

COPPER BASIN RESOURCE USE
MAP INDEX AND METHODOLOGY

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by

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ABSTRACT

This paper is a summary of the methodology used to collect the mapped data presented in the Copper Basin Resource Use Maps, and includes an index to the maps. These maps depict the areas used between 1964 and 1984 for hunting, fishing, trapping, and gathering by 20 communities in or near the Copper River basin, Alaska. Mapping was accomplished primarily through individual interviews with over 200 local hunters and fishermen during the 1983 and 1984 field seasons. Species and resource categories presented in the maps include moose, caribou, sheep, waterfowl, furbearers, salmon, other freshwater fish, and berries and plants. The majority of the mapping was conducted on the Gulkana, McCarthy, Mt. Hayes, Nabesna, and Valdez U.S. Geological Survey topographic quadrangles (scale 1:250,000). The Anchorage, Bering Glacier, Healy, Talkeetna Mountains, and Tanacross quadrangles were also used, but to a lesser extent.

This summary of methodology is intended to accompany the maps, clarify their scope and representativeness, and explain their limitations. The paper also sets out some applications for the resource use maps for interested individuals and land management agencies.

The map index references each set of community maps by quadrangles and the species shown on each map. The set of 113 maps is available at the Division of Subsistence Anchorage office, and will be in all field offices of the Alaska Department of Fish and Game upon completion of the Southcentral Regional Habitat Guide in 1986.

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ACKNOWLEDGEMENTS

These maps represent the knowledge and cooperation of over 200 hunters and fishermen in the Copper River basin. These individuals were helpful, patient, and hospitable, and we thank them for their willingness to share their information.

Many others assisted this project in various ways during 1983 and 1984. Special thanks go to Copper River Native Association technicians Lillian Boston, Carol Gene, Lorraine Gordon, Toni Lee Jackson, Lee Nicolai, Donna George Stevens, Gloria Stickwan, and Peter Tyone. We are also grateful to the many village councils in the Ahtna Region who assisted us in identifying and locating people to interview.

Division of Subsistence colleagues who contributed to this project include Robert Schroeder, Dan Foster, and Jan Overturf. The Division of Habitat drafted the final maps and underwrote the costs of publishing them. Patti Frink in particular is commended for her consistent, accurate draft work.

Finally, to the agencies and their staffs who advised and aided us, we extend our appreciation: the National Park Service of the Wrangell-St. Elias National Park and Preserve, the Glennallen office of the Bureau of Land Management, the Copper River Native Association, and the Glennallen office of the Alaska Department of Fish and Game.

INTRODUCTION

The Copper River basin (Fig. 1) has been the site of several Division of Subsistence research projects in recent years. Data collected by the division to date include the results of mailed questionnaires to permit holders for Nelchina and Mentasta caribou hunts (Stratton 1982a, 1983), questionnaire results and interviews with participants in the Copper River fishwheel and dipnet fisheries (Stickney and Cunningham 1979; Stratton 1982b), and most recently, a household resource use survey of 504 households throughout Copper River basin communities (Fall and Stratton 1984; Stratton and Georgette 1984).

Mapping of hunting, fishing, and gathering areas has been included as a component in previous research projects in selected communities in the study area. The maps produced were for the most part preliminary in nature. The Southcentral Regional Habitat Guide and the Copper River Area Plan required resource use maps of a more comprehensive nature, however. Therefore, maps were generated for each community or sample in the Copper basin study area (Fig. 2) in order to identify areas used for hunting, trapping, fishing, and gathering by residents of the Copper River basin.

Purpose and Objectives

The purpose of the study was to document areas used for the hunting, trapping, fishing, and gathering of selected species and resource categories in 20 communities and population clusters within the study area (Table 1). Through mapping sessions with knowledgeable resource harvesters in each area, community resource harvest area maps were drawn for the period 1964 to 1984 for the following categories:

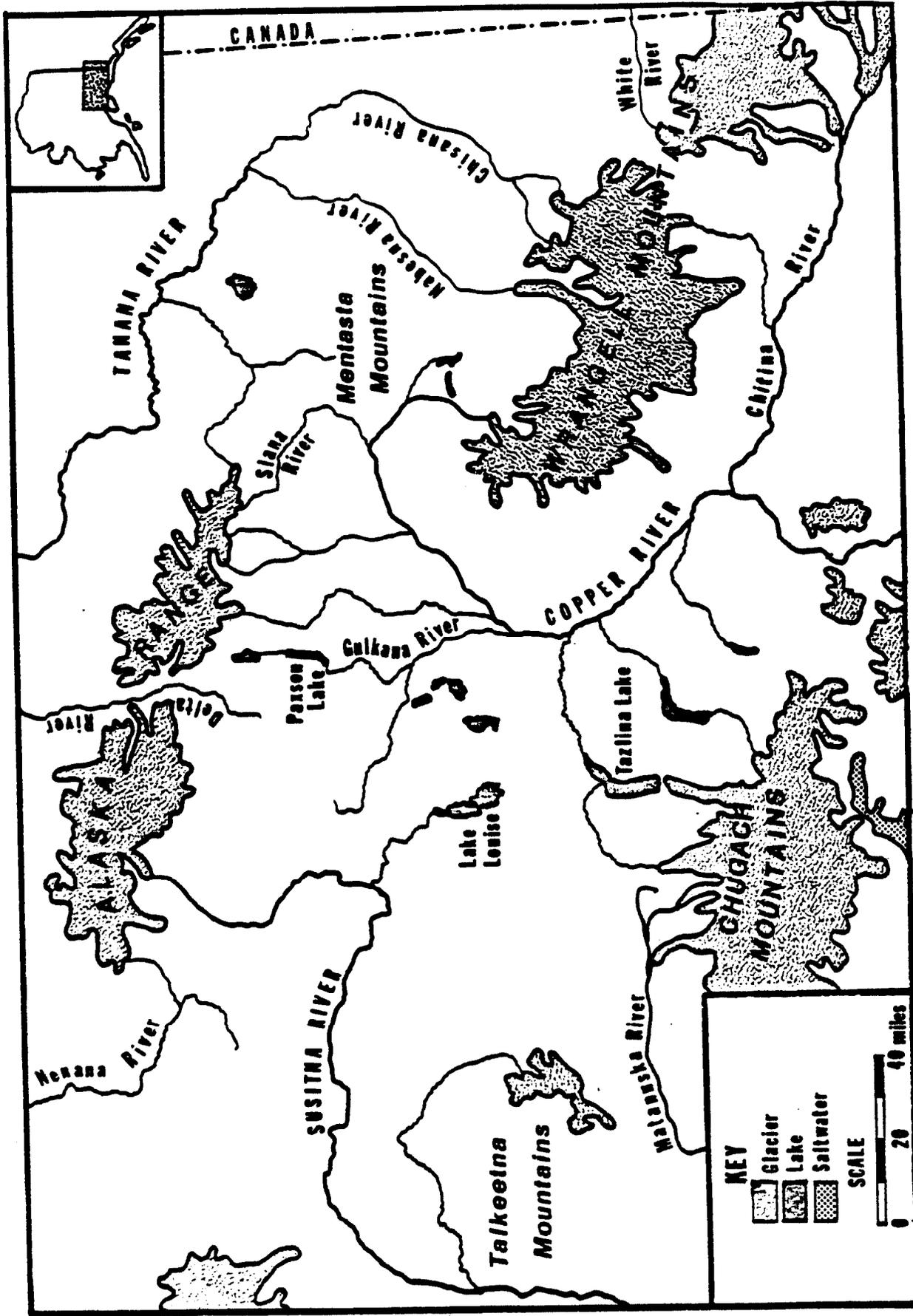


Figure 1. Geographic features of the Copper River basin.

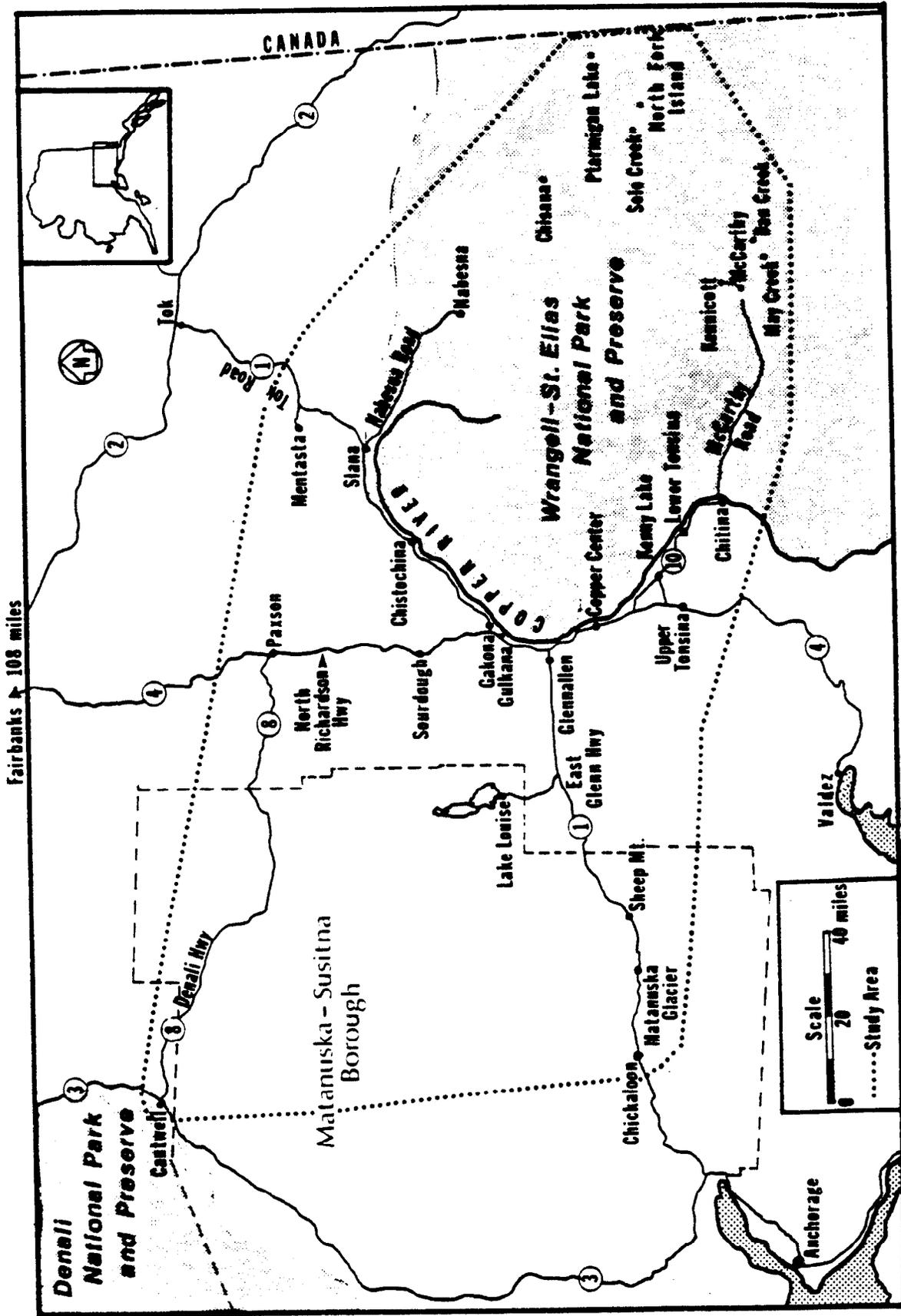


Figure 2. Communities in the Copper River basin study area.

Table 1. POPULATION AND MAPPING SAMPLE SIZE OF COPPER BASIN STUDY AREA COMMUNITIES, 1984.

Community	Estimated Population	Estimated No. of Households	No. of Contacts 1983	No. of Contacts 1984	Total No. of Contacts ^a	Community Meeting
Cantwell	136	47	11	9	16	yes
Chickaloon	69	30	4	8	8	no
Chistochina	70	26	6	14	14	yes
Chitina	43	24	0	9	9	no
Copper Center	439	129	4	24	25	no
East Glenn Hwy.	182	65	2	18	18	no
Gakona	150	47	4	19	22	yes
Glennallen	861	269	2	35	35	yes
Gulkana	56	20	9 ^b	0 ^c	9 ^d	yes
Kenny Lake	218	68	2	12 ^e	12 ^e	yes
Lake Louise	36	14	4	3	5	no
Matanuska Glacier	179	64	6	7	12	no
McCarthy Road	35	13	1	11	11	no
Mentasta	104	29	6	8	11	no
Nabesna Road	48 ^f	11	5	7	10	no
N. Wrangell Mtns.	11	5	5	3	5	no
Paxson-Sourdough	49	20	2	9	8 ⁹	yes
Sheep Mountain	59	19	1	5	6	no
Slana	78 ^f	29	9	16	20	no
Upper Tonsina	228	76	1	21	22	no
	3,051	1,005	84	238	278	

^aExcluding repeat interviews.

^bIn addition, a mapping session was held during a 1982 village meeting.

^cVillage residents had participated in earlier years, and felt that all information had already been recorded. The village council reviewed the map in 1984.

^dExcluding the village meetings in 1982 and 1984.

^eIn addition, mapping sessions were held with SAPA, a large farm cooperative, and with the Kenny Lake League.

^fThis does not include settlers in the 1983 federal homestead program along the Nabesna Road near Slana. A population estimate was not available for these settlers, most of whom had been in the area for less than a year and many of whom were seasonal residents during the 1984 field season.

- a) moose
- b) caribou
- c) sheep
- d) waterfowl
- e) furbearers
- f) salmon
- g) other freshwater fish
- h) berries and plants
- i) seasonal camps.

METHODOLOGY

General Research Design

Mapping was undertaken for the most part with knowledgeable individuals in each area. Knowledgeable persons were defined as those who had actively harvested resources in the Copper basin or who were familiar with resource use patterns of persons in their respective communities. Contacts were identified through a number of sources:

- 1) review of previous work and contacts made in the area;
- 2) local Alaska Department of Fish and Game personnel;
- 3) local Fish and Game Advisory Committee members;
- 4) village councils;
- 5) other agency staff (e.g. Bureau of Land Management and National Park Service);
- 6) local air taxi operators and guides; and
- 7) referral by knowledgeable harvesters interviewed in the course of the project.

Mapping followed the Division of Subsistence's standard mapping methodology (Wolfe 1983). Guideline questions for mapping resource use areas are given in Appendix A. In communities where preliminary mapping was available from previous division research, composite maps were compiled from the individual household interviews conducted in 1982 and 1983. These were used as working maps in subsequent interviews and were expanded as additional use areas were identified. Sheets of acetate were overlaid on U.S. Geological Survey topographic quadrangles (scale 1:250,000) for the mapping sessions. Mapping sessions were primarily conducted by two Division of Subsistence staff. Field work for this project was accomplished between June and December 1984.

Knowledgeable harvesters were asked to outline or expand areas where they had regularly hunted, fished, trapped, or gathered during the last 20 years (1964-1984). A 20-year time period was chosen for four reasons. First, it represented a time depth that would allow for some fluctuation in resource populations and availability. For instance, a 10-year time frame would have recorded areas used only since the decline of local caribou herds and the beginning of a caribou permit hunt system. Secondly, the 20-year time period recorded hunting and fishing areas used after the relocation of many families in the 1950s as a result of mandatory schooling. Another consideration in choosing the 20-year time period was that it recorded areas used both before and after the pipeline boom. Finally, the earthquake in 1964 provided people with a good reference point in time. They could easily remember where they were living and what they were doing that year. Those who had lived in the Copper basin less than 20 years were asked to show areas used only since taking up residency in the basin.

The approach of asking knowledgeable harvesters what areas other local residents used had limited application in this study. It was a useful technique in a few of the smaller, cohesive villages that retain some traditional usufruct systems. For the most part, however, use areas of other individuals were not commonly known by residents of the larger communities. This is because communities such as Copper Center, Kenny Lake, Glennallen, and Upper Tonsina were too large, heterogeneous, and dispersed for people to know what many others in the community were doing. Traplines were the single exception to this. Active trappers in an area were very likely to know the location of other nearby traplines; however, they often did not know all the areas another trapper had regularly used over the 20-year time period.

Only use areas within the Copper basin study area were recorded. Those areas used by local residents but lying outside of the basin were noted in researchers' field notes.

Questionable use areas were verified in two ways. First, clarification was sought in interviews with other local resource harvesters (see interview schedule, Appendix A). Biologists in the Glennallen Department of Fish and Game office were also asked to review doubtful areas to confirm the presence or absence of the resource in a particular locale. Ranges of big game species were scrutinized more carefully in this review process than areas where fish were present. It is possible that individuals may have unsuccessfully hunted or fished in certain areas shown on the maps, not knowing that the resource they sought did not occur in that locale.

Resources Mapped

The categories that were mapped (listed on page 5) include eight resources and a category called seasonal camps. There are some notable omissions from the list, including mountain goat, black bear, grizzly bear, bison, small game, and wood. Originally, a list of all desired mapping categories was drafted. The initial list was too long to accomplish in a single mapping session with participants and still obtain careful, accurate information on use areas. The categories were edited based on uniformity with other Habitat Guides' maps and researchers' knowledge of which resources were most commonly harvested by basin residents. Moreover, black bear and small game hunting occurred to a large extent on an opportunistic basis in conjunction with other harvesting activities. Previous research indicated that few basin residents regularly hunted grizzly bear, mountain goat, or bison, hence these resources were not mapped.

While seasonal camp location information was mapped for the most part, it was not appropriate for inclusion on the maps for the Southcentral Regional Habitat Guide. The information remains on file in the Anchorage Division of Subsistence office.

Samples

Twenty communities or population clusters were identified for the mapping project based on sample areas outlined for the division's 1983 survey on household resource use in the Copper River basin (Stratton and Georgette 1984). The 1983 household survey had encompassed 24 sample areas. Two of these samples, the North Richardson Highway and the Tok Road, consisted of households located along the highways between

identifiable communities. These two areas were dropped as separate samples, and the households included in the sample area of the nearest community. Another sample area, the South Wrangell Mountains, cooperated in the household survey, but after much consideration, declined to participate in the mapping effort. The residents of this sample area, which included McCarthy, May Creek, and Dan Creek, were concerned about possible misuses of the information by land management agencies and land planning organizations. Lower Tonsina had very few year-round households in 1984, and thus these households were placed in the Chitina or Kenny Lake samples. This reduced to 20 the number of communities or sampled areas in the project.

In the final maps, the Matanuska Glacier and Sheep Mountain samples were combined, since areas used by the communities' residents showed a large degree of overlap. Mapping of the two samples was conducted separately; while maps for the individual samples are on file, the final product reflects the combined use areas. Table 1 lists the study communities, the estimated population size, the number of households, and the number of households contacted in the two years of mapping work. Some households were contacted both years for verification and clarification, as the approach used in 1983 had involved a shorter time depth of areas used. The final maps reflect areas used between 1964 and 1984.

Map Review and Final Product

The working maps of the use areas were transferred to blue-line maps for final community review in Cantwell and Chickaloon. Most of the mapping for these two communities had been completed in the previous

year, and a final community review was all that was needed to conclude the project in these areas. Blue-line maps were also made available for review at public meetings held in Glennallen, Chistochina, and Gulkana in November 1984, as part of the Alaska Department of Natural Resources' Copper River Area Plan public review process. The Gulkana Village Council also reviewed the Gulkana maps. In many of the other communities, researchers interviewed nearly all the residents who had been active in resource harvesting during the past 20 years, and therefore felt that a formal community review would be repetitious. In addition, mapping in each community eventually reached a point where few or no new resource use areas were added by interviewed residents. At this point, researchers felt confident that the maps accurately depicted regular use areas for that community. The completed working maps were turned over to Division of Habitat cartographers to prepare the final products.

An index of the Copper Basin Resource Use Maps is attached as Appendix B. A total of 113 maps resulted from this study, with each community's resource use areas represented on two to ten maps. In general, use areas for several species or resource categories are depicted on each map. Two samples of the kind of information available on the maps are presented in Figures 3 and 4. These sample maps depict two small portions of the use areas documented for Copper Center, a community of 439 residents located on the Richardson Highway 15 miles south of Glennallen. The sample maps cover only a portion of the full-sized 1:250,000 scale maps on which the complete resource use information from this project is based. With the exception of waterfowl hunting, all resource categories that were mapped are included in these

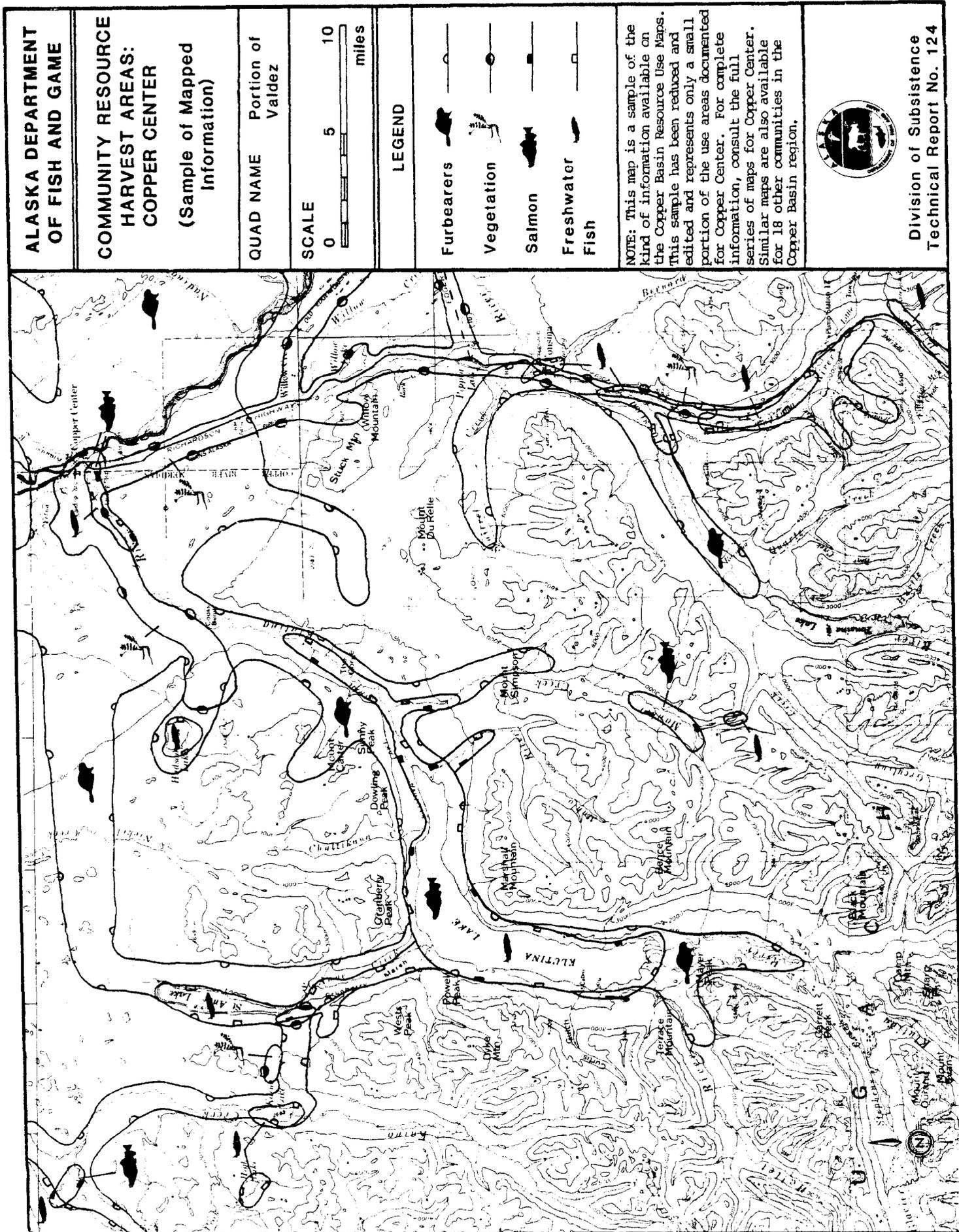


Figure 3. Sample of Copper Basin Resource Use Maps: Trapping, Fishing, and Gathering



ALASKA DEPARTMENT OF FISH AND GAME

COMMUNITY RESOURCE HARVEST AREAS: COPPER CENTER
(Sample of Mapped Information)

QUAD NAME Portion of Valdez

SCALE
0 5 10 miles

LEGEND

Furbearers [Symbol]

Vegetation [Symbol]

Salmon [Symbol]

Freshwater Fish [Symbol]

NOTE: This map is a sample of the kind of information available on the Copper Basin Resource Use Maps. This sample has been reduced and edited and represents only a small portion of the use areas documented for Copper Center. For complete information, consult the full series of maps for Copper Center. Similar maps are also available for 18 other communities in the Copper Basin region.

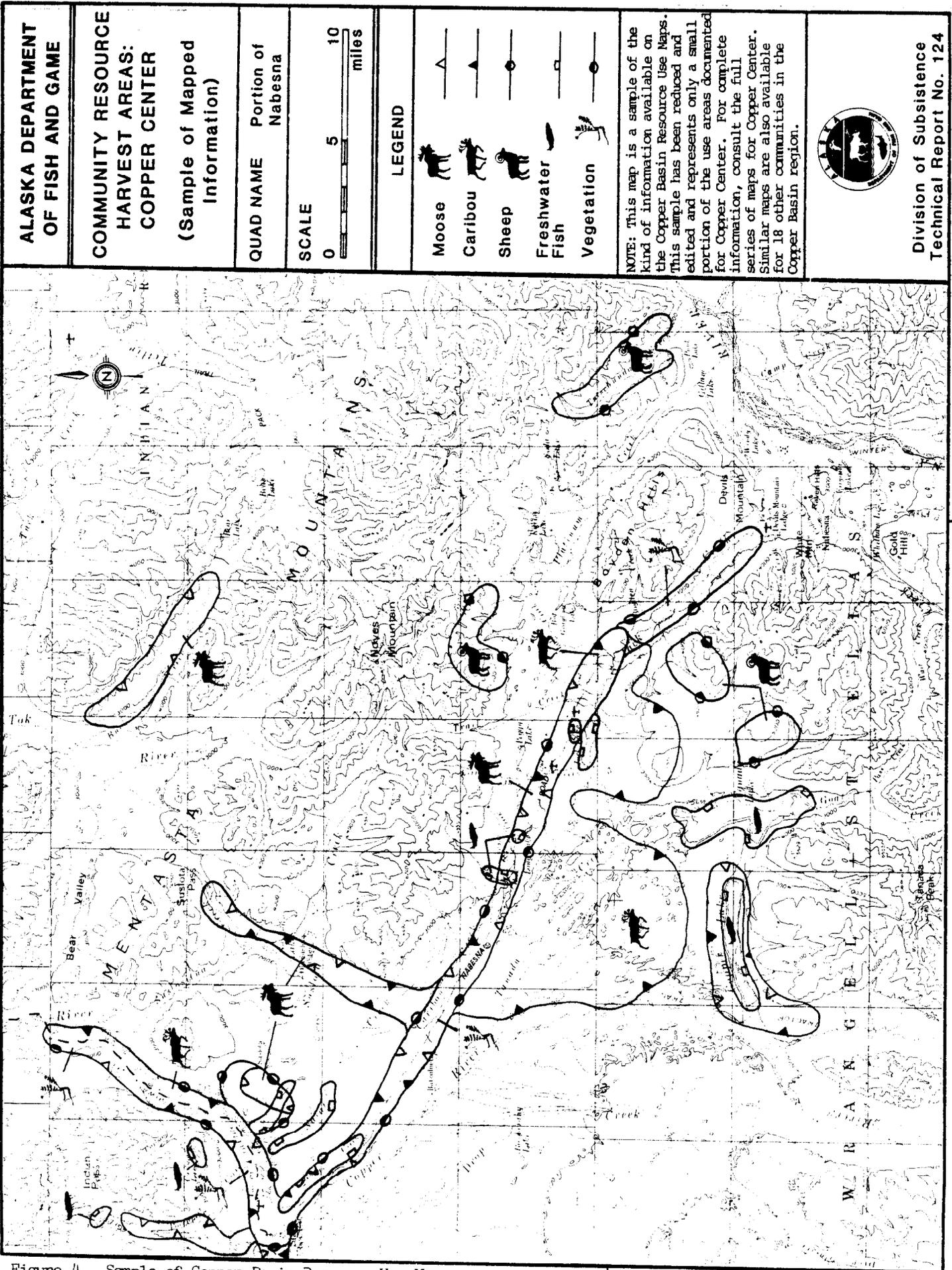


Figure 4. Sample of Copper Basin Resource Use Maps:
Hunting, Fishing, and Gathering



two sample maps. For complete information on resource use areas for Copper Center or other Copper basin communities, consult the full series of maps which is available for inspection at the Anchorage office of the Division of Subsistence, Alaska Department of Fish and Game, and will be in all field offices of the Alaska Department of Fish and Game when the Southcentral Regional Habitat Guide is completed in 1986.

USE OF INFORMATION

One of the major reasons this research on use areas was undertaken was the numerous land use planning efforts underway in the Copper basin. For several years, oil and gas lease plans, land disposal proposals, and other such efforts had been developed without response from Division of Subsistence, and often without input from the local residents whom the land actions would potentially affect.

For agencies and organizations with an interest in a specific area, the greatest value and most appropriate use of the Copper Basin Resource Use Maps are to identify which communities use the area. With this information, the agencies may consult residents about proposed land actions and potential effects on the on-going pattern of resource use documented in the maps.

The Copper basin maps demonstrate that most areas inhabited by fish and game populations in the region are currently used by local residents for fishing, hunting, and trapping. This land base is an integral part of the economy and social life of individual households and entire communities. Because of the diversity of resource use activities occurring in most of the Copper basin region, proposed land actions --

whether large or small -- can be expected to potentially affect these activities and the local users.

The researchers caution users of these maps that the areas shown represent only the areas used by interviewed residents during a 20-year time period. In every community, there are people who were not interviewed and who may use additional areas. Much of the Copper basin is also used frequently by non-local residents, a use pattern not depicted in these maps. Further, these maps are not intended to depict which areas are most important to local residents, most heavily used, or most productive. For this type of information, local residents should be consulted directly using the maps as a basis for discussion. Land use patterns of people who hunt, fish, and gather change over time, responding to changes in resource populations, migration routes, access, and technology. Twenty years may be too short a time span to reflect accurately the full range of areas used.

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APPENDIX A

INTERVIEW GUIDE FOR COPPER BASIN MAPPING

Initial mapping:

"Draw a line around those areas you have used for hunting (fishing, etc.) of (specify resource) in the past 20 years. What other areas have been used by residents of (community) for (activity) during the same time period?"

With review map:

A. Resources

"This map shows what we have learned so far about areas used in the last 20 years for (activity) by people living in (community). Are there areas that you use, or that you know are used by someone else in (community) for (activity) that are not shown on the map? Could you draw a line around areas that need to be added?"

B. Seasonal Camps

"When you go hunting, do you have a camp? Where are these located? Do you have a fish camp? Please indicate where it is on the map. Do you have trapline cabins? If so, where?"

C. Anomalous Features

"We were unsure about the use of this area for (activity). Can you clarify whether (activity) occurs in this area?"

"Could you help define this boundary for (activity)? For instance, does it include (feature)?"

APPENDIX B
COPPER BASIN RESOURCE USE
MAP INDEX

CANTWELL-DENALI HIGHWAY

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
1-A	Healy	X			X		X		X
1-B	Healy		X	X				X	
1-C	Mt Hayes	X		X	X		X		
1-D	Talkeetna Mtns.	X	X	X	X		X		X
1-E	Valdez					X			

CHICKALOON

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>
2-A	Anchorage	X	X	X	X	X		X
2-B	Talkeetna Mtns.		X	X	X		X	

CHISTOCHINA

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
3-A	Gulkana	X	X	X	X	X	X	X	X
3-B	Mt. Hayes	X	X	X	X		X	X	
3-C	Nabesna	X	X	X	X	X	X	X	X
3-D	Tanacross						X		

CHITINA

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
4-A	Gulkana	X						X	
4-B	McCarthy		X	X	X		X		X
4-C	Nabesna	X							
4-D	Valdez		X	X	X	X	X	X	X

COPPER CENTER

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
5-A	Anchorage	X			X		X		
5-B	Gulkana	X			X				X
5-C	Gulkana		X	X		X		X	
5-D	Healy	X			X				
5-E	McCarthy		X	X	X		X		
5-F	Mt. Hayes	X	X		X		X	X	X
5-G	Nabesna	X	X		X		X	X	
5-H	Talkeetna Mtns.	X	X		X				
5-I	Valdez	X			X		X		X
5-J	Valdez		X	X		X		X	

EAST GLENN HIGHWAY

Map No.	Quad	Caribou	Freshwater Fish	Furbearers	Moose	Salmon	Sheep	Vegetation	Waterfowl
6-A	Anchorage	X	X		X		X	X	
6-B	Gulkana	X	X	X	X	X	X	X	X
6-C	McCarthy				X		X		
6-D	Mt. Hayes				X				
6-E	Nabesna	X	X		X		X		
6-F	Talkeetna Mtns.	X	X		X		X		
6-G	Valdez	X	X	X	X	X	X		X

GAKONA

Map No.	Quad	Caribou	Freshwater Fish	Furbearers	Moose	Salmon	Sheep	Vegetation	Waterfowl
7-A	Bering Glacier			X	X				
7-B	Gulkana	X			X		X		X
7-C	Gulkana		X	X		X		X	
7-D	McCarthy			X	X		X	X	
7-E	Mt. Hayes	X	X	X	X		X	X	
7-F	Nabesna	X	X		X	X	X	X	X
7-G	Talkeetna Mtns.			X					
7-H	Valdez	X	X	X	X	X	X	X	X

GLENNALLEN

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
8-A	Anchorage	X			X		X	X	
8-B	Bering Glacier			X					
8-C	Gulkana	X			X		X		X
8-D	Gulkana		X	X		X		X	
8-E	Healy	X			X			X	
8-F	McCarthy		X	X	X		X		
8-G	Mt. Hayes	X	X		X		X	X	X
8-H	Nabesna	X	X	X	X		X	X	X
8-I	Talkeetna Mtns.	X	X		X				
8-J	Valdez	X	X	X	X	X	X	X	X

GULKANA

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
9-A	Gulkana	X	X	X	X	X	X	X	X
9-B	McCarthy				X		X		
9-C	Mt. Hayes	X			X			X	X
9-D	Nabesna	X	X		X		X	X	
9-E	Valdez				X		X		

KENNY LAKE

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
10-A	Bering Glacier				X				
10-B	Gulkana	X	X		X	X	X	X	X
10-C	Healy	X			X			X	
10-D	McCarthy			X	X		X	X	X
10-E	Mt. Hayes	X	X		X		X	X	
10-F	Nabesna	X	X		X			X	
10-G	Valdez		X	X		X		X	
10-H	Valdez				X		X		X

LAKE LOUISE

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
11-A	Bering Glacier						X		
11-B	Gulkana	X	X	X	X	X		X	X
11-C	McCarthy		X				X		
11-D	Talkeetna Mtns.	X	X	X	X				
11-E	Valdez		X	X		X	X		

MATANUSKA GLACIER-SHEEP MOUNTAIN

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
12-A	Anchorage	X			X		X		X
12-B	Anchorage		X	X				X	
12-C	Gulkana	X	X	X	X	X			
12-D	Mt. Hayes		X						
12-E	Talkeetna Mtns.	X		X	X		X	X	
12-F	Valdez		X	X	X	X	X		

McCARTHY ROAD

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
13-A	Gulkana	X	X						
13-B	McCarthy		X	X	X		X	X	X
13-C	Valdez	X	X	X	X	X	X	X	X

MENTASTA

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
14-A	Gulkana	X		X	X		X	X	
14-B	Mt Hayes	X		X	X		X		
14-C	Nabesna		X	X		X		X	
14-D	Nabesna	X			X		X		X
14-E	Tanacross	X	X	X	X		X	X	X
14-F	Valdez					X			

NABESNA ROAD

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
15-A	Gulkana	X		X	X		X	X	
15-B	McCarthy			X					
15-C	Mt. Hayes				X				
15-D	Nabesna	X			X		X		X
15-E	Nabesna		X	X		X		X	

NORTH WRANGELL MOUNTAINS

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
16-A	Gulkana					X			
16-B	McCarthy	X			X		X		X
16-C	McCarthy		X	X					
16-D	Nabesna		X	X				X	
16-E	Nabesna	X			X		X		X
16-F	Valdez					X			

PAXSON-SOURDOUGH

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
17-A	Anchorage	X							
17-B	Gulkana	X	X	X	X	X		X	X
17-C	Healy			X					
17-D	Mt. Hayes	X	X	X	X		X		X
17-E	Nabesna						X		
17-F	Talkeetna Mtns.			X					

SLANA

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
18-A	Gulkana	X	X	X	X	X	X	X	
18-B	Mt. Hayes	X	X		X				
18-C	Nabesna	X			X		X		X
18-D	Nabesna		X	X		X		X	
18-E	Tanacross		X		X		X		

UPPER TONSINA

<u>Map No.</u>	<u>Quad</u>	<u>Caribou</u>	<u>Freshwater Fish</u>	<u>Furbearers</u>	<u>Moose</u>	<u>Salmon</u>	<u>Sheep</u>	<u>Vegetation</u>	<u>Waterfowl</u>
19-A	Anchorage	X							
19-B	Bering Glacier						X		
19-C	Gulkana	X	X		X	X	X	X	X
19-D	McCarthy		X	X	X		X		
19-E	Mt. Hayes	X	X		X			X	
19-F	Nabesna	X	X		X		X		
19-G	Valdez	X			X		X		X
19-H	Valdez		X	X		X		X	