

SUSITNA HYDROELECTRIC PROJECT

**FEDERAL ENERGY REGULATORY COMMISSION
PROJECT No. 7114**

RECREATION SURVEY REPORT

HARZA-EBASCO
SUSITNA JOINT VENTURE

FINAL REPORT

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SUSITNA HYDROELECTRIC PROJECT

RECREATION SURVEY REPORT

Report by
Harza-Ebasco Susitna Joint Venture

Prepared for
Alaska Power Authority

Final Report
November 1985

NOTICE

**ANY QUESTIONS OR COMMENTS CONCERNING
THIS REPORT SHOULD BE DIRECTED TO
THE ALASKA POWER AUTHORITY
SUSITNA PROJECT OFFICE**

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1.0 INTRODUCTION

1.1 PURPOSE

In the vicinity of the Susitna Hydroelectric Project, information about camping and other recreation activities such as hiking, all-terrain vehicle (ATV) use, and berrypicking, is not well documented. With the development of project-related access into the middle Susitna River Basin, potential exists for these activities to increase significantly over existing conditions. In order to evaluate the effects this increase may have, more information on recreation activities at sites in the project vicinity is needed.

The purpose of the recreation survey was to obtain baseline recreation-activity information for recreation sites in the project vicinity; that is, along the Denali Highway and along the Richardson Highway near Paxson. Results of the surveys are needed to refine projections of the Project's impacts on recreation resources and to update the Project's recreation and mitigation plans. Information collected in the survey included identification of recreation users and their:

- o Recreation facility utilization
- o Satisfaction with recreation facilities
- o Attitudes about the need for additional facilities
- o Rates of participation in consumptive and nonconsumptive activities
- o Demographic characteristics
- o Trip patterns

1.2 BACKGROUND

A recreation plan was prepared and presented in the Susitna Hydroelectric Project's License Application submitted to the Federal Energy Regulatory

Commission in 1983. The purpose of the plan was to provide organized recreational development for project waters and adjacent lands. Refinements to the plan are being made based on information collected in and recreation use estimates (see Appendix C) from this survey as well as on concurrent research sponsored by the Alaska Power Authority.

1.3 STUDY APPROACH

Beginning in early June, 1984 an investigation of literature was conducted to determine data collection priorities. Additionally, state and federal land management agencies were contacted to obtain unpublished information about recreational use of their lands and facilities. This preliminary investigation resulted in the selection of the recreation survey study area (study area), the data collection technique, and the questionnaire contents. These selections are discussed in detail in Section 2.1

Concurrently, a reconnaissance of the study area was conducted and contacts with local key informants were established. Individuals from Cantwell and Paxson were identified to distribute questionnaires. Details about facility design capacities were collected for campgrounds, waysides, and trailheads. The reconnaissance resulted in refinement of the locations within the study area where data would be collected. The data collection technique detailed in Section 2.4 was also further refined to reflect more detailed knowledge of the study area. This refinement resulted in the collection of data by self-administered questionnaires placed on vehicles or tents located at chosen locations within the study area.

2.0 RESEARCH METHODS

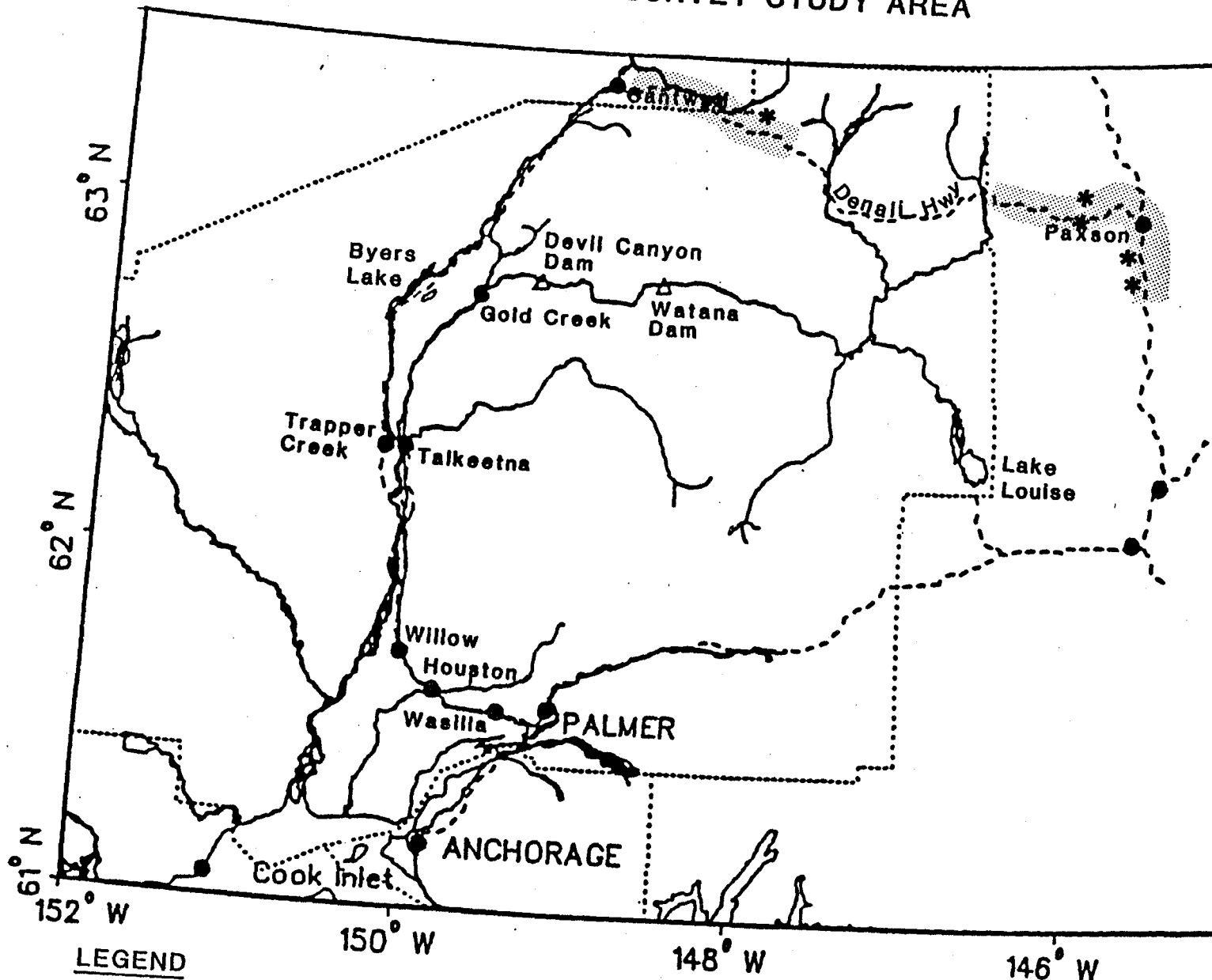
2.1 RECREATION SURVEY STUDY AREA

The criteria used to select the study area included proximity to the proposed Susitna project site and similarity of recreational amenities to those contained in the Susitna Project's recreation plan. Applying these criteria led to selection of a study area that included the Denali Highway and the portion of the Richardson Highway from Paxson to Paxson Lake Campground. This area encompassed approximately 145 miles of road. Because of the method selected for distributing questionnaires and the sparse population along the Denali Highway, complete coverage of this distance would have been very expensive. Therefore, key points for questionnaire distribution were chosen that were clustered near Paxson and Cantwell, where locally hired surveyors could distribute questionnaires without traveling more than 100 miles per day. The area where these survey points were located are shown in Figure 2-1.

Figures 2-2 through 2-6 show the facilities, designated capacities of, and configuration of the developed sites in the study area. Paxson Lake Campground had 20 designated campsites, Tangles Lakes Campground had 14, Tangle River Campground had 7, Brushkana Campground had 16, and Paxson Wayside had 4 picnic sites. In addition to the designated camping or picnic spots, Paxson Wayside and Tangle River and Tangle Lakes campgrounds had areas available for other vehicular parking. All campgrounds, most waysides, and most trailheads within the study area were selected as survey points^{1/}.

^{1/} The Clearwater Creek Wayside was omitted because its long distance from Paxson and Cantwell would have resulted in surveyors traveling over 100 miles. Trailheads on the Denali Highway between the Maclaren River (milepost 42) and Butte Lake Trail (milepost 94) were omitted for the same reason.

SUSITNA HYDROELECTRIC PROJECT RECREATION SURVEY STUDY AREA



LEGEND

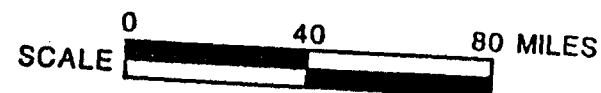


STUDY AREA



CAMPGROUNDS AND WAYSIDE

SOURCE: Harza-Engel, 1967



061385

FIGURE 2-1

TANGLE LAKES CAMPGROUND

FACILITIES

TABLES	14
FIRERINGS	14
TOILETS	4 (DOUBLE UNITS)
ENTRANCE SIGN	1
BULLETIN BOARD	1
REGISTER STAND	1
BOAT RAMP	1
TRANSH BARRELS	20

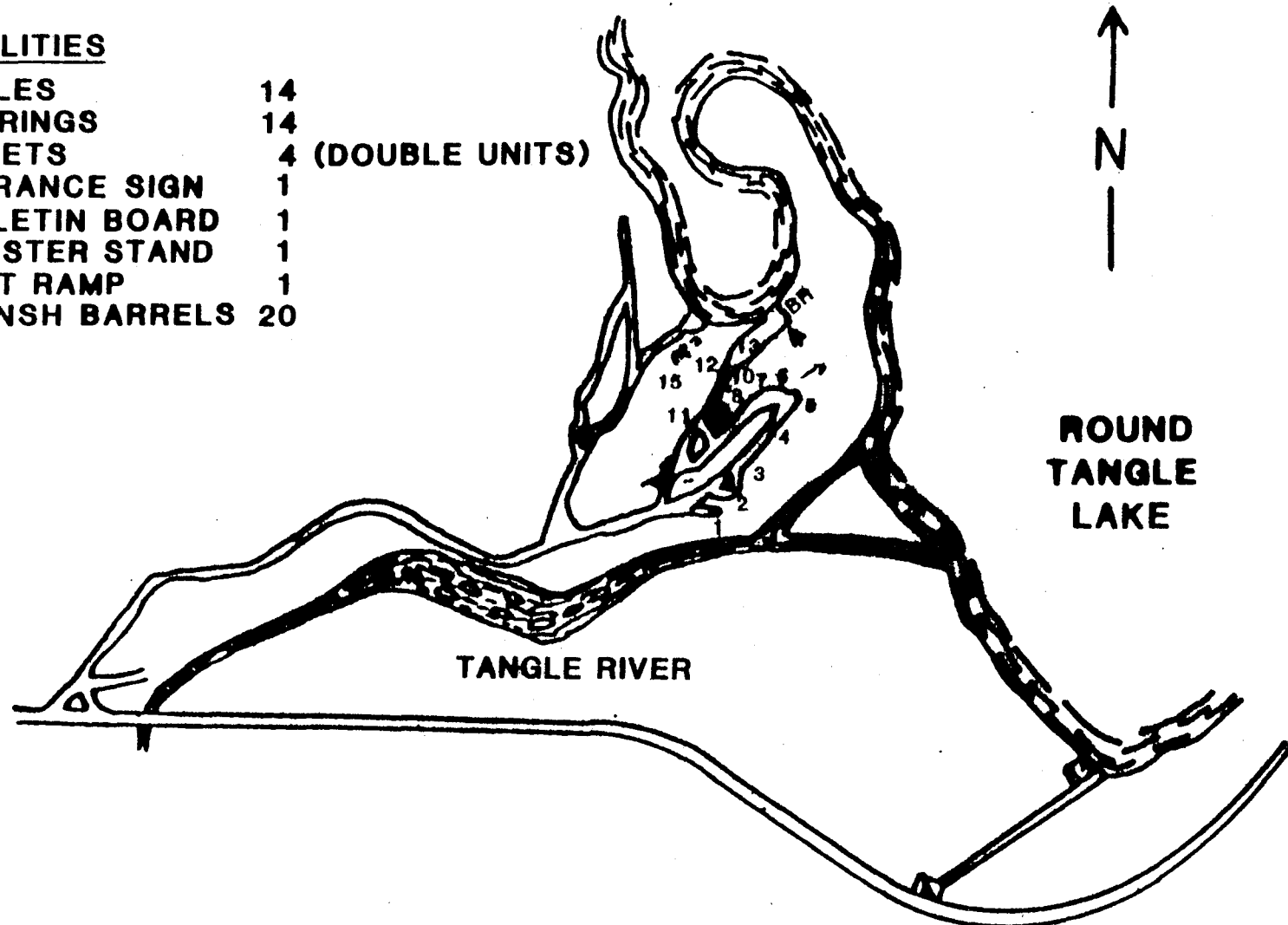


FIGURE 2-2

TANGLE RIVER CAMPGROUND

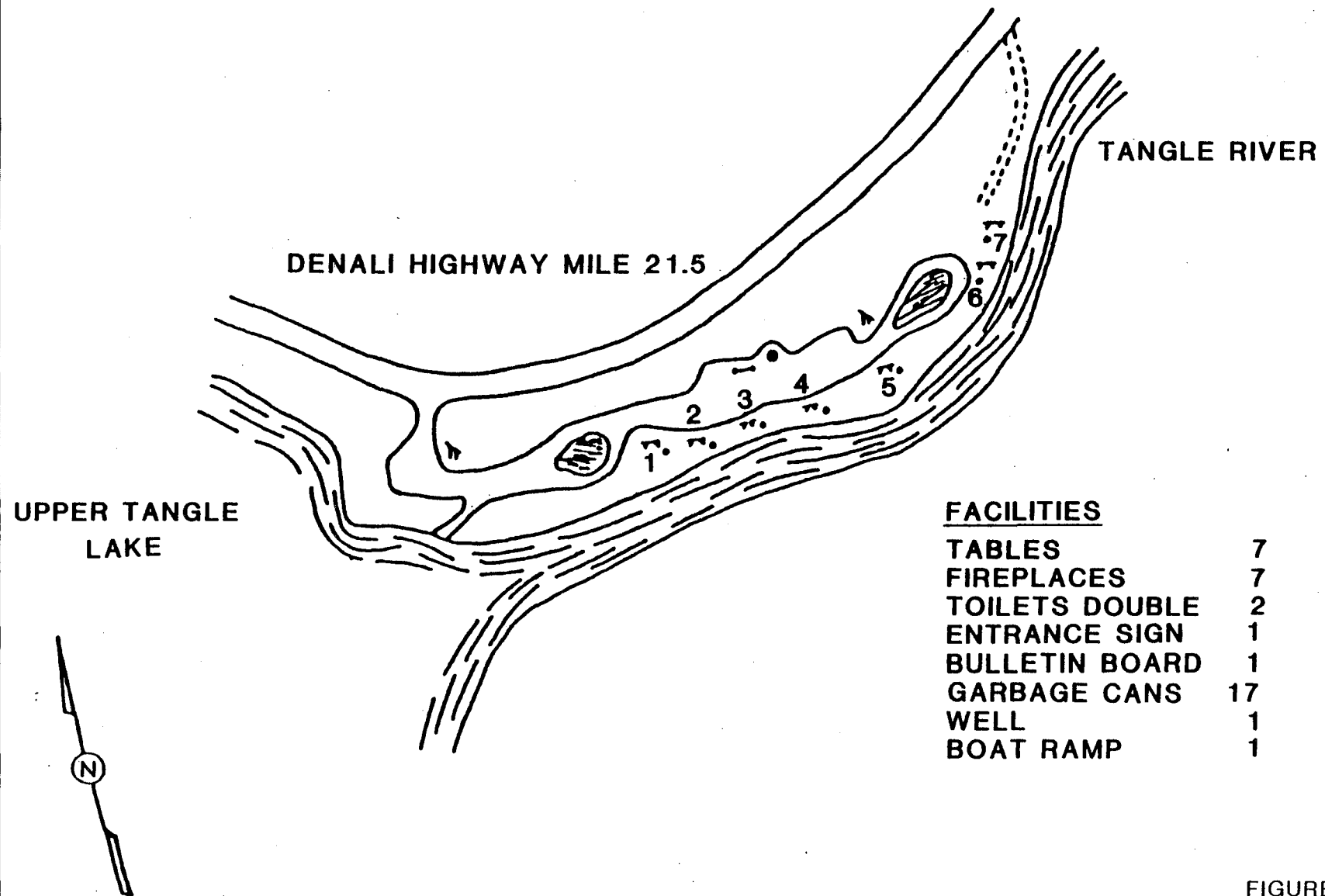


FIGURE 2-3

SOURCE: U.S. Bureau of Land Management. 1984. Adapted from unpublished diagrams.

PAXSON LAKE CAMPGROUND

FACILITIES

TABLES	20
FIREPLACES	20
TOILET DOUBLE	2
ENTRANCE SIGN	1
BULLETIN BOARD	1
GARBAGE CANS	26
WATER WELL	1

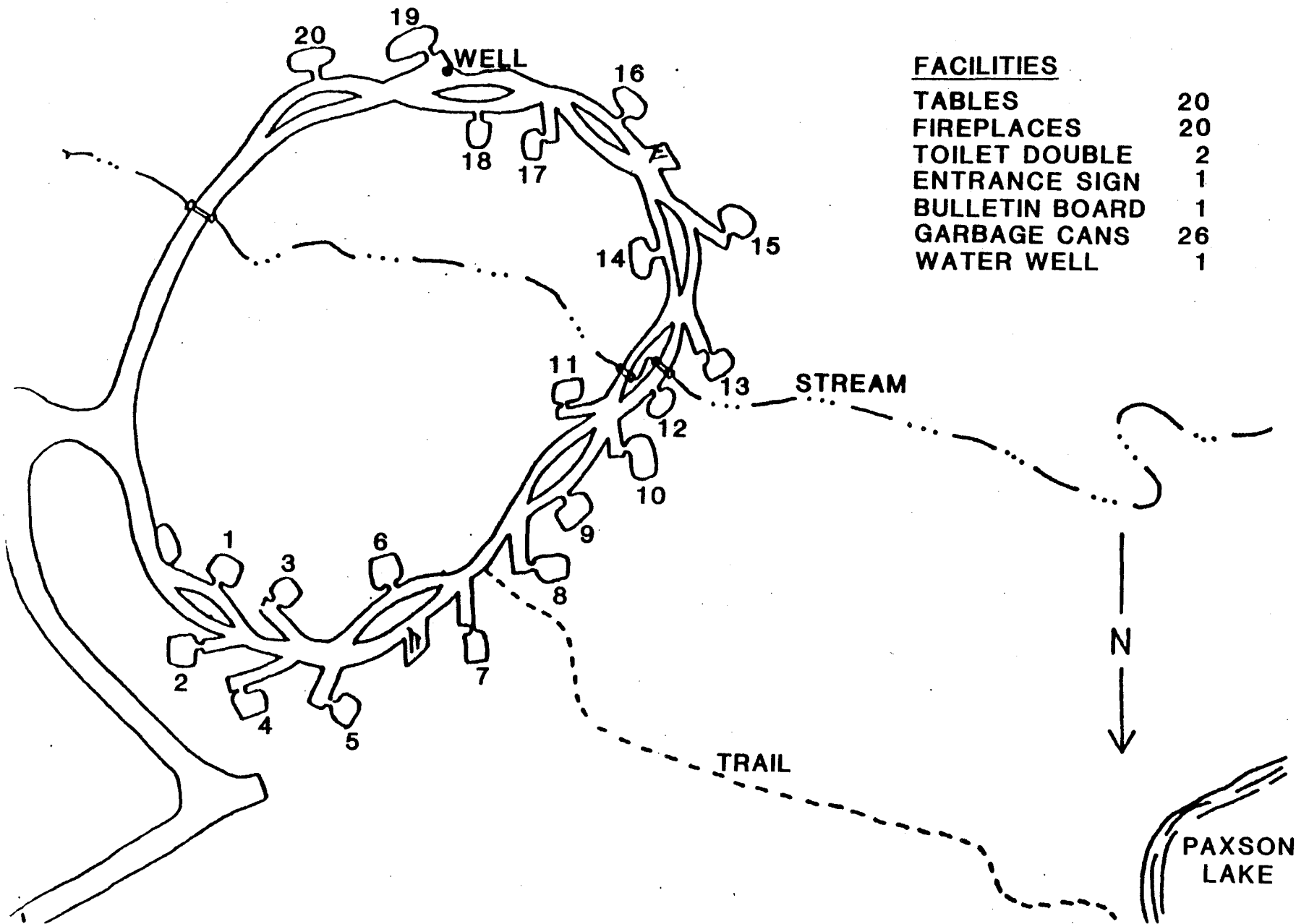


FIGURE 2-4

PAXSON WAYSIDE

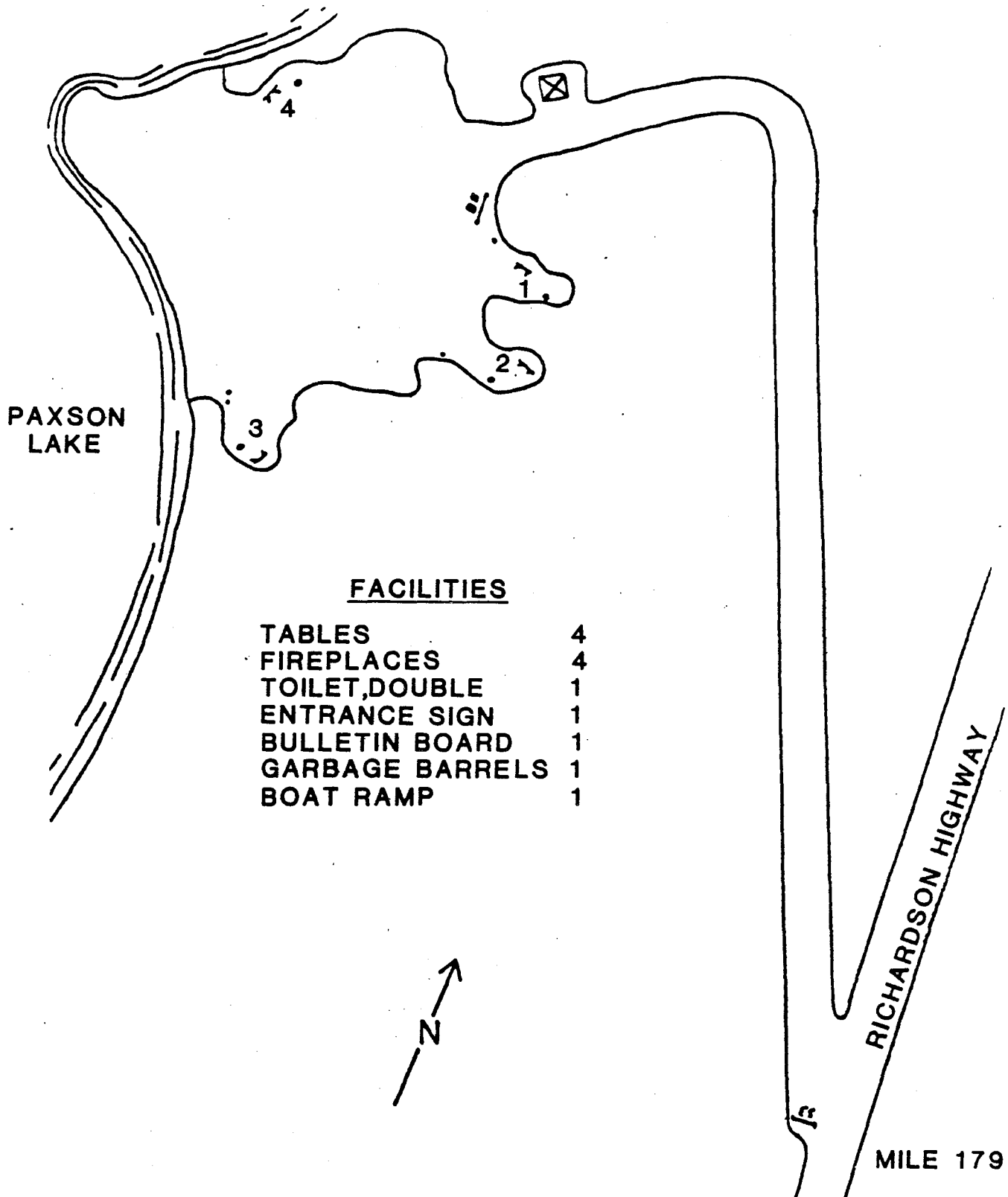
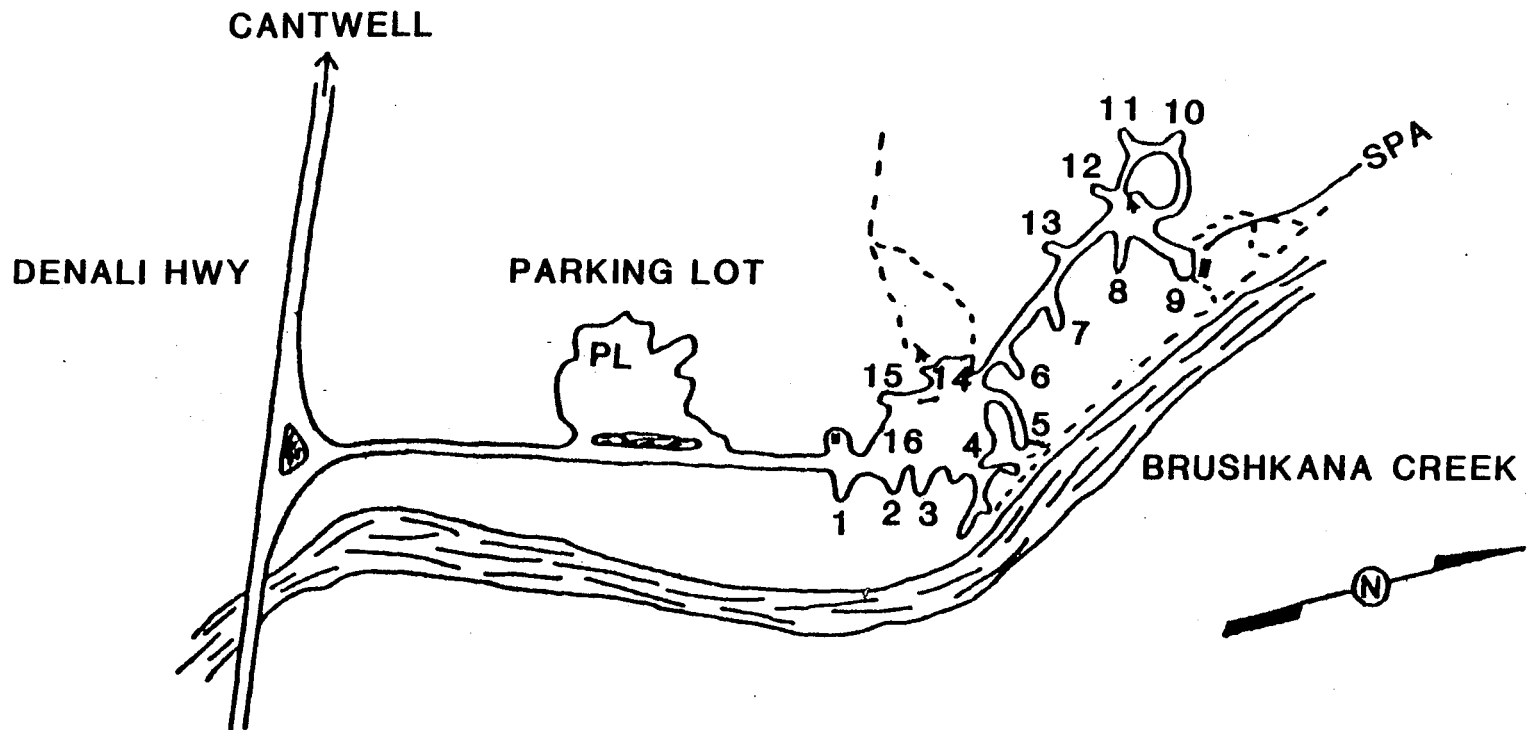


FIGURE 2-5

SOURCE: U.S. Bureau of Land Management. 1984. Adapted from unpublished diagrams.

BRUSHKANA CAMPGROUND



FACILITIES

TABLES	16
FIREPLACES	15
GARBAGE BARRELS	16
TOILETS, DOUBLE	2
BULLETIN BOARD	1
REGISTER STAND	1
ENTRANCE SIGN	1
SHELTER	1
WELL	1

LEGEND

WELL	x
BULLETIN BOARD	-
TRAILS	---
TOILETS	⌒
SHELTER	■

FIGURE 2-6

SOURCE: U.S. Bureau of Land Management. 1984. Adapted from unpublished diagrams.

Vehicles parked along the Denali Highway also had questionnaires placed on windshields by surveyors traveling to or from designated distribution points. The locations where these questionnaires were distributed were recorded by surveyors to the nearest Denali Highway milepost number.

Questionnaires were also distributed at Byers Lake Campground and Lake Louise Campground even though these campgrounds were located outside the study area. These two locations were included to give the Alaska Department of Natural Resources (ADNR) information that could be compared to that obtained from the recreation study described in this report.

2.2 LITERATURE SEARCH

Two types of literature were examined to aid with the research design. The first type included general recreational research and resulted in delineation of the data collection technique. The second type included research specific to the recreation study area.

Since specific facility utilization information was needed, general population survey techniques were deemed inefficient. A large sample of the general population would be necessary to obtain responses from users of facilities in the study area. For example, the Institute for Social and Economic Research (ISER) estimated that 2,000 urban residents would need to be surveyed to locate 400 people who had pursued recreational activities in the last year somewhere in an area that includes, but is much larger than, the recreation survey study area (ISER, 1985). The telephone and mail techniques most often used in these surveys (Wallwork, et al., 1981; ADNR, 1981) were therefore not appropriate for the purposes of this study.

Point or point access sampling techniques (Lucas, Schreuder, and James, 1971; Lucas and Oltman, 1971) were determined to be most appropriate since point specific information, such as at trailheads and campgrounds, can be

collected by either observation or survey techniques. This survey combined techniques of Lucas and his associates with hand distributed questionnaires, similar to techniques used by Howard, et al., (1976).

A review of literature specific to the recreation study area aided in the identification of questionnaire content. The purpose for examining this literature was to identify existing information about the study area, thereby establishing data needs that could be met by this survey. The sources for most of these publications were state and federal resource management agencies (see Table 2-1).

2.3 QUESTIONNAIRE DEVELOPMENT

The questionnaire was developed in mid-June, 1984. The initial draft reflected project data needs. This draft was reviewed by Harza-Ebasco's recreation, aquatic, terrestrial, and socioeconomic staff to insure data needs would be met. The second draft reflected this internal review and the limitations of questionnaire length and complexity that were dictated by the research technique being used.

The second draft was presented to ADNR and BLM, the resource management agencies responsible for regulating recreation development in or around the recreation survey study area. The final draft resulted from discussions with these agencies' staff.

Final formatting was completed in conjunction with the printer. Spacing, print size, and use of special characters (such as arrows and blocks) were used as appropriate to produce an easy-to-read questionnaire (see Appendix A). Since questionnaires were designed for distribution on vehicle windshields, a durable weight "write-in-the-rain" paper was used.

Table 2-1
RECREATION STUDY AREA LITERATURE

Sponsoring Agency	Title
Alaska Department of Natural Resources (ADNR)	Alaska Outdoor Recreation Plan (1981)
	Alaska State Park System: Southcentral Regional Plan (1982)
	Susitna Area Plan (1985)
Alaska Department of Fish and Game (ADF&G)	Copper Basin Caribou Use: A Research Update (Stratton, 1983)
U.S. Bureau of Land Management (BLM)	The Denali Highway Information Plan (Miller et al., 1976)
	The Denali National Scenic Highway (1983)-interagency study

Source: Harza-Ebasco, 1985.

2.4 QUESTIONNAIRE DELIVERY

Questionnaires were delivered by two locally-hired surveyors, one from Cantwell and one from Paxson. The Cantwell surveyor was responsible for distributing questionnaires in the portion of the study area between Cantwell and milepost 100 on the Denali Highway. The Paxson surveyor distributed questionnaires in two areas, one between Paxson and milepost 40 on the Denali Highway and a second that included Paxson Lake Campground and Paxson Wayside. Questionnaires distributed outside the study area (Byers Lake and Lake Louise) were delivered by ADNR.

Questionnaires were delivered by placing them on windshields of vehicles parked in campgrounds, waysides, and trailheads within the study area. Additionally, at campsites that were obviously occupied but where no vehicle was parked, questionnaires were placed on tents or with equipment. Questionnaires were also placed on windshields of vehicles parked along the Denali Highway but not located at designated distribution sites.

The completed questionnaires could be returned in three ways. They could be dropped into a box attached to bulletin boards at campgrounds and waysides, handed back to the individual delivering them, or mailed. Instructions for returning the completed questionnaire were printed on the questionnaire (see Appendix A).

The questionnaires distributed in the study area were delivered on a pre-determined schedule from June 29 through September 30, 1984. They were distributed on all Saturdays and those Fridays and Sundays that were state or federal holiday weekends. There were five holiday weekends in the period. A 50 percent random sample was taken of the remaining Fridays, Sundays, and weekdays. This delivery schedule resulted in questionnaires being distributed on 59 (63 percent) days within the distribution period.

Surveyors were required to maintain log sheets (see Appendix B) when distributing questionnaires. The log sheets resulted in information that could be

used to estimate population use of each site, provide the basis for determining response rates, and determine similarities between the characteristics of the observed parties and those responding to the questionnaire. Within the study area, 1,518 questionnaires were distributed and 503 completed (usable) questionnaires were returned, for a 33 percent response rate. Ninety-six questionnaires were also returned from Byers Lake and Lake Louise. The response rate for these two areas could not be determined since no log sheets were completed.

Examination of returned questionnaires indicated that more than 33 percent of the parties (groups) visiting the area and receiving questionnaires responded to the survey. The "questionnaire" response rate was lower than the "party" response rate because of the technique used to distribute questionnaires and to log observations. Parties remaining at a site for more than one day could receive more than one questionnaire since distribution was to all vehicles located at developed sites or elsewhere in the study area on the sample days. Parties receiving more than one questionnaire were given the opportunity to return them uncompleted with an indication that a previous questionnaire had been completed. Not surprisingly, few returned the questionnaires subsequently received. Only 1 percent of the returned questionnaires indicated that a previous questionnaire had been received; yet, over 50 percent of those returning questionnaires were staying at the site where they were surveyed for more than one day. Matching the respondents location and number of days at the site with the distribution schedule showed that at least half of those staying more than one day probably received two or more questionnaires. This means that at least 40 percent of the parties receiving questionnaires responded to the survey.

2.5 DATA ANALYSIS

Returned questionnaires were examined for usefulness and those with no information or obvious misinformation (about 1 percent) were rejected.

Responses deemed usable were coded and data files created on the State Main Frame Computer. The Statistical Analysis System (SAS) computer software system (SAS Institute Inc, 1982) was used to analyze the data base. Initial response frequency counts were examined to determine response category, recodes, and requirements for multiple variable analyses. Statistics measuring the significance of association between variables are not reported because this report's audience is expected to be mostly non-technical and because of data constraints.

Data constraints which limit analysis techniques were produced by the questionnaire's brevity and simplicity. Because questionnaires were self-administered, the number of questions were few and the variables (and questions) were kept simple. Responses to questions were also designed to be simple. The resulting level of data is therefore simple and it is difficult to determine complex statistical relationships between more than two or three variables.

The total number of responses for the study area and Byers Lake and Lake Louise campgrounds appears high (nearly 600) but is too low for time and site specific multi-variable analyses. For example, only 36 responses came from Byers Lake and 22 of these were completed in September. An analysis of hunters' place of residence would produce a table with hunting (yes or no) on one axis and residence (about 6 categories) on the other axis. The resulting 12 cell table would have the 22 respondents split unevenly into 12 categories, making meaningful statistical analysis impractical. Furthermore, the results from such a small sample could not be applied to the entire population.

3.0 DESCRIPTION OF RESULTS

3.1 INTRODUCTION

The description of results is presented in two parts. The first part, Observation Results, reports the results from observations made by surveyors of numbers and origins of vehicles parked at the study sites. These observations were made on days and at times determined by the sampling methodology. The second part, Questionnaire Results, reports the findings from the questionnaires returned by respondents. The questionnaire responses have been divided into two sections by questions which pertained specifically to the respondent (i.e., occupation) and by those which pertained to the respondent's whole party (i.e., trip length).

3.2 OBSERVATION RESULTS

3.2.1 Introduction

This section presents the results of vehicle observations. These observations were made by surveyors while distributing questionnaires at the study area sites. The sites can be categorized in the following ways:

- 1) Developed recreation sites^{1/} - Paxson Lake, Tangle Lakes, Tangle River, and Brushkana campgrounds, and Paxson Wayside.

^{1/} Developed sites at Byers Lake and Lake Louise are outside the study area and therefore, are not included here because no observations were made at these sites. However, questionnaires were distributed on a periodic basis and therefore, results for these two sites have been incorporated into the chapter on Questionnaire Results.

- 2) Trailheads - Swede Lake, Landmark Gap, Glacier Lake, Sevenmile Lake, Pioneer Access, Old Denali Road, Jim Grimes, and Butte Lake trailheads.
- 3) Mileposts - Denali Highway milepost numbers 0 through 40 and 90 through 134.

The numbers of vehicles observed are presented by day, month, and by location. The numbers of vehicles are also categorized by the license plates displayed on the vehicles (i.e., Alaska, other U.S. states, foreign) and are presented by the locations where the vehicles were seen. In addition, for developed campgrounds, the numbers of vehicles are noted with respect to the sites' designed capacities. Where the numbers of vehicles at the developed sites exceeded the designed capacities of the sites, the dates of such occurrences are reported.

The main unit of analysis is the parked vehicles observed (observations) at developed sites, trailheads, or along the Denali Highway. The total number of observations during the study period was 1,512.

3.2.2 Observations by Site

Seventy-four percent (1,115) of the observations were at developed sites, 12 percent (210) were at trailheads, and 13 percent (193) were at milepost locations (see Table 3-1). Paxson Lake Campground was the developed site where the most vehicle observations, 21 percent (316), occurred. This was also the location where the greatest number of observations (43) occurred at a single time in July. Swede Lake Trailhead accounted for 10 percent (152) of the 12 percent (210) total vehicle observations for trailheads. Together, the 7 other trailheads accounted for 2 percent (58) of the vehicles observed. Observations of from 1 to 3 vehicles were common at different

Table 3-1

VEHICLE OBSERVATIONS BY SITE

Site	Number	Percent
<u>Developed Sites</u>		
Paxson Lake Campground	316	21
Paxson Wayside	150	10
Tangle Lakes Campground	252	17
Tangle River Campground	212	14
Brushkana Campground	185	12
-----	-----	-----
Subtotal	1,115	74
<u>Trailheads</u>		
Swede Lake	152	10
Landmark Gap	22	1
Glacier Lake	4	*
Seven-mile Lake	3	*
Pioneer Access	5	*
Old Denali Road	1	*
Jim Grimes	6	*
Butte Lake	17	1
-----	-----	-----
Subtotal	210	12
<u>Mileposts</u>		
Denali Highway Mileposts	193	13
-----	-----	-----
Subtotal	193	13
TOTAL	1,518	99 ^{a/}

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01,"
(February, 1985.)

NOTES: * equals less than one percent
a/ Percentages does not total 100 due to
rounding.

milepost locations for a total of 193 for all milepost locations. On September 1, 1984, the day moose hunting season opened, 42 vehicles were observed between mileposts 105 and 127. This represented the greatest number of observations along a portion of the Denali Highway during the summer.

3.2.2.1 Daily observations by site. Daily observations at the developed sites showed that vehicles parked wherever possible when designated spots were full. (See Figures 2-2 through 2-6 for configurations and capacities of developed recreation sites.)

Additional observation data show that, at times, each of the developed sites, except Brushkana, had an equal or greater number of vehicles at the sites than the designed camp/picnic spots could accommodate. Such circumstances occurred at Paxson Lake 13 percent of the time that observations were made, at Paxson Wayside 42 percent of the time, at Tangle River 40 percent of the time, and at Tangle Lakes 17 percent of the time. At Brushkana Campground, the number of vehicles counted was never equal to or greater than the number of designated campsites^{2/}. In fact, 92 percent of the time the number of vehicles was less than half the number of available sites.

Table 3-2 shows dates when the capacities of Paxson Lake, Tangle River, and Tangle Lakes campgrounds and Paxson Wayside were reached or exceeded. The heaviest use period for the four sites as indicated by the numbers of vehicles at the sites on specific days, was during the weekend before the week of July 4. Although the campsites at Brushkana were never full, the

^{2/} Observations at Brushkana Campground were made in the midafternoon, usually between 2 and 5 pm. Therefore, it is possible that additional vehicles could have stopped at Brushkana (and all other sites) after observations were made causing the camping sites to fill, overfill, or even become less full. However, many parties remained at the campground for several nights and survey results show crowding was not generally considered a problem.

Table 3-2

DATES WHEN OBSERVATIONS AT DEVELOPED SITES EQUALLED OR EXCEEDED CAPACITIES
(NUMBER OF OBSERVATIONS)

SITE	DATES																								
	June	July												August							September				
	Sa 30	S 1	M 2	Th 5	F 6	T 10	Th 12	Sa 14	S 15	T 17	Th 19	F 20	Sa 4	F 10	Sa 11	T 14	W 15	Sa 18	S 19	M 20	Sa 1	S 2	M 3	Sa 8	Sa 15
Paxson Lake Campground Cap. 20	43	-	*	34	-	25	-	24	*	-	-	-	-	-	-	-	*	-	-	*	-	-	*	-	-
Paxson Wayside Cap. 4	18	-	*	20	8	-	-	16	*	-	-	10	-	6	8	4	*	6	8	*	5	9	*	-	6
Tangle Lakes Campground Cap. 14	-	40	14	17	-	-	-	-	14	-	-	*	-	*	-	*	-	-	*	16	-	-	-	-	-
Tangle River Campground Cap. 7	-	26	19	25	-	-	14	-	9	8	7	*	-	*	-	*	10	-	*	8	-	-	10	7	8
Brushkana ^a / Campground Cap. 16	10	-	-	-	-	-	*	-	-	-	*	*	15	*	-	*	-	-	*	-	12	-	-	-	-

NOTES: * means days were not in the sampling frame for that site.

^a/ No observations which equalled or exceeded capacity were made at Brushkana Campground. The number of observations shown are for dates when observations were at or over one-half capacity.

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

greatest recorded use occurred on June 30, August 4, and September 1 when vehicles were parked at more than half the campsites.

3.2.2.2 Observations by month. Of the 1,518 vehicle observations made during the study, 40 percent (609) were in July, 29 percent (433) were in August, and 31 percent (476) were in September. In July, the greatest number of vehicles observed at a single site (43) occurred at Paxson Lake Campground. An equally great number of vehicles (42) were noted between mileposts 105 and 127 in September. By comparison, the greatest number at one site in August was 16 at Tangle Lakes Campground.

3.2.3 Observations of Vehicle License Plates

The numbers and percentages of vehicles at all study sites (1,512)^{1/} are described according to the license plates the vehicles displayed i.e., Alaska, other U.S. states, or other countries. This information (see Table 3-3) gives an idea of the origin of those who used sites in the study area during the summer of 1984. Clearly, no definite conclusions can be drawn about peoples' origins or site preferences without more detailed information from the visitors themselves. Some of this information is available from the returned questionnaires and is discussed in Section 3.3.

Vehicles licensed in Alaska represented 88 percent (1,334) of the observed vehicles; vehicles from other states comprised 11 percent (168); and foreign vehicles comprised 1 percent (10). (See Section 3.3 for more detailed information on where visitors were actually from.) Of the 1,334 Alaskan vehicles, 71 percent (953) were seen at the developed sites over the course

^{1/} Missing data equals 6.

Table 3-3

VEHICLES' LICENSE PLATES BY SITE

Site	Place of Origin			TOTAL
	Alaska	Other US States	Foreign Countries	
<u>Developed Sites</u>				
Paxson Lake Campground	283 21%	33 20%	0 0%	316 21%
Paxson Wayside	144 11%	6 4%	0 0%	150 10%
Tangle Lakes Campground	212 16%	38 23%	3 33%	253 17%
Tangle River Campground	181 14%	31 18%	0 0%	212 14%
Brushkana Campground	133 10%	46 27%	6 66%	185 12%
<u>Trailheads</u>				
Swede Lake	144 11%	1 1%	0 0%	145 10%
Landmark Gap	21 2%	1 1%	0 0%	22 1%
Glacier Lake	4 *	0 0	0 0%	4 *
Seven-mile Lake	3 *	0 0%	0 0%	3 *
Pioneer Access	5 *	0 0%	0 0%	5 *
Old Denali Road	1 *	0 0%	0 0%	1 *
Jim Grimes	6 *	0 0%	0 0%	6 *
Butte Lake	15 1%	2 1%	0 0%	17 1%
<u>Other</u>				
Denali Highway Milepost	182 14%	10 6%	1 1%	193 15%
TOTAL	1,334 (88) 100%	168 (11) 101% ^{a/}	10 (1) 100%	1,512 (100) 101% ^{a/}

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01", February, 1985.

NOTES: * equals less than one percent.
 Column percents are below actual numbers in each cell. In the TOTAL row, row percents are in parentheses to the right of actual numbers.
^{a/} percentage does not total 100 percent due to rounding.

of the three month study period. Paxson Lake Campground was the location of 21 percent (283) of the Alaskan vehicles, Paxson Wayside the location of 11 percent (144), Tangle Lakes, the location of 16 percent (212), Tangle River, 14 percent (181), and Brushkana, the location of 10 percent^{1/} (133). Approximately fourteen percent (199) of the total 1,334 Alaskan vehicles were observed at trailheads; 72 percent (144) of these were at Swede Lake trailhead. The remaining 14 percent (182) of Alaskan vehicles were observed between Denali Highway mileposts 0 and 40 and between mileposts 90 and 134.

Vehicles with licenses from the Lower 48 states (168) were observed almost exclusively at developed sites. That is, 92 percent (154) were at developed sites with the majority at Brushkana, while 6 percent (10) were at different mileposts and 3 percent (4) were distributed among trailheads. The 10 foreign vehicles comprising 1 percent of all vehicles were located at 3 locations: 6 were at Brushkana Campground, 3 were at Tangle Lakes Campground, and 1 was at milepost 128.

3.2.4 Summary

A total of 1,512^{2/} vehicle observations were made by surveyors at developed sites, trailheads, and at mileposts 0 to 45 and 90 to 134 along the Denali Highway during the summer (July, August, and September) of 1984. The developed sites (Tangle Lakes, Tangle River, Paxson Lake, and Brushkana campgrounds, and Paxson Wayside) accounted for 75 percent of all observations while Paxson Lake Campground accounted for the largest proportion of these. At the same time, Swede Lake Trailhead was the site of the greatest number of vehicles observed at trailheads. Similarly, a record of the

^{1/} Percentages do not equal 71 percent due to rounding.

^{2/} Missing data equals 6.

license plates displayed by the observed vehicles showed that the most Alaska vehicles at a developed site were at Paxson Lake Campground and the most at a trailhead were at Swede Lake. Overall, 88 percent of the license plates were from Alaska, 11 percent were from other U.S. states, and 1 percent were from foreign countries. Brushkana Campground was the developed site where the most licenses from other states and foreign countries were observed.

All developed sites, but Brushkana Campground, had times when they were at or over capacity at the time of day when observations were made. The heaviest use period (according to the number of vehicles present) was the weekend before July 4. July was also the month when the greatest percentage of vehicles (40%) for the entire period and the greatest number for a single site and day (43 vehicles) were observed. The second greatest percentage for the summer (31%) and number for a single site and day (42 vehicle) were observed in September.

3.3 QUESTIONNAIRE RESULTS^{1/}

3.3.1 Introduction

The following discussion of survey results presents questionnaire responses in two ways. First, there are questions and answers that pertain

^{1/} As noted in the research methods section, Byers Lake and Lake Louise campgrounds were not included in the study area and survey distribution procedures at these locations were different from those in the study area. For ease in reporting, results for these locations are presented together with those for study area sites. Caution is advised when comparing and interpreting results from these two locations with those from study area sites where survey distribution procedures were tightly controlled.

specifically to individual respondents. These questions address the respondent's sex, occupation, residence, and the individual's attitudes about the site, the need for additional recreation opportunities in southcentral Alaska, and his/her previous and future visits to the site. In this discussion, the answers to these questions are attributed solely to the individual who filled out and returned the questionnaire. Therefore, the maximum number of responses is equal to the total number of returned questionnaires, 599 (including responses from Byers Lake and Lake Louise campgrounds).

The second set of questions and answers are attributed to the respondent as well as to all members of his/her party since the respondent is asked to serve as the spokesperson for the party. The answers to these questions can be generalized to the party. The maximum number of parties is also equal to the number of returned questionnaires (599), but the unit of reference is the party. In some cases, the answers to these questions apply to each person in the respondent's party. Thus, the maximum possible number of responses to these questions equals the total number of persons in all parties represented in the survey (or total number of visitors to the sites), 2,141.

3.3.2 Respondents' Profiles

3.3.2.1 Sex, occupation. A total of 583 persons responded to the question about sex. Of these, 68 percent (397) were male and 32 percent (186) were female. An equal number of persons responded to the question on occupation. The findings on occupation are presented in Table 3-4. As shown, the greatest percentage of persons in a single category were professionals/-technicians/ managers, 37 percent (218). Retired persons made up the second largest group with 18 percent (104). Clerical, sales, and service workers were third with 13 percent (75) and construction, operations, mining and transportation workers were fourth with 12 percent (68). Four other categories, agriculture/fishing/forestry/recreation, armed forces, unemployed/homemakers, and miscellaneous, accounted for the remaining 20 percent of the respondents' occupations.

Table 3-4

RESPONDENTS' OCCUPATIONS

Occupation	Number	Percent
Professionals/Technicians/Managers	218	37
Clerical/Sales/Service	75	13
Construction/Operations/Mining/Transportation	68	12
Agriculture/Fishing/Forestry/Recreation	18	3
Armed Forces	32	5
Unemployed/Homemakers	46	8
Retired	104	18
Miscellaneous	22	4
TOTAL	583	100

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

3.3.2.2 Residence. The residences of the 596 respondents (three persons did not answer the residence question) are shown in Table 3-5. The Anchorage area, other U.S. states, and the Fairbanks area were the residences recorded most commonly by respondents. These three areas accounted for 78 percent of all residences, with the Anchorage area at 32 percent (192), other U.S. states at 26 percent (149) and the Fairbanks area at 20 percent (122). Four other regions were each represented by less than 10 percent of the respondents.

3.3.2.3 Site visits in 1983 and 1984. When asked how many times they visited the site they were surveyed at in 1983, 64 percent (375) of the respondents said they had not visited the site that year (see Table 3-6). An additional 19 percent (108) of the respondents had only visited it once. The remaining 17 percent visited it two or more times. When this information is broken down by location as shown in Table 3-7, it is apparent that the greatest percentage (19%) of people returning to a site for the second (or more) time went to Brushkana Campground. The next two most popular spots were Paxson Lake Campground (with 18 percent returning two or more times) and Tangle River Campground (with 16 percent returning two or more times).

To assess expected visitation, respondents were also asked to estimate the total number of times they expected to visit the site they were at in 1984 (see Table 3-6). Sixty-four percent (359) of the respondents expected this 1 visit to be their last while 17 percent (94) thought they would return once more. Fourteen percent (77) thought they would come back 3 or more times.

3.3.2.4 Dissatisfaction with and recommended changes at sites. Two questions asked respondents to evaluate the sites where they were surveyed. These two questions asked respondents' satisfaction with the sites and changes they would like to see there. Table 3-8 shows the percentages of dissatisfied respondents at each site and the percentages of respondents desiring changes by site. Paxson Wayside had the greatest percentage (31%) of dissatisfied people. The next highest percentages of dissatisfied

Table 3-5

RESPONDENT'S AND PARTY MEMBERS' RESIDENCES

Residence ^{a/}	Respondents		Party Members ^{b/}	
	Number	Percent	Number	Percent
Anchorage Area	192	32	691	33
Fairbanks Area	122	20	411	19
Mat-Su Area	44	7	154 ^{d/}	7 ^{d/}
Railbelt Area	8	1		
Other AK Areas	48	8	177	8
Other U.S. States	149	26	582	28
Outside U.S.	33	6	93	4
TOTAL	596	100	2,108	99 ^{c/}

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

- NOTES: ^{a/} The boundaries of the areas of residence in Alaska are shown in Appendix D.
- ^{b/} Party members' residences were deduced from information supplied by the respondents. In some cases, no residences for group members could be inferred, consequently, the total number of group members shown is less than the number included in the survey.
- ^{c/} Percentage does not total 100 due to rounding.
- ^{d/} Number represents total for both Mat-Su and Railbelt areas.

Table 3-6

RESPONDENT'S VISITS TO SITES
WHERE THEY RECEIVED QUESTIONNAIRES
1983 and 1984

Visits	1983 ^{a/}		1984 ^{b/}	
	Number	Percent	Number	Percent
No Visits	375	64	33 ^{c/}	6
One Visit	108	19	359	64
Two Visits	49	8	94	17
Three Visits	23	4	38	7
4 or more Visits	28	5	39	7
TOTAL	583	100	563	101 ^{d/}

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01,"
February, 1985.

- NOTES: ^{a/} Actual numbers for 1983.
^{b/} Estimated numbers, counting current visit in 1984.
^{c/} These 33 respondents indicated they were not visiting the site where they received the questionnaire even though that is where they completed the questionnaire. It is assumed that they were passing through the site when they received the survey and did not interpret this as a visit.
^{d/} Percentage does not total 100 due to rounding.

Table 3-7

VISITATIONS TO SITES IN 1983

Site	None	One	Two or More	TOTAL
Tangle Lakes Campground	87 23%	27 25%	13 13%	127 22%
Tangle River Campground	37 10%	13 12%	16 16%	66 11%
Paxson Lake Campground	83 22%	24 22%	28 18%	125 22%
Paxson Wayside	21 6%	4 4%	10 10%	35 6%
Brushkana Campground	60 16%	12 11%	19 19%	91 16%
Byers Lake Campground	22 6%	7 7%	6 6%	35 6%
Lake Louise Campground	41 11	7 7	12 12%	60 10%
Denali Highway Mileposts	21 6%	13 12%	5 5%	39 7%
TOTAL	372 100%	107 100%	99 99% ^{a/}	578 100%

SOURCE: Harza-Ebasco Computer run, SAS Program "Survey 01,"
February, 1985.

NOTES: Column percents are below actual numbers in each cell.
^{a/} Percent does not total 100 due to rounding.

Table 3-8

RESPONDENTS DISSATISFIED WITH
AND DESIRING CHANGES AT SITES

Site	Dissatisfied	Changes Desired
Tangle Lakes Campground	21 16% N=128	45 37% N=121
Tangle River Campground	9 13% N=68	23 37% N=63
Paxson Lake Campground	17 13% N=126	47 38% N=121
Paxson Wayside	11 31% N=35	19 54% N=35
Brushkana Campground	9 9% N=96	21 23% N=93
Byers Lake Campground	3 8% N=36	15 45% N=33
Lake Louise Campground	13 22% N=60	28 51% N=55
Denali Highway Milepost	6 15% N=39	5 14% N=37

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01,"
February, 1985.

NOTE: Percentages below actual numbers represent the
percent of respondents at each site who were
dissatisfied or desired changes.

respondents were located at Lake Louise and Tangle Lakes campgrounds with 22 and 16 percent, respectively. On the other hand, Brushkana and Byers Lake campgrounds were the sites of the greatest percentages of satisfied respondents. Not surprisingly, Paxson Wayside was also the site where the greatest percentage of respondents (54%) wanted changes. However, respondents at each site except the Denali Highway mileposts wanted approximately twice as many (or more) changes than the levels for dissatisfaction indicated. That is, responses showed that some people could be generally satisfied and still desire changes.

Respondents who were dissatisfied and those who wanted changes were asked to specify the reasons for their dissatisfaction and the changes desired. The reasons and the recommended changes were tabulated by location and are presented in Tables 3-9 and 3-10. To summarize, at Tangle Lakes, Tangle River, and Brushkana campgrounds the most frequently cited reason for dissatisfaction was the lack of firewood. At Paxson Lake Campground and Paxson Wayside, the most frequently noted dissatisfaction was that there was no boat ramp, while at Lake Louise the main dissatisfaction was with the condition of the boat ramp. At Paxson Wayside, the small size of the area and overcrowding were mentioned as often as the dissatisfaction with not having a boat ramp. Finally, at Byers Lake Campground, the eroded and unsightly condition of the trail around the lake was mentioned most as a source of dissatisfaction.

With regard to recommended changes, it is surprising that the most frequently noted desired changes did not necessarily correspond to the sources of dissatisfaction previously mentioned. For example, at Tangle Lakes and Tangle River campgrounds, respondents were a little more concerned about a change that would provide safe drinking water than one which would provide their most frequently noted dissatisfaction, the lack of firewood. However, the desire for firewood was mentioned second most often at both sites. Similarly, at Lake Louise Campground the most frequently mentioned change was the need for more campsites although the need for boat ramp repairs was also mentioned second most often. At Brushkana Campground

Table 3-9

REASONS FOR DISSATISFACTION WITH SITES

Site	Frequency ^{a/}	Comments ^{b/}
Tangle Lakes Campground	8	No firewood
	3	Not enough tables
	3	Access road needs improvement
	3	Restroom is in poor condition (i.e., door missing)
	3	Pump is not working
	2	Three-wheelers tear through sites
	2	Campground needs grading
	1	Vegetation needs protection
	1	Generator runs late at night making a lot of noise
	1	No trees
	1	Too many people and regulations
	1	Not enough trash barrels
	1	No signs showing canoe and other trails
	1	People camp on the road to lake
Tangle River Campground	3	No firewood
	2	Need safe drinking water
	2	Pump not working
	2	Dangerous road conditions; need more, flatter parking
	1	Unsanitary restrooms
	1	Noisey 3-wheelers and motorcycles
	1	No dump station
	1	Not enough privacy
	1	Sites not level
	1	Litter
Paxson Lake Campground	8	No boat ramp
	5	No firewood and people cutting wood in site area
	4	Rafters park in camping area, no sites left for campers
	4	No water
	2	Boat launch area is inconvenient (4 miles away)
	2	Tent sites lumpy and swampy
	1	People shooting guns
	1	Not close enough to lake

Table 3-9

REASONS FOR DISSATISFACTION WITH SITES (continued)

Site	Frequency ^{a/}	Comments ^{b/}
Paxson Wayside	3 3 2 2 2 2 1 1 1	Area too small and crowded No boatramp and parked cars block boats and trailers Not enough level ground Area not designed for camping Not enough garbage cans/dumpster No fresh water Boat launch area too soft, get stuck Too small a launching area No firewood
Brushkana Campground	8 2 2 1 1 1 1	No firewood Too many people Outhouses Camping areas undefined Site too small Firepits in disrepair Hard to get in and out with 22 ft. trailer
Lake Louise Campground	6 2 2 1 1 1 1 1 1	Boat launch in bad condition, needs work No drinking water Sites too close together, no privacy RV's and campers take tent sites Too rocky for tents Not enough parking Not enough covered picnic areas Three-wheelers drive through camps No showers
Byers Lake Campground	2 1 1	Trail around lake is eroded and ugly Water too far away Area should not be open to hunting

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTES: ^{a/} Frequencies cannot be totalled to equal the number of respondents who were dissatisfied because some respondents were dissatisfied but gave no reason and some respondents cited two or more reasons.

^{b/} Comments do not include notes made about weather, bugs, or other inappropriate topics.

Table 3-10

SITE CHANGES RECOMMENDED BY RESPONDENTS

Site	Frequency ^{a/}	Comments ^{b/}
Tangle Lakes Campground	13	Provide a good water source, pump
	7	Provide firewood (one noted a willingness to pay)
	7	Upgrade road, grade sites, level parking
	6	Fix outhouses/toilets
	5	Create more private sites
	4	Prohibit 3-wheelers and motorcycles in camping area
	4	Provide more tables, some covered
	2	Prevent camping in undesignated areas
	2	Plant trees to break wind
	2	Provide more firepits, some with benches
	2	More trash cans, disposal facilities
	1	Coin-op showers
	1	Add a playground
	1	Less development
	1	Restrict generator use
Tangle River Campground	7	Fix pump, provide water
	5	Provide firewood
	3	Mark portages for upper lakes, display a map and sign for area
	2	Fix road
	2	Provide dump facilities
	2	Ban 3-wheelers
	2	Designate sites
	2	Relieve campground crowding
	1	Provide electricity
	1	Take better care of toilets
	1	Provide more tables
	1	Prohibit motor boats
Paxson Lake Campground	19	Provide a boatramp with courtesy instructions and parking, and a road to the lake
	12	Provide separate parking for people leaving cars while river rafting and canoeing
	5	Provide safe drinking water
	4	Provide firewood

Table 3-10

SITE CHANGES RECOMMENDED BY RESPONDENTS (continued)

Site	Frequency ^{a/}	Comments ^{b/}
Paxson Lake Campground (cont.)	3	More water pressure in toilets, provide outhouses
	3	Provide showers
	3	Level campsites
	3	Provide for campsites to drain
	3	More campsites
	3	Provide more maintenance, frequent garbage pick-up
	2	Improve road
	1	Prohibit woodcutting
	1	More trails
	1	Make a larger turn-around at dump station
	1	Prohibit dogs running free
	1	Fix dump station
	1	Move campground closer to lake
Paxson Wayside	6	Provide a boat ramp
	6	Level ground
	3	Provide more parking
	3	Enlarge site
	2	Add camping
	2	Provide more trash barrels
	2	Provide water
	1	More firepits
	1	Provide firewood
	1	Provide tables
Brushkana Campground	12	Provide firewood
	5	Improve restrooms
	2	Define camping areas
	2	Provide more frequent trash pick-up
	1	Install informative signs
	1	Provide gravel to level and drain sites
	1	Fix firepits
	1	Provide outhouses
	1	Enlarge area with bigger pull-offs for RVs
	1	Improve access road
	1	Put in a bridge with sites on other side of river

Table 3-10

SITE CHANGES RECOMMENDED BY RESPONDENTS (continued)

Site	Frequency ^{a/}	Comments ^{b/}
Lake Louise Campground	10	Provide more campsites, especially tent sites
	6	Fix the boat launch, launching area too shallow
	4	Provide water
	2	Provide wood
	1	Provide a dump facility
	1	Cover some picnic areas
	1	Clean toilets
	1	Leave vegetation between sites
	1	Remove the boat launch
	1	Provide softer ground
	1	Provide electricity
	1	Put a hatchet, saw or axe on a chain at wood shed
Byers Lake Campground	3	Close the Denali State Park to hunting
	3	Provide firewood
	2	Stock the lake with fish
	2	Let the trail around the lake grow over
	1	Provide for sewage disposal
	1	More pull-throughs
	1	Put in a well
	1	Make longer parking spots
	1	Provide better ground drainage
	1	Clear away stumps
	1	Post speed limits on grounds
	1	Have interpretive signs
	1	Provide power

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTES: ^{a/}Frequencies cannot be totalled to equal the number of respondents who desired changes because some respondents wanted changes but gave no recommendations and some respondents cited two or more recommendations.
^{b/}Comments do not include notes made about the weather, bugs, or other inappropriate topics.

the greatest number of respondents wanted firewood to be provided at the site. At Paxson Lake Campground and Paxson Wayside, boat ramps headed the list of desired changes although at Paxson Wayside an equal number of people wanted more level ground for parking, picnics, and some camping. Finally, at Byers Lake, the most frequently mentioned changes were provide firewood and close the Denali State Park to hunting.

3.3.2.5 Additional recreation opportunities. Respondents were also asked whether they felt that there was a need for additional outdoor recreation opportunities in southcentral Alaska. Of the 563 persons who responded, 71 percent (400) answered yes. Table 3-11 presents the types of opportunities noted by the greatest percentages of respondents and shows that, by far, the largest percentage of respondents wanted more campgrounds. The types of opportunities specified under "other" included canoe trails away from power boats, more picnic places with toilets, more wilderness areas without hunting and recreational and other motorized vehicles, more off-road vehicle trails, and more mapped areas and marked trails. Generally, people surveyed felt the entire range of additional opportunities should be developed throughout the state, close to Anchorage, along the major highways, and into presently inaccessible lakes and streams for fishing.

3.3.3 Profile of Parties and Total Number of Visitors

3.3.3.1 Party size and composition. The size of the parties represented in the survey ranged from 1^{1/} to 30 persons with 1 to 2 persons making up nearly 50 percent of all parties and 1 to 4 persons making up 79 percent of all parties. Parties larger than 10 persons were represented 14 times. Of all the larger parties, 12-person parties were represented approximately one-third of the time or 5 times in the survey. The composition of these parties is outlined in Table 3-12 by males (age 18 or older), females (age 18 or older), and children (under 18 years of age).

^{1/} For the purpose of this analysis, each individual respondent is considered to represent a party (group) even if he/she is alone as a party of one.

Table 3-11

ADDITIONAL RECREATIONAL OPPORTUNITIES
FOR SOUTHCENTRAL ALASKA

Opportunities	Percent ^{a/} of respondents indicating a need for additional opportunities (N=400)
Campgrounds	45
Trails	20
Backcountry cabins	18
Boat launches	17
Roads	17
Other ^{b/}	17
Trailheads	13

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01,"
February, 1985.

NOTES: ^{a/} Percentages do not total 100 percent because some
respondents noted the need for two or more opportunities.
^{b/} Mostly includes changes desired (i.e., showers,
regular trash pick-up) but also includes other
opportunities (i.e., more waysides, shooting ranges).

Table 3-12

COMPOSITION OF GROUPS

Persons	Number	Percent
0 Males	8	1
1 Male	358	60
2 Males	152	25
>3 Males	80	13
TOTAL	598	99 ^a /Range = 0-9 Males
0 Females	123	21
1 Female	333	56
2 Females	112	19
>3 Females	29	5
TOTAL	597	101 ^a /Range = 0-8 Females
0 Children	378	63
1 Child	86	14
2 Children	86	14
>3 Children	48	8
TOTAL	598	99 ^a /Range = 0-24 Children

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01,"
February, 1985.

NOTES: ^a/ Percentage does not total 100 percent due to rounding.

As shown, 21 percent (123) of the parties were all-male while only 1 percent (8) were all-female. The greatest percentage of parties, 63 percent (378), did not include children whereas 36 percent (220) had at least one child present. Approximately 50 percent of all parties were made up of couples with no children.

3.3.3.2 Parties' trip length. With respect to overall trip length, 28 percent (162) of the groups traveled 1 to 3 days, 36 percent (209) stayed out for 4 to 7 days and 14 percent (84) for 1 to 2 weeks. Another 6 percent (35) of the groups surveyed were on extended trips of more than 3 months while 16 percent (93) were out for 2 weeks to 3 months.

3.3.3.3 Parties' previous night's stay and next night's stay. Respondents were asked where they and their companions stayed the night before the survey and where they expected to stay the following night. These questions were asked to help understand the travel patterns of the recreationists using the project area. However, as shown in Table 3-13, a surprising number of responses to both questions fell into the "other" category which represented a wide variety of different destinations making it difficult to plot or aggregate the information. That is, 47 percent (267) of those who indicated where they stayed last night specified "other" or a destination that was not listed. Thirty-one percent (173) also noted "other" with respect to tomorrow nights' stay. The second greatest percentages of responses to both questions indicated the people had been at home the night before or were headed home the next night.

3.3.3.4 Accommodations. Respondents were asked to specify what their accommodations would be for the night. Accommodations for 50 percent of the parties were campers, trailers, or recreational vehicles (RVs). In the "other" category, vans, stations wagons, and other motor vehicles were

Table 3-13

SITES OF LAST NIGHT'S STAY AND NEXT NIGHT'S STAY

Site	Last Night		Next Night	
	No. of Parties	Percent	No. of Parties	Percent
Tangle Lakes Campground	4	8	40	7
Tangle River Campground	16	3	18	3
Paxson Lake Campground	26	5	20	4
Paxson Wayside	14	2	7	1
Brushkana Campground	33	6	28	5
Byers Lake Campground	20	4	11	2
Lake Louise Campground	20	4	17	3
Home	83	15	157	28
Denali/McKinley	36	6	33	6
Not Sure	8	1	59	11
Other	267	47	173	31
TOTAL	527	101 ^{b/}	563	101 ^{b/}

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTES: ^{a/} Includes numerous individual places which were not grouped into smaller, discreet areas.
^{b/} Percentage does not total 100 due to rounding.

specified most frequently as being used by another 13 percent of the parties. Tents were used by 31 percent of the parties, while the remaining 6 percent of all parties were not staying overnight at the site where they were surveyed.

Parties accommodations by site. Parties' accommodations at sites varied. As shown in Table 3-14, all sites had parties which used campers, trailers, RVs, tents, or other accommodations. Tangle Lakes, Tangle River, Brushkana, Byers Lake and Lake Louise campgrounds each had 50 percent or more of the parties staying in campers, trailers, or RVs. Tents were used second most often at all sites except Paxson Wayside where they were used as often as other vehicles and structures, and Denali Highway mileposts where they were used the most.

3.3.3.5 Activities parties pursued. Table 3-15 presents the activities undertaken by the parties visiting the various sites. As shown, fishing (67%) and camping (65%) were the activities pursued most often. Sightseeing ranked third with 44 percent of the parties specifying this as an activity.

Activities by site. Table 3-16 shows that at least 50 percent of the people staying at the developed sites pursued camping and fishing except at Byers Lake Campground where only 36 percent of the people fished. Sightseeing was the only other activity pursued by at least 35 percent of the people at Tangle Lakes Campground and Paxson Wayside. At Brushkana and Byers Lake campgrounds, both hiking and sightseeing were done by over 35 percent of the people, but at Byers Lake, 35 percent of the visitors also picked berries. In addition, at least 35 percent of the visitors at Lake Louise Campground participated in hiking and/or berrypicking. Along the Denali Highway, camping, fishing, hunting, hiking, sightseeing, and berrypicking were activities each pursued by between 35 percent and 48 percent of the people.

Activities by sites by month. Some recreational activities were pursued more often during particular months of the summer than others. This variation can also be observed at the individual survey sites. For example,

Table 3-14

PARTIES' ACCOMMODATIONS BY SITE

Site	Camper, Trailer, RV	Tent	Other ^{a/}	Total
Tangle Lakes Campground	62 (50)	46 (37)	15 (12)	123 (99)
Tangle River Campground	38 (58)	20 (30)	8 (12)	66 (100)
Paxson Lake Campground	53 (46)	45 (39)	16 (14)	114 (99)
Paxson Wayside	13 (45)	8 (28)	8 (28)	29 (101)
Brushkana Campground	57 (62)	22 (24)	13 (14)	92 (100)
Byers Lake Campground	22 (67)	7 (21)	4 (12)	33 (100)
Lake Louise Campground	37 (63)	16 (27)	6 (10)	59 (100)
Denali Highway Mileposts	12 (38)	14 (44)	6 (19)	32 (101)

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February 1985.

NOTES: Row percents are in parenthesis to the right of actual numbers in each cell.

Percentages may not total 100 due to rounding.

^{a/} Includes vans, station wagons, sedans, tarps, lean-to's.

Table 3-15

ACTIVITIES PURSUED AT ALL SITES

Activity	Number of Parties ^{a/}	Percent ^{b/}
Fishing	403	67
Camping	387	65
Sightseeing	263	44
Hiking	184	31
Berrypicking	139	23
Rafting/Canoeing or Kayaking	132	22
Other Activities	76	13
Hunting	65	11
Powerboating	48	8
Off-road Driving	19	3

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February 1985.

NOTES: ^{a/} Number of parties does not equal 599 because many parties participated in more than one activity.
^{b/} Percentages do not total 100 percent because respondents participated in more than one activity.

Table 3-16

PARTIES' ACTIVITIES BY SITE
July through September, 1984

Site	Camping	Fishing	Hunting	Hiking	Sight-seeing	Off-Road Driving	Power Boating	Berry-picking	Water Sports	Other
Tangle Lakes N = 128	88 (69)	100 (78)	15 (12)	42 (33)	61 (48)	2 (2)	9 (7)	27 (21)	41 (32)	14 (11)
Tangle River N = 69	45 (65)	59 (85)	9 (13)	23 (33)	32 (46)	0 (0)	6 (9)	14 (20)	17 (25)	5 (7)
Paxson Lake N = 128	86 (67)	73 (57)	8 (6)	25 (20)	53 (41)	2 (2)	8 (6)	13 (10)	37 (29)	18 (14)
Paxson Wayside N = 35	20 (57)	27 (77)	1 (3)	3 (9)	14 (40)	4 (3)	11 (31)	1 (3)	10 (29)	3 (9)
Brushkana N = 96	57 (59)	73 (76)	5 (5)	41 (43)	38 (40)	4 (4)	0 (0)	29 (30)	3 (3)	16 (17)
Byers Lake N = 36	23 (64)	13 (36)	0 (0)	20 (56)	19 (53)	0 (0)	0 (0)	13 (36)	9 (25)	5 (14)
Lake Louise N = 68	46 (77)	36 (60)	12 (20)	14 (23)	26 (43)	5 (8)	13 (22)	26 (43)	10 (17)	9 (15)
Denali Highway Mileposts N = 48	18 (45)	19 (48)	14 (35)	14 (35)	15 (38)	4 (10)	0 (0)	14 (35)	5 (13)	4 (10)
<u>Total Number Responding</u>										
Yes	383	400	64	182	258	18	47	137	132	74
No	209	192	528	410	334	574	545	455	460	518
Total Parties	592	592	592	592	592	592	592	592	592	592

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTE: Row percents (in parentheses) to the right of actual numbers represent the percent of respondents at each site who participated in the various activities. Percentages do not total 100 because respondents participated in more than one activity at each site.

in July there was no berrypicking at three sites while in September there was berrypicking at all sites. Similarly, little hunting occurred in July (when small game and black bear hunting is allowed) but in September, when moose hunting season opened, there was hunting by visitors staying at seven of eight sites. Camping, fishing, and sightseeing were popular activities during all three months (see Tables 3-17 to 3-19).

3.3.3.6 Parties by site. Table 3-20 shows where the parties were distributed among various recreation sites when one of their members completed the questionnaire. To summarize for the entire survey period, the greatest percentages of the parties were recreating at Tangle Lakes (22%) and Paxson Lake (22%) campgrounds. Brushkana Campground ranked next with 16 percent of the parties staying there. The remaining parties, totalling 41 percent of all parties, were divided among Tangle River Campground, Paxson Wayside, Lake Louise Campground, Byers Lake Campground and other locations (trailheads and mileposts). Table 3-21 expands this information to show the number of parties and people at each site for the months of July, August, and September.

Parties and number of visitors by sites by month. As shown in Table 3-21, in July and August the visitation trends for parties and total people were similar to those for the summer as a whole. The greatest percentage of parties and numbers of people were at Tangle Lakes, Tangle River, Paxson Lake and Brushkana campgrounds. In September, Tangle Lakes Campground continued to have a high percentage of parties while the percentages of parties at Tangle River, Paxson Lake, and Brushkana campgrounds declined. In addition, in September the percentage of parties staying at pull-off locations along the Denali Highway was much greater than the percentages in the previous two months.

3.3.3.7 Parties' main destinations. When asked if the site where groups were surveyed was their main destination, 36 percent (215) of the respondents answered yes. Another 35 percent (205) said their destination was uncertain or they were just going "all over" or "everywhere". Twenty-one percent named a wide variety of different places as destinations while

TABLE 3-17

PARTIES' ACTIVITIES BY SITE BY MONTH
July, 1984

Site	Camping	Fishing	Hunting	Hiking	Sight-seeing	Off-Road Driving	Power Boating	Berry-picking	Water Sports	Other
Tangle Lakes N = 50	38 (76)	44 (88)	2 (4)	16 (32)	25 (50)	1 (2)	2 (4)	0 (0)	19 (38)	4 (8)
Tangle River N = 29	16 (55)	24 (83)	0 (0)	9 (31)	15 (52)	0 (0)	4 (14)	0 (0)	8 (28)	3 (10)
Paxson Lake N = 65	43 (66)	41 (63)	0 (0)	9 (14)	26 (40)	2 (3)	7 (11)	2 (8)	19 (29)	8 (12)
Paxson Wayside N = 20	15 (75)	18 (90)	0 (0)	3 (15)	7 (35)	1 (5)	7 (35)	0 (0)	8 (40)	1 (5)
Brushkana N = 46	30 (65)	33 (72)	1 (2)	17 (37)	23 (50)	2 (4)	0 (0)	16 (35)	2 (4)	6 (13)
Byers Lake N = 10	9 (90)	6 (60)	0 (0)	9 (90)	6 (60)	0 (0)	0 (0)	4 (40)	6 (60)	2 (20)
Lake Louise N = 1	1(100)	1(100)	0 (0)	0 (0)	1(100)	0 (0)	0 (0)	1(100)	0 (0)	0 (0)
Denali Highway Mileposts N = 8	5 (63)	7 (88)	0 (0)	3 (38)	5 (63)	0 (0)	0 (0)	3 (38)	1 (13)	0 (0)
<u>Total Number Responding</u>										
Yes	157	174	3	66	108	6	20	26	63	24
No	72	55	226	163	121	223	209	203	166	205
Total Parties	229	229	229	229	229	229	229	229	229	229

SOURCE: Harza-Ebasco computer Run, SAS Program "Survey 01," February, 1985.

NOTE: Row percents (in parentheses) to the right of actual numbers represent the percent of respondents at each site who participated in the various activities. Percentages do not total 100 because respondents participated in more than one activity at each site.

TABLE 3-18

PARTIES' ACTIVITIES BY SITE BY MONTH
August, 1984

Site	Camping	Fishing	Hunting	Hiking	Sight-seeing	Off-Road Driving	Power Boating	Berry-picking	Water Sports	Other
Tangle Lakes N = 46	32 (70)	30 (65)	1 (2)	16 (35)	21 (46)	0 (0)	4 (9)	19 (41)	13 (28)	7 (15)
Tangle River N = 22	20 (74)	24 (89)	1 (4)	12 (44)	13 (48)	0 (0)	2 (7)	11 (41)	6 (22)	1 (4)
Paxson Lake N = 45	32 (71)	23 (51)	0 (0)	11 (24)	21 (47)	0 (0)	1 (2)	7 (16)	10 (22)	8 (18)
Paxson Wayside N = 9	3 (33)	6 (67)	0 (0)	9 (0)	4 (44)	0 (0)	2 (22)	0 (0)	1 (11)	1 (11)
Brushkana N = 46	23 (56)	34 (83)	0 (0)	21 (51)	14 (34)	2 (5)	0 (0)	11 (27)	1 (2)	10 (24)
Byers Lake N = 10	4 (100)	3 (75)	0 (0)	2 (50)	2 (50)	0 (0)	0 (0)	1 (25)	1 (25)	0 (0)
Lake Louise N = 1	27 (75)	19 (53)	1 (3)	11 (31)	17 (47)	3 (8)	8 (22)	16 (44)	5 (14)	9 (25)
Denali Highway N = 8	5 (42)	7 (58)	1 (8)	5 (42)	6 (50)	1 (8)	0 (0)	6 (50)	2 (17)	2 (17)
<u>Total Number Responding</u>										
Yes	146	146	4	78	98	6	17	71	39	38
No	74	74	216	142	122	214	213	149	181	182
Total Parties	220	220	220	220	220	220	220	220	220	220

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTE: Row percents (in parentheses) to the right of actual numbers represent the percent of respondents at each site who participated in the various activities. Percentages do not total 100 because respondents participated in more than one activity at each site.

TABLE 3-19

PARTIES' ACTIVITIES BY SITE BY MONTH
September, 1984

Site	Camping	Fishing	Hunting	Hiking	Sight- seeing	Off-Road Driving	Power Boating	Berry- picking	Water Sports	Other
Tangle Lakes N = 32	18 (56)	26 (81)	12 (38)	10 (31)	15 (47)	1 (3)	3 (9)	8 (25)	9 (28)	3 (9)
Tangle River N = 13	9 (69)	11 (85)	8 (62)	2 (15)	4 (31)	0 (0)	0 (0)	3 (23)	3 (23)	1 (8)
Paxson Lake N = 18	11 (61)	9 (50)	8 (44)	5 (28)	6 (33)	0 (0)	0 (0)	4 (22)	8 (44)	2 (11)
Paxson Wayside N = 6	2 (33)	3 (50)	1 (17)	0 (0)	3 (50)	0 (0)	2 (33)	1 (17)	1 (17)	1 (17)
Brushkana N = 9	4 (44)	6 (67)	4 (44)	3 (33)	1 (11)	0 (0)	0 (0)	2 (22)	0 (0)	0 (0)
Byers Lake N = 22	10 (45)	4 (18)	0 (0)	9 (41)	11 (50)	0 (0)	0 (0)	8 (36)	2 (9)	3 (14)
Lake Louise N = 23	18 (78)	16 (70)	11 (48)	3 (13)	8 (35)	2 (9)	5 (22)	9 (39)	5 (22)	0 (0)
Denali Highway N = 20	8 (40)	5 (25)	13 (65)	6 (30)	4 (20)	3 (15)	0 (0)	5 (25)	2 (10)	2 (10)
<u>Total Number Responding</u>										
Yes	80	80	57	38	52	6	10	40	30	12
No	63	63	86	105	91	137	133	103	113	131
Total Parties	143	143	143	143	143	143	143	143	143	143

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTE: Row percents (in parentheses) to the right of actual numbers represent the percent of respondents at each site who participated in the various activities. Percentages do not total 100 because respondents participated in more than one activity at each site.

Table 3-20
PARTIES BY SITE

Site	Number of Parties	Percent
Tangle Lakes Campground	128	22
Paxson Lake Campground	128	22
Brushkana Campground	96	16
Tangle River Campground	69	12
Lake Louise Campground	60	10
Byers Lake Campground	36	6
Paxson Wayside	35	6
Denali Highway Milepost	40	7
TOTAL	592	101 ^{a/}

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTE: ^{a/} Percentage does not total 100 percent due to rounding.

Table 3-21

PARTIES AND PEOPLE AT SITES BY MONTH

Site	July				August				September			
	No. of Parties	Percent for Mo.	No. of People	Percent	No. of Parties	Percent for Mo.	No. of People	Percent	No. of Parties	Percent for Mo.	No. of People	Percent
Tangle Lakes Campground	50	22	166	21	46	21	138	17	32	22	74	14
Tangle River Campground	29	13	117	15	27	21	105	13	13	9	44	8
Paxson Lake Campground	65	28	217	28	45	21	167	21	18	13	77	15
Paxson Wayside	20	9	93	12	9	4	39	5	6	4	31	6
Brushkana Campground	46	20	122	16	41	19	139	17	9	6	27	5
Byers Lake Campground	10	4	33	4	4	2	43	5	22	15	95	18
Lake Louise Campground	1	0	4	1	35	16	130	16	23	16	104	20
Denali Highway Mileposts	8	3	24	3	12	5	41	5	20	14	71	14
TOTAL	229	99 ^{a/}	776	100	219	99 ^{a/}	802	99 ^{a/}	143	99 ^{a/}	523	100

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTE: ^{a/} Percent does not total 100 due to rounding.

only 6 percent (34) named Denali National Park and the remaining 3 percent (18) said home or Valdez.

Parties' main destinations by sites. When the sites were examined as the main destination of parties surveyed, Tangle Lakes Campground had the greatest percentage (22%) of those who had one of the survey sites as a main destination. The few parties which were headed for Denali National Park, Valdez, or home were evenly distributed among the sites as were the greater numbers of people who were unsure of where they were going (see Table 3-22).

3.3.3.8 Parties' length of stay. For all parties, the most frequent length of stay at a site was one to three days. That is, 83 percent (485) of all parties stayed where they were for 1 to 3 days. Fourteen percent (80) stayed for 4 to 7 days, and 3 percent (20) stayed for more than 1 week. The maximum length of stay by any party at a site was two months and this was reported by two parties.

Parties' length of stay by site. The sites where parties stayed the longest (from two weeks to three months) were Tangle Lakes and Tangle River campgrounds and other places (mileposts) along the Denali Highway. As shown in Table 3-23, of those people who stayed 1 or 2 days (but not necessarily overnight), the greatest number stayed at Paxson Lake (24%), Tangle Lakes (22%), and Brushkana (16%) campgrounds.

3.3.3.9 Visitors' residences. The residence of all visitors is presented in Table 3-5. As shown, 33 percent (691) of the party members came from the Anchorage area, 28 percent (582) from other U.S. states, 19 percent (411) from the Fairbanks area, 8 percent (177) from other parts of Alaska, 7 percent (154) from the Mat-Su/Railbelt areas, and 4 percent (93) from foreign countries.

Table 3-22

PARTIES' DESTINATIONS

Site	Survey Site	Denali Nat'l Park	Home or Valdez	All Over	Total
Tangle Lakes Campground	48 22%	7 20%	4 27%	69 21%	128 22%
Tangle River Campground	28 13%	5 15%	1 7%	35 11%	69 12%
Paxson Lake Campground	34 16%	5 15%	4 27%	84 26%	127 22%
Paxson Wayside	16 7%	2 6%	1 7%	16 5%	35 6%
Brushkana Campground	36 17%	5 15%	3 20%	51 15%	95 16%
Byers Lake Campground	14 7%	5 15%	0 0%	17 5%	36 6%
Lake Louise Campground	26 12%	4 12%	2 13%	28 9%	60 10%
Denali Highway Mileposts	12 6%	1 2%	0 0%	27 8%	40 7%
TOTAL	214 100%	34 100%	15 101%	327 100%	590 101%

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTES: Column percents are below actual numbers in each cell.
a/ Percentage does not total 100 due to rounding.

Table 3-23

PARTIES' LENGTH OF STAY BY SITE

Site	One-2 Days	3-7 Days	8-14 Days	15-30 Days	31-90 Days	Total
Tangle Lakes Campground	86 22%	39 24%	0 0%	1 33%	0 0%	126 22%
Tangle River Campground	40 10%	26 16%	1 7%	1 33%	0 0%	68 12%
Paxson Lake Campground	95 24%	25 15%	3 20%	0 0%	0 0%	123 21%
Paxson Wayside	20 5%	13 8%	1 7%	0 0%	0 0%	34 6%
Brushkana Campground	65 16%	28 17%	3 20%	0 0%	0 0%	96 17%
Byers Lake Campground	26 7%	6 3%	2 13%	0 0%	0 0%	34 6%
Lake Louise Campground	42 11%	16 10%	2 13%	0 0%	0 0%	60 10%
Denali Highway Mileposts	20 5%	11 7%	3 20%	1 33%	2 100%	37 6%
TOTAL	394 100%	164 100%	15 100%	3 99% ^{a/}	2 100%	578 100%

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTES: Column percents are below actual numbers in each cell.
^{a/} Percentage does not total due to rounding.

Visitors' residences by site. To find out whether people from particular regions of Alaska,^{1/} from other U.S. states, or from other countries tended to visit or favor particular sites, each site was considered in terms of the home residences of the visitors. The results are presented in Table 3-24. As shown, people from the Anchorage area and from other states comprised the parties with the greatest representation at seven of the eight sites in the survey, namely, Tangle Lakes, Tangle River, Paxson Lake, Brushkana, Byers Lake and Lake Louise campgrounds and pull-offs along the Denali Highway. Visitors to Paxson Wayside differed substantially with the greatest percentages from the Fairbanks area and other regions of Alaska.

Visitors from the Anchorage area comprised from 8 to 52 percent of those present at each site with the greatest percentage at Lake Louise Campground and the lowest percentage at Paxson Wayside. Visitors from the Fairbanks area comprised from 1 to 59 percent of those present at each site with the greatest percentage staying at Paxson Wayside and the smaller percentages visiting Byers Lake and Lake Louise campgrounds. People from other states accounted for from 12 to 56 percent of the visitors to each site with the greatest percentage visiting Byers Lake Campground and the smaller percentage visiting Paxson Wayside. Percentages of visitors to each site from the Mat-Su/Railbelt area, other regions of Alaska, and from foreign countries accounted for 15 percent or less of all visitors to each site.

Visitors' residences by sites by month. Since Anchorage area residents and visitors from other states were the two groups with the greatest representation at the study area sites during the survey period, a breakdown of visitors' residences to specific sites by month is presented in tables 3-25 to 3-27.

^{1/} The regions of Alaska are identified and the boundaries of each region are outlined in Appendix D.

Table 3-24

VISITORS' RESIDENCES BY SITE
July through September, 1984

Site	Anchorage Area	Fairbanks Area	Mat-Su/ Railbelt Area	Other Regions of Alaska	Other U.S. States	Foreign Countries	TOTAL
Tangle Lakes Campground	108 (28)	90 (23)	22 (6)	16 (4)	129 (34)	20 (5)	385 (100)
Tangle River Campground	119 (45)	48 (18)	11 (4)	18 (7)	60 (23)	6 (2)	262 (100)
Paxson Lake Campground	141 (31)	107 (24)	24 (5)	54 (12)	102 (28)	21 (5)	449 (100)
Paxson Wayside	13 (8)	92 (59)	4 (3)	24 (15)	19 (12)	4 (3)	156 (100)
Brushkana Campground	118 (41)	38 (13)	33 (11)	11 (4)	64 (22)	24 (8)	288 (100)
Byers Lake Campground	36 (21)	2 (1)	24 (14)	6 (4)	96 (56)	7 (4)	171 (100)
Lake Louise' Campground	121 (52)	5 (2)	17 (7)	35 (15)	52 (22)	4 (2)	234 (100)
Denali Highway Mileposts	28 (21)	25 (18)	29 (14)	13 (10)	45 (33)	6 (4)	136 (100)
TOTAL	684 (33)	407 (20)	154 (7)	177 (9)	567 (27)	92 (4)	2,081 (100)

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTE: Row percents are in parentheses to the right of actual numbers in each cell.
Results for Byers Lake and Lake Louise may not accurately represent residences of visitors because sampling was not random.

Table 3-25

VISITORS' RESIDENCES BY SITE
July, 1984

Site	Anchorage Area	Fairbanks Area	Mat-Su Railbelt Area	Other Alaska	Other US	Foreign	Total
Tangle Lakes Campground	25 (15)	56 (34)	8 (5)	4 (2)	68 (42)	2 (1)	163 (99) ^{a/}
Tangle River Campground	52 (46)	20 (18)	7 (6)	4 (4)	26 (23)	4 (4)	113 (101) ^{a/}
Paxson Lake Campground	44 (21)	64 (30)	11 (5)	39 (19)	44 (21)	8 (4)	210 (100)
Paxson Wayside	2 (2)	64 (69)	0 (0)	18 (19)	9 (10)	0 (0)	93 (100)
Brushkana Campground	35 (29)	23 (19)	14 (11)	3 (2)	28 (23)	19 (16)	122 (100)
Byers Lake Campground	9 (27)	0 (0)	8 (24)	1 (3)	11 (33)	4 (12)	33 (99) ^{a/}
Lake Louise Campground	0 (0)	0 (0)	0 (0)	0 (0)	4 (100)	0 (0)	4 (100)
Denali Highway Mileposts	9 (38)	2 (8)	0 (0)	0 (0)	11 (46)	2 (8)	24 (100)
Total	176 (23)	229 (30)	48 (6)	69 (9)	201 (26)	39 (5)	762 (99) ^{a/}

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTES: Row percents are in parentheses to the right of actual number in each cell.
Results for Byers Lake and Lake Louise may not accurately represent residences of visitors because sampling was not random.

^{a/} Percent are not total 100 due to rounding.

Table 3-26

VISITORS' RESIDENCES BY SITE
August, 1984

Site	Anchorage Area	Fairbanks Area	Mat-Su Railbelt Area	Other Alaska	Other US	Foreign	Total
Tangle Lakes Campground	53 (38)	13 (9)	4 (3)	7 (5)	47(34)	14 (10)	138 (100)
Tangle River Campground	45 (43)	23 (22)	0 (0)	8 (8)	27(26)	2 (2)	105 (100)
Paxson Lake Campground	45 (28)	38 (23)	7 (4)	9 (5)	52(32)	13 (8)	164 (100)
Paxson Wayside	9 (26)	13 (38)	0 (0)	2 (6)	6(18)	4 (12)	34 (100)
Brushkana Campground	66 (47)	9 (6)	19 (14)	8 (6)	32(23)	5 (4)	139 (100)
Byers Lake Campground	12 (28)	0 (0)	0 (0)	0 (0)	31(72)	0 (0)	43 (100)
Lake Louise Campground	49 (38)	0 (0)	10 (8)	23 (18)	44(34)	4 (3)	130 (101) ^{a/}
Denali Highway Milepost	7 (17)	7 (17)	2 (5)	5 (12)	20(49)	0 (0)	41 (100)
TOTAL	286 (36)	103 (13)	42 (5)	62 (8)	259(33)	42 (5)	794 (100)

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTES: Row percents are in parentheses to the right of actual number in each cell.
Results for Byers Lake and Lake Louise may not accurately represent residences of visitors because sampling was not random.

^{a/} Percent are not total 100 due to rounding.

Table 3-27

VISITORS' RESIDENCES BY SITE
September, 1984

Site	Anchorage Area	Fairbanks Area	Mat-Su Railbelt Area	Other Alaska	Other US	Foreign	Total
Tangle Lakes Campground	30 (36)	21 (25)	10 (12)	5 (6)	14 (17)	4 (5)	84 (101) ^{a/}
Tangle River Campground	22 (50)	5 (11)	4 (9)	6 (14)	7 (16)	0 (0)	44 (100)
Paxson Lake Campground	52 (69)	5 (7)	6 (8)	6 (8)	6 (8)	0 (0)	75 (100)
Paxson Wayside	2 (6)	17 (55)	4 (13)	4 (13)	4 (13)	0 (0)	31 (100)
Brushkana Campground	17 (63)	6 (22)	0 (0)	0 (0)	4 (15)	0 (0)	27 (100)
Byers Lake Campground	15 (16)	2 (2)	16 (17)	5 (5)	54 (57)	3 (3)	95 (100)
Lake Louise Campground	72 (71)	6 (6)	7 (7)	12 (12)	4 (4)	0 (0)	101 (100)
Denali Highway Mileposts	12 (17)	16 (23)	17 (24)	8 (11)	14 (20)	4 (6)	71 (101) ^{a/}
TOTAL	222 (42)	78 (15)	64 (12)	46 (9)	107 (20)	11 (2)	528 (100)

SOURCE: Harza-Ebasco Computer Run, SAS Program "Survey 01," February, 1985.

NOTES: Row percents are in parentheses to the right of actual number in each cell.
Results for Byers Lake and Lake Louise may not accurately represent residences of visitors because sampling was not random.
^{a/} Percent are not total 100 due to rounding.

As shown in Table 3-25, in July, Anchorage area residents accounted for the highest percentage of visitors to the Tangle River Campground (46%) and Brushkana Campground (29%). Fairbanks residents accounted for most of the Paxson Wayside (69%) and Paxson Lake Campground visitors (30%). Other U.S. residents represented most of the Denali Highway milepost (46%) and Tangle Lakes Campground (42%) visitors.

In August, as shown in Table 3-26, Anchorage residents accounted for the highest percentage of visitors to Tangle Lake Campground (38%), Tangle River Campground (43%), and Brushkana Campground (47%). Fairbanks was the residence of the highest percentage of Paxson Wayside visitors (38%). Other U.S. residents accounted for the highest percentage of visitation at Paxson Lake Campground (32%) and at Denali Highway mileposts (49%).

In September, as shown in Table 3-27, Anchorage area residents were the most frequent visitors at all campgrounds except Paxson Wayside, where Fairbanks residents were more frequent (55%). At Denali Highway mileposts, Mat-Su/Railbelt Area and Fairbanks Area residents were the most frequent visitors (24% and 23% respectively).

3.3.4 Summary

Answers to demographic and attitudinal questions showed that 68 percent of the respondents were male and that more than 50 percent of the respondents were professionals/technicians/managers or retirees. Approximately 50 percent were also from the Anchorage and Fairbanks areas and from other U.S. states.

Sixty-four percent of the respondents had not previously visited the sites they were surveyed at in 1984 and an equal percentage expected this to be their last visit in 1984. Brushkana, Paxson Lake, and Tangle River campgrounds were where the greatest percentages of those returning to a site for the second (or more) time were staying.

Responses to questions on satisfaction with sites showed that respondents at Paxson Wayside were least satisfied with that site and most frequently mentioned the lack of a boat ramp as the source of the dissatisfaction. Respondents at Byers Lake and Brushkana campgrounds were most satisfied. Even so, the eroded condition of the lake trail at Byers Lake Campground and the lack of firewood at Brushkana Campground were noted as sources of dissatisfaction.

At all sites, except the Denali Highway mileposts, respondents showed a greater desire for changes than the overall dissatisfaction with each site would indicate. A boat ramp and more level ground headed the list of desired changes reported by respondents at Paxson Wayside. The need for firewood was mentioned most often by Brushkana and Byers Lake campground respondents although, those at Byers Lake Campground, also wanted Denali State Park closed to hunting. Seventy-one percent of all respondents wanted additional recreational opportunities in southcentral Alaska and campgrounds were noted more than twice as often as any other new recreational opportunity.

Party sizes ranged from 1 to 30 persons with 1 to 2 person parties occurring nearly 50 percent of the time. All-male parties made up 21 percent of the parties whereas all-female parties occurred only 1 percent of the time and 63 percent of the parties did not include children.

The trip length of the greatest percentage of the parties (36%) was four to seven days. Shorter trips (1 to 3 days) were made by 28 percent of the parties. The travel patterns of those visiting the study sites were impractical to aggregate and categorize because the greatest percentage of people came from and were headed to diverse locations. The second largest percentages of people came from their homes or were headed home.

The most widely used accommodations at all sites (except Denali Highway milepost locations) were campers, trailers, and/or RVs. At the milepost locations, tents were used most often.

The three activities pursued most often by the parties at all sites were camping, fishing, and sightseeing. These same activities were pursued most often at Tangle Lakes, Tangle River, and Paxson Lake campgrounds and Paxson Wayside. The top ranking activities at various places were as follows: Brushkana Campground - camping, fishing, and hiking; Byers Lake Campground - camping, hiking, and sightseeing; Lake Louise Campground - camping, fishing, sightseeing and berrypicking; and milepost locations - camping and fishing with hunting, hiking, sightseeing, and berrypicking all close behind. Since hunting, powerboating, berrypicking, water sports and to some extent, off-road driving depend on weather and other environmental conditions, it is not surprising that participation in these activities varied by month of the summer. As might be expected, hunting at all sites increased in September when moose hunting season opened and water sports tended to decrease at most sites as the colder, fall weather approached.

Over the entire survey period, the greatest percentage of parties stayed at Tangle Lakes (22%), Paxson Lake (22%) and Brushkana (16%) campgrounds. During the months of July, August, and September, these sites continued to be more heavily used than other sites except Brushkana Campground where use dropped substantially in September. However, there were considerable fluctuations in all use depending on the month and the attraction of particular seasonal activities.

Survey sites were the main destinations of 36 percent of the survey participants and of these sites, Tangle Lakes Campground was the destination of the greatest percentage (22%) of parties. At all sites, 83 percent of the parties stayed 1 to 3 days. Where particular sites were concerned, parties stayed the longest at Tangle Lakes Campground and along the Denali Highway roadside. Parties stayed the shortest amount of time (one to two days) at Paxson Lake Campground.

Most of the visitors to the sites (70%) came from the Anchorage area, other U.S. states, and the Fairbanks area. At seven of the eight sites, the greatest percentages were from the Anchorage area and from other states.

Only Paxson Wayside had the greatest number of visitors from the Fairbanks area and other regions of Alaska. Overall, visitors from particular areas to the different sites varied substantially by month.

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APPENDICES

APPENDIX A

RECREATION SURVEY
QUESTIONNAIRE

SAMPLE RECREATION QUESTIONNAIRE

PLEASE HAVE ONE ADULT COMPLETE THE ENTIRE SURVEY

1. Have you completed one of these surveys before?

☐ No —————> continue to question 2
☐ Yes —————> at this location

☐ No —————> continue to question 2
☐ Yes —————> STOP, return the uncompleted survey.

2. How many people are in your group?

_____ number of males 18 and over
 _____ number of females 18 and over
 _____ number of children (under 18)
 _____ total number

3. Where do the people in your group live?

Person completing survey from _____
 Others: _____ (#) people from _____
 Others: _____ (#) people from _____
 Others: _____ (#) people from _____

 City/Town

 State

 Country

4. Where did you receive this questionnaire?

☐ Tangle Lakes Campground
☐ Tangle River Campground
☐ Paxson Lakes Campground

☐ Paxson Wayside
☐ Brushkanna Campground
☐ Byers Lake Campground

☐ Lake Louise Campground
☐ Trail Head to _____
☐ Other _____

5. How long is the trip you are now taking?
 _____ day(s)

6. Is this site your main destination for this trip?

☐ Yes
☐ No —————> Where is your main destination(s)? _____

7. If you are staying overnight here, what will you stay in?

☐ pick-up camper
☐ towed camper / trailer

☐ RV / motor home
☐ tent
☐ other —————> what? _____

8. What do you plan to do while you are here?

☐ camping
☐ fishing
☐ hunting

☐ hiking
☐ sightseeing
☐ off-road driving

☐ power boating
☐ berrypicking
☐ rafting

☐ canoeing
☐ kyaking
☐ other _____

9. How many days will you stay at this site? _____ day(s)
10. How many times did you visit this site in 1983? _____ time(s)
11. How many times (including this trip) will you visit this site in 1984? _____ time(s)
12. Are you satisfied with this site (or trail)?

☐ Yes
☐ No —————> why? _____

13. Would you like to see this site (or trail) changed?

☐ No
☐ Yes —————> how? _____

14. What place did you stay last night?

15. What place do you plan to stay tomorrow night?

16. Do you feel there is a need for additional outdoor recreational opportunities in southcentral Alaska?

☐ No
☐ Yes

—————> what type?

☐ campgrounds
☐ trail heads
☐ back country cabins
☐ boat launch

☐ trails
☐ roads
☐ other —————> what? _____

—————> where? _____

17. Are you male or female? ☐ male ☐ female
18. What is your job or occupation? _____

RECREATION SURVEY

SURVEY PURPOSE: This survey is being conducted to collect information about how recreational facilities in selected areas are being used.

WHO WILL USE THE INFORMATION: The information will be provided to two land management agencies, U.S. Bureau of Land Management and Alaska Department of Natural Resources, and to the Alaska Power Authority for consideration in their study of a hydroelectric project in this area.

HOW TO RETURN THE SURVEY:

In Person - Return the survey to the person who is distributing surveys, or

Drop Box - A drop box is provided at bulletin boards in area campgrounds where the survey is distributed, or

By Mail - Fold the survey and return by mail (no stamp is needed).

THANK YOU

ANCHORAGE, AK 99501

711 H STREET

HARZA - EBASCO JOINT VENTURE

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ANCHORAGE, ALASKA

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IN THE
UNITED STATES
PERMIT # 427

APPENDIX B

LOG SHEET

SAMPLE LOG SHEET
OBSERVATIONS

Date	Location	# Vehicles			Quest. #s	Notes/Comments
		AK	Other US	Foreign		
						Time: Weather:
						T: W:
						T: W:
						T: W:
						T: W:
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APPENDIX C

RECREATIONAL USE ESTIMATES

RECREATIONAL USE ESTIMATES

APPROACH

The observation data from the recreation survey provided a basis for estimating total recreational use (omitting lodge-related visitors and activities) for sites surveyed within the study area during the peak recreational season from July 1 through September 15, 1984. These estimates were disaggregated to more specific places (such as Brushkana Campground) within the study area and more specific times (e.g., months or weekends). Caution was used in disaggregating estimates since a reduction in the data base size increases the maximum standard error and reduces the reliability of information derived from the data.

The estimates of total recreation use presented here represent a compromise between information needs and the data base size. Accordingly, the study area was divided into three subareas called Brushkana, Tangles, and Paxson. The Brushkana subarea extends from Butte Lake Trail (milepost 94) along the Denali Highway to the outskirts of Cantwell (milepost 130). The Tangles subarea extends along the Denali Highway from Paxson (milepost 0) to the Maclaren River (milepost 42). The Paxson subarea includes the Paxson Lake Campground and its access road and the Paxson Wayside and its access road.

The time periods were reduced to allow comparison of weekends (the peak use periods) with weekday use. For example, this resulted in 279 observations used to estimate total recreation use in the Brushkana subarea for weekends from July 1 through September 15. Any further reduction in the data base (by geographic area or time) would jeopardize the reliability of estimates.

Estimates of total recreation use for subareas and times from the recreation survey were then compared to conclusions about recreation uses found in the ISER survey (1985). The comparisons were used to refine, when necessary,

the estimates of recreation use in the recreation study area. The comparison of these estimates of demand to the availability of some recreation facilities is also briefly discussed.

Estimate of Recreation Use

Estimates of recreation use are expansions of observed use determined through the multiplication of the number of observed parties by the ratio of possible observation days to actual observation days. For example, to estimate the total number of parties using the Brushkana subarea on Fridays (between July 1 and September 15), the number of observed parties (50) were multiplied by the ratio of possible observation days (14 Fridays) to actual observation days (9 Fridays). Therefore, the number of parties estimated to use the subarea on the 14 Fridays in the study period was 80 (50 multiplied by 1.6). To estimate how many of the 80 parties camped in the subarea on Friday nights, the total number of parties (80) was multiplied by the percent of respondents who were camping (65%). Hence, for example, 52 parties were estimated to camp in the subarea on Friday nights during the study period. To determine the total number of people visiting or camping in the subarea (73) the number of parties (52) was multiplied by the average party size (1.4).

Recreation use rate estimates for the total survey area and subareas are presented in Table C-1. As shown, for the entire survey period, about 4,000 parties or over 5,500 people were estimated to have used the sites surveyed in the study area. Most of the use (53%) occurred in the Tangles subarea while 33 percent occurred in the Paxson subarea and 15 percent occurred in the Brushkana subarea. Approximately 2,600 of the parties (over 3,600 people) were camping.

Approximately 50 percent of the recreational use occurred on weekends, Friday through Sunday. Weekend use during the survey period was estimated to be over 2,100 parties or about 3,000 people. Of these, over 1,300

TABLE C-1

ESTIMATED RECREATION USE
(PARTIES)^{a/}

Subarea	Total Season				Weekends ^{b/}			
	<u>All Users</u>		<u>Camping</u>		<u>All Users</u>		<u>Camping</u>	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Brushkana	600	15	400	15	350	18	220	17
Tangles	2,100	53	1,400	53	850	43	600	45
Paxson	1,300	33	850	32	800	40	500	38
TOTAL	4,000	101 ^{c/}	2,650	100	2,000	101 ^{c/}	1,320	100

Source: Derived from results of Harza-Ebasco Computer Runs, SAS Program "Survey 01", February 1985.

Notes: ^{a/} Parties average 1.4 people each.
^{b/} Friday, Saturday and Sunday.
^{c/} Percentage does not total 100 due to rounding.

parties or nearly 1,900 people were camping. The percentages of weekend use occurring in each subarea were approximately the same as for total use.

These use estimates are not directly comparable with any other existing study. However, the Institute for Social and Economic Research (ISER) published a report in early 1985 that estimated camping along the Denali Highway by Alaskan railbelt (Anchorage to Fairbanks) residents. The ISER estimates would not be expected to correspond to estimates in this report because of the following:

- o ISER omitted non-Alaskan users,
- o ISER's three study subareas surrounding the Denali Highway were larger than the two relevant recreation subareas (Brushkana and Tangles),
- o ISER's survey asked about camping for the entire year, and
- o ISER's survey estimated households that camp rather than camping parties.

Nevertheless, since one of the differences between the ISER survey reduces the estimate of users and three would probably increase the estimate (compared to the recreation survey), there should not be substantial differences between estimates.

The recreation survey estimates about 1,800 camping parties in the Brushkana and Tangles subareas. The ISER report estimates from 2,060 to 3,830 households participated in camping on or near the Denali Highway in all of 1984. The recreation survey estimates are near the low end of the ISER estimates. The differences in methodology and standard errors inherent in any estimates would easily account for the differences. The comparison does not warrant changing the recreation survey estimates.

Comparison to the ISER Survey

Results from both the recreation survey and the ISER survey suggest that the number of recreationists using the recreation study area is not large compared to many areas of Alaska. To complete the recreation demand/supply analysis the adequacy of facilities to meet demand must be examined. Earlier sections dealt with users' satisfaction with facilities and observed use rates. In this section, the concentration is on the estimate of campers for the total survey season and weekends (peak demand periods). These estimates are compared to the number of formal and informal camping sites available to campers.

The number of formally established camping sites within the recreation study area was 61, with 4 of these designed for picnicking rather than camping. By subarea, Brushkana had 16 sites; Tangles, 21 sites; and Paxson, 24 sites. If camping demand for the entire season is compared to the number of sites available, it appeared that the number of sites are adequate. Within the Brushkana subarea the number of campers for the study period (400) was only 33 percent of the campsites available (1,200) over the 75-day-period. Using the same method to compute capacity and demand, the Paxson subarea was used at 47 percent capacity and the Tangles' subarea at 87 percent capacity.

Another way to examine capacity and demand is to study peak demand periods (weekends). Within the Brushkana subarea, there were nearly 250 campers for a 47 percent use of the over 500 campsites available throughout the survey period. The weekend use rate in the Paxson subarea was 63 percent; it was 87 percent in the Tangles area. The weekend use rates increased over total seasonal rates for the Brushkana and Paxson subareas, but not for the Tangles subarea, indicating that use of the Tangles subarea fluctuated less than in the other two subareas.

This comparison of demand with capacity indicated that the Tangles subarea was in the greatest danger of frequently being overcrowded and that the

other two subareas would seldom be overcrowded. This conclusion, however, ignores some important characteristics of the subareas. The Tangles subarea had a large number of areas suitable for camping, even though they were not formal sites. Within a one mile radius of the established campgrounds, suitable sites for camping number at least three times the number of formal sites. Further from the formal campgrounds there are numerous gravel pits, pull-offs, and trailheads that offer suitable campsites. Many of these locations are attractive enough, visually or because of recreation opportunities, to draw campers, even when the formal sites are not being used at capacity. Therefore, though the formal, established campground sites may be fewer than the number of campers during peak demand periods, the area can absorb overflow easily and without creating hardships to campers.

In contrast, the Paxson subarea appears to easily meet camping demands but has characteristics that modify this conclusion. First, the subarea is subject to more variation in use, producing higher peak demands relative to its fairly high constant demand. Secondly, there are very few sites suitable for camping that are not established in the campground or as a picnic site. Lastly, distribution of demand within the subarea shows Paxson Wayside, which has only 17 percent of the campsites with little overflow capacity, receiving 32 percent of the demand. These characteristics make the Paxson subarea the one most likely to be overcrowded, creating hardships for campers.

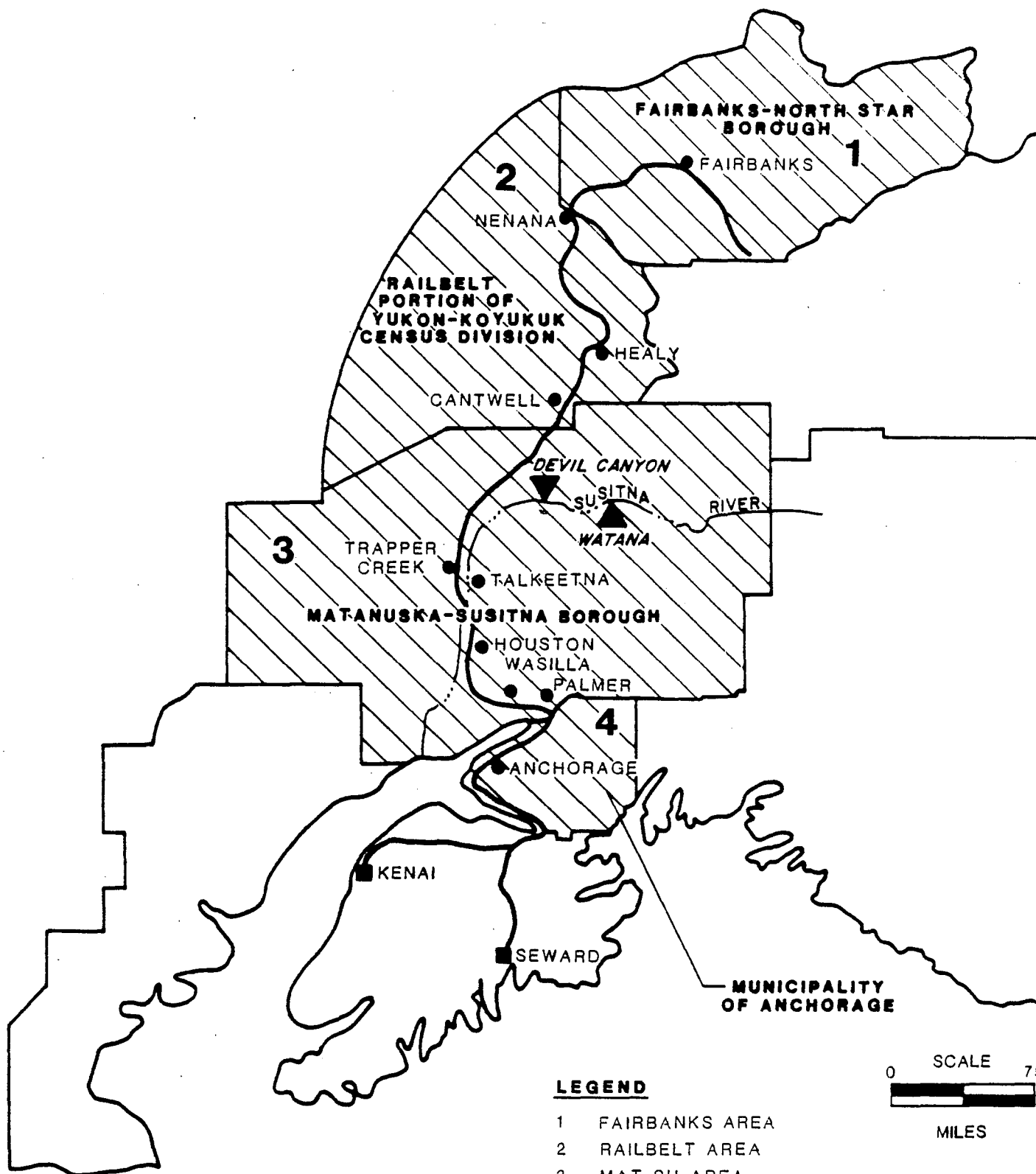
The Brushkana subarea is in the best position of the three to meet demand. Demand by campers is the least of the three subareas, relative to capacity, and peak demand periods show only moderate increases over long-term demand. Additionally, the Brushkana subarea's characteristics are much like Tangles', with an ability to provide numerous sites as suitable alternatives to the campground site.

APPENDIX D

CODING MAP

CODING MAP

BOUNDARIES FOR AREAS OF RESIDENCE IN ALASKA



SOURCE: ALASKA DEPARTMENT OF LABOR,
RESEARCH AND ANALYSIS SECTION,
U.S. CENSUS MAPS PROVIDED IN 1983
POPULATION OVERVIEW, JANUARY 1985

ALL OTHER AREAS OF ALASKA
WERE CODED TOGETHER AS
OTHER ALASKA AREAS.