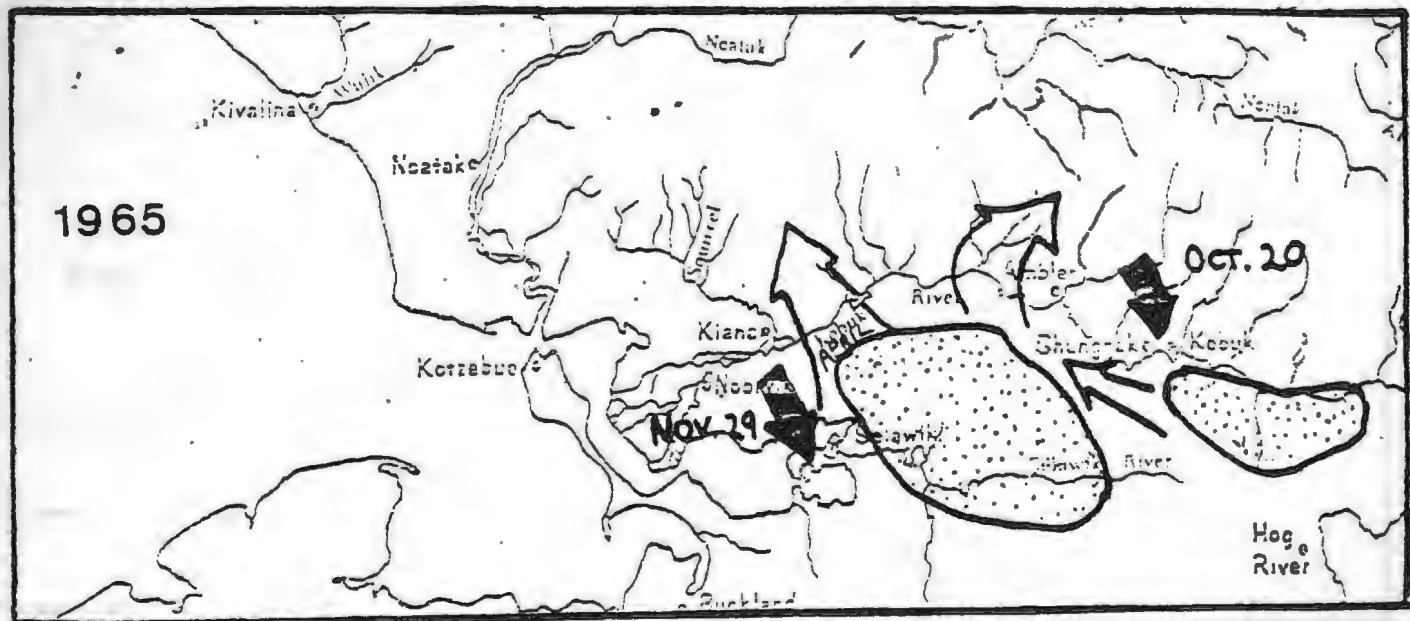
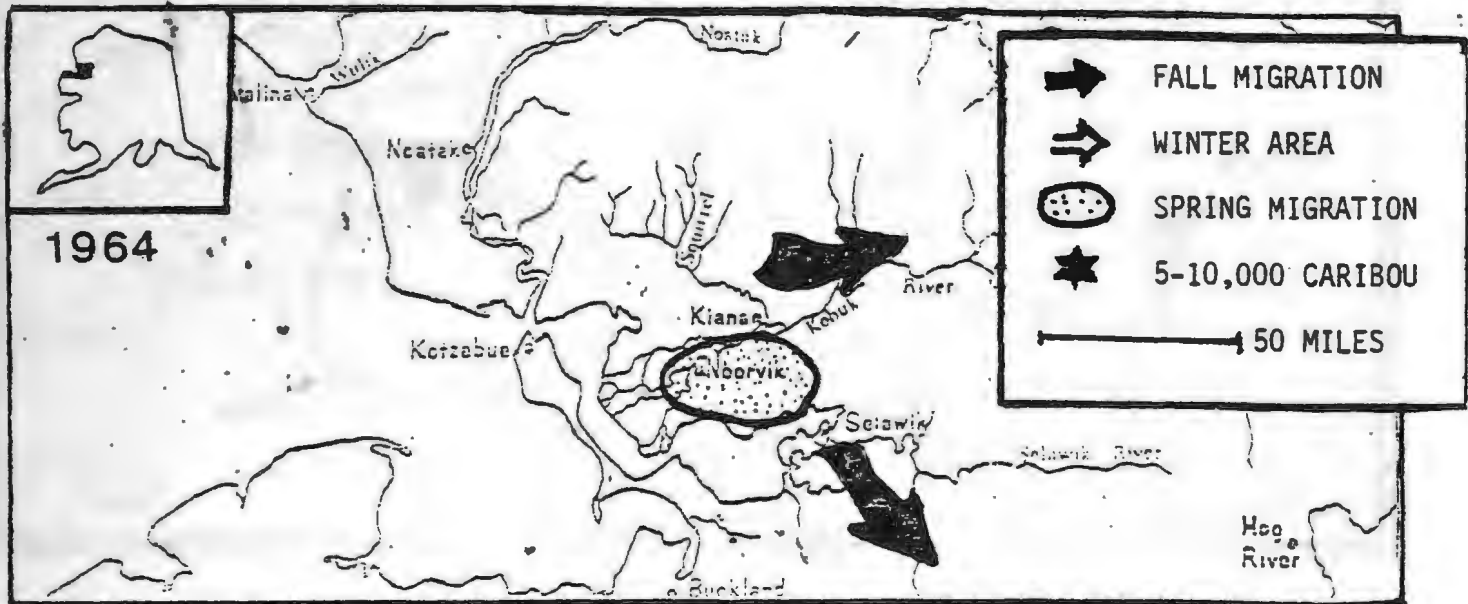
General Comments

A good example of the unsuccessful utilization of the arctic environment is shown in the history of the reindeer industry in the Alaskan Arctic. The failure of this industry has been due to social and economic factors as well as overgrazing of the range. Another contributing factor was that the migrating caribou made contact with the reindeer herds. It would appear more logical to confine efforts to improve the reindeer industry in Alaska to regions lying south and west of the Buckland River, where the possibilities of transfer of contagious diseases between the two subspecies are decreased, and where the need for a supply of fresh meat is greater.

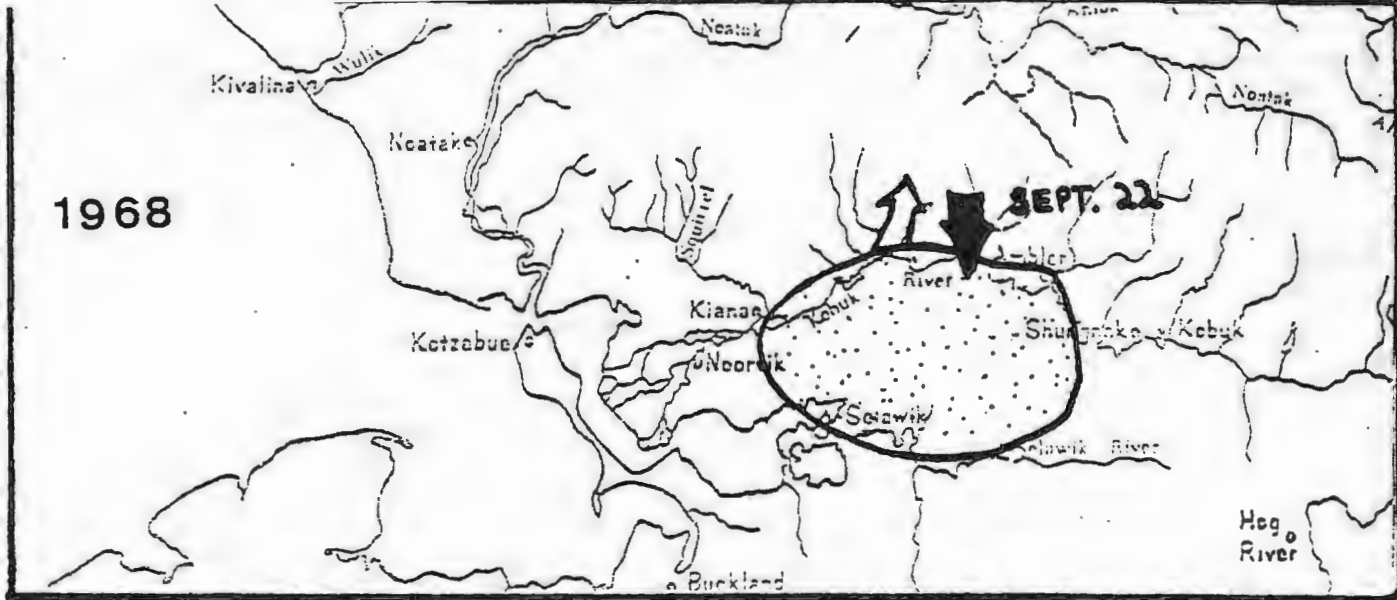
Lantis 1950; Rouse,
Mountjoy and Belcher
1948 in Lent 1966:514

The increase in caribou was concurrent with the decrease in introduced reindeer. In fact, the influence of migrating caribou on the reindeer herds was frequently given as one of the reasons for the decline in reindeer numbers. Even at its peak reindeer herding appears to have exerted little influence on the caribou. The land overgrazed by reindeer was negligible compared to the overall range available to the migratory caribou.

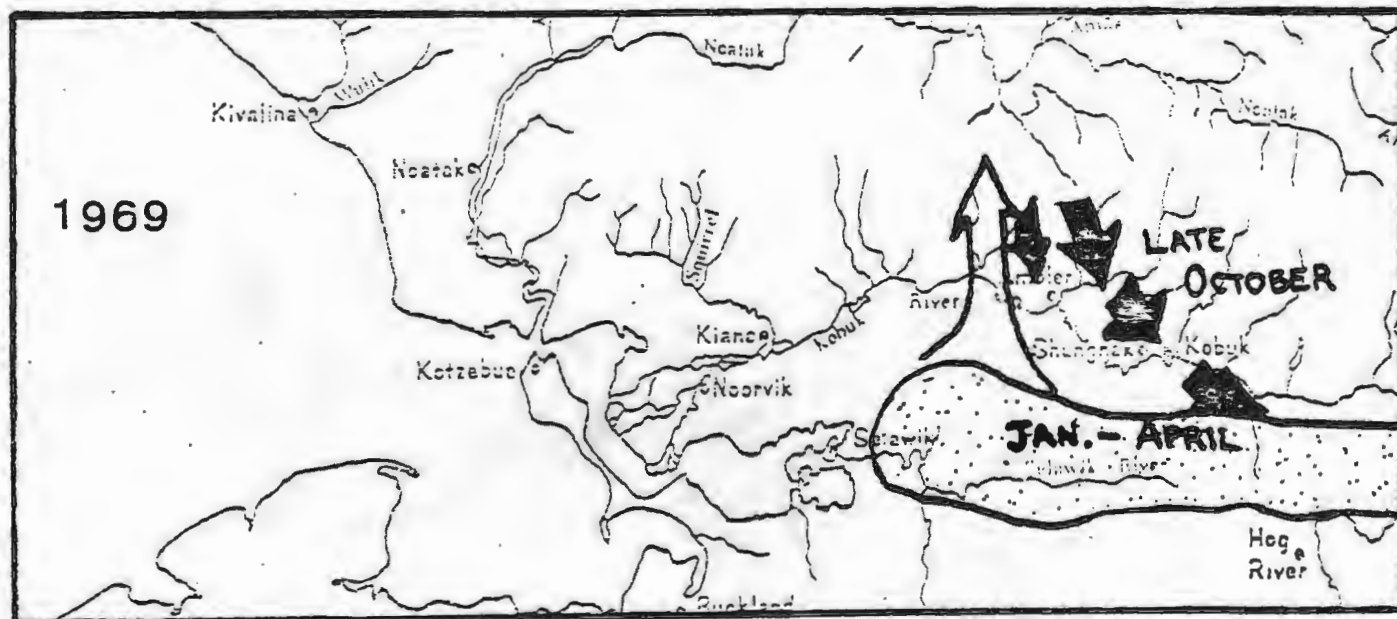
Lent 1966:484



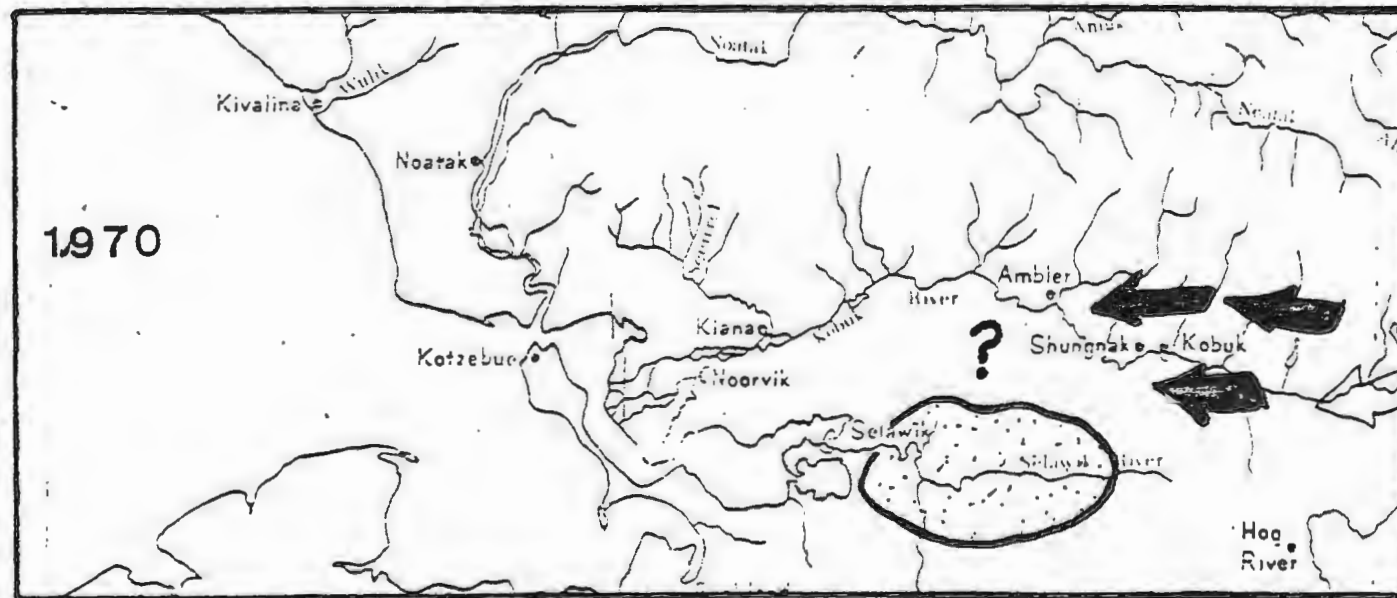
1968

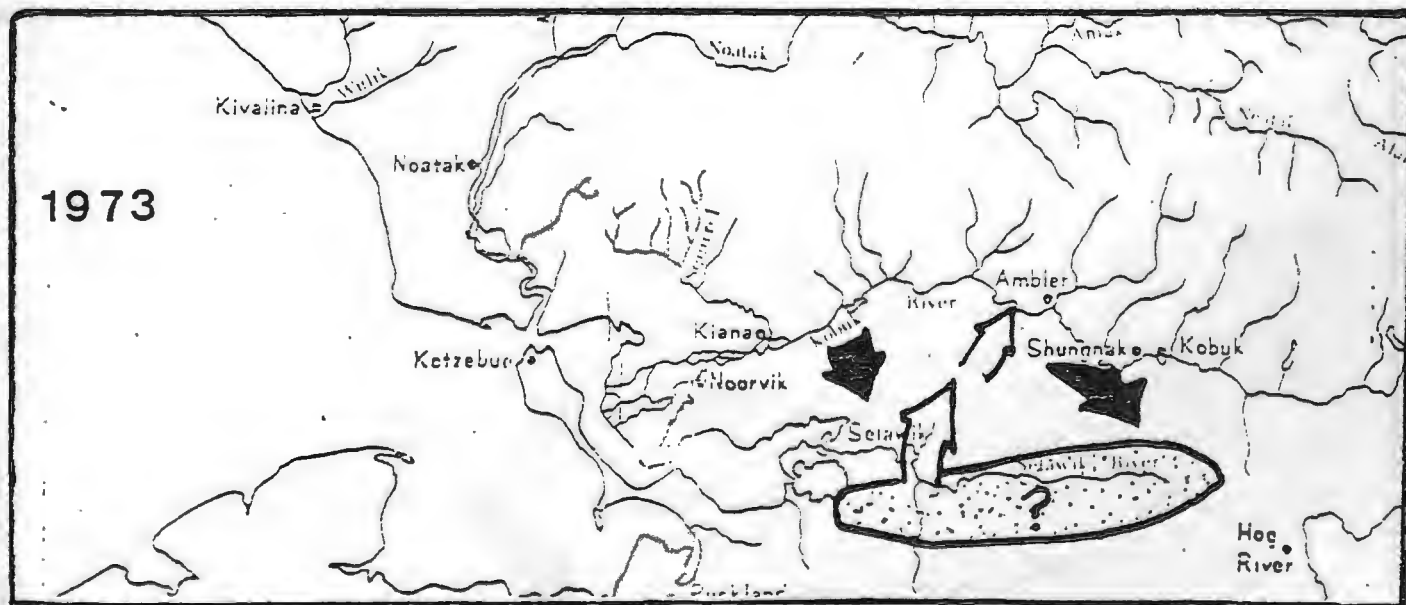
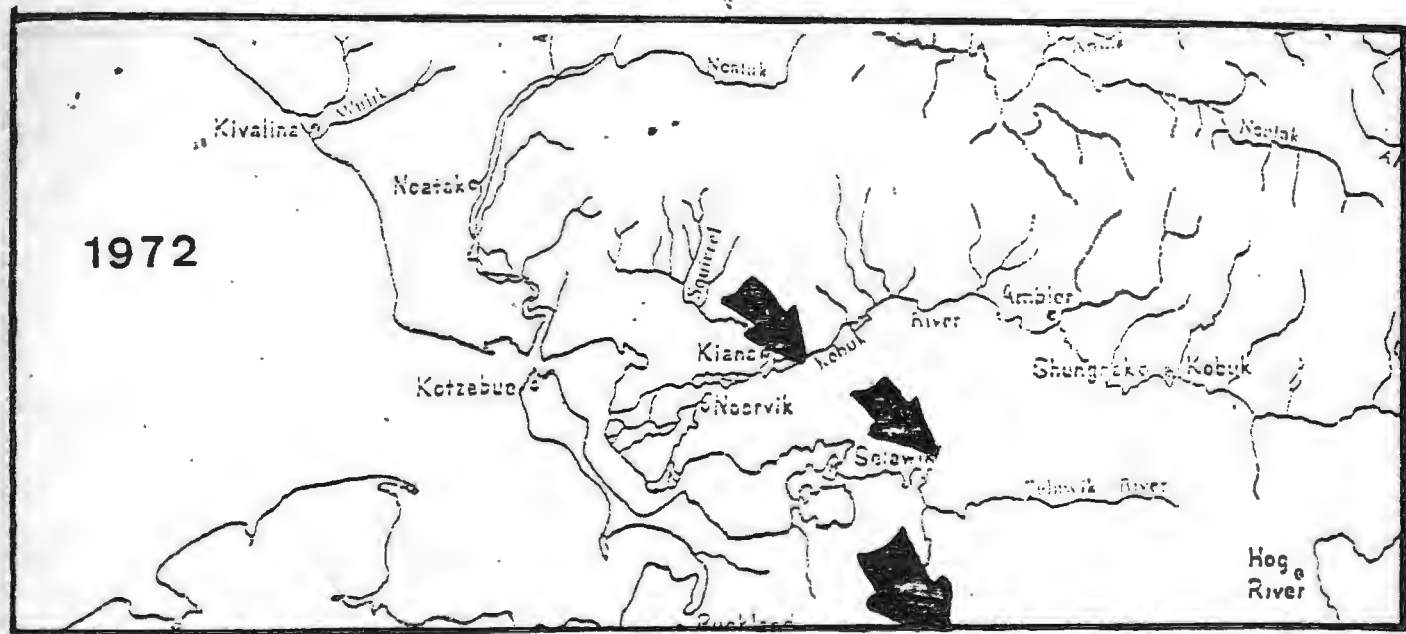
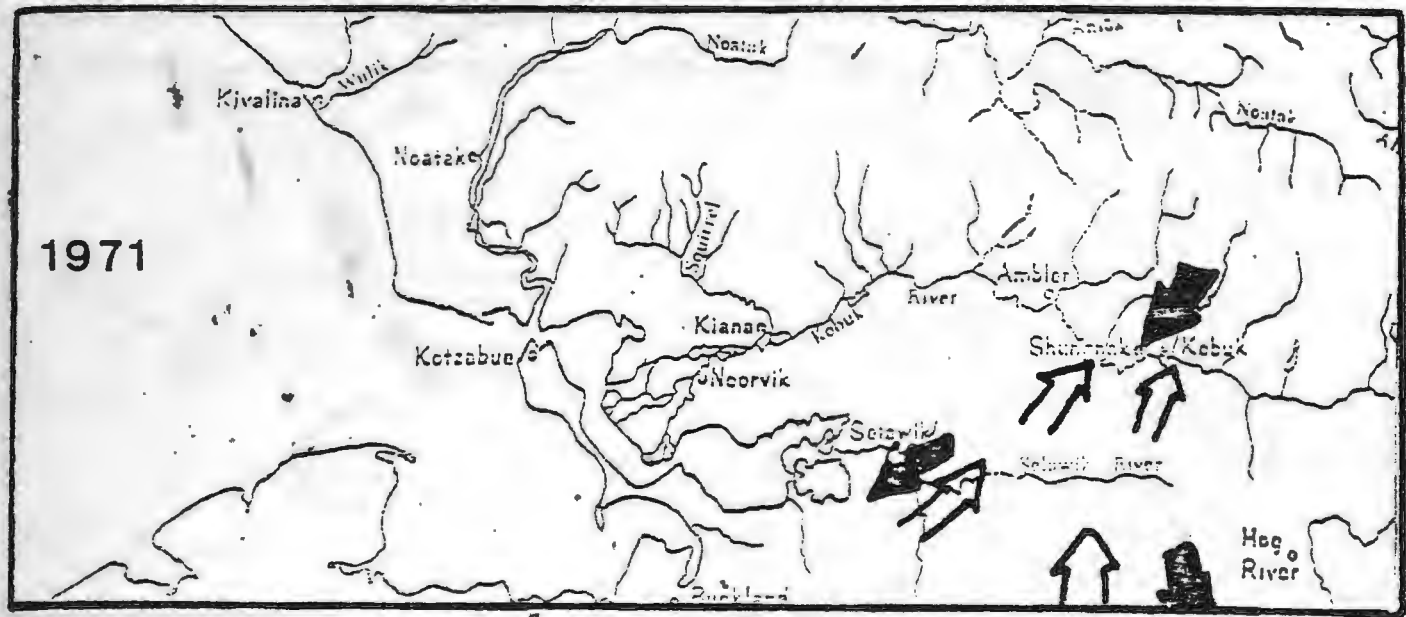


1969

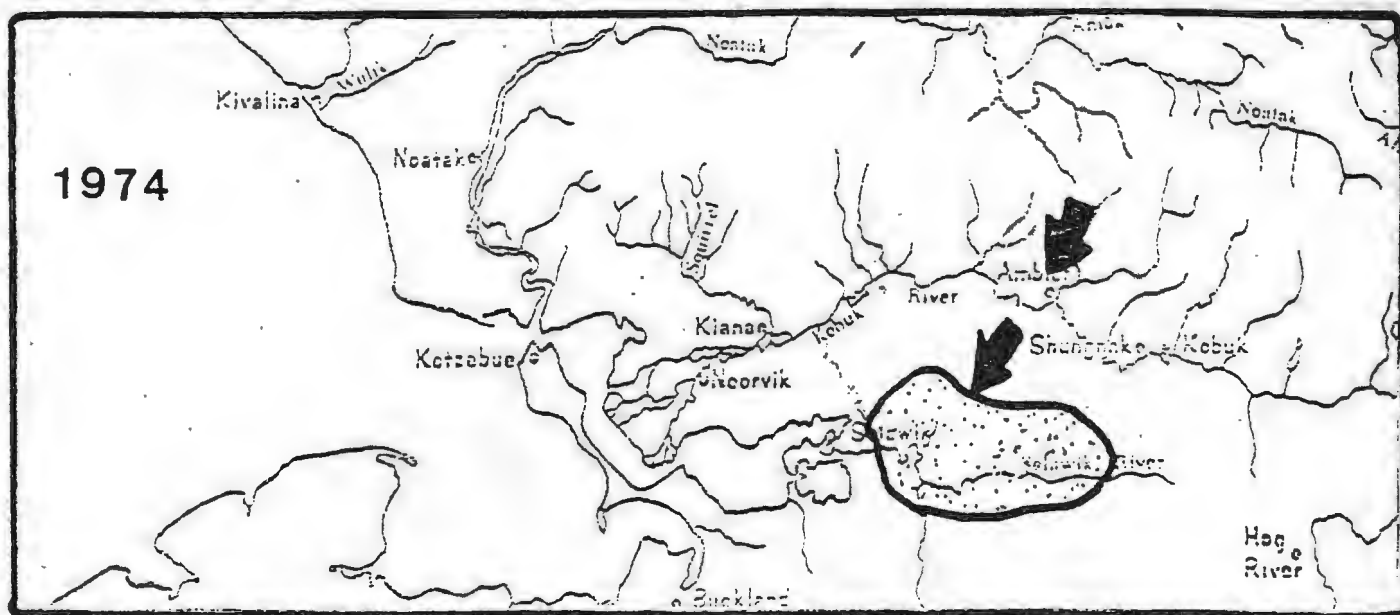


1970

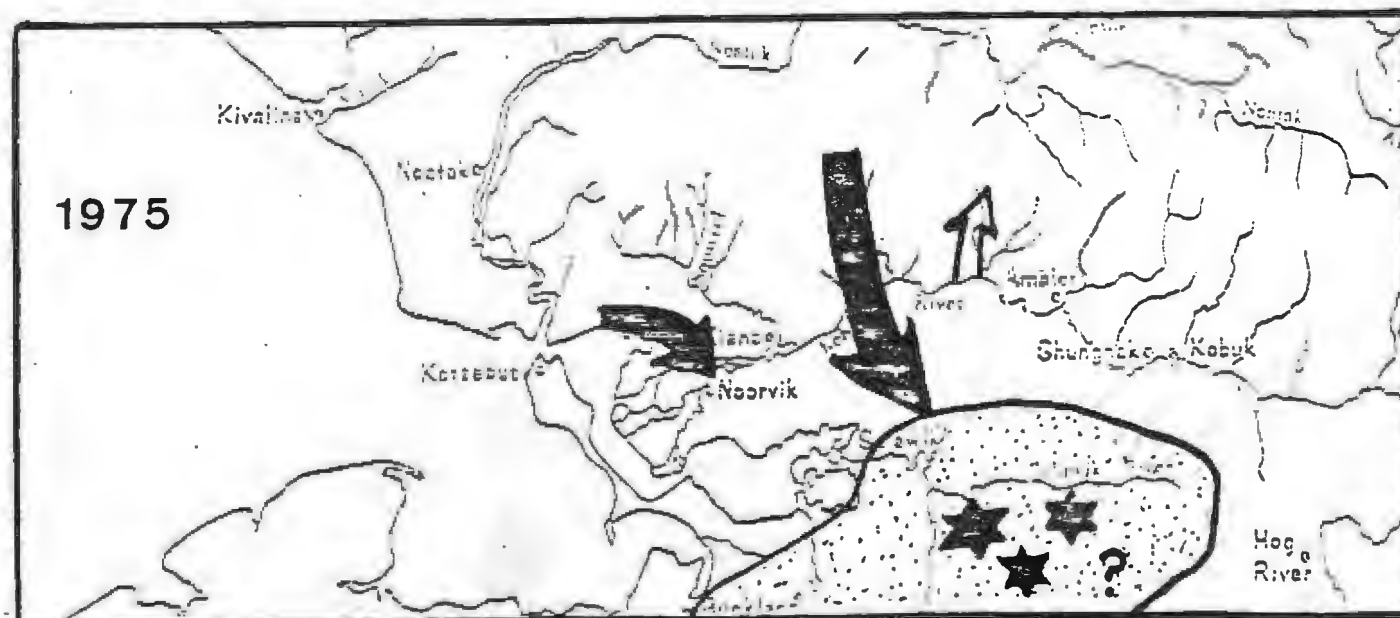




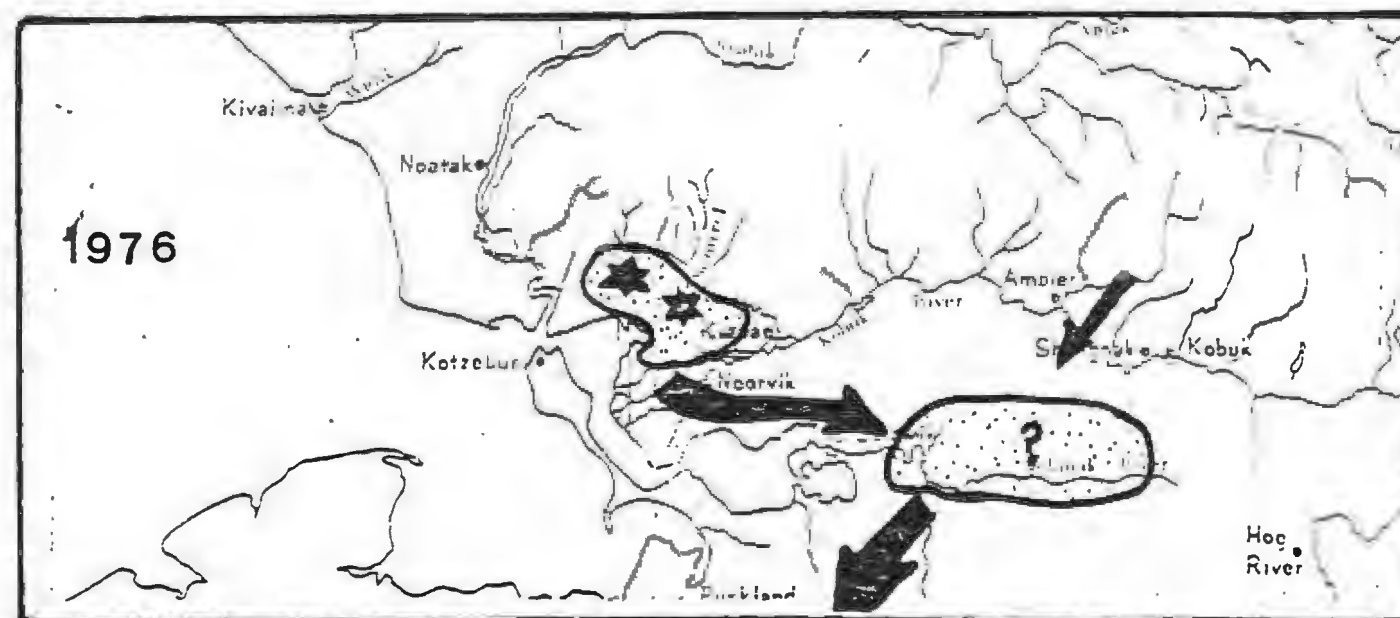
1974

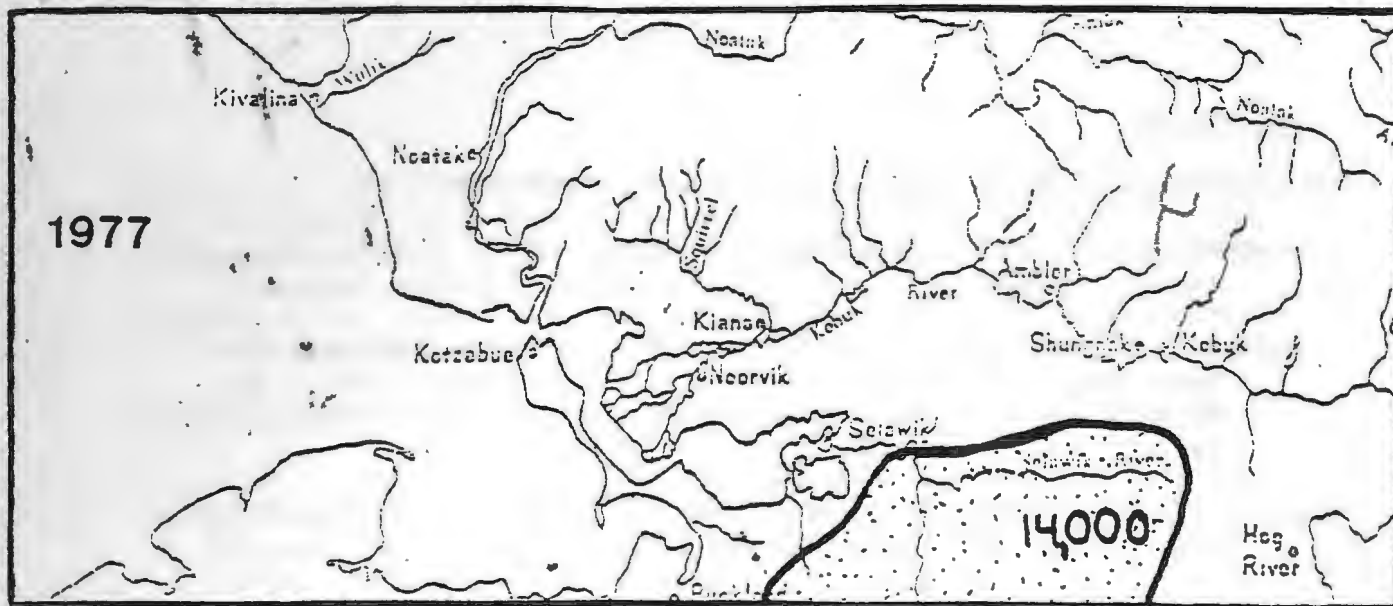


1975



1976





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