



KANUTI NATIONAL WILDLIFE REFUGE  
Fairbanks, Alaska

ANNUAL NARRATIVE REPORT  
Calendar Year 1983

U.S. Department of the Interior  
Fish and Wildlife Service  
NATIONAL WILDLIFE REFUGE SYSTEM

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U.S. Department of the Interior  
Fish and Wildlife Service  
NATIONAL WILDLIFE REFUGE SYSTEM





Ervin W. McIntosh - Refuge Manager, Kanuti NWR

Personnel

1. Ervin W. McIntosh	(PFT) - GS/485-12	Refuge Manager
2. Harvey Heffernan	(PFT) - GS/485-11	Assistant Refuge Manager
3. Paul Liedberg	(PFT) - GS/341-9	Administrative Officer
4. Elizabeth Aucoin	(PFT) - GS/503-5	Financial Assistant
5. Rittie Ramirez	(PFT) - GS/322-3	Clerk Typist
6. Carolyn Tate	(PFT) - GS/322-3	Clerk Typist
7. Gayle Hudson	(PFT) - GS/322-3	Clerk Typist
8. Homer Tobuk GS/5	(Intermittant Local Hire)	Biological Technician
9. Michael Matz	(seasonal)	Volunteer
10. Kenneth Troyer	(seasonal)	Volunteer
11. Rodney McIntosh	(seasonal)	Volunteer
12. Tim McIntosh	(seasonal)	Volunteer

Review and Approval

*Ervin W. McIntosh* *Feb 27, 1984*  
Submitted by date

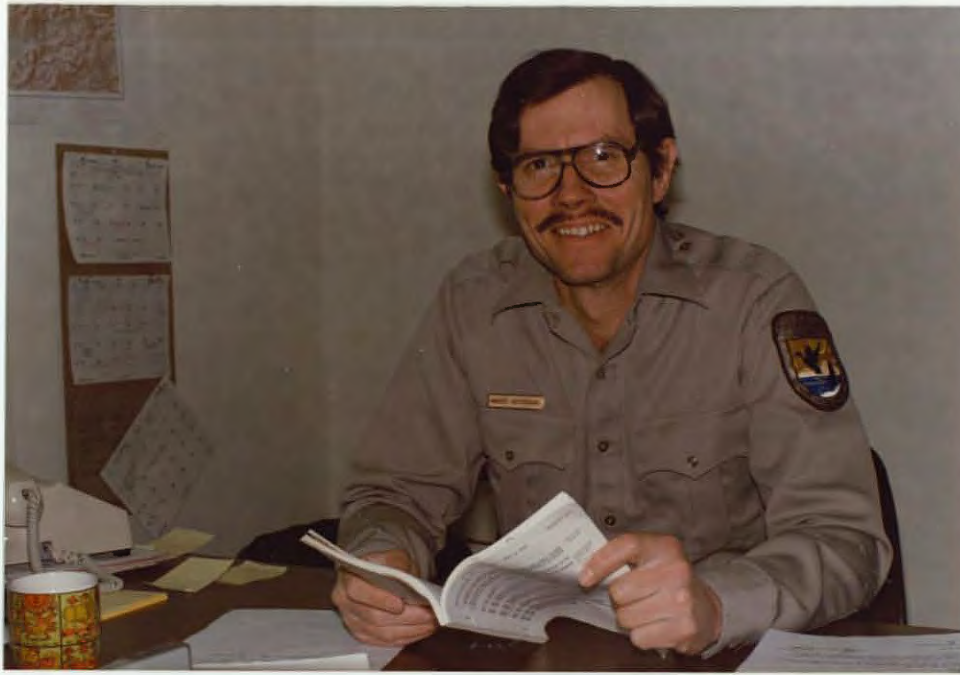
*J. S. Kivety*  
Operations Manager, North date

*William L. ...* *Actg. Dir.* *4/12/84*  
Regional Office Review date

US FISH & WILDLIFE SERVICE--ALASKA



3 4982 00021133 3



Harvey Heffernan - Assistant Refuge Manager



Common Administrative Staff assigned to Kanuti NWR.  
Paul Liedberg, Gayle Hudson, Rittie Ramirez, Carol Tate & Liz Aucoin





Volunteers - Michael Matz and Kenneth Troyer

EWM



Cooperative Subsistence Study Team in Evansville - Jim Marcotte  
ADF&G, Ray Bane - NPS, Terry Haines - ADF&G, and Homer Tobuk,  
Local Hire, USFWS

EWM

## INTRODUCTION

Kanuti National Wildlife Refuge was established on December 2, 1980 by Public Law 96-487, the Alaska National Interest Lands Conservation Act (ANILCA), as one of nine new refuges. The establishing legislation states Kanuti NWR "shall consist of the approximately one million four hundred and thirty thousand acres of public lands depicted on the map..." incorporated into the legislation. ANILCA also gave land to native Alaskans inside the refuge boundaries. These selections have resulted in a present refuge size which roughly exceeds one and one quarter million acres. Currently selections are still being conveyed and acreages are constantly changing as conveyances to Native Regional and Village Corporations and Individual Native Allotments take place. At the present rate it will be several years before all lands are conveyed, surveys completed, and easements established for access to both refuge and native lands. Until conveyance, the refuge is the interim manager for native selected lands, in cooperation with the potential owners and other interested parties.

Kanuti NWR is located predominately in a basin, formed by the broad Kanuti and Koyukuk river valleys, slightly north of the central Alaskan land mass in the foothills of the Brooks Range. The Ray Mountains lie to the south and high ground consisting of foothills and mountains to the east and west. The refuge lies on the Arctic Circle between 66 and 67° north latitude and 151 to 153° west longitude, about 150 air miles northwest of Fairbanks. The north slope haul road and pipeline pass a few miles east. Two native villages lie just outside the boundaries, Evansville/Bettles Field to the north and Allakaket/Alatna to the west. The villages, along with other scattered permanent dwellings in the area, have approximately 400 people. Most of these are Athapascan Indians, with some Eskimos and Caucasians. Many of these individuals pursue a subsistence lifestyle on the refuge for at least a portion of their needs.

Historically, mining was fairly widespread in the area. Several settlements existed along the rivers and "diggings" were fairly widespread. At present no mining nor claims exist in the refuge and no obvious remains exist of the historic activity.

Humans have lived in Alaska for a minimum of 10-20,000 years. The Kanuti Flats and surrounding area are part of this long chain of human occupation, therefore several archeological sites exist in the refuge. Some of these areas have been identified by native groups and selected as cemetery/historical sites, while undoubtedly others remain unknown. Most of the archeological sites are middens of the hunter-gather type.

The climate in this area is characterized as continental, with slightly higher precipitation than average. Summers are short with generally moderate temperatures, winters are very long and cold. Spring and fall are brief, abrupt affairs. Thaw occurs in April, followed by river break-up in mid May. During May through September, average daily highs range upwards of 50°F. In September, the cold returns again and for the seven months from November through March the mean temperature is below zero. Each winter, temperatures in the -40° to -50°F range occur from one to several weeks, while summer temperatures range into the 90's. The extreme temperature range here is among the greatest on earth, from -70° to 92°F, over 160°. Little precipitation occurs, with most falling in August. Almost all snow falling during the

winter remains, as thaws are very rare. The average precipitation for the area as a whole is perhaps 12-13 inches.

Topographically, the central refuge area consists of rolling to flat plains, covered with numerous lakes and crisscrossed by streams and rivers. Elevations range from 500 to 700 feet through the central area, to over 3,000 feet in the surrounding mountains, plateaus and foothills.

Broadly speaking, most of the refuge consists of boreal forest and taiga. However, these terms are misleading in that the area is a complex of small diverse plant communities existing on numerous types of physiography and formed by many physical, serial and fire factors which form a complex mosaic of plant communities in most areas. Predominant plant communities include closed forests consisting of white spruce, paper birch and balsam poplar on uplands, with stands of large balsam poplar along rivers. Forests of large white spruce and paper birch exist along the Koyukuk. Poorly drained areas support open forests of black spruce with scattered birch, poplar and heath shrubs underlain by sphagnum moss, sedges and grass. Muskegs cover much of the lower lying valley areas. Under extremely wet conditions muskegs grade into treeless bogs dominated by small shrubs. Along watercourses, tall shrub thickets occur, with smaller versions on some upland areas.

At present, concise habitat types and their acreages are being identified and mapped in the comprehensive planning effort, along with water types and areas. In the future, these figures will be available, but at present, habitats are not precisely described nor their extent quantitatively known.

The low-lying central refuge area, known as Kanuti Flats, is the most productive area and supports numerous nesting waterfowl, other bird species, furbearers, moose, bear, wolf, and smaller mammals. The overall diversity of the habitat maze provides for an equally diverse wildlife population consisting of approximately 139 bird, 34 mammal and 19 fish species. An abundance of waterfowl nesting habitats exist. Some of the more important nesters include white fronted geese, Canada geese, pintail, widgeon, scaup and scoters. White fronted geese produced on the area go mainly to the Central flyway, while duck production may contribute to all major flyways.

Kanuti NWR was primarily established as a waterfowl breeding area, especially for white-fronted geese. Species referred to in the establishing order (ANILCA Sec. 302, 4, B, i.) include but are "...not limited to... white-fronted geese and other waterfowl and migratory birds, moose, caribou... and furbearers" with the primary intent "to conserve fish and wildlife populations and habitats in their natural diversity." Also stated in the order are the fulfilling of treaty obligations and furnishing the opportunity for continued subsistence uses for local residents and adequate water quantity and quality for fish and wildlife populations and habitats. We feverently hope for manpower, funds and a political climate which allows us to achieve these ends.

At present, Refuge headquarters is located in Fairbanks, with on-refuge improvements consisting of one "nationalized" trespass cabin. All operations are via air to the area, followed by either boat or foot travel after arrival. Current operations are centered around establishing base levels and documenting refuge resources. At present management is carried out on the basis of information at hand, which is scant in numerous areas but steadily improving.

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#### K. FEEDBACK

## A. HIGHLIGHTS

Baseline data gathering was still the major activity in CY 83. Since there has been little or no data gathering by any agency concerning wildlife and habitat within the Kanuti Flats in the past, there is much need to survey and document this information prior to commencing with the drafting of the Comprehensive Conservation Plan for Kanuti NWR.

On-ground reconnaissance was made to gather more specific information on wildlife, fisheries, water conditions and habitat in strategic areas within the refuge.

Waterfowl pair counts were conducted in May by flying transects covering the majority of the waterfowl habitat.

Other waterfowl census procedures were established to monitor production. Following these procedures, two field teams conducted waterfowl brood counts simultaneously along designated routes across the refuge.

A cooperative agreement was initiated between ADF&G, NPS and FWS in 1982 which resulted in the completion of the first phase of a study on the subsistence activities and harvests of communities along the upper Koyukuk river.

Aerial reconnaissance was conducted to review public use activities, search for illegal cabins and for other LE activities periodically throughout the year.

Meetings were held with village councils, Doyon, the Native Regional Corporation, Interior Village Association, Tanana Chiefs Conference, Alaska Department of Fish and Game, the Game Board Advisory Committee, State Fish and Wildlife Protection, BLM, Native allotment holders, homesteaders, commercial hunting guides, and numerous other individuals having interest in or knowledge of Kanuti NWR.

The Regional Office scrapped the decision to combine the refuges stationed in Fairbanks into a complex, but retained temporarily the common administrative staff under the Supervision of Kanuti Refuge.

The Kanuti Refuge continued to operate as a one man refuge until November when an assistant manager came on board. Previously, assistance in the field activities came from volunteers, local hire and through cooperative efforts of other agencies. However, projects were still somewhat limited due to lack of immediate supervision for other needed projects, funds and the availability of persons who could compile, analyze and prepare written reports of information collected.

## B. CLIMATIC CONDITIONS

Bettles Airport, located about 25 miles above the Arctic Circle and 3 miles outside the refuge's northern boundary, is the weather station nearest to Kanuti NWR. Occasional temperature and precipitation measurements made over the years at other locations in the Kanuti Basin indicate that the weather varies substantially in other areas. Since climatic conditions apparently vary, additional stations are very desirable to monitor the refuge and predict events. Comparing current conditions against past years would furnish insight into waterfowl production and other refuge resources. Therefore, we hope to

establish remote weather and hydrologic monitoring stations at several locations in the future.

The climate at Bettles is typical of interior Alaska above the Arctic Circle. Spring and fall are very short, both summer and winter arrive quickly with little transition between. Winters are long and cold, the summers short and moderate.

Recorded temperature extremes are from  $-70^{\circ}$  to  $92^{\circ}\text{F}$ , a range of  $162^{\circ}$ . Monthly average temperatures and precipitation totals are shown in the Table on page 4 and graph on page 5. Monthly temperature minimums average below zero from November through March, with periods occurring every year in the  $-45^{\circ}$  to  $-55^{\circ}$  range. The freeze-free period begins in late May and averages 89 days, ending in late August. Summer temperature maximums generally range in the high sixties and low seventies, infrequently reaching the eighties. At  $66^{\circ} 55'$  North latitude the summer days are long, as are the winter nights. On the brighter side, the sun remains above the horizon from June 2nd through July 9th. Temperatures cool rapidly during the late August - September period. The monthly average for October is about  $19^{\circ}\text{F}$  and that for November slightly below zero. Snow accumulation and freeze-up occur during this period.

Winds are generally moderate. There is very little seasonal variation in wind direction; north winds prevail for 10 of the 12 months. Strong winds are infrequent during any season. Average monthly wind speeds range from 5.8 to 7.6 mph. The record windspeed at Bettles is 40 mph.

Average annual precipitation is 13.55 inches, slightly above most interior locations, but well within the continental category. As the graph on page 5 shows, monthly totals average less than  $3/4$  inch per month from January through May, then rise rapidly to peak in August at about 2.3 inches. Average precipitation totals then fall throughout the winter and early spring to the yearly low of about  $1/2$  inch in May. This pattern is characteristic of most Alaskan stations.

Precipitation during much of the year falls as snow. Total snowfall has ranged from 40 to 130 inches during the 34 record years. Most snowfall accumulates throughout the long cold winter, although snowfall has occurred in all months except July.

Temperature and precipitation, during 1984 are shown and compared to normal on page 4 and 5. Monthly temperatures through July ranged slightly above normal, then dropped  $4-6^{\circ}\text{F}$  below normal through October. November through December reversed the trend. The cumulative yearly temperature was very close to the normal average, with a departure of  $+1.49^{\circ}\text{F}$ .

Break-up on the Koyukuk at Evansville occurred on the 7th of May. The spring thaw, which opened the area to waterfowl for another season, is documented in the habitat section.

Precipitation remained below normal for 8 months of the year. During the period January through June, generally less than half the average precipitation amounts fell. Only the months July through October had amounts that equalled or exceeded the norm. August was very wet, the monthly average was exceeded by almost 80%. Monthly totals then fell to about normal levels in September and returned to very dry levels in November and December. In



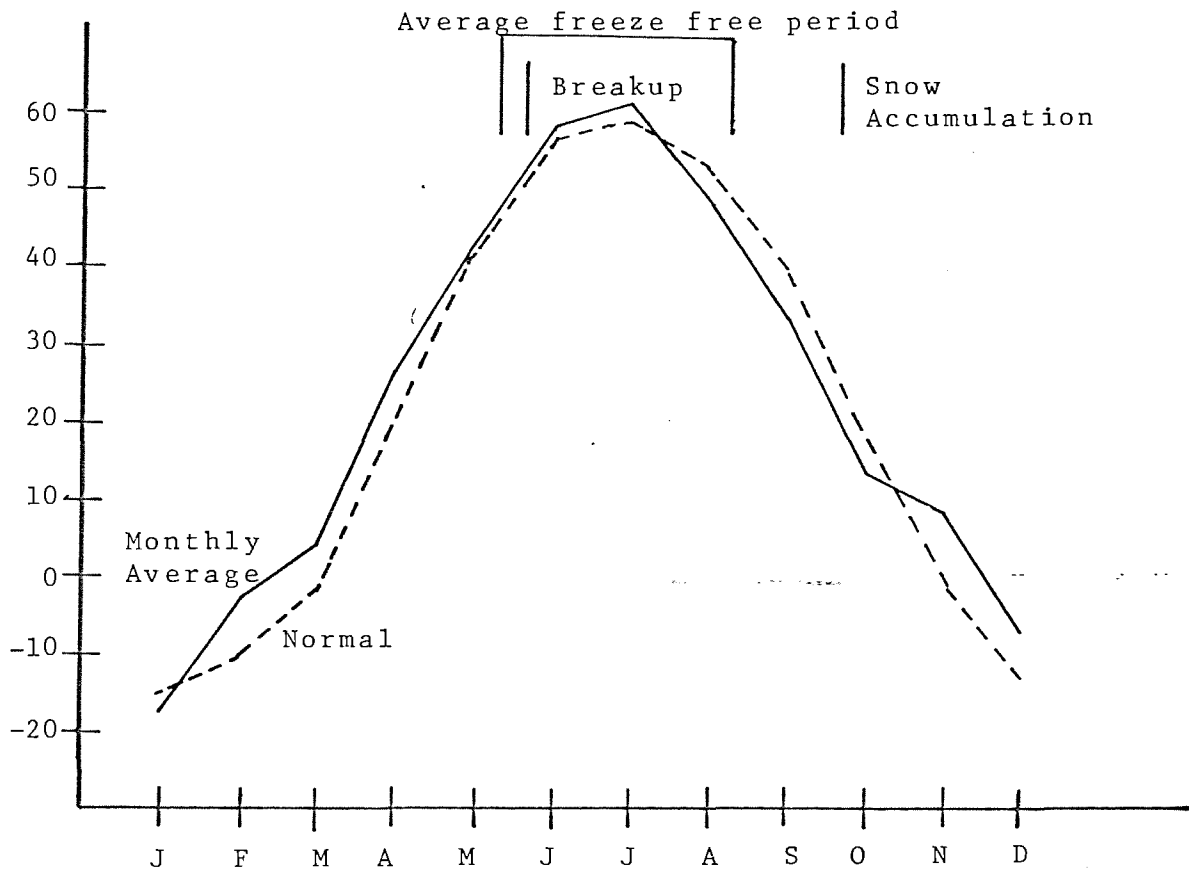
summary, winter periods, spring and early summer had precipitation generally totaling less than one-half the normal amount. After a wet late summer and normal fall and early winter, dry conditions returned.

During flights across the refuge at year's end, most areas had only a light dusting of snow, much less than the 1 1/2 to 3 feet of snow cover normally present. Unfortunately, snow accumulations for the year at Bettles are not currently available as this is written. Concern has been shown by several biologists in the Fairbanks area that insufficient snow accumulations exist to protect small mammals from extreme cold. This situation appears to be severe on Kanuti NWR. Snow accumulation data, as well as any effects shown will be included in future narratives.

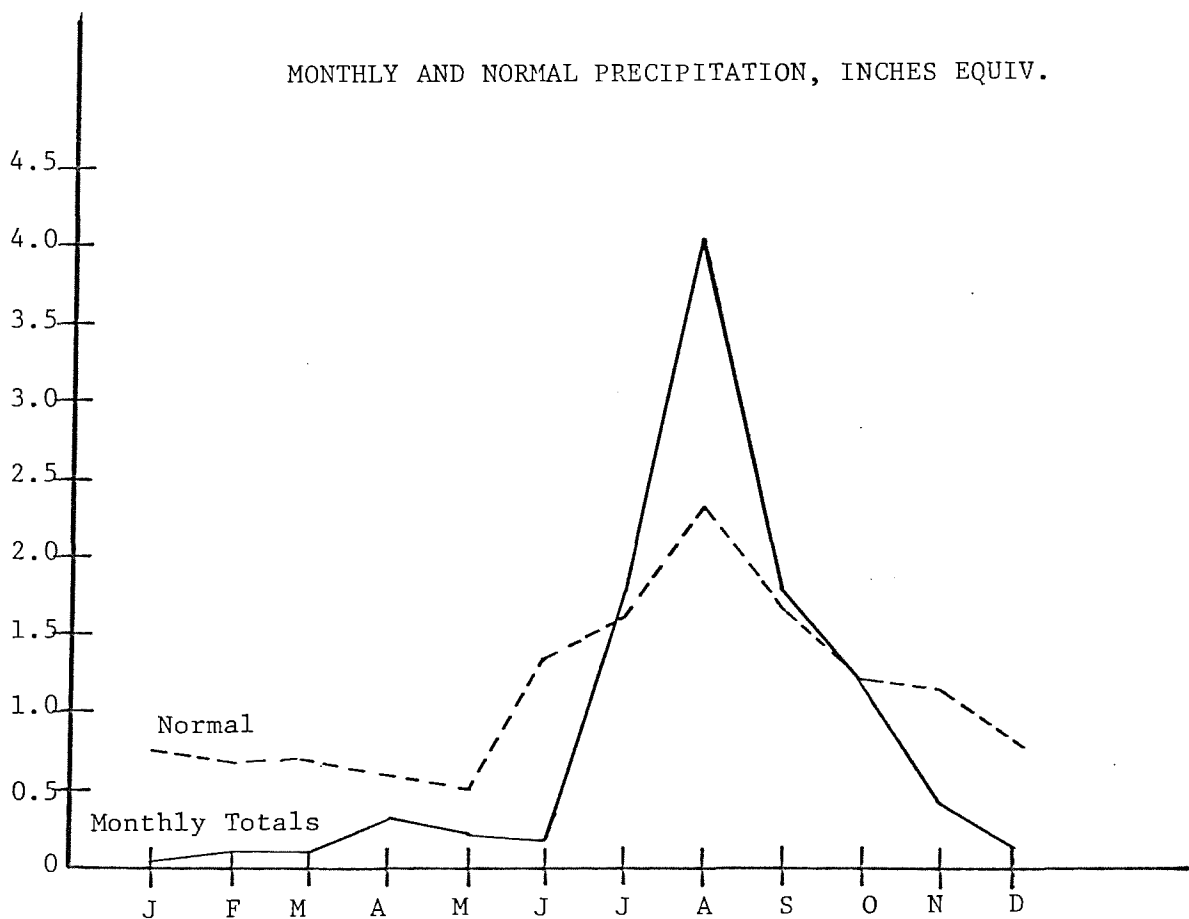
1983 TEMPERATURE AND PRECIPITATION, BETTLES AIRFIELD  
Reported in degrees F and inches

<u>Temperature</u>	MONTHS												YEARLY TOTAL AND AVERAGES
	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
AVERAGE	-17.2	-2.3	4.7	26.9	43.3	58.4	61.2	48.6	33.9	14	8.6	-6.6	22.79
NORMAL	-14.5	-9.7	0.8	20.3	42.8	56.8	58.6	53.2	40.5	18.9	0.3	-12.4	21.3
DEPARTURE	-2.7	7.4	3.9	6.6	0.5	1.6	2.6	4.6	6.6	-4.9	8.3	5.8	+1.49
HIGH	31	26	29	52	86	90	84	68	58	38	33	18	
LOW	-57	-36	-32	-9	22	31	39	31	2	-14	10	-35	
<hr/>													
<u>Precipitation</u>													
MONTHLY	0.05	0.12	0.11	0.33	0.22	0.18	1.77	4.07	1.81	1.23	0.43	0.14	10.46
NORMAL	0.76	0.68	0.71	0.60	0.50	1.37	1.64	2.34	1.68	1.21	1.16	0.82	13.55
DEPARTURE	-0.71	-0.56	-0.60	-0.27	-0.28	-1.19	0.13	1.73	0.13	0.02	-0.73	-0.68	-3.01

1983 TEMPERATURE AND PRECIPITATION  
 BETTLES AIRFIELD, NWS DATA  
 Monthly Average and Normal Temperature °F



MONTHLY AND NORMAL PRECIPITATION, INCHES EQUIV.







Winters are bleak on the refuge as can be observed  
 in this photo of the Koyukuk River with South Fork Koyukuk  
 in background. E.W.M.



Waters start flowing in Henshaw Creek in early May. E.W.M.



Ice breakup on the Koyukuk River at Bettles occurred  
on the 7th of May 1983. E.W.M.



Summer thunder storms bring rain to Kanuti NWR as well  
as fires. E.W.M.



## C. LAND ACQUISITION

### 1. Fee title

The exterior boundaries established by ANILCA for Kanuti NWR contain roughly 320,000 total acres of Native selected land, as shown on land status map, p. 9. These figures are from BLM's Computer Automated Lands Record and are for a computer "window", or area, that is slightly larger than the boundaries. Additionally, discrepancies in this system do occur. Therefore, the figure given is subject to substantial revision, but will serve to show the order of magnitude for the present. The land status is changing constantly on selected lands, as actual acreages are established by survey and easements for trails, navigable waters and individual native allotments are subtracted from the conveyances as they are issued.

Selections were made by six entities, Doyon Native Corporation, the villages of Allakaket, Evansville and Alatna, the State of Alaska and individual allotments by native Alaskans. Doyon Native Corporation is the largest inholder, with 10+ townships, followed by Allakaket with about 3, Evansville with around 2/3 and Alatna with about 1/2. Around 12,000 acres were selected as Cemetary/Historical Sites. Twelve sections in T 14N, R 18W are a 14H (8) selection by Doyon.

The State of Alaska still has a selection, T 23N R22W, which has not been officially ruled. However, since they filed long after the deadline the selection will almost certainly be rejected.

Conveyance for Regional and Village lands have occurred only in the northern portion of the refuge, as marked on the lands status map. Undoubtedly, it will be several years before all selected lands are conveyed at the present rate.

Individual native allotments currently consist of 78 parcels belonging to 41 individuals on refuge or native selected lands within the exterior boundary. Conveyance is proceeding somewhat more rapidly on these. twenty-four parcels have been surveyed. The land status map shows the approximate locations of all parcels. As seen from the map, several areas are quite popular, including some of the areas selected as cemetary-historical sites, probably indicating long occupation in these areas.

No mining claims exist on the refuge and only one homesite of 5 acres.

### 2. Easements

As Regional and Village Corporation selections are considered for interim conveyance, we have been requested to comment and make recommendations concerning easements across these private lands as access to public lands. As of December, recommendations have been made for all selections within the boundaries of Kanuti NWR. There may be revisions required later following interim conveyances. There is no way at the present time to ground check the numerous recommended access routes to insure that they are adequate. Year-round access may never be adequate for some areas.



## ALASKA



## D. PLANNING

### 1. Master Plan

The Comprehensive Conservation Plan required by ANILCA Sec 304(a) was scheduled to begin in September 1983. However, postponements occurred and the schedule now is to begin in February 1984 and complete the plan in August 1986. Much effort has been expended in collecting base-line information on Kanuti NWR that will greatly assist the planning effort. Landsat mapping is nearing completion.

The regional planning team for Kanuti will consist of Leslie Kerr, Team Leader, Jill Parker, Assistant Planner, Dr. Vivian Mendenhall, Team Biologist, and Pamela Wilson, Public Involvement Person.

Meetings have been held with the planning team to discuss procedures and types of information that will be required.

### 2. Management Plans

A number of management plans are beginning to take shape following the 1983 field season. Having now a basic familiarity of the area and its wildlife, the environment conditions, logistics involved and another person on board to assist, preparation of the various plans have begun.

The development of the fire management plan is being coordinated with the development of the Koyukuk-Seward Fire Management Plan and with local neighbors.

The Waterfowl Management Plan is underway but several aspects need more information prior to drafting. Several inventory procedures have been established.

The Waterfowl Brood Count Procedures are also at a stage where they can be drafted.

The Moose Management Plan requires more work prior to drafting. Insufficient manpower and funds have delayed this plan.

The Public Use Plan will consider subsistence use as well as other public use. Studies are now being conducted in this area in order to determine subsistence use areas and potential impact of other uses as required by ANILCA

### 3. Public Participation

It has been the policy of Region 7 and of this refuge to include public participation in most all planning.

During calendar year 1983 public participation was sought from various organizations, in particular the Interior Regional Council, Tanana Chiefs Council, the village councils of Evansville, Alatna, Allakaket, and Hughes in enlisting their support, cooperation and participation in a subsistence study being conducted under a Memorandum of Agreement between the FWS, NPS and Division of Subsistence, ADF&G.



Refuge Manager McIntosh, participates in a public meeting in Allakaket concerning proposed right-a-ways through village select lands within tne Kanuti NWR.

EWM

#### 4. Compliance with Environmental Mandates

Nothing to report this CY.

#### 5. Research and Investigations

A study, "Contemporary Resource Use Patterns in the Upper Koyukuk Region" was conducted by the Division of Subsistence of ADF&G in cooperation with the Gates of the Arctic National Park and Kanuti NWR. Since the state took the lead in the study, no FWS research number was assigned. However, all agencies contributed and participated in the study.

James R. Marcotte of ADF&G was the principal investigator and Terry L. Haynes, ADF&G was the Project Coordinator.

The field work was conducted in the Upper Koyukuk Region in the villages of Evansville, Alatna, Allakaket and Hughes during the period of June through September 1983.

The objectives of the study were:

- (1) to identify the fish, wildlife and plant species utilized in 1982; seasonality of harvest activities; harvest levels; means and methods of procurement; processing, preservation, and distribution patterns; and to explore the relationship of the subsistence and cash sectors of the economics in Upper Koyukuk communities;
- (2) to map land use patterns for hunting, fishing, trapping, gathering, and travel in the Upper Koyukuk area around Bettles/Evansville, Allakaket/Alatna, Hughes and Huslia;
- (3) to identify areas of special significance in the local resource use economy (such as game crossings and high development or other proposed changes in land use patterns would impact local resource uses;
- (4) to identify changes in local harvest patterns which may have occurred during the past ten years; and
- (5) to access topical areas warranting further attention in providing a comprehensive picture of the resource use economy in the Upper Koyukuk region.

The final report was scheduled to be completed on November 30, 1983, but due to uncontrollable circumstances the completion date had to be rescheduled to February 1984. Therefore, the final results cannot be included in this report. Some of the information, gathered however, will be presented in various sections of this report.

#### E. ADMINISTRATION

##### 1. Personnel

During FY 83 the Kanuti Refuge staff consisted of a refuge manager, five clerical persons and one temporary "local hire" (biological technician). The clerical personnel made up a "common administrative staff" that served the three refuges stationed in Fairbanks.



The decision to combine the three refuges into a complex was wisely discarded in the spring of 1983. In October 1983, at the beginning of FY 84, each refuge was to have its own clerical staff and be able to operate independently of the others. However, this was delayed due to lack of FTE's and other "red tape", so the common administrative staff continued to operate as normal under the supervision of the refuge manger of Kanuti throughout the Calendar Year.

At the beginning of FY 83 Kanuti was assigned 2.6 FTE's. A request was submitted for 3 more FTE's to cover the remainder of the administrative staff. The FTE's were not supplied but supposedly remained with each separate refuge served by the common administrative staff supervised by Kanuti's manager.

At the beginning of FY 84, three FTE's were assigned to Kanuti to cover three PFT employees that would operate as a complete staff including positions of refuge manager, assistant refuge manager and one refuge clerk. No FTE's were assigned to cover the remaining four clerical positions still operating under the supervision of the refuge manager of Kanuti.

#### Kanuti Staff CY 1983

McIntosh	Refuge Manager	GS-485 12/3	EOD	11-15-81	PFT
Heffernan	Asst. Refuge Manager	GS-485 11/1	EOD	11-13-83	PFT
Liedberg	Administrative Officer	GS-341-9/3	EOD	8-22-82	PFT
Aucoin	Financial Assistant	GS-503-5/2	EOD	11-28-82	PFT
Ramirez	Clerk Typist	GS-322-3/1	EOD	11-14-82	PFT
Tate	Clerk Typist	GS-322-3/1	EOD	2-20-83	PFT
Hudson	Clerk Typist	GS-322-3/2	EOD	8-7-83	PFT
Tobuk	Biological Technician	GS-404-5/1	EOD	5-23-83	Tem Loc Hire
				11-1-83	converted to intermittant

2. Youth Programs - Nothing to report.

3. Other Manpower Programs

"Local Hire" was utilized by Kanuti NWR during FY 83 to assist in the accomplishment of a subsistence study in the Upper Koyukuk region. The individual, a native, worked well in the assigned tasks. Much was learned from this first local hire. The background and behavioral ways are somewhat different in persons that live their life in remote villages in Alaska. Punctuality and tight schedules seem to be somewhat difficult for them to become adjusted to if they have not spent considerable time away from the village involved with our culture. Immediate supervision is required in most cases.

4. Volunteer Programs

Kanuti NWR was fortunate this year to have four excellent volunteers. Two of which were college graduates having lived and worked in Fairbanks and had spent much time in Alaska's wilderness areas. The success of the summer field season can be contributed to their efforts and attitude.

## 5. Funding

Funding for Kanuti NWR during FY 83 totaled \$125,000 of which \$105,000 was programmed for 1210 and \$20,000 for 1220.

Approximately \$72,000 went for salaries and associated costs, while some \$10,000 was utilized in air charter and travel costs. Other fixed costs amounted to approximately \$10,000. The remaining \$33,000 purchased equipment, office supplies, field supplies and covered other miscellaneous expenses.

FY 84 funding is presently set at \$225,000 and is scarcely adequate to accomplish the programs scheduled for this FY. The activities involved in refuge operations on the new refuges in Alaska seem to multiply each year and have not reached a leveling-off point where one can predict the base funding level that will be required for the refuge. Volunteers and local hire are necessary on Alaskan refuges due to tight personnel ceilings but they must be supervised by qualified persons and be equipped adequately for safety and accomplishment of their assigned tasks in remote wilderness areas. Therefore, the number of these type individuals is limited by lack of professional employees and funds.

## 6. Safety

No lost-time accidents occurred during the calendar year among the employees of Kanuti NWR.

Safety is the top consideration in all activities of the refuge. It is especially stressed upon those employees working in the remote wilderness where even a seemingly minor accident could become serious. All employees receive some training in wilderness survival, first aid, bear safety, water safety, radio operation and other items related to the conditions that they may be expected to encounter while performing their duties.

Paul Liedberg chairs the safety committee that includes project leaders of each of the three refuges, the Northern Alaska Ecological Services and Fisheries Resources. Our common use of office, storage and hanger space as well as common problems encountered in field activities demonstrated a mutual benefit of joining together in our safety consciousness. Meetings are held once a month to cover safety topics that we all encounter. Each month a different project presents the program, cleans the common use areas and inspects for safety hazards. This cooperative effort works well and attempts to keep our employees alert and safe.

## 7. Technical Assistance

Refuge manager, McIntosh, provided technical assistance to the Alaska Fire Service on the Koyukuk-Seward Fire Plan. He is a member of the Planning Team for that region.

Assistance has also been provided to BLM and the village councils in vicinity of Kanuti NWR pertaining to easements across native lands to public lands.



Volunteer Ken Troyer planning field trip routes to collect waterfowl brood count data. All field trips require much planning to insure accomplishment of objective and safety.  
E.W.M.



The pilot directs the loading of the "Wigeon" in preparation for a flight to the refuge. Keeping the load of gear light enough is always a problem.

E.W.M.

## 8. Other Items

Nothing to report.

## F. HABITAT MANAGEMENT

### 1. General

Kanutu NWR is located in the northern portion of the Koyukuk River valley and includes numerous tributaries e.g. Kanuti River, Henshaw Creek, Peavey Creek, South Fork, Fish Creek, Nolitna Creek, Kodosin Nolitna Creek, and Kanuti Chalatna Creek to mention a few. One of the best descriptions of this area is included in "Tracks in the Wildland: A Portrayal of Koyukuk and Nunamiut Subsistence: by Richard K. Nelson, Kathleen J. Mautner, and G. Ray Bane: "Like other large interior rivers, the Koyukuk follows a twisted, meandering course, especially where it flows across the flats. Tracings of its geologic history are revealed by innumerable sloughs, oxbow lakes, meadows, timbered ridges, and meander scars scattered everywhere along its flanks. The riverbed is continually shifting today, restructuring the environment and creating an important dynamic element in riverine ecology."

"Besides the river itself, the Koyukuk valley contains innumerable tributaries, ranging from major watercourses hundreds of miles long to insignificant creeks that trickle down over the banks. The large flats are a veritable scrambling of streams, wandering sinuously through a landscape of swamps, muskeg, ponds, and lakes of every size and shape."

"In some areas there is more water than land, and when the river floods there may be no land at all. These periodic floods, which occur in the springtime, are apparently essential to prevent many of the lakes from drying up." "...Vegetation of the Koyukuk River drainage is broadly classified as boreal forest or taiga, but this characterization gives a deceptive impression of homogeneity. Rather than a vast expanse of timber, the land is covered by diverse plant communities, patterned according to differences in elevation, drainage, permafrost development, soil type, fire history, and climate. In the low country, closed forest, open forest (muskegs), bogs, and shrub thickets intermingle in a complex pattern worthy of a divine abstractionist. Mountain slopes and valleys create another mosaic, this one of forest and thicket in the lower elevations, fingering into moist tundra higher up, and finally uniform alpine tundra above 3,000 feet or so...". "... Despite its apparent disarray, this complexity sorts itself into a few identifiable plant community types. First of these is the closed forest of white spruce, paper birch, balsam poplar, which occurs in well-drained places along rivers and hillsides. Beneath the forest canopy is a scattering of shrubs (such as willows and heaths) growing from a carpet of moss. Where fires have occurred, forests of quaking aspen or birch predominate, with shrubs and young spruce comprising of understory. Along the rivers, stands of large balsam poplar are quite common. Forests containing very large white spruce and paper birch occur frequently along the Koyukuk River, providing an excellent source of building materials and firewood."

"Areas that are poorly drained, north facing, high altitude, and/or high latitude often support open forests of black spruce, with scatterings of birch or white spruce. Thick sphagnum moss usually covers the ground, with





Open boreal forest and bogs dominate the NE Portion of the refuge. Jack White mountains are in background.  
E.W.M.



The central portion of refuge has a little more relief with mixed open and closed canopy forests. Note vegetation along edges of lakes advancing into lakes. These lakes will eventually be covered and resemble the bogs of the above photo.  
E.W.M.



sedges, grasses, and heath shrubs growing in association. Muskegs of this sort are very common at the Koyukuk Valley and Brooks Range. In extremely wet situations, muskegs are replaced by treeless bogs, dominated by small shrubs such as resin birch and a variety of heaths (e.g. blueberry, cranberry, Labrador tea)."

Shrub thickets are another very common plant community throughout this region. Along the rivers, they contain tall stands of willow and alder, and are especially common on periodic flooded alluvial deposits."

"Elsewhere, on the flats and mountain slopes, they are made up of scrubby alder, willow, and resin birch thickets. These communities often provide excellent habitat for moose, snowshoe hare, ruffed grouse and other game species."

"At higher elevations throughout the Koyukuk and Brooks Range, alpine tundra vegetation hugs the windswept terrain. This plant community includes various lichens, forbs, grasses, and shrubs, growing in a dense mat. In many areas patches of barren, rocky ground disrupts the continuity of living cover. The alpine tundra provides habitat for important game species such as caribou, brown bears, and Dall sheep, and it makes excellent walking terrain for man."

Landsat maps are near completion for Kanuti NWR that will greatly aid the cover mapping required for Comprehensive Conservation Plan and, we hope, a usable map for other planning.

## 2. Wetlands

Low rainfall and runoff during spring and early summer created relatively dry conditions on Kanuti NWR. Low water conditions in the Kanuti River drainage resulted in many practically dry lakes, especially those with direct unobstructed runoff to the Kanuti River. Beaver played an important role in maintaining waterlevels in most lake drainage systems in the area. Kanuti River was 4 to 6 feet below normal level in June and July. A greater than normal rainfall in August brought the waterlevels back to normal. Late spring rains in the mountains of Upper Koyukuk brought flooded condition to the Koyukuk River, but it soon subsided to possibly lower than normal levels.

## 3. Forests

The forests lie in an erratic pattern throughout the refuge as described earlier in this section. Some harvest of timber is important for house logs and firewood for local residents. Several hundred logs were cut in CY84 by the village of Allakaket for a village development program. One of the buildings was a large octagon-shaped structure, with no interior supports, that will replace the old community center. The logs that were harvested come primarily from the village selected lands up-river. They are floated in log rafts to the village.

"Clear-cutting" does not occur in the native harvest methods. Only certain white spruce trees are selected from a grove near a stream. Harvesting from various groves may occur along twenty or more stream miles from the village.



Houselogs for subsistence use are cut and piled on the bank of Koyukuk River for later rafting down the river to Allakaket. K.T.



An old cabin sits on the edge of an eroding bank of Koyukuk River. T20N, R21W, Sect. 3 K.T.

The Most important tree species for timber is the white spruce. Black spruce, resin birch, and paper birch are primarily utilized for firewood.

4. Croplands - Nothing to report.
5. Grasslands - Nothing to report.
6. Other Habitats

Alpine tundra is described above. The extent of acreage is unknown but is less than involved with the other habitats on Kanuti NWR.

7. Grazing - Nothing to report.
8. Haying - Nothing to report.
9. Fire Management

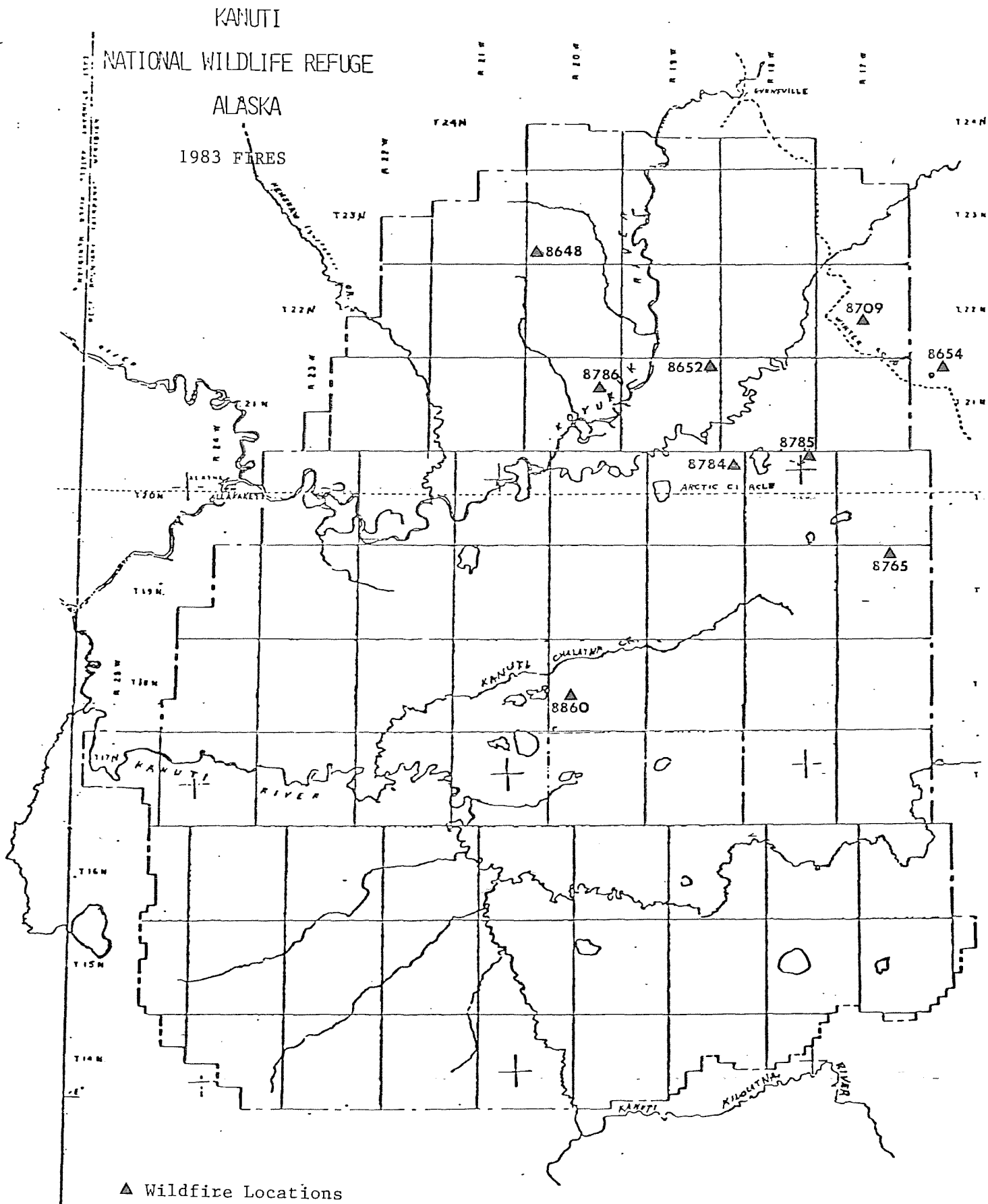
The Bureau of Land Management (BLM) has had the responsibility for fire suppression activities on these areas for many years and retained that status following the enactment of ANILCA in 1980. However, reorganization of BLM occurred in 1982 and the fire suppression activities formed a branch of their own called the Alaska Fire Service. The FWS maintains a cooperative agreement with them for fire suppression activities and provides general guidelines for these activities on national wildlife refuges.

Lightning caused wildfires have played an important part in the ecology of the various habitats within the Kanuti NWR.

It is too early to determine what effect fire suppression will have on the refuge in the long range, but it is necessary at present to protect the numerous private inholdings and selected lands within the refuge boundaries. The need for prescribed burns in certain habitats may be necessary to maintain quality habitat for various wildlife species and possibly prevent large wildfires from occurring to the extent that they adversely affected wildlife populations.

Less than 56 acres burned within Kanuti NWR during CY 1983. Nine fires were reported and acted upon by AFS. Each fire is briefly described below and plotted on the following map.

BLM							
Fire Number	Date 1983	Time	Size Acres	Hours Duration	Cause	Fire Fighters	Attack Method
8648	6/27	1822	20	43	Lightning	31	Jumpers/Retardant
8652	6/27	2039	1	3	Lightning	2	Jumpers
8654	6/27	2059	20	3	Lightning	7	Jumpers
8709	7/05	1503	1	1	Lightning	4	Jumpers/Retardant
8765	7/07	1423	1	24	Lightning	8	Jumpers
8784	7/07	1832	10	13	Lightning	9	Jumpers/Retardant
8785	7/07	1834	1	7	Lightning	2	Jumpers
8786	7/07	1848	4	0	Lightning	0	Rained out
8860	7/10	1339	1	9	Lightning	4	Jumpers







This photo taken in late spring 1983 shows a small portion of the habitat burned in the 1974 200,000 acre wildfire in the western portion of the Kanuti NWR. E.W.M.





The large lake to the right is Kaldolyiet Lake. It has a uniform 4-6 ft depth throughout while the two adjacent lakes that flow into Kaldolyiet are 15-20 feet deep. Pike populations are large in the smaller lakes but small in the Kaldolyiet. E.W.M.



Waterfowl nesting and rearing habitat is abundant on Kanuti NWR as well as habitat for furbearers. E.W.M.

10. Pest Control - Nothing to report.

11. Water Rights

Navigable water areas were being designated during CY 83. To date we do not have an adequate description of these designated areas or know whether the areas have been confirmed.

12. Wilderness and Special Areas

No area within the refuge has been designated as wilderness. There are, however, special areas that have archeological significance. Some of these special areas have been designated as cemeteries or Historical sites and are controlled by the Doyon Regional Corporation. Knowledge of other potential sites have been discovered in various literary references such as early mining town sites. (See map on following page that was reproduced from an Alaska Geographic publication "Up the Koyukuk"). Several bluffs along the Koyukuk River and its tributaries are said to contain Mammoth bones which are occasionally washed out by the erosive action of streams.

13. WPA Easement Monitoring - Nothing to report.

G. WILDLIFE

1. Wildlife Diversity

The diversity and maze of habitat as described in the previous section provide for an equally diverse wildlife population. The best information that the refuge manager could find indicates that approximately 139 different species of birds have been recorded on or near the Kanuti NWR. Some 34 species of mammals are recognized and approximately 19 species of fish (refer to the lists of wildlife on the following pages).

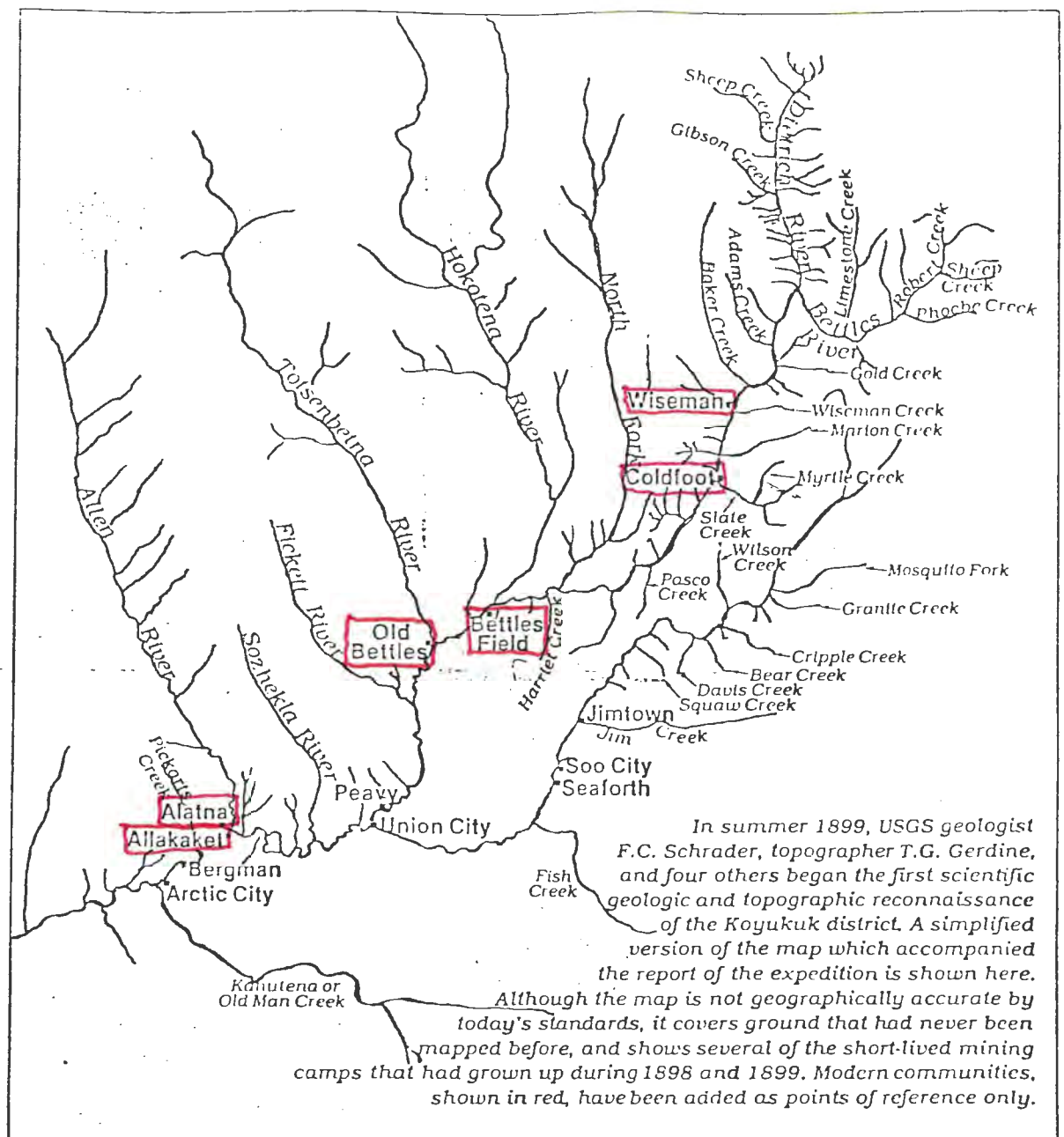
Each new area investigated included the recording of the various wildlife species present. However, many of the smaller birds remain unidentified due to an inability to observe clearly identification markings in brief observation opportunities. Some were identified only from photos taken with telephoto lens. To date 59 species of birds, 13 species of mammals and 11 species of fish have been observed on Kanuti NWR by the refuge staff.

2. Endangered Species

Only one species found on Kanuti NWR is recognized as being endangered. This species, the peregrine falcon, is thought to nest around the cliffs of Kanuti Canyon and in the vicinity of Sithylemenkat Lake. No nesting has been observed to date by the refuge staff. However, on July 10 and 11 a single peregrine falcon was observed several times at the mouth of Bridge Creek on the Koyukuk River in Sec. 34 of T20N, R23W.

3. Waterfowl

Waterfowl inventories were initiated during the spring and summer in an effort to determine the species present, location of nesting and staging areas and the production of waterfowl within the boundaries of Kanuti NWR.



Reproduced from Alaska Geographic Quarterly, Vol. 10, November 4, 1983 entitled Up The Koyukuk.

This figure indicates possible archeological sites of the gold rush period within the Kanuti NWR.





Travel is not always easy within Kanuti NWR as this volunteer is finding out. Low water conditions in vicinity of Kanuti River made it more difficult than usual. E.W.M.



Camp routine included boiling of water for drinking purposes. This particular task is no longer necessary due to the new water purification filters recently purchased. E.W.M.





Waterlily, Nuphar polysephala, cover many of the large shallow lakes within the refuge. E.W.M.



Some lake areas are completely covered by marsh grasses. Wildlife observations are being made by volunteer Ken Troyer. E.W.M.



Efforts were made to determine the feasibility and logistics of inventory procedures that can form an inventory plan which would give valid information on a continuing basis. Costs and time involved are critical elements considering the funds and manpower available to Kanuti NWR.

Sixteen aerial transects have been established that cover most of the refuge wetland habitat to obtain pair-counts in late May (shown on map, back cover). This arrangement worked out well in 1983 and will be continued. The results from the May 25 1983 survey following the standard aerial pair-count procedures adopted by waterfowl biologist Jim King and Bruce Conant in their surveys yielded the following population indexes for Kanuti NWR.

<u>Geese</u>	<u>Species</u>	<u>Population Index</u>
	W-F Geese	2,753
	Canada Geese	741
	Total	3,494
<u>Ducks</u>	Mallard	6,475
	American Widgeon	25,156
	G-W Teal	8,743
	Shoveler	4,064
	Pintail	23,800
	Scaup	21,256
	Goldeneye	3,106
	Bufflehead	2,287
	Oldsquaw	7,113
	Scoter	5,140
	Merganser	141
	Total	107,281

Waterfowl brood surveys were accomplished in June and July in five areas of the refuge. These were a cluster of lakes in the southeast portion of the refuge that drain into the Kanuti River, Clawanmenka Lake and vicinity, Old Dummy Lake, Kanuti River and a few adjacent lakes and Fish Creek, South Fork, Koyukuk River and adjacent lakes (see attached map, back cover). Individual field reports were written and submitted for each area describing the habitat conditions and wildlife observations. A summary of the results are included on the following page.

It was learned from these surveys that most of the White-fronted geese broods are located in the Kanuti River, although Canada geese seemed evenly distributed between the Koyukuk River and Kanuti River. The number of young geese per brood average significantly higher along the Kanuti River. All geese broods were observed along the rivers and in lakes immediately adjacent to them. These areas seemed to have the greater fluctuating water levels and many had exposed mud flats supporting a young growth of grasses which exhibited evidence of intense browsing by geese.

Only a few duck broods were observed in the rivers, however, many were observed in lakes immediately adjacent to the rivers. They seemed to prefer lakes with water levels more stabilized by beaver dams.

Lakes more isolated from the rivers also seemed productive, as illustrated by Clawanmenka Lake and Old Dummy Lake. Other lakes seemed to be high producers based on numbers of pairs observed early in the season, yet,

Waterfowl Survey Summary - Kanuti NWR - Summer 1983

Species	Cluster of Lakes 690 Acres					Clawmanenka & Vicinity 250 Acres					Old Dunny Lake 610 Acres					Kanuti River 1,925 Acres				
	No. Young	Young/ Acre	No. Broods	Young/ Brood	No. Adults and/or subadults	No. Young	Young/ Acre	No. Broods	Young/ Brood	No. Adults and/or Subadults	No. Young	Young/ Acre	No. Broods	Young/ Brood	No. Adults and/or Subadults	No. Young	Young/ Acre	No. Broods	Young/ Brood	No. Adults and/or Subadults
Swan					3															
Canada Geese	4	.006	1	4.00	65											114	.059	22	5.18	75
W-F Geese					398										38	157	.082	30	5.23	159
Mallard					158	6	.021	1	6.00	2										
Widgeon	82	.119	13	6.51	49	96	.343	22	4.36	47	45	.074	9	5.00	22	13	.007	2	6.50	3
G-W Teal	18	.023	3	6.00	15	15	.055	3	5.00	3						6	.003	1	6.00	2
Shoveler	47	.068	8	5.88	47	15	.055	3	5.00	4	14	.023	2	7.00	18					
Pintail	14	.020	3	4.67	40	48	.171	11	4.36	23	10	.016	2	5.00	3	33	.017	5	6.60	9
Canvasback											17	.028	2	8.50	4					
Scaup	82	.119	15	5.47	87	107	.382	13	8.23	77	98	.161	14	7.00	65	28	.015	4	7.00	10
Goldeneye																6	.003	1	6.00	4
Bufflehead						5	.018	1	5.00	20	15	.025	5	3.00	42					
W-W Scoter					1															
Surf Scoter			18			4	.014	1	4.00	3	4	.007	1	4.00	5					
Unidentified						9	.032	4	2.25	8										2
Common Merganser																				
Red-breasted Merganser																				

\*This figure is based on actual complete broods seen - not on the total No. of young shown in table.

Waterfowl Survey Summary - Kanuti NWR - Summer 1983

Fish Creek, South Fork, Koyukuk River 2,642 Acres						Total Survey Area 6,147 Acres					Estimated open water, Refuge (River & Stream) 184,000 ac. Duck brood habitat, est. 147,200 ac. Goose brood habitat, est. 55,200 ac. Swan brood habitat, est. 128,800			
Species	No. Young	Young/ Acre	No. Broods	Young/ Brood	No. Adults and/or Subadults	No. Young	Young/ Acre	No. Broods	*Average Young/Brood	Total No. Adults and/or Subadults	Total No. Young	Total No. Adults/ Sub- adults	Total Birds	
Swan	3	.0011	1	3.00	2	3	.0005	1	3.00	5	177	295	472	
Canada Geese	121	.046	21	4.81	54	239	.0389	44	4.88	194	3,253	2,641	5,894	
W-F Geese	13	.005	2	4.50	11	170	.0277	32	5.18	606	2,314	8,249	10,563	
Mallard	12	.005	1	7.00	3	18	.0023	2	6.50	163	1,061	9,609	10,670	
Widgeon	114	.043	14	5.00	29	350	.0569	60	5.10	150	20,632	8,842	29,474	
G-W Teal	85	.032	8	5.88	30	124	.0202	15	5.73	50	7,310	2,948	10,258	
Shoveler	51	.019	8	5.75	16	127	.0207	21	5.81	85	7,487	5,011	12,498	
Pintail	80	.030	9	5.66	26	185	.0301	30	5.20	101	10,906	5,954	16,860	
Canvasback	41	.016	3	5.33	13	58	.0094	5	6.60	17	3,419	1,002	4,421	
Scaup	83	.031	1	6.00	19	398	.0647	47	6.85	258	23,462	15,209	38,671	
Goldeneye	20	.008	4	5.00	4	26	.0042	5	5.20	8	1,533	472	2,005	
Bufflehead	69	.026	4	7.50	14	89	.0145	10	5.00	76	5,247	4,480	9,727	
W-W Scoter										1	-	59	59	
Surf Scoter						8	.0013	2	4.00	26	472	1,533	2,005	
Unidentified					4	9	.0015	4	2.30	14	531	825	1,356	
Common Merganser					3					3	-	177	177	
Red-breasted Merganser					14					14	-	825	825	



Bruce Conant and Jim King await beside the turbine "Beaver" at Bettles Airfield prior to conducting waterfowl pair-count along established transects on Kanuti NWR. E.W.M.



Tundra swans breed within Kanuti NWR but are not abundant.  
T20N, R20W, Sec 3. K.T.



Canada goose goslings move for cover as field crews  
attempt to get an accurate count. K.T.





Waterfowl broods were observed in various age classes.  
Here pintail are in Class III while green-winged teal are  
in Class I  
K.T.



Canada geese and widgeon broods at or nearing flight stage.

KT





Green-winged teal broods were observed often during summer field trips.  
K.T.



Surf scoter pairs were observed often on larger lakes but broods seldom seen.  
E.W.M.

later observations revealed few broods being reared in the lakes. One such lake was Kaldolyiet Lake, a 1200 acre lake near the center of the refuge. This lake appears to be in the later stages of eutrophication. It has a uniform depth of 4 to 5 ft and is completely covered with waterlilies and other aquatic species. Marsh grasses line the shore where several duck nests were observed in early June. This lake also freezes solid during winter months and is late to thaw in spring. Other lakes have been observed from the air that seem to have similar characteristics. All such lakes seem to have been under direct influence of beaver activity for a long period. Silted-up old dams and new dams are present in most cases. The effects of beaver activity on the ecosystem and waterfowl production within the Kanuti NWR will be the subject of a study in the near future, providing approvals are received.

The waterfowl inventories accomplished in CY 83 are the first detailed, documented surveys to occur within the Kanuti NWR area. Therefore, there is no data available to which this information can be compared. The inventory procedures and sites utilized this year will require further modification due to logistics and feasibility problems, if they are to be conducted on a year to year basis.

The tundra swan population seemed to have been relatively low and scattered throughout the refuge. Cygnets were observed on several occasions.

#### 4. Marsh and Water Birds

Loons, grebes and sandhill cranes are the only birds in this class that are recorded as utilizing the refuge and vicinity. Loons observed on the refuge were usually found on large lakes and rivers. Though four species of loons occur on the refuge (common, yellow-billed, red-throated and arctic), only the common loon was observed with young. The other species were often paired and thought to have been breeding. The total refuge population of each species, based on a survey area of 8,400 acres, are as follows: common loon-800, red-throated loon-350, yellow-billed loon-90, arctic loon-350.

Red-necked grebes are quite abundant throughout the refuge and were observed nesting on floating mats of vegetation up to 150 ft from lake shorelines. The refuge population estimate for this species is approximately 3,000 birds.

Lesser sandhill cranes are not too abundant but are scattered throughout the refuge. Based upon general observations a rough estimate of the breeding population of sandhill cranes is approximately 50 breeding pairs.

#### 5. Shorebirds, Gulls, Terns, and Allied Species

The most abundant shorebird seems to be the lesser yellowlegs which has been observed on most every lake investigated. A total of eight species of shorebirds have actually been positively identified and several species observed where identification was not positive. (See Wildlife list on following pages).





Lesser sandhill cranes forage at the edge of Kaldolyiet Lake. The pair was nesting nearby in a marsh of a smaller lake. EWM



Lesser yellowlegs and Hudsonian godwits feed in the shallow edge of a lake located in section 26 of T16N, R19W. K.T.





Red-necked grebes nest on small floating vegetation masses in many lakes within Kanuti NWR. E.W.M.



A lesser yellowlegs and Bonaparte's gull feed along the shore of a lake. The Bonaparte's gull nests in the black spruce and muskeg areas adjacent to the lakes. E.W.M.



Gulls observed and identified thus far include the mew gull, Bonaparte's gull and the glaucus gull. The mew gull and Bonaparte's gull nest within the refuge. The glaucus gull is seldom seen and no nesting has been recorded.

The arctic tern is common and is often seen as singles, pairs and flocks throughout the refuge.

The long-tailed jaeger is occasionally observed in certain areas within the refuge.

#### 6. Raptors

During summer investigations, the following numbers of raptors species were observed and recorded:

Bald eagle	4
Osprey	1
Rough-legged hawk	12
Marsh hawk	12
Peregrine falcon	1
Great-horned owl	21

A bald eagle was observed sitting on a nest located in a white spruce tree bordering the Kanuti River on July 6 in section 30 of T17N, R22W. Due to angle of observation no young were observed. Other bald eagles were observed periodically during field investigations.

Only one osprey was observed on the refuge. It was flying over Kanuti River between Kilolitna River entrance and Chalatna Creek entrance.

The rough-legged hawk was observed nesting on several occasions in white spruce trees boarding the Kanuti River.

The great-horned owl seems rather abundant on the refuge and is seen often. Observations of another owl, thought to be the great gray owl, occurred on several occasions but positive identification could not be made. Several other owls were also unidentified.

#### 7. Other Migratory Birds

Passerine birds were observed often in the trees and shrubs bordering the lakes and streams investigated. Many of these were not identified since their observations were incidental to other activities.

#### Wildlife List

The following list of wildlife reflects those species that are known to exist and those that probably exist on the Kanuti NWR at various times of the year or occasionally during migrations. Confirmed species sightings are indicated by an asterisk.

## Birds

Common loon (Gavia immer)\*  
Yellow-billed Loon (Gavia adamsii)\*  
Arctic loon (Gavia arctica)\*  
Red-throated loon (Gavia stellate)\*  
Horned grebe (Podiceps auritus)  
Red-necked grebe (Podiceps grisogena)\*  
Whistling swan (Olor columbianus)\*  
Trumpeter swan (Olor buccinator)  
Canada goose (Branta canadensis)\*  
Snow goose (Chen hyperboreus)  
Black brant (Branta nigricans)  
White-fronted goose (Anser albifrons)\*  
Mallard (Anas platyrhynchos)\*  
Pintail (Anas acuta)\*  
Green-winged teal (Anas carolinensis)\*  
Blue-winged teal (Anas discors)  
America widgeon (Mareca americana)\*  
Shoveler (Spatula clypeata)\*  
Redhead (Aythya americana)  
Ring-necked duck (Aythya collaris)  
Canvasback (Aythya valisineria)\*  
Greater scaup (Aythya marila)\*  
Lesser scaup (Aythya affinis)\*  
Common goldeneye (Bucephala islandica)\*  
Barrow's goldeneye (Bucephala islandica)  
Bufflehead (Bucephala albeola)\*  
Oldsquaw (Clanula hyemalis)\*  
Harlequin (Histrionicus histrionicus)\*  
Common scoter (Oidemia nigra)  
White-winged scoter (Melanitta deglandi)\*  
Surf scoter (Melanitta perspicillata)\*  
Common merganser (Mergus merganser)  
Red-breasted merganser (Mergus serrator)\*  
Goshawk (Accipiter gentilis)  
Sharp-shinned hawk (Accipiter striatus)  
Red-tailed hawk (Buteo jamaicensis)  
Harlan's hawk (Buteo harlani)  
Swainson's hawk (Buteo swainsoni)  
Rough-legged hawk (Buteo lagopus)\*  
Golden eagle (Aquila chrysaetos)  
Bald eagle (Haliaeetus leucocephalus)\*  
Marsh hawk (Circus cyaneus)\*  
Osprey (Pandion haliaetus)\*  
Peregrine falcon (Falco peregrinus)\*  
Pigeon hawk (Falco columbarius)  
Kestrel (Falco sparverius)  
Gyr Falcon (Falco rusticolus)  
Spruce grouse (Canachites canadensis)\*  
Ruffed grouse (Bonasa umbellus)  
Willow ptarmigan (Lagopus lagopus)  
Sharp-tailed grouse (Pedioecetes phasianellus)  
Lesser sandhill crane (Crus canadensis)\*

American coot (Fulica americana)  
 Semipalmated plover (Charadrius semipalmatus)\*  
 American golden plover (Pluvialis dominica)  
 Black-bellied plover (Pluvialis squatarola)  
 Common snipe (Capella gallinago)\*  
 Whimbrel (Numenius phaeopus)\*  
 Marbled godwit (Limosa fedoa)  
 Hudsonian godwit (Limosa haemastica)\*  
 Upland plover (Bartramia longicauda)  
 Spotted sandpiper (Actitus macularia)  
 Solitary sandpiper (Tringa solitaria)  
 Willet (Catoptrophorus semipalmatus)  
 Greater yellowlegs (Tringa melanoleuca)  
 Lesser yellowlegs (Tringa flauipes)\*  
 Pectorial sandpiper (Calidris melanotos)\*  
 Baird's sandpiper (Calidris bairdii)\*  
 Dunlin (Calidris alpina)  
 Long-billed dowitcher (Limnodromus scolopaceus)  
 Semipalmated sandpiper (Calidris pusilla)\*  
 Western sandpiper (Calidris mauri)  
 Sanderling (Calidris alba)\*  
 Red phalarope (Phalaropus fulicarius)  
 Northern phalarope (Lobipes labatus)\*  
 Parasitic jaeger (Stercorarius parasiticus)  
 Long-tailed jaeger (Stercorarius longicaudus)\*  
 Glaucous gull (Larus hyperboreus)\*  
 Glaucous-winged gull (Larus glaucescens)  
 Herring Gull (Larus argentatus)  
 Mew gull (Larus canus)\*  
 Bonaparte's gull (Larus philadelphia)\*  
 Arctic tern (Sterna paradisaea)\*  
 Great horned owl (Bubo virginianus)\*  
 Snowy owl (Surnia ulula)  
 Great gray owl (Strix nebulosa)  
 Short-eared owl (Asio flammeus)  
 Boreal owl (Aegolius funereus)  
 Saw-whet owl (Aegolius acadicus)  
 Belted king fisher (Megasceryl alcyon)\*  
 Yellow-shafted flicker (Colaptes auratus)\*  
 Hairy woodpecker (Picoides villosus)  
 Downy woodpecker (Picoides pubesceus)  
 Northern three-toed woodpecker (Picoides tridactylus)  
 Say's phoebe (Sayornis saya)  
 Olive-sided flycatcher (Nuttallornis borealis)  
 Alder flycatcher (Empidonax alnorum)\*  
 Horned lark (Eremophila alpestric)  
 Violet-green swallow (Tachycineto thalassina)  
 Tree swallow (Iridoprocne bicolor)\*  
 Bank swallow (Riparia riparia)\*  
 Cliff swallow (Petrochelidon pyrrhonota)  
 Gray jay (Perisoreus canadensis)\*  
 Steller's jay (Cyanocitta stelleri)  
 Common raven (Corvus corax)\*  
 Black-capped chickadees (Parus atricapillus)

Gray-headed chickadees (Parus cinctus)  
 Winter wren (Troglodytes troglodytes)  
 Dipper (Cinclus mexicanus)  
 Robin (Turdus migratorius)\*  
 Varied thrush (Ixoreus naevius)  
 Hermit thrush (Catharus guttatus)  
 Swainson's thrush (Catharus ustalatus)\*  
 Gray-checked thrush (Catharus minimus)  
 Wheatear (Oenanthe oenanthe)  
 Water pipit (Anthus spinolleta)  
 Bohemian waxwing (Bombyailla garrula)\*  
 Northern shrike (Lanius excubitor)  
 Orange-crowned warbler (Vermivora celata)  
 Yellow warbler (Dendroica petechia)\*  
 Myrtle warbler (Dendroica coronato)\*  
 Blackpoll warbler (Dendroica striata)  
 Ovenbird (Seiurus aurocapillus)  
 Northern waterthrush (Seiurus noveboracensis)  
 Rusty blackbird (Euphagus carolinus)\*  
 Western tanager (Piranga ludoviciana)  
 Pine grosbeak (Pinicola enucleator)  
 Gray-crowned rosy finch (Leucosticte tephrocotis)  
 Common redpoll (Acanthus flammea)\*  
 Hoary redpoll (Carduelis hornemanni)  
 White-winged cross-bill (Loxia leucoptera)  
 Savannah sparrow (Passerculus sandwichensis)  
 Slate-colored junco (Junco hyemalis)  
 Tree sparrow (Spizelloa arborea)  
 White-crowned sparrow (Zonotrichia leucophrys)\*  
 Fox sparrow (Passerella iliaca)  
 Lincoln's sparrow (Melospiza lincolnii)\*  
 Snow bunting (Plectrophenax nivalis)  
 Alaska longspur or Lapland longspur (Calcarius lapponicus)

#### Mammals

Dusky shrew (Sorex obscurus)  
 Cinereous shrew (Sorex cinereus)  
 Tundra shrew (Sorex tundrensis)  
 Pigmy shrew (Microsorex hoyi)  
 Little brown bat (Myotis lucifugus)  
 Big brown bat (Eptesicus fuscus)  
 Black bear (Ursus americanus)\*  
 Grizzly bear (Ursus horribilis)\*  
 Marten (Martes americana)  
 Short-tailed weasel (Mustela erminea)  
 Least weasel (Mustela rixosa)  
 Mink (Mustela vison)\*  
 Wolverine (Gulo luscus)  
 River otter (Lutra canadensis)  
 Red fox (Vulpes fulva)\*  
 Coyote (Canis latrans)  
 Wolf (Canis lupus)\*  
 Lynx (Lynx canadensis)



Ground squirrel (Spermophilus undulatus)\*  
Red squirrel (Tamiasciurus hudsonicus)\*  
Flying squirrel (Glaucomys sabrinus)  
Beaver (Castor canadensis)\*  
Northern bog lemming (Synaptomys borealis)  
Brown lemming (Lemmus trimucronatus)  
Collard lemming (Dicrostonyx groenlandicus)\*  
Red-backed mouse (Clenthrionomys rutilus)  
Meadow mouse (Microtus pennsylvanicus)  
Yellow-cheeked vole (Microtus xanthognathus)  
Tundra vole (Microtus oeconomus)  
Muskrat (Ondatra zibethica)\*  
Porcupine (Erethizon dorsatum)  
Snowshoe hare (Lepus americanus)\*  
Moose (Alces gigas)\*  
Caribou (Rangifer arcticus)\*

#### Fish

Arctic char (Salvelinus alpinus)  
Arctic grayling (Thymallus arcticus)\*  
Broad whitefish (Coregonus nasus)\*  
Humpback whitefish (Coregonus pidschian)\*  
Least cisco (Coregonus sardinella)\*  
Round whitefish (Prosopium cylindraceum)\*  
Burbot (Lota lota)  
Chum salmon (Oncorhynchus keta)\*  
King salmon (Oncorhynchus tshawytscha)\*  
Lake trout (Salvelinus namaycush)  
Longnose sucker (Catostomus catostomus)\*  
Ninespine stickleback (Pungitus pungitius)  
Northern pike (Esox luscus)\*  
Sheefish (Stenodus leucichthys)\*  
Slimy sculpin (Cottus cognatus)\*  
Alaskan blackfish (Dallia pectoralis)  
Alaskan whitefish (Coregonus nelsoni)  
Silver (coho) salmon (Onocorhynchus kisutch)  
Sockeye salmon (Oncorhynchus nerka)

#### 8. Game Mammals

The moose is the single most important game species on the refuge. Natives and other local residents place major dependence upon this animal for their subsistence.

Inventory procedures are still being devised to census this species. No valid census was obtained in 1983 due to funding. A good inventory of the moose population is necessary but will be time consuming and expensive. It is believed that the moose population is increasing but is still considered low to medium in numbers.

Black bear and grizzlies inhabit the refuge. Black bears are observed often during flights within the refuge while the grizzly is observed only occasionally in the hills usually near Sithylenkat Lake. A rough



Local residents indicate that the moose population is increasing, but harvest figures indicate less moose killed in 1982 than in 1973. K.T.



Wolf tracks are often seen along streams and lakes but harvest figures indicate population levels much lower than when caribou migrated through Kanuti in 1973.

population estimate based on general observations indicates a black bear population of 100-150. The grizzly population may use surrounding areas more than the refuge since mountain ranges are immediately adjacent.

Caribou were not observed within the refuge in 1983 but were observed several times in the vicinity. The Western Arctic Caribou Management Plan is in the process of being revised by the State. In doing so, a number of caribou herds that have been recognized as distinct herds will be considered. It is possible that two distinct herds may utilize the refuge at various times of the year.

Wolf packs have been observed on several occasions during winter flights. Many wolf tracks were observed during the summer field season and a single wolf observed by the field crew on the Koyukuk River. The wolf population within the refuge is not known; however, at best guess it is not large.

All available sources of information tend to bear out the fact that the refuge supports a large population of furbearers including muskrat, beaver, red fox, lynx, martin, mink, otter and wolverine. The population figures of these furbearers are not known at this time. Harvest figures are available and included in the Public Use section.

Beaver activity can be observed throughout the Kanuti Flats area and seem to play an important role in the ecosystem. More must be known concerning their effects on this ecosystem before we begin to understand their effects on waterfowl production on the refuge. Therefore, a research project designed to study these effects over a five year period has been submitted for approval.

9. Marine Mammals - Nothing to report.

10. Other resident Wildlife

There are no reptiles and but one amphibian that inhabit the refuge. The wood frog, Rana sylvatica, was observed occasionally during the summer field trips into Kanuti Flats.

11. Fishery Resources

Field activities during the summer months included some minor collection of fishery information. Most information was from general observations and hook-and-line collection incidental to other investigations. Only one area (Kaldolyiet Lake and vicinity) was investigated more thoroughly. Detailed information on this survey can be found in the 1983 field report of Kaldolyiet Lake located in refuge files and the Regional Office. Northern pike were the only species caught with an experimental gill net in these lakes. No other species were caught or observed during the investigation.

Northern Pike are well distributed throughout the refuge in lakes and streams. A number of lakes have little or no fish due to stream blockage by beaver, other obstructions and shallow waters that freeze through during winter months.





Numerous beaver dams throughout the refuge help maintain waterlevels in the lakes.  
E.W.M.



Some beaver houses are quite old yet still active.  
E.W.M.





The population of beaver is quite high within the refuge and individuals are observed often.

E.W.M.



The muskrat may not be observed as often as the beaver, but never-the-less they seem abundant. Muskrat seem to use bank dens more than houses.

E.W.M.



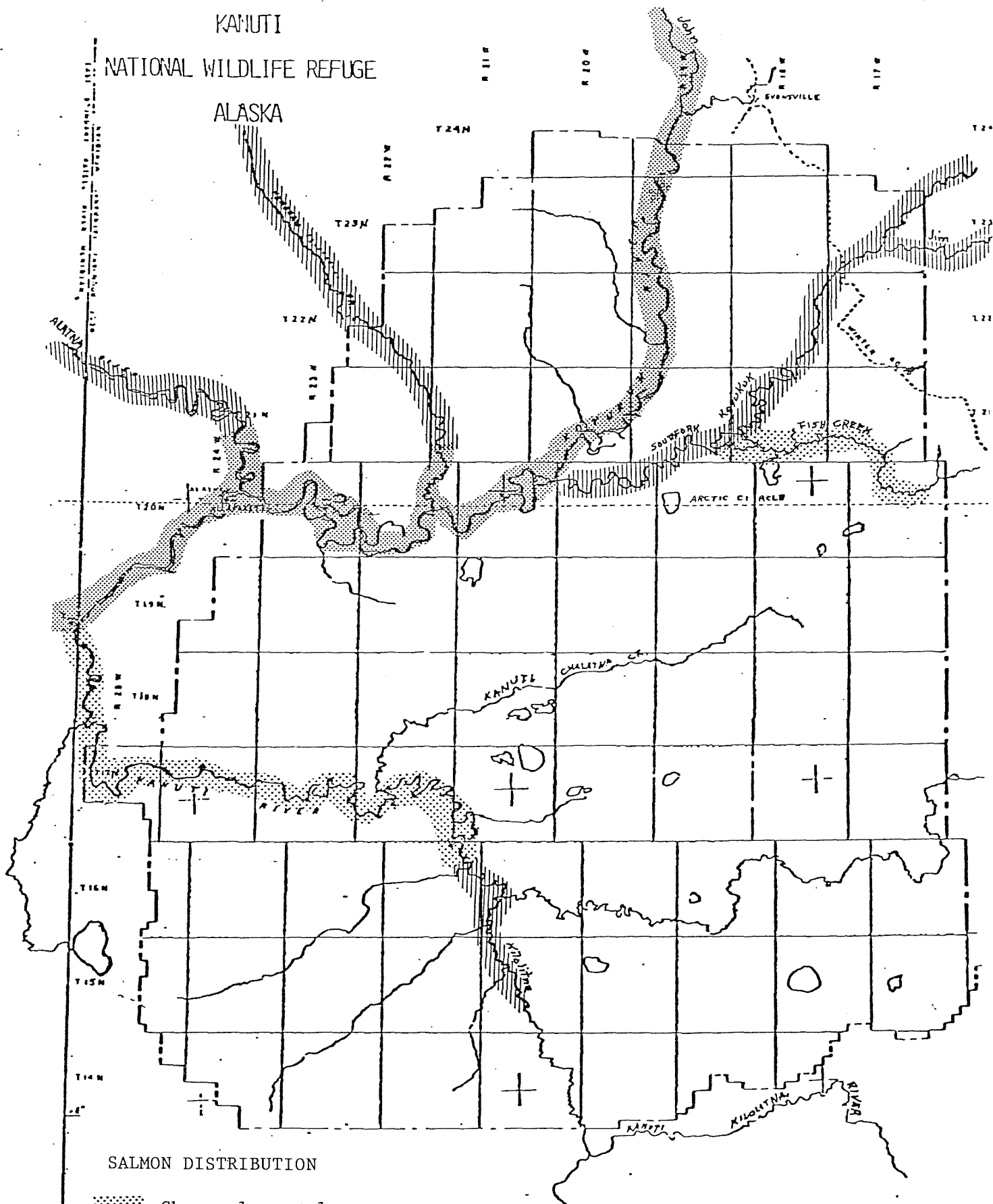


This mink, having attacked and killed his prey...  
M.M.






... makes a mad dash to safety dragging his burdensome  
pintail with him. M.M.

# KANUTI NATIONAL WILDLIFE REFUGE ALASKA



## SALMON DISTRIBUTION

-  Chum salmon only present
-  King and Chum salmon present
-  Salmon spawning areas

Salmon are not very abundant within the refuge or the upper portion of the Koyukuk River and its tributaries. However, King and Chum salmon do utilize a number of streams and are known to spawn in several. (See map on following page). King salmon have not been recorded in the Kanuti River.

Grayling have been observed in all major streams and in many adjacent lakes that have unobstructed waterflow to or from the streams. Grayling spawning occurs in many of the streams. Verbal information received during the fall from a pipeline worker stationed at Prospect Camp indicates possible problems developing with the grayling population in Jim River due to over harvest by workers at that station. The FWS Resource Publication 124, dated 11 July 1973, in reference to Jim River stated that "In spite of apparent abundance of fish at present, the ability of these waters to support substantial harvests is probably low due to slow growth rates."

The distribution of burbot is not fully known at this time. Indications are, however, that their use area includes the Koyukuk and South Fork Koyukuk rivers and that they may be present in the Kanuti River.

White fish and the longnose sucker are distributed throughout the refuge streams and lakes not blocked by obstructions.

Known distribution of Sheefish include Koyukuk River, Alatna River, Henshaw Creek and South Fork Koyukuk River.

12. Wildlife Propagation and Stocking - Nothing to report.
13. Surplus Animal Disposal - Nothing to report.
14. Scientific Collections - Nothing to report.
15. Animal Control - Nothing to report.
16. Marking and Banding - Nothing to report.
17. Disease Prevention and Control - Nothing to report.

#### H. PUBLIC USE

##### 1. General

The majority of public use on Kanuti is derived from local residents, most of whom live off the resources within the refuge and surrounding lands. There are three local villages adjacent or near to the western side of the refuge; Alatna, Allakaket and Hughes with a total population of 314 people, 96 percent of whom are natives. Most are Athapascan Indians although some Eskimos reside in Alatna.

About 100 people, about half being non-native, live in Bettles/Evansville located on the northern boundary of the refuge. Most other users of the refuge come from Fairbanks, but the number is small.





Northern Pike are abundant in the deeper lakes and streams within Kanuti NWR. E.W.M.



An old fish trap lies stored at a fish camp on the Koyukuk River. M.M.

As mentioned in the Highlights section of this report, many meetings and contacts were participated in during this calendar year. These meetings and contacts have resulted in a better understanding of the resources and their use, as well as the opportunity to inform these various groups and individuals of the Service's mission and purposes of the refuge.

Public relations with all villages and various organizations are good, but much more immediate contact with local residents is desirable. Time spent with these people will be invaluable later as management of the refuge progresses.

Under Title VIII of the Alaska National Interest Lands Conservation Act, Congress has declared that Federal public land in Alaska shall be managed to provide the opportunity for rural residents engaged in a subsistence way of life to continue to do so, and further, that public utilization of such lands is to cause the least adverse impact possible on rural residents dependent on subsistence uses. This, however, is to be provided in a manner consistent with the purposes for which the conservation units were established under other sections of the Act.

Since most all of management phases of the Kanuti NWR will be evaluated in relation to subsistence use, it is necessary to understand its history and the resources it affects. It also requires monitoring present activities and being in position to detect changes that would effect management policies. A cooperative agreement was initiated between the Kanuti NWR, Gates of the Arctic National Park and the Subsistence Division of ADF&G to conduct a study of the subsistence uses in the Upper Koyukuk River Region. The state took the lead in the study which was initiated and phase one completed in 1983. However, the final report was delayed for various causes and is not expected to be completed by the time this narrative is due. Therefore, only basic information currently available is included herein.

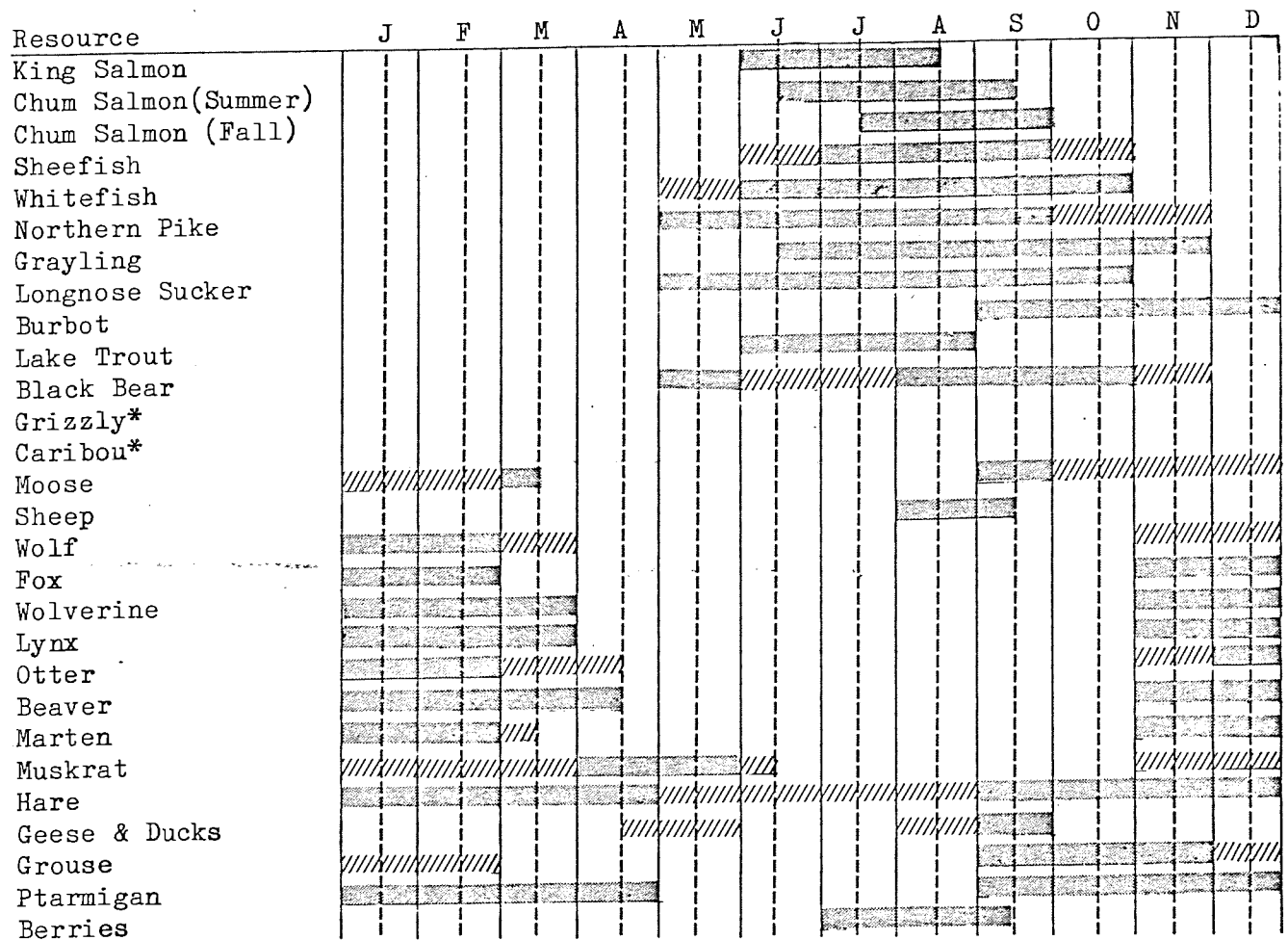
For all communities combined, 74 of the 86 households (86%) were surveyed.



Bettles/Evansville	20 of 25	80%
Alatna	8 of 8	100%
Allakaket	27 of 31	87%
Hughes	19 of 22	86%
	<hr/> 74 of 86	<hr/> 86%

Compilation of the information obtained during the study revealed the actual periods of harvest of each species of wildlife utilized. The periods may or may not conform to the legal periods of harvest, but rather indicate harvest periods where need or tradition was the ruling factor. Present regulations do not always fit the life style of rural residents or follow the traditions of natives. Examples: 1) the requirement of fresh meat for potlaches, 2) an individual out of the village on temporary employment during the short moose season but requires meat for his family during the winter.

There is an overall effort by local residents to conform to the present legal periods of harvest. However, the need to adjust some regulations to align them more with the actual needs of the local residents is evident. This can be accomplished and still remain biologically sound.

Seasonal Periods of Resource Harvest  
by local residents of Upper Koyukuk Region



 Major Harvest Period  
 Intermittent Harvest Period

\*insufficient information

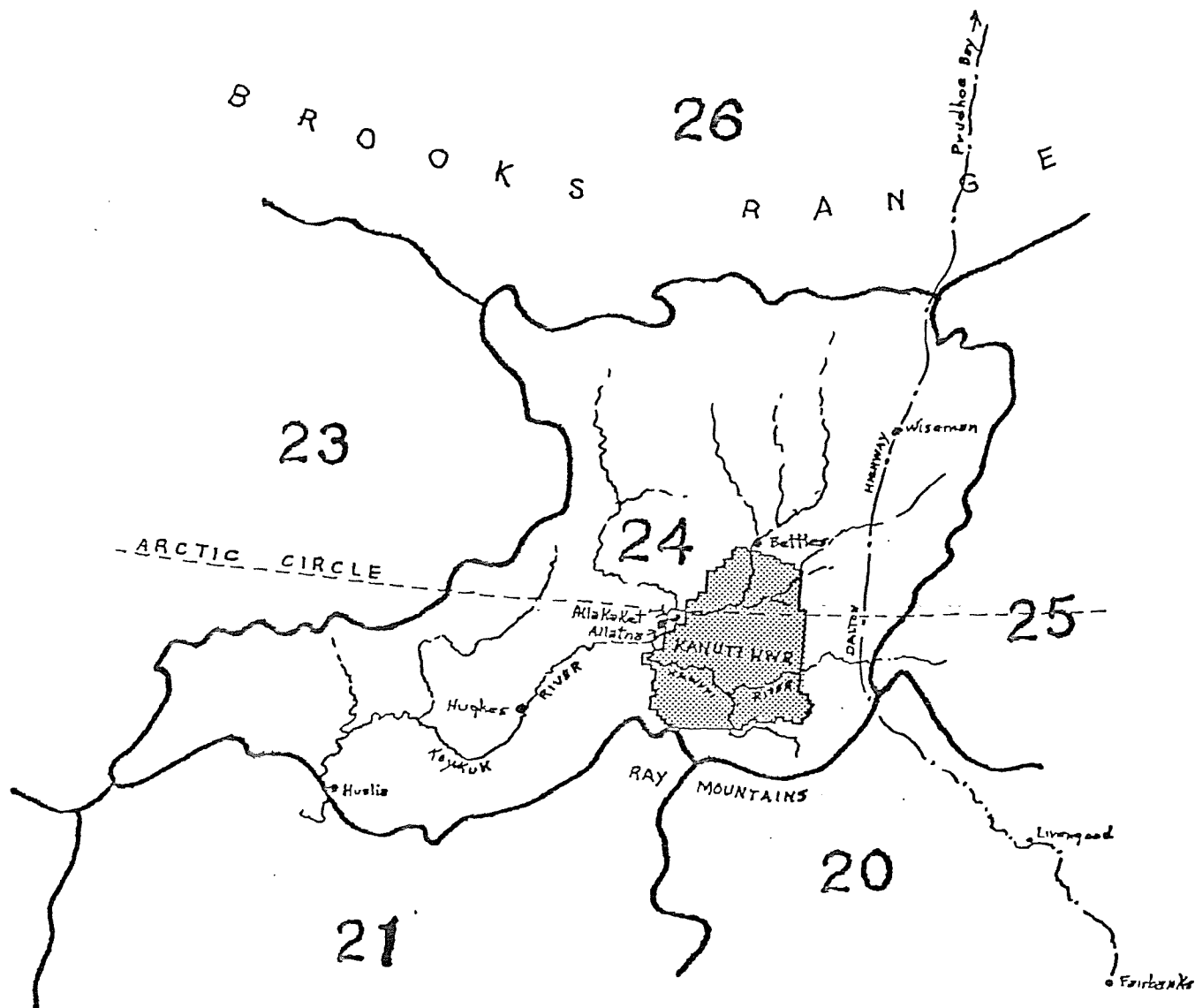
2. Outdoor Classrooms - Students - Nothing to report.
3. Outdoor Classrooms - Teachers - Nothing to report.
4. Interpretive Foot Trails - Nothing to report.
5. Interpretive Tour Routes - Nothing to report.
6. Interpretive Exhibits/Demonstrations - Nothing to report.
7. Other Interpretive Programs - Nothing to report.
8. Hunting

Subsistence and sport hunting are major public use activities on Kanuti NWR. The Refuge lies entirely within the State's Game Management Unit 24 and all regulations pertaining to the Unit apply to the refuge as well. The following list gives seasons and bag limits for refuge species during 1983-84.

<u>SPECIES</u>	<u>OPEN SEASON</u>	<u>BAG LIMIT</u>
Black Bear	No closed season	3 bears/yr.
Brown or Grizzly Bear	Sept. 1-Oct. 10 May 10-May 25	1 bear every 4 yrs.
Caribou	July 1-April 30	5 caribou/yr.
Moose	Sept. 5-Sept. 25 Mar 1 - Mar 10	1 Bull/yr.
Coyote	Sept. 1 - Apr. 30	2 Coyotes/yr.
Red Fox	Nov. 1 - Feb. 15	2 Foxes/yr.
Lynx	Nov. 1-Mar. 31	2 Lynx/yr.
Raccoon	No closed season	No limit
Red Squirrel	No closed season	No limit
Wolf	Aug. 10-April 30	No limit
Wolverine	Sept. 1-Mar. 31	1 Wolverine
Grouse	Aug. 10-April 30	15/day
Hare & Rabbit (snowshoe and Arctic)	No closed season	No limit
Ptarmigan (willow, rock whitetail)	Aug. 10-April 30	20/day
Ducks (except Sea Ducks)	Sept. 1-Dec. 16	10/day
Sea Ducks (eiders, scoters, oldsquaw, harlequin & mergansers)	Sept. 1-Dec. 16	15/day
Geese (except Emperors)	Sept. 1- Dec. 16	6/day
(not more than 4 daily may be Canada and/or white-fronted geese)		
Brant	Sept. 1-Dec. 16	4/day
Snipe	Sept. 1-Dec. 16	8/day
Cranes	Sept. 1-Dec. 16	2/day
Emperor Geese	Sept. 1-Dec. 16	6/day
Crows	Mar. 1-April 15 Sept. 1-Nov. 17	40/day

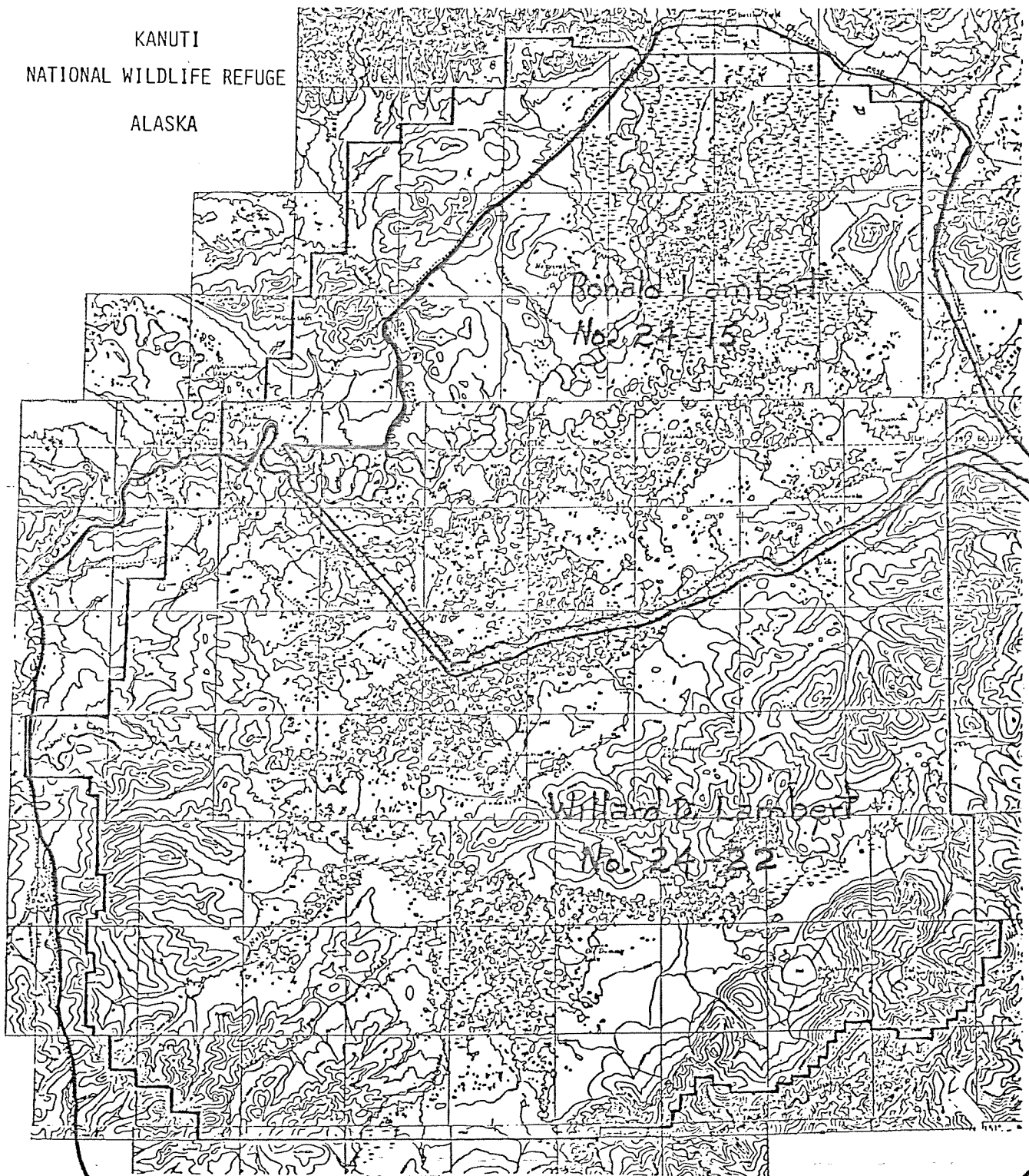
Specific State and Federal restrictions, requirements and other information concerning hunting of the above animals are established and apply to the refuge.





ALASKA GAME MANAGEMENT UNITS IN VICINITY OF KANUTI NWR

KANUTI  
NATIONAL WILDLIFE REFUGE  
ALASKA



*South Boundary Game Management Unit 24*

State designated exclusive Guide Areas within Kanuti Refuge.

A great effort is being made by the State to obtain subsistence and sport harvest information. The manager of Kanuti NWR will cooperate with the State in gathering valid data without duplication or conflicts. This information must be known and be reasonably accurate in order to provide justifiable recommendations concerning the management of the various game animals on Kanuti NWR.

A permit was issued to two Hunting Guides, Willard O. Lambert and Ronald K. Lambert, for commercial guiding upon the refuge. They hold a State exclusive guiding permit for an area that encompasses most of Kanuti NWR. Under the terms of the SUP, they are to submit a report to the refuge manager with information describing their activities and any animals taken.

During 1983, the guides took only one party into the refuge for moose and black bear hunting. No kills were made.

A minimum of 6 other non-local resident hunting parties having 3-4 individuals each were observed and contacted. Only 4 moose and no black bear were killed by these parties at the time they were checked. All of these parties were in the southeast section of the refuge and not in the "Controlled Use Area."

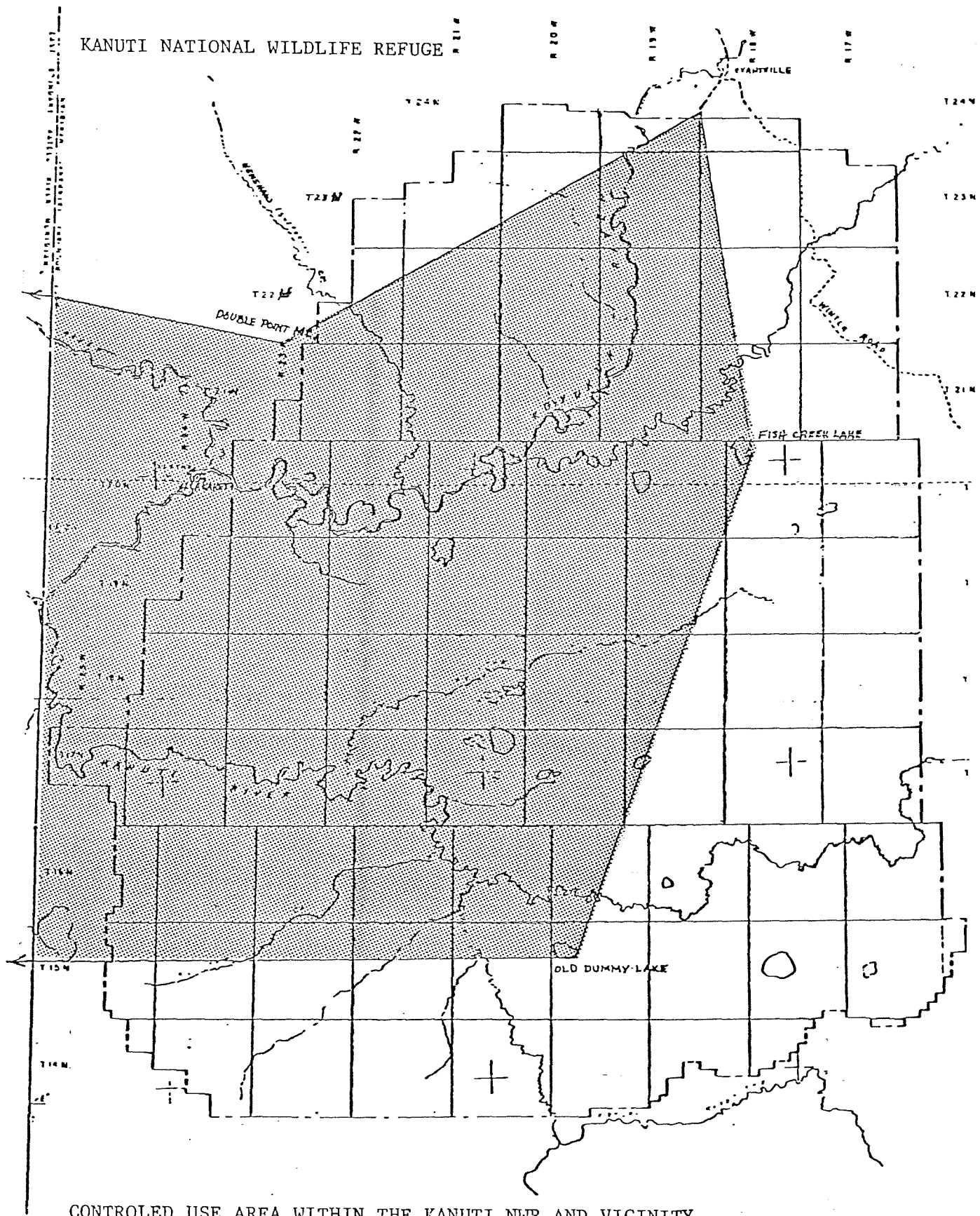
The Controlled Use Area was established by the State in 1981 to prevent fly-in hunting of moose to ease conflict between sport hunters and local subsistence hunters. The area encompasses approximately two-thirds of the Kanuti NWR. (See map of following page.)

Harvest information on subsistence hunting was collected only for 1982 during the subsistence study this year. The following chart compares the subsistence hunting take in 1982 with similar data collected in 1973 and published in "Tracks in the Wildland", by Nelson and Bane. In both cases harvest data is not confined to the refuge, but is for a larger area. Maps of subsistence hunting areas used by the various villages on the refuge are presented on following pages. Note: Hunting areas of Hughes did not fall within the refuge but individuals from Hughes may have hunted with individuals from Allakaket or vice versa.

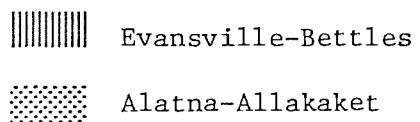
Subsistence Hunting of Kanuti NWR & Vicinity

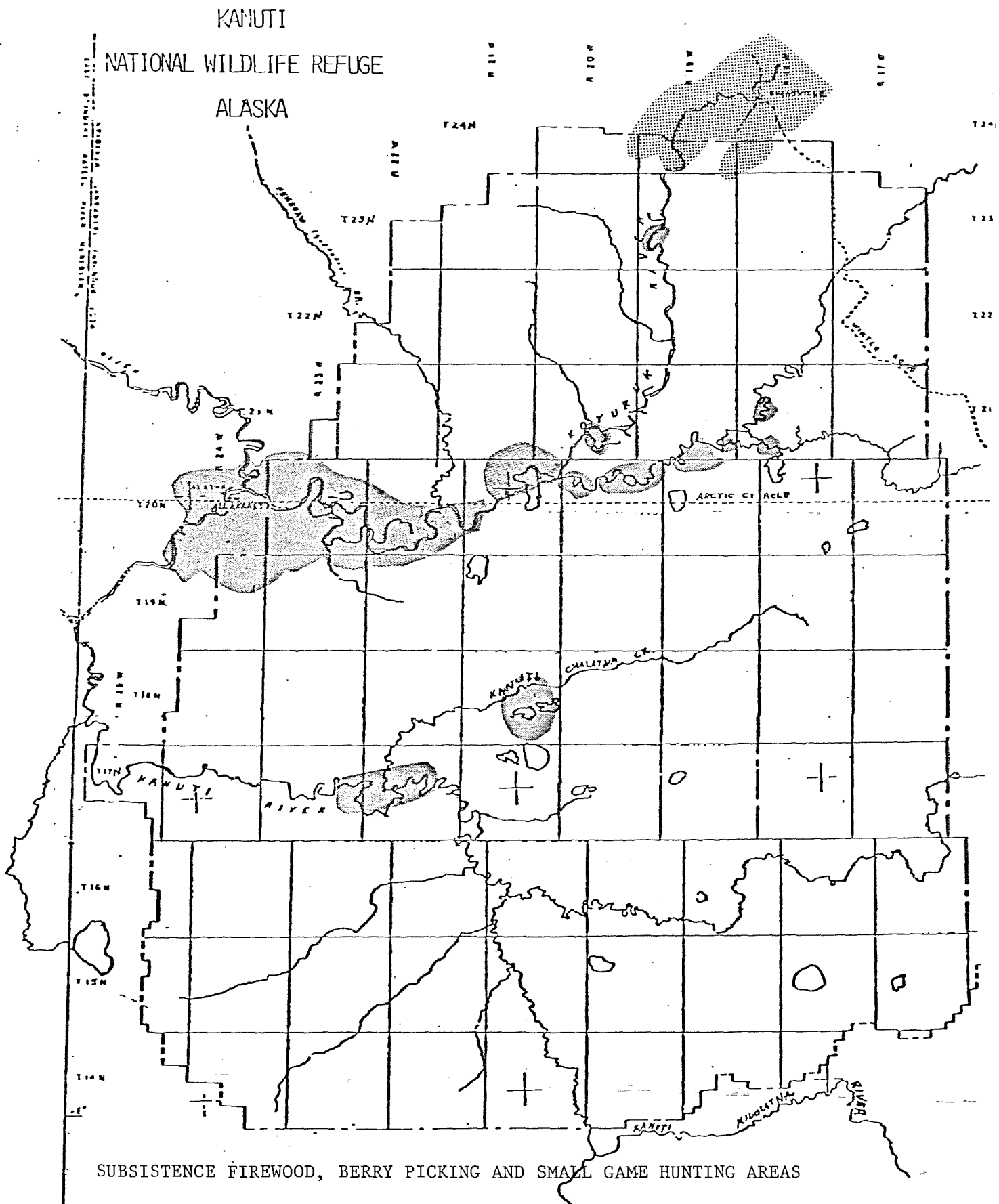
Species	Bettles Evansville		Alatna & Allakaket		Hughes		Total	
	1973	1982	1973	1982	1973	1982	1973	1982
Black Bear	5	4	20	21	17	15	42	40
Grizzly	-	-	10	-	2	-	12	-
Caribou	50	11	300	1	218	-	568	12
Moose	25	10	48	28	22	33	95	71
Sheep	5	2	10	5	-	-	15	7
Ducks	20	34	4,000	858	360	505	4380	1397
Geese	20	10	300	395	200	228	520	633
Grouse	10	5	150	81	60	120	220	206
Ptarmigan	100	14	500	154	260	79	860	247





## ALASKA





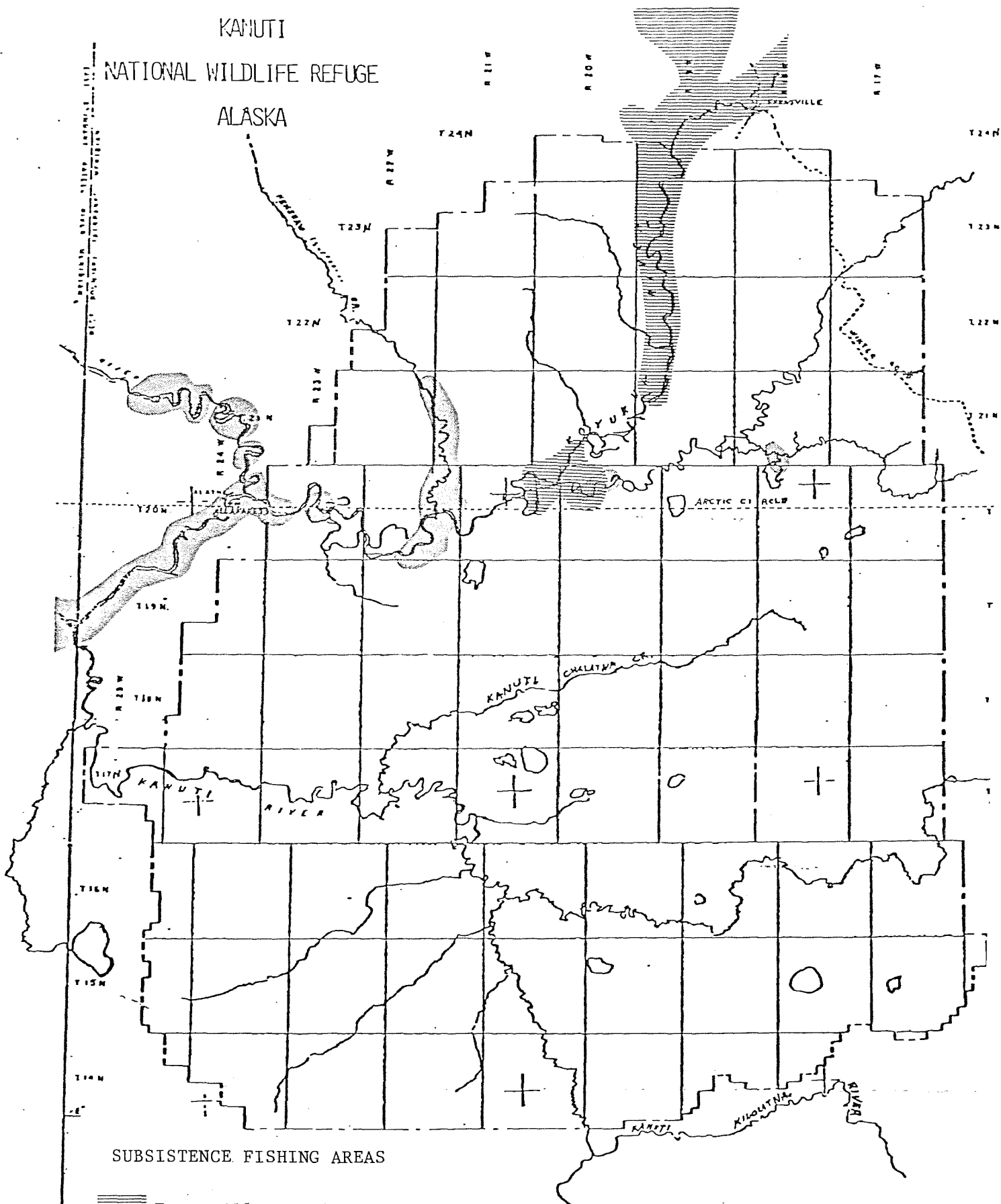
Evansville-Bettles

Alatna-Allakaket

NOTE: Areas continue off refuge

# KANUTI NATIONAL WILDLIFE REFUGE

ALASKA



SUBSISTENCE FISHING AREAS

Evansville-Bettles

Alatna-Allakaket

NOTE: Use areas continue off-refuge





Subsistence fish camps are not utilized as much as in the past due to summer employment and other reasons. This camp is located in Section 23 of T20N, R23W. K.T.



A gill net of subsistence fisherman in the Koyukuk River. Only five such nets were observed in Koyukuk River from the Refuge boundary east to the mouth of South Fork Koyukuk K.T.

It is quite obvious from the figures in the above table that the hunting harvest was, in general, considerably lower in 1982 than in 1973. Caribou harvest was down to practically zero due to the change in migratory pattern of the caribou in 1974 following a huge fire occurring in the vicinity. The few caribou harvested were taken north and east of Bettles, probably in the Brooks Range, and not in the survey area.

It is impossible to analyze the apparent decline between 1973 and 1982 subsistence use until a final report on the subsistence study is completed. Only then will it be possible to assess the degree of validity in comparing the data.

## 9. Fishing

Subsistence and sport fishing occur within the refuge. Subsistence fishing areas within the refuge are mapped on the following page. To our knowledge there is no commercial fishing in the Upper Koyukuk region.

Gill nets, seines, traps and hook and line are the major devices utilized for subsistence fishing. Though fishing may occur some distance from the village, fewer fish camps are being utilized than in the past due to several causes: 1) availability of employment in the village; 2) certain household members not wanting to be gone and miss being called for fire duty by AFS; 3) employment elsewhere during summer months; 4) larger outboards allow shorter travel times between village and net site; 5) other reasons may include how family members cooperate on subsistence activities. Example: Teenagers not wanting to miss village activities so parents make daily trips to net sites from the villages.

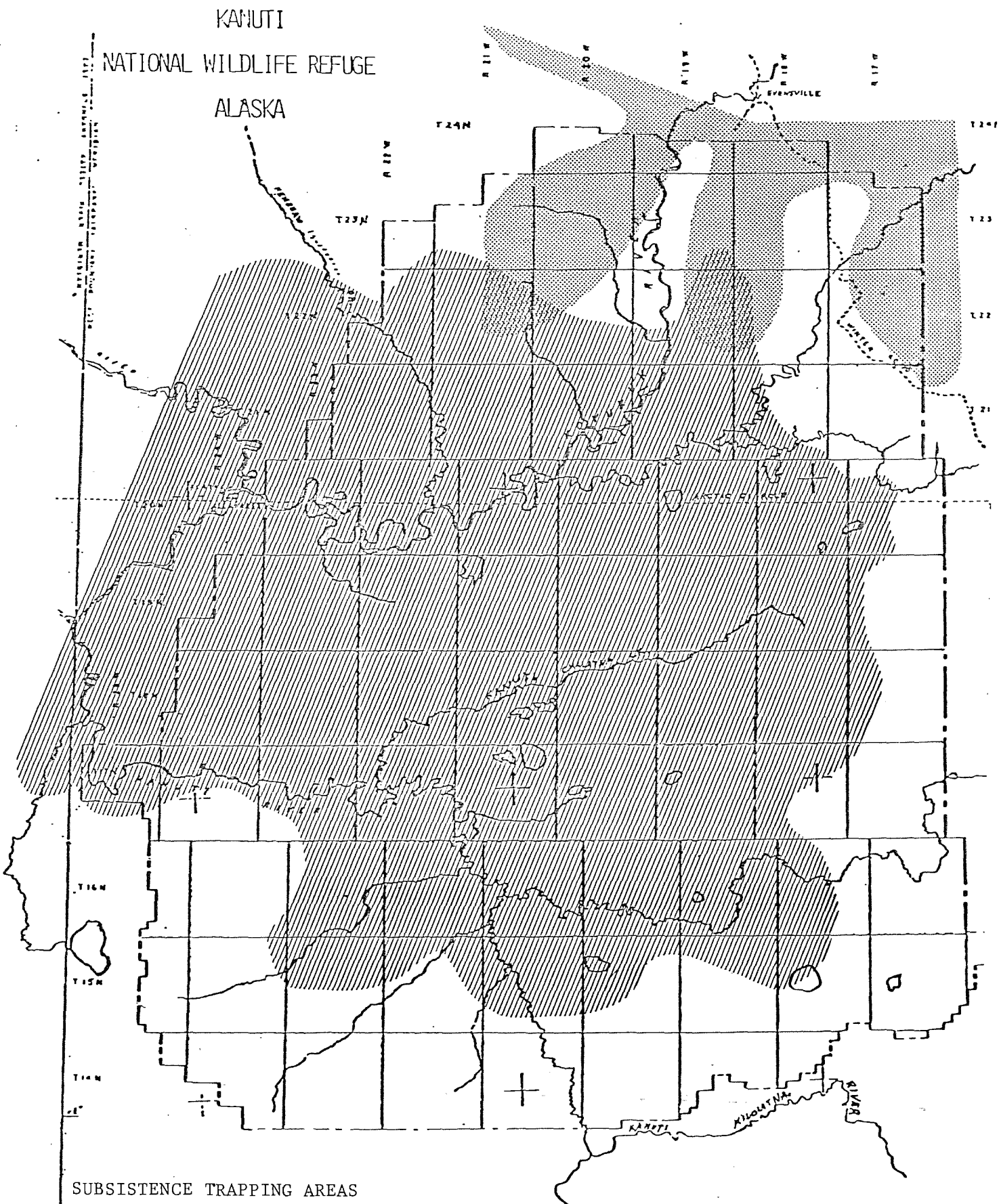
Comparing the fishery harvest of 1982 with that of 1973 indicates a general increase in some species and a drastic decrease in others, such as whitefish. The reasons for these changes are not apparent at this time due to the incompleted subsistence report as previously mentioned under the Hunting section.

### Subsistence Harvest of Fish

Species	Bettles Evansville		Alatna & Allakaket		Hughes		Total	
	1973	1982	1973	1982	1973	1982	1973	1982
Burbot (1)	-	-	-	58	-	60	-	118
Grayling	200	491	1,000	1,639	1,880	1,376	3,080	3,506
Pike	50	10	500	401	315	211	865	622
Salmon (King)	-	9	300	322	101	506	401	837
Salmon (spring chum)	-	532	12,000	9,480	6,800	12,800	18,800	22,812
Salmon (Fall chum)	-	-	600	2,017		1,323	600	3,340
Sheefish	-	212	1,600	2,451	820	320	2,420	2,983
Sucker	100	-	400	480		49	500	529
Trout (2)		61	-	-	-	-	-	61
Whitefish	50	210	24,000	4,858	6,500	2,135	30,550	7,203

Note: (1) Burbot harvest not reported in 1973

(2) Trout (Lake) were probably not taken within survey area.



SUBSISTENCE TRAPPING AREAS



Evansville-Bettles



Alatna-Allakaket

NOTE: Shaded areas continue off-refuge

The fishery harvest by sport fishermen is basically unknown at this time. However, the harvest is expected to be generally light within the refuge and concentrated on northern pike and grayling.

Sport fishing take along the Dalton Highway in streams that flow through the refuge is much heavier, especially for grayling.

#### 10. Trapping

Trapping is a major activity on the refuge during winter months. The majority of the refuge is trapped by local residents from Alatna, Allakaket and Evansville.

Outside trappers do use the area and often conflict with local resident trap lines. The refuge manager has no control over who or where one can trap since ANILCA prevents him from requiring permits for trapping within the refuge without having public hearings and following special procedures. Even then, it is not believed that the local residents would support a trapping permit requirement until sufficient conflict has occurred so that their activities and trapping success are severely hampered. Local residents do however, wish that managers keep outside trappers out of their trapping areas. This the manager cannot do.

The subsistence study revealed the trapping areas of individual households or collective village trapping areas when individuals refused to disclose the location of actual trap lines. Collective maps produced such an overlay of trapping areas that comprehension is practically nil. The overlap of trapping areas are most likely mutual cooperation of family members of different households. Overall village trapping areas are displayed on a map on the following page.

The following chart displays the village trapping harvest of 1973 and 1982. The table is included for general information and will not be analyzed here since crucial interpretative information from the subsistence study is not presently available.

Trapping Harvest by Local Residents (1)

Species	Bettles/ Evansville		Alatna/ Allakaket		Hughes		Total	
	1973	1982	1973	1982	1973	1982	1973	1982
Fox	5	20	20	89	14	41	39	150
Hare	100	231	200	818	157	318	457	1,367
Lynx	12	30	20	135	2	54	34	219
Marten	100	154	150	1072	123	406	373	1,632
Mink (1)	6	-	100	-	32	-	138	-
Muskrat	20	13	400	126	59	41	479	180
Otter	-	-	10	4	16	4	26	8
Porcupine	10	-	15	-	15	1	40	1
Wolverine	2	7	6	4	2	6	10	17
Wolf	10	-	5	2	10	-	25	2

(1) Date represents harvest of 1973-74 trap season and 1982-83 trap season

(2) Information on mink not obtained in 1982 (an oversight)



11. Wildlife Observation

Wildlife observations are a coherent part of most public use activities of Kanuti NWR. However, it is not known whether wildlife observation has been the primary interest of any public visitor use.

12. Other Wildlife Oriented Recreation

An occasional boater or stream floater travels the Koyukuk River, stopping occasionally to fish, observe wildlife or camp. Visitors of this type are few on Kanuti NWR, but are expected to increase somewhat as the public learns of the area and attempts to explore this new NWR.

13. Camping

Camping is associated only with wildlife oriented activities as far as is presently known.

14. Picnicking

Nothing to report.

15. Off-Road Vehicling

Almost all off-road vehicling on Kanuti NWR is directly associated with wildlife oriented activities. Snowmobiles, three wheelers, and dog sleds in winter and outboard boats in summer are major ground transportation means within the Refuge. They have caused little or no problems on the Refuge to the knowledge of this Refuge Manager. There are trails established that carry the primary use of off-road vehicles.

Small planes utilize the slower streams, lakes, ponds, and gravel bars to land in transporting public users into and out of the Refuge. Such activity has been light with little effect upon the Refuge or its resources. Some areas, where major waterfowl nesting occurs, may need control of air traffic and some boating activity in the future.

16. Other Non-Wildlife Oriented Recreation

According to 50 CFR Part 36.31(b) "Surface collection, by hand (including handheld gold pans) and for personal recreational use only, of rocks and minerals, is authorized." This activity, with its special restrictions on precious metals and gem stones and their collection methods, has a few participants.

17. Law Enforcement

Law enforcement activities have been confined to learning where problems exist or are thought to exist by local residents. Information obtained from numerous contacts reveals only a few minor illegal activities may exist, especially during moose season, with the controlled use area being violated by fly-in hunters. No violations were observed during CY 1983.

18. Cooperative Associations - Nothing to report.

19. Concessions - Nothing to report.

#### I. EQUIPMENT AND FACILITIES

1. New Construction - Nothing to report.

2. Rehabilitation

Room 110 of the Federal Building which offices Kanuti NWR and Fisheries, was remodeled which greatly improved the usable space. Unfortunately, increases in the staff of Fisheries and Kanuti in CY 83 has made it necessary for Kanuti to look elsewhere for available space.

3. Major Maintenance - Nothing to report.

4. Equipment Utilization and Replacement

An AMC passenger car being utilized temporarily from the GSA Motor Pool was returned when they found a more suitable vehicle for the refuge. Kanuti now has a 1983 Ford Bronco which we hope to be much more reliable than the previous vehicle.

5. Communications Systems

Two new SGC Model SG-715 portable radios were obtained and utilized during FY83. These HF radios were well adapted to withstand the field environment but often proved useless to reach the Fairbanks office from field locations due to varying weather conditions and terrain. They were also quite unreliable in trying to reach one field camp from another. As a result of continuing frustration and for safety reasons, a proposal for a new more reliable system was submitted. We are hoping that action will be forthcoming prior to the 1984 field season since communication needs will be greater.

A minor accident or employee health problem in the Alaskan Wilderness can become serious if an adequate and reliable communication system is not available.

6. Energy Conservation - Nothing to report

7. Other - Nothing to report.

#### J. OTHER ITEMS

1. Cooperative Programs

Eight special use permits were issued during 1983. They are as follows:

K-1-83	Charles E. Schweger - University of Alberta - To study the Late Quaternary Paleoecology and stratigraphy of East Beringian Tephra Localities.
K-2-83	Robert A. Looney - USGS - Conduct Geologic Investigations on crustal structure of the margin of Koyukuk basin in Northern Ray Mountains.



Volunteer, Mike Matz, using the SGC portable radio to check in at scheduled time. Weather conditions often prevent contact with refuge headquarters or other crews in the field.  
K.T.



Its been a long hard day, the camp chores are completed and its time for a little solitude while watching the mid-nite sun before retiring.  
K.T.



Due to cooperative relationship with the NPS, the Manager of Kanuti NWR occasionally has the opportunity to visit the nearby Gates of the Arctic National Park. EWM



K-3-83 William W. Patton, Jr. - USGS - to conduct Geologic mapping, geophysical investigations and geochemical sampling of rock exposures as required by section 1010 of ANILCA.  
K-4-83 Roger Bolstad - BLM - Field investigation of Native allotments.  
K-5-83 Daniel Bauer - USGS - Land use investigation and geologic hazards.  
K-6-83 Dave Williams - Doyon Limited - to conduct geologic investigations on Regional Corporation select lands.  
K-7-83 Willard D. and Ronald E. Lambert - Hunting Guides - To conduct hunt guiding operation on Kanuti NWR.  
K-8-83 Lorraine Williams - Allakaket Village Council - To cut approximately 600 houselogs for municipal housing program.

## 2. Items of Interest

Paul Liedberg received a Special Achievement Award for sustained superior performance in his duties as the Administrative Officer in charge of the common administrative staff for 5 FWS offices in Fairbanks. We congratulate him for a job well done!

## 3. Credits

The narrative was written by Ervin McIntosh and Harvey Heffernan, and typed and edited by Gayle Hudson, Rittie Ramirez, and Paul Liedberg.

Unfortunately, the photo prints did not meet the quality of the slides from which the prints were made. Time did not allow for reprocessing.