PARTICIPATION, PREFERENCES, AND CHARACTERISTICS OF OUTLYING-CABIN USERS IN ALASKA NATIONAL FORESTS

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PARTICIPATION, PREFERENCES, AND CHARACTERISTICS OF OUTLYING-CABIN USERS IN ALASKA NATIONAL FORESTS

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PREFACE

The development and management of public-use cabins have been planned, or at least considered, by several federal and state agencies in Alaska. This bulletin reports the results of a pilot study of the cabin program of the U.S. Forest Service. There are problems of aggregated data which did not allow for detailed analysis; however, the report does provide an overview of the Forest Service outlying cabin program—who uses it, how they use it, and how they feel about it.

The manager should be careful in applying the results without consideration of the total recreational spectrum, i.e., where the cabin program fits within this spectrum, and its cost in terms of other recreation opportunities that may be specified. It is the opinion of the authors that it would be unwise to simply mass reproduce the outlying cabin program in all areas having periods of inclement weather. The study sampled only cabin users—not all users or potential users of the particular landscape setting. To over-emphasize an expanded cabin program would reduce the continuum of opportunities. While subsequent studies of the cabin user population would likely find this group to prefer the new program, the users who did not prefer it or who were unwilling to adopt to new conditions would have been displaced. Thus, while the results have some direct applicability, it is also important to consider the maintenance of the continuum of recreational opportunities, only one portion of which is covered by outlying cabins.

—the authors

INTRODUCTION

In the Chugach and Tongass National Forests of Alaska, the U.S. Forest Service sponsors a unique recreational program in which nearly 200 cabins are available for public use in the outlying areas of the forests. The first of these cabins were constructed in the 1930s by the Civilian Conservation Corps. A number of cabins were built later with Dingell-Johnson Act money in an effort to shift fishing pressure from heavily fished lakes to those receiving little or no pressure. The Forest Service has continued to add to the cabin system through the years for the safety and convenience of hunters, fishermen, and recreationists in general.

A study of the outlying-cabin program was initiated in 1974 through a grant by the Pacific Northwest Forest and Range Experiment Station to study recreation facilities and participation patterns on National Forest Lands in Alaska. As part of this project, researchers at the University of Alaska surveyed users of the outlying-cabins as to their behavioral and expenditure patterns, socioeconomic characteristics, and their evaluations of the program. The questionnaire was developed in 1975 and approved by the U. S. Office of Management and Budget. A copy is included here as Appendix A.[1]

The remote cabins in the Chugach and Tongass National Forests are made available at several locations in either forest through a reservation system (Figure 1). For this study, we obtained from Forest Service personnel monthly listings from 1976 of all registrations made at the Anchorage headquarters of the Chugach National Forest and at the Chatham Work Center in Juneau for the Tongass. Questionnaires were sent each month during 1976 to virtually all registrants appearing on the list from the previous month. Reminder postcards and follow-up questionnaires were sent to registrants who failed to respond to the initial mailing. Table 1 presents a summary of the outcome of this survey procedure. (A very slightly variation of the sampling procedure occurred when some registrants failed to receive questionnaires due to a clerical error.)

[1] Sheila Helgath and Leonard K. Johnson participated in the development of the questionnaire and data collection.

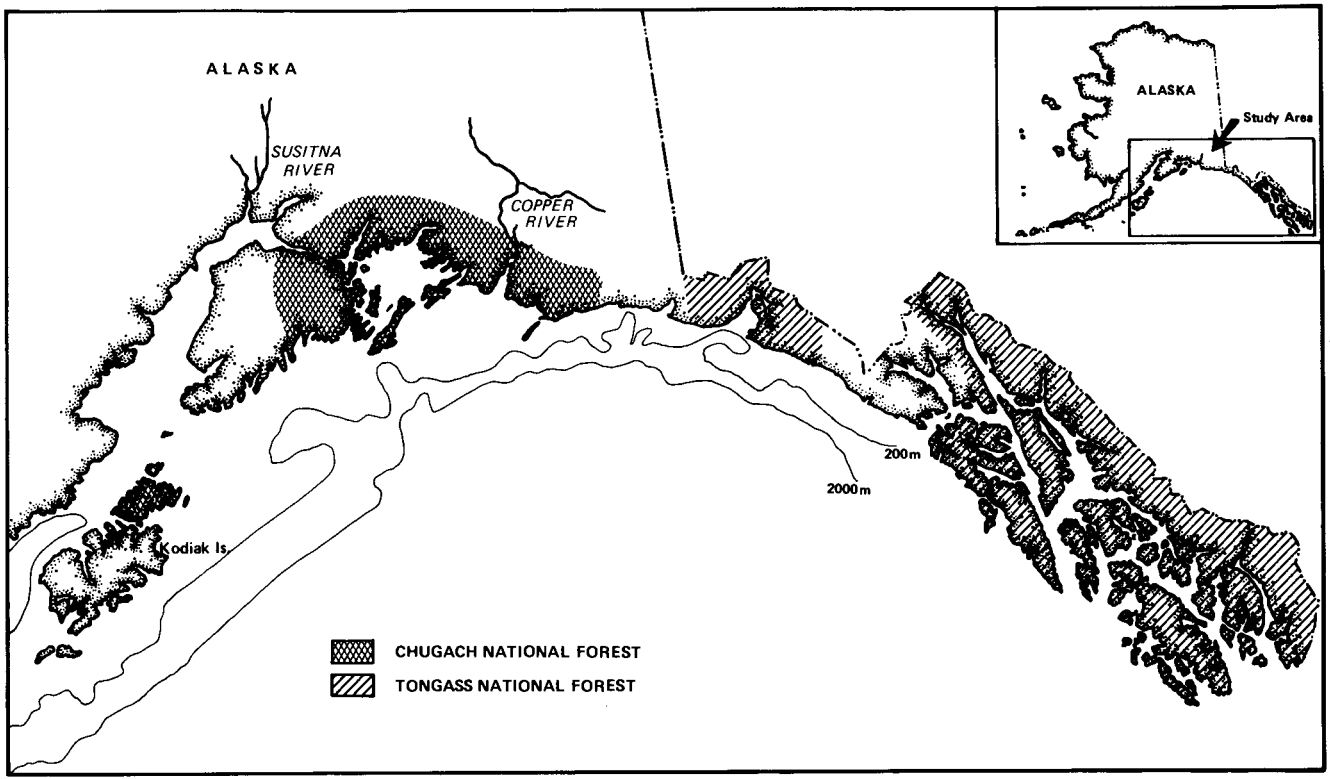

Figure 1. Location of the Study Areas.

Table 1. Questionnaires Schedules, 1976.

Month	Tongass		Chugach		Combined	
	Sent	No. Ret. (%)	Sent	No. Ret. (%)	Sent	No. Ret. (%)
January	0	0 (–)	27	20 (74)	27	20 (74)
February	4	3 (75)	34	26 (76)	38	29 (76)
March	1	0 (0)	21	18 (86)	22	18 (82)
April	5	3 (60)	38	29 (76)	43	32 (74)
May	33	25 (76)	60	46 (77)	93	71 (76)
June	50	26 (52)	69	49 (71)	119	75 (63)
July	40	26 (65)	67	52 (78)	107	78 (73)
August	40	32 (80)	70	59 (84)	110	90 (82)
September	40	29 (73)	68	46 (68)	108	75 (69)
October	37	29 (78)	68	53 (78)	105	82 (78)
November	37	26 (70)	39	19 (49)	76	45 (59)
December	28	19 (68)	60	41 (68)	88	60 (68)
TOTAL	315	217 (69)	621	458 (74)	936	675 (72)

The primary statistical analysis was conducted using contingency tables and the Chi-square test for independence (Siegel, 1956). If the expected values in 20% or more of the cells in the contingency tables were 5 or less, then the variables were collapsed into fewer categories until the table could meet this criterion. When significant relationships were detected with the Chi-square test, a visual interpretation of the contingency table was made to determine which cells in the contingency table had the greatest effect on the Chi-square score.

USE OF OUTLYING CABINS AS AN EXPERIENCE

The use of cabins in public land outlying areas is not a new phenomenon. Use of old miner and other abandoned cabins by recreationists has taken place for some time. Although there are many agency cabins on public lands, for the most part these have been maintained for administrative purposes and sometimes casual use by employees. Rarely have these been developed and allocated for public use. This has not been the case in Alaska. Several agencies have sponsored public outlying cabin programs – U. S. Forest Service (for which this study was done), U. S. Fish and Wildlife Service, Bureau of Land Management, and Alaska Division of Parks. The Forest Service program is the most extensive of these and provides for a unique experience within a segement of the continum of recreational opportunities on public lands.

This continuum has been labeled the Recreational Opportunity Spectrum, or ROS (Clark and Stankey, 1979). The authors describe the link between opportunities and experiences as resulting from the coordination of two distinct roles. In the first, the manager develops and maintains a diversity of opportunities in a variety of environmental settings, and then provides information regarding the availability of these opportunities. In the second role, the user filters the information (formal and informal), makes choices, and participates, thus creating the experience. That information derived from the experience is included in future decision processes by the individual. Thus, the choice is left to the individual to align his own preferences with some desired opportunity to produce an acceptable outcome (Driver and Brown, 1978), in contrast with the hopeless task of the manager trying to somehow assess visitor preferences and to overtly direct the visitor to the preferred opportunities, like a recreational traffic patrol (Clark and Stankey, 1979).

The description of the ROS has taken many forms (Brown, et al., 1978; Clark and Stankey, 1979; Christianson, 1977; McCool and Elmer, 1975; and Jubenville and Workman, 1980). Regardless of the descriptions, there ususally exists a range of conditions from modern to primitive. The typical continuum, Figure 2, shows specific loci for modern, semi-modern, semi-primitive, and primitive opportunities (Clark and Stankey, 1979). Christianson (1977) presented an interme-

diate locus between semi-modern and semi-primitive. The description of loci, anchor or end points, seems to indicate well-defined discrete opportunities; however, what one is really describing are line segments, portions of the spectrum, or possibly a better term might be "family of opportunities," realizing it is still possible to offer variety within that family (Clark and Stankey, 1979). In terms of the visitor, there may be no well-defined line between family groups – only gradations (Christensen and Yoestring, 1979). The outlying cabin program seems to best fit into the portion of the spectrum typically labeled as semi-primitive, and each agency may respond within that segment based on its own agency philosophy, situational antecedents, or management constraints.

Jubenville and Workman (1980) summarized those factors which describe the recreational experience into three categories: development norms (access and facilities), social norms, and management control norms. Clark and Stankey (1979) offer six management factors: (1) access; (2) other non-recreational resource uses; (3) onsite management; (4) social interaction; (5) acceptability of visitor impacts; and, (6) acceptable level of regimentation. These, then were integrated into a matrix with the four segments of the opportunity spectrum and limits were established for each interaction of the ROS segment and management (Figure 2). The manager could then assess the consistency of the decision-making if, by management objective, he had chosen the semi-primitive segment of the ROS as the appropriate placement for the cabin program. This is not to imply that less facility-oriented opportunities could not also be developed within that segment.

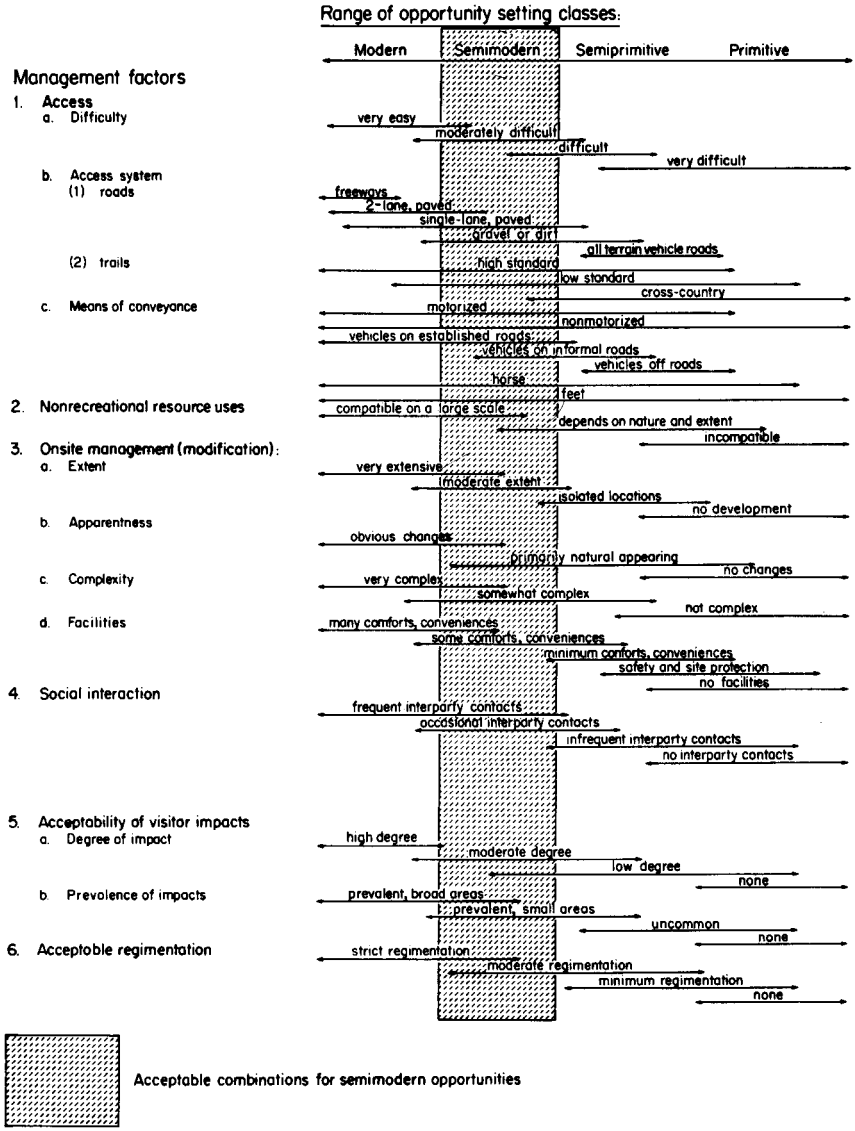

Figure 2. Factors Defining Outdoor Recreation Opportunity Settings.

(SOURCE: Clark and Stankey, 1979)

CABIN USE ANALYSIS

PARTICIPATION IN THE OUTLYING-CABIN PROGRAM

The data from the two national forests were analyzed using the Chi-square statistic to determine if they represent two different populations. The evaluation of two participation and three socioeconomic variables revealed no differences between visitors in the two forests at the 95% confidence limits. Therefore, the data from the two samples were combined for the remainder of the analysis. The program is obviously unique and is aimed at a specific segment of the user spectrum — the intermediate, roadless-area user. This section will focus on both party charactersitics and the existing patterns of use by those parties.

The Characteristics of the Parties:

The basic unit of use is the party, not the individual, so it is important to describe that unit and its associated variations (Table 2).

Table 2. Type of Party.

Category	Frequency	Relative Frequency (%)
A Person	23	4
Single family	161	29
Two+ families	89	16
Group of friends	217	38
Organized group	16	3
Other	58	10
TOTAL	564	100

Type of Party shows a bimodal distribution, with *single family* and *groups of friends* being the two most frequent responses. Organized groups (such as a conservation organization) used cabins only in

the Chugach National Forest; otherwise, the percentages matched up nearly identically for all other categories for the two forests. Type of party was significantly related to:

1. having used a Forest Service cabin within last three years. Friends and organized groups had more frequently visited Forest Service cabins during last three years than had family groups: $X^2 = 14.2$, 5 d.f. (significant at 0.05 level).
2. having visited the particular cabin before. Single family parties tended to have used the particular cabin less: $X^2 = 13.8$, 5 d.f. (significant at 0.05 level).
3. purpose of trip. Family parties tended to be nonconsumptive and less active while groups of friends participated more heavily in consumptive uses, e.g. hunting and fishing: $X^2 = 55.4$, 18 d.f. (significant at 0.01 level).

The distribution of party size was also bimodal, the most frequent categories being party sizes of 2 and 4 (Table 3). The mean party size was 4.2 people; 152 parties, or nearly 28 per cent of the population, had 5 or more people; 34, or 6 per cent, consisted of 9 or more people.

Table 3. Size of Party.

No. People	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
1	18	3	3
2	156	28	31
3	86	15	46
4	146	26	72
5	42	8	80
6	45	8	88
7	16	3	91
8	15	3	94
9 or more	34	6	100
TOTAL	558	100	

The size of party was significantly related to having been to the cabin before: $X^2 = 24.2$, 8 d.f. (significant at 0.01 level) (the larger groups tended to have used the particular cabin before) and to type of party: $X^2 = 128.2$, 15 d.f. (significant at 0.01 level). Single- and two-family parties tended to be small; friends and organized groups, larger.

Mode of travel to get to the cabin was also an important group characteristic (Table 4), with having walked to the cabin being the most frequently mentioned (42.3 per cent). Chartered craft (boat or air) was the next highest (18.6 per cent). Those who chartered a boat or plane or flew their own plane were less likely to have previously visited the particular cabin; those who hiked, boated, or skied, were more likely to be previous visitors: $X^2 = 8.5$, 3 d.f. (significant at 0.05 level). Also, those who flew or used chartered craft hunted and fished more (as the primary purpose of the trip) than did the hiker, skier, or boater: $X^2 = 142.8$, 9 d.f. (significant at 0.01 level).

Table 4. Mode of Travel.

Category	No. Parties	Relative Frequency (%)
Walked	205	42
Skied	84	17
Private boat	39	8
Charter boat/plane	90	19
Private aircraft	32	7
Other	35	7
TOTAL	485	100

The main purpose of trip was categorized from an open-ended question (Table 5). As a stated purpose, general recreation was the modal response. The next most frequent response was hunting, representing nearly 17 per cent of the parties. The analysis showed that hikers and skiers (main purpose of trip) tended more to have

Table 5. Main Purpose of Trip.

Category	No. Parties	Relative Frequency (%)
General Recreation	149	26
Hunt	93	17
Fish	76	14
Backpack-Hike	59	10
Ski	52	9
Relaxation	45	8
Other	88	16
TOTAL	562	100

used some Forest Service cabin within the last three years; hunters, less $X^2=24.8$, 6 d.f. (significant at 0.01 level). The same relationship held true for having visited the particular cabin before: $X^2=20.6$, 6 d.f. (significant at 0.01 level).

Existing Patterns of Use

The mean length of stay was 2.6 nights at a cabin, with over 60 per cent of parties staying two nights or less (Table 6).

Table 6. Length of Stay.

Number Nights	No. Parties	Relative Frequency (%)	Cumulative Relative Frequency (%)
1	190	35	35
2	144	27	62
3	81	15	77
4	42	8	85
5	38	7	92
6 or more	45	8	100
TOTAL	540	100	

The length of stay was significantly related to mode of travel (chartered vs. nonchartered): $X^2=110.3$, 5 d.f. (significant at .01 level); nonchartered were overrepresented in the three-night-or-less category. Also length of stay was significantly related to purpose of trip: $X^2=140.8$, 12 d.f. (significant at .01 level). Skiers and backpackers were overrepresented in the one- and two- night categories; hunters were overrepresented in the four- and more-night categories. Length of stay was not significantly related to having visited the particular cabin before.

The number of encounters with other parties during the particular stay was also recorded (Table 7). Over 75 per cent saw two or fewer parties, and nearly 40 per cent saw no one else.

Information pertaining to the total number of days and average hours per day participation were solicited for 45 activities; of those, only 17 had 16 or more participating parties (Table 8). The table is arranged in descending order according to the mean number of days of participation for each activity. Of those activities which had a mean of 3.0 days or more, two activities had a low mode (canoe-

kayak-rafting and saltwater fishing), indicating a considerable variation in the number of days of participation. A similar variation also occurs in bird watching, beachcombing, and stream fishing. This variation indicates that while many people may view these activities

Table 7. Seeing Other Parties.

Number Parties Seen	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
0	209	38	38
1	110	20	58
2	104	19	77
3	54	10	87
4	30	5	92
5 or more	43	8	100
TOTAL	550	100	

Table 8. Activity Participation by Parties (Number of Days and Hours Per Day – Ranked by Mean Days).

Activity	No. Parties	Days		Hours/Day	
		Mean	Mode	Mean	Mode
Motorboating	46	3.83	3.0	4.40	4.0
Big-game hunting	93	3.61	3.0	7.88	6.0
Snowmachining	23	3.52	2.0	6.45	8.0
Canoe-kayak-rafting	76	3.21	1.0	3.10	2.0
Saltwater fishing	27	3.10	1.0	4.90	2.0
Nature photography	134	3.03	3.0	2.70	1.0
Hiking	246	2.91	2.0	4.22	6.0
Bird watching	60	2.87	1.0	2.64	1.0
Picnicking	35	2.71	2.0	2.18	1.0
X-C skiing	74	2.65	2.0	6.65	6.0
Beachcombing	48	2.62	1.0	2.54	2.0
Stream fishing	100	2.47	1.0	3.92	2.0
Lake fishing	195	2.38	2.0	3.97	2.0
Waterfowl hunting	22	2.37	2.0	4.73	4.0
Berries-mushrooms	35	1.97	1.0	2.54	1.0
Flying for pleasure	16	1.93	1.0	2.12	1.0
Climbing	26	1.88	1.0	4.16	4.0

as primary ones, others see them as secondary. Fishing is an example: only 76 parties listed fishing as the main purpose of their trip, yet many more parties actually participated in some form of fishing.

In terms of numbers of parties, hiking, lake fishing, nature photography, stream fishing, and big-game hunting were the activities that had the greatest participation, in that order. Those parties that hike to cabins have been shown to comprise 42.3% of the outlying-cabin population and stay shorter periods of time; consequently, one would expect the large participation in the activity of hiking. The other main activities are hunting or fishing oriented, which would seem to be the prime attractors for a majority of the user population except for nature photography. Even this is ancillary to those types of activities. Certain of the activities are obviously seasonally oriented – hunting (fall), fishing (summer-fall), rafting (summer), berry picking (summer-fall), and skiing/snowmaching (winter).

Beyond this, there are certain patterns of activity participation that are evident in Table 8. These patterns were described by Burch (1964) as activity aggregates – people usually participate in a cluster of activities even though one single activity may have been the primary purpose of the trip.

The winter activities of snowmobiling and cross-country skiing show the simplest aggregates – one dominant activity with, perhaps, several minor ones (in terms of time spent). The users spend nearly 8 hours per day participating in the single activity with little time remaining for other activities. In the fall, the big-game hunter follows a similar trend, spending nearly all of this time on one activity.

The aggregates in which fishing was an important activity did not show this same dominance, but encompassed other activities such as boating, rafting, or beachcoming. Also, the variability in hours per day of participation indicates variation within the general patterns. For example, the skewed distribution in the hours-per-day column (Table 8) shows a mode of 2.0 hours for saltwater fishing, indicating many visitors who did saltwater fishing spent a smaller portion of a day's time on that activity and a greater portion on others. Yet, there were enough avid saltwater fishermen who used the cabin and spent much time at the activity to produce the higher mean of 4.9 hours. Stream and lake fishing showed the same trend, but to a lesser degree. Some of the secondary activities (in hours/days) showed this same variability, e.g. nature photography, bird watching, picnicking, etc.

Antecendent questions were asked concerning previous use of the particular cabin (Table 9) as well as any Forest Service cabin for the past three years (Table 10). Both tables show a large number of users with no previous visits. There is evidently a tremendous amount of turnover among participants in the program, yet the greater previous experience level in the overall program as opposed to the particular cabin indicates some level of "exploring" new cabins by the more experienced participants.

Table 9. Number of Previous Visits to the Particular Cabin[a].

Number Previous Visits	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
0	380	69	69
1	79	14	83
2	46	8	91
3	27	5	96
4	11	2	98
5 or more	12	2	100
TOTAL	555	100	

[a]The one they had just visited.

Table 10. Number Times Used Forest Service Cabin Within the Past Three Years.

Number Previous Visits	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
0	262	47	47
1	84	15	62
2	60	11	73
3	63	11	84
4	22	4	88
5 or more	67	12	100
TOTAL	555	100	

The number of previous visits to the particular cabin was significantly related to the number of times one had used a Forest Service cabin within the last three years: $X^2 = 97.3$, 12 d.f. (significant at the 0.01 level.) However, there were some crossover effects – some had scored high on visiting Forest Service cabins over the last three years

but low on the number of visits to the particular cabin, which statistically describes this exploratory nature of the participation as mentioned earlier.

The following variables were significantly related to having used a Forest Service cabin within the last three years.

1. Income — The higher income participants were more frequent users of the cabin program: $X^2=15.0$, 4 d.f. (significant at the 0.01 level.)
2. Income (holding residence constant) — Individual contingency tables were developed for each residency category to determine if residency affected to overall income relationship shown in 1 above. Significance was found only for the Southcentral residents: $X^2=16.5$, 4 d.f. (significant at the 0.01 level). The higher-income participants from southcentral Alaska were more frequent users of the cabins. Ironically, as will be shown later, the southcentral residents usually hiked in and had lower cash expenditures on transportation.

EVALUATION OF PROGRAM

The respondents were asked a series of open-ended questions about the use of the particular cabin and the program in general. In an exploratory study such as this, the open-ended questions allow maximum freedom of response and, although difficult to code, this approach is effective in trying to isolate those variables that are important to the participant. The responses in Tables 11 and 12 are from people who had just visited at a particular cabin. Hence, the evaluations are no doubt influenced by this recent experience.

Table 11 shows those factors which people said they liked best about the use of the cabin. The highest response was just having equipment available to the user. Interestingly, most users focused on the small equipment within the cabin and not on the overall features of the cabin. The second most frequent response was scenery, or location of cabin in order for the user to enjoy the beautiful scenery. The next highest response category was simply having a nice shelter to get in out the weather.

Table 12 indicates those factors people liked best about the use of the cabin. Now it becomes more evident why Table 11 shows that people feel strongly about cabin equipment; the complaints center around lost, defective, or poorly maintained cabin equipment. However, one should note that nearly 30% (159) of the total participants offered no complaints.

Table 11. Like Best about Use of Cabin.

	Frequency	Relative Frequency (%)
Equipment within cabin (axe, bunks, etc.)	161	31
Scenery	141	27
Cabin (nice shelter)	117	22
Stove (warm & dry)	107	20
TOTAL	526	100

Table 12. Liked Least about Use of Cabin.

Category	Frequency	Relative Frequency (%)
Broken stove	75	18
Dirty cabin – garbage	42	10
Maintenance of beds and bedding	41	10
No wood or damp wood	35	9
Cabin too small	14	3
No axe or saw	11	3
Other (general maintenance)	191	47
TOTAL	409	100

Table 13 focuses on the broader aspects of the experience – the one significant item that made the trip enjoyable. Seclusion, scenery, and fish and wildlife resources were the factors most people rated significant, almost as if the cabin were a given in the equation. Having a good cabin was rated fourth. Yet, when followed up with the question, "Would you have stayed if there were no cabin?" the response was markedly different (Table 14). Over 80% said "No."

Table 13. One Item that Made the Overall Trip Enjoyable.

Category	Frequency	Relative Frequency (%)
Secluded area	160	29
Available hunting and fishing	131	23
Quality scenery	118	21
Good cabin	92	16
Easy access	26	5
Other	35	6
TOTAL	562	100

The responses were significantly related to purpose of trip: $X^2 = 15.2$, 6 d.f. (significant at the 0.05 level). Those who came for general recreation, rest and relaxation, or hiking were overrepresented in the "No" category; hunters, in the "Yes" category.

Table 14. Stay Even if No Cabin Available.

Category	Frequency	Relative Frequency (%)
Yes	109	19
No	451	81
TOTAL	560	100

The reasons for choosing not to stay if no cabin were available (Table 15) can be summed as "Non-availability of shelter." This means that most cabin users, except hunters, would not participate in various recreational opportunities in the area if the cabins were not available. Quality fishing, quality scenery, or seclusion only made the trip enjoyable if there were a cabin available. In sum, use of the area is facility-oriented. But that pattern has to be based on something – desire for protection from weather, safety from wild animals, or simply the desire for a given level of comfort and convenience which allows one to participate in the desired activities like fishing and still have a place to stay warm and dry. One must realize that cabins have been located such that fish and possibly game resources are within a reasonable proximity.

Table 15. Reason for Choosing Not to Stay.[a]

	Frequency	Relative Frequency (%)
Non-availability of shelter	357	80
Lack of facilities (beds, cooking, etc.)	10	2
Lack of desired comfort, convenience, and safety	32	7
Other	37	11
TOTAL	443	100

[a]The nonresponse also includes the 109 "Yes" responses from Table 14. The "yes" responses were eliminated because of the implication that the visitor(s) might have stayed regardless of the availability of a cabin.

When asked if there were areas with too many cabins, the answer was almost universally "No" (Table 16). The percentages were the same for the Chugach and the Tongass National Forests. However, when asked about whether other cabins were needed the opinions were split (Table 17). Over 57 per cent answered "No" which would indicate a majority feeling of some level of saturation in terms of the availability of public cabins on National Forest lands. Those who answered "Yes" were ready with their shopping lists. The general summary of where additional cabins are desired is shown in Table 18. All of the locations in the table are water-oriented. A detailed list is in Appendix B. Many of these suggested locations were outside of the National Forest boundaries indicating a possible desire on the part of the participant to expand to other public lands not covered by the existing programs or a lack of knowledge concerning the boundaries of the national forests.

Table 16. Are There Areas with Too Many Cabins?

Category	Frequency	Relative Frequency (%)
Yes	23	4
No	514	96
TOTAL	537	100

Table 17. Are There More Areas Needing Cabins?

Category	Frequency	Relative Frequency (%)
Yes	228	43
No	303	57
TOTAL	531	100

Table 18. Suggested New Cabin Locations[a].

Area	Location	Frequency
Anchorage	Bench Lake	16
	Coghill River & Lake	9
	Eshamy Lake & Bay	8
	Johnson Pass & Lake	17
	Ptarmigan Lake	10
	Russian Lake	11
Cordova	Prince William Sound	14

[a]Most of the respondents were from Anchorage. Only those locations having a frequency of 8 or more are included. See Appendix B for a more detailed listing.

ECONOMICS OF PARTICIPATION

The spending patterns of the respondents on their visits to the cabins are presented in Tables 19-22. In all expenditure categories, the distribution of expenditures shows a marked positive skewness. Thus modal expenditures were low relative to respective medians. The occurence of a few rather high expenditures in each category caused means to be systematically above the median expenditures.

The transportation expenses (Table 19) were significantly related to the following variables:

1. Length of stay — The larger the expenditure, the longer the stay: $X^2=209.16$, 4 d.f. (significant at the 0.01 level.) Since transportation costs were dominant and fixed, people seem to stay longer to average out the cost.
2. Mode of travel — Charter participants spent larger amounts; hikers, very small: $X^2=134.8$, 6 d.f. (significant at the 0.01 level.)
3. Residence — There were higher transportation costs in Southeast, lower in Southcentral: $X^2=70.62$, 4 d.f. (significant at the 0.01 level.)

Table 19. Per-Group Transportation Expenses.[a]

Category	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
$0.01-25.00	177	47	47
25.01-50.00	31	8	55
50.01-100.00	39	11	66
100.01-200.00	78	21	87
200.01-300.00	27	7	94
300.01-over	23	6	100
TOTAL	375	100	

[a]Mean=$75.46; mode=$0.01-25.00; median=$46.97.

Lodging expenditures included any motel costs, cabin fees and camping equipment purchased specifically for the trip. The mean lodging cost was $33.63, but the modal cost was less than $10.00 (Table 20). Lodging costs were significantly related to length of stay: $X^2=104.2$, 10 d.f. (significant at the 0.01 level). Obviously the longer the stay, the higher the lodging costs due to the daily fee for using the cabin. Lodging costs were also related to residence: $X^2=31.6$, 8

d.f. (significant at the 0.01 level). Southcentral people tended to spend less because they stayed shorter periods of time. Lodging costs are probably simply additive in most cases, i.e. an additional cabin fee is associated with each day's stay. Thus, one would expect the positive relationship of length of stay to lodging costs. Southcentral residents typically walked into the cabin, stayed a short period, and consequently had a low cost of lodging.

Table 20. Lodging Expenditures.[a]

Category	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
$0.01-10.00	122	25	25
10.01-20.00	87	18	43
20.01-30.00	61	12	55
30.01-40.00	41	8	63
40.01-50.00	32	7	70
50.01-100.00	66	13	83
over 100.00	84	17	100
TOTAL	493	100	

[a]Mean=$33.63; mode=$.01-10.00; median=$31.15.

Participants were asked how much they spent on food and how much of this was above their normal at home food expenses. Most people responded to the total cost of food question but nearly half of them failed to respond to the "above-normal expenses" portion. Consequently, only the results from the total-food-expense question are shown in Table 21.

Again the food expenditures were additive and related positively to length of stay: $X^2=127.6$, 5 d.f. (significant at the 0.01 level.) and residence: $X^2=31.2$, 4 d.f. (significant at the 0.01 level.) Those who stayed longer or were southeastern residents showed higher food expenses.

The mean miscellaneous expenditure was $22.11 and the mode was less than $10.00 (Table 22). The miscellaneous expenditures were significantly related to residence: $X^2=14.4$, 2 d.f. (significant at the 0.01 level.) with non locals (other than southeast or southcentral residents) tending to spend more on miscellaneous items. Also, miscellaneous expenses went up with increasing length of stay: $X^2=49.9$, 5 d.f. (significant at the 0.01 level.)

Table 21. Food Expenditures[a].

Category	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
$0.01-10.00	86	16	16
10.01-20.00	128	24	40
20.01-30.00	95	18	58
30.01-40.00	46	9	67
40.01-50.00	60	11	78
50.01-100.00	82	15	93
over 100.00	39	7	100
TOTAL	536	100	

[a]Mean=$35.01; mode=$10.01-20.00; median=$30.68.

Table 22. Miscellaneous Expenditures[a].

Category	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
$0.01-10.00	192	57	57
10.01-20.00	59	18	75
20.01-30.00	25	7	82
30.01-40.00	6	2	84
40.01-50.00	15	4	88
50.01-100.00	24	7	95
over 100.00	17	5	100
TOTAL	338	100	

[a]Mean=$22.11; mode=$0.01-10.00; median=$13.80.

CABIN ARCHITECTURAL AND FACILITY PREFERENCES

Using a sketch of six different styles of cabins, each respondent was asked to circle the one most preferred and cross out the one least preferred. If the style was not important, he could simply check a box at the top of the page and continue to the next question. Table 23 summarizes the overall preferences. Using these data, choice was determined to be significantly related to income for those visitors

from southeast Alaska: $X^2=4.3$, 1 d.f. (significant at the 0.05 level.) There was a greater tendency for lower-income people to express no preference.

Table 23. Overall Preference on Style of Cabin.

Category	Frequency	Relative Frequency (%)
No preference	111	20
Specific preference	456	80
TOTAL	567	100

The data concerning preferred cabin styles are shown in Table 24. These choices, based on the architectural sketches in Figure 3 (page 26), invite speculation as to what they mean. Cabin styles B and E are open to the weather and are apparently not good choices because they would not protect the participant from weather. This leaves A, C, D and F as logical choices for Alaskan conditions. Style F received little response and even that was split. It has all the apparent attributes of a "good" cabin but its failing seems to be its modern appearance – the solar or 'chicken coop' roof. Style D was preferred by far lower numbers than A or C. It is a reasonable choice, but does not represent a strong user preference. Possibly it lacks imagination – the typical 'tar paper' miner's shack.

Table 24. Preferred Cabin Styles.

Cabin Style	Preferred Most (%)	Preferred Least (%)
A	235 (49)	12 (2)
B	9 (2)	55 (12)
C	134 (28)	23 (5)
D	84 (17)	19 (4)
E	2 (1)	349 (74)
F	17 (4)	15 (3)
TOTAL	481 (100)	473 (100)

This leaves us with the choice between cabin styles A and C. Style C is a modern A-frame design and is preferred by southcentral residents, but style A is preferred by nearly 49% of all respondents possibly because it meets all the requirements of a warm rustic cabin which offeres good utilization of space.

Table 25 summarizes the responses to specific cabin facilities/equipment. The modal response was used to classify each as necessary, desirable, or unnecessary/undersirable. The statistical analysis of these responses are shown in Table 26.

Table 25. Modal[a] Response to Specific Cabin Facilities/Equipment.

Category	Equipment	(%)
1. Necessary	Stove	80
	Windows	63
	Axe	60
	Firewood	52
	Screens	49
2. Desirable	Boat	69
	Firing	57
	Picnic table	55
	Fireplace	46
3. Unnecessary/undesirable	Kitchen utensils	56
	Mattress	53
	Pots and pans	48

[a]This means the greatest response, or frequency, in the three response categories.

Table 26. Analyses of Facility/Equipment Preferences.

Facility/Equipment	Chi-square, Related Variable	X^2, d.f.	Significance Level	Visual Interpretation
1. Fire ring	a. Residence	13.8, 4 d.f.	0.01	Overrepresentation* of necessary or desirable from southeast residents.
	b. Sex	9.4, 2 d.f.	0.01	Overrepresentation of necessary or desirable from females.
2. Kitchen utensils	a. Residence	18.2, 4 d.f.	0.01	Overrepresentation of desirable from southeast residents and overrepresentation of unnecessary/ undesirable by southcentral residents.
	b. Age	17.1, 6 d.f.	0.01	No clear interpretation.
	c. Age (males only)	16.7, 6 d.f.	0.01	Overrepresentation of desirable by males 45 years or older.
	d. Age (southcentral residents only)	16.1, 6 d.f.	0.01	Overrepresentaion of unnecessary/undesirable by those over 45 years of age.
3. Firewood	a. Residence	21.2, 4 d.f.	0.01	Overrepresentation of necessary by southeast residents.
4. Pots and pans	a. Residence	51.9, 4 d.f.	0.01	Overrepresentation of desirable by southeast residents.
	b. Age	23.7, 4 d.f.	0.01	Overrepresentation of desirably by those 45 years or older.
	c. Age (males only)	23.4, 6 d.f.	0.01	Overrepresentation of desirable by those 45 years or older.
	d. Age (south-central residents)	26.1, 6 d.f.	0.01	Overrepresentation of desirable by those 45 years or older.
	e. Sex	16.7, 2 d.f.	0.05	Overrepresentation of necessary or desirable by the female.

5. Stove	Used F.S. cabin last three years	6.3, 2 d.f.	0.05	Those having used cabin within last three years were overrepresented in necessary category.
6. Boat	a. Age	23.3, 6 d.f.	0.01	Overrepresentation of necessary by older ages
	b. Age (males)	28.3, 6 d.f.	0.01	Overrepresentation of necessary by older ages.
	c. Education	23.3, 8 d.f.	0.01	Overrepresentation of necessary in the lower educational levels.
	d. Residence	64.9, 4 d.f.	0.01	Overrepresentation of necessary by southeastern residents.
	e. Used F.S. cabin last three years	14.7, 2 d.f.	0.01	Overrepresentation of unnecessary and undesirable by those who had not visited a cabin within last last three years.
7. Axe	a. Used F.S. cabin last three years	15.9, 2 d.f.	0.01	Overrepresentation of necessary by those who had visited a cabin within last three years.
	b. Residence	19.2, 2 d.f.	0.01	Overrepresentation of necessary by southeastern residents.
8. Fireplace	a. Used F.S. cabin last three years	19.8, 2 d.f.	0.01	Overrepresentation of unnecessary/undesirable by those who had visited a cabin within last three years.
	b. Age	16.4, 6 d.f.	0.01	Overrepresentation of unnecessary/undesirable by the older age groups.
	c. Education	16.2, 8 d.f.	0.05	Overrepresentation of unnecessary/undesirable by those in higher educational levels.
	d. Residence	20.5, 4 d.f.	0.01	Overrepresentation of necessary or desirable by southcentral residents.

*Overrepresentation means a disproportionately large difference between observed and expected values within a given cell(s) of the contingency table.

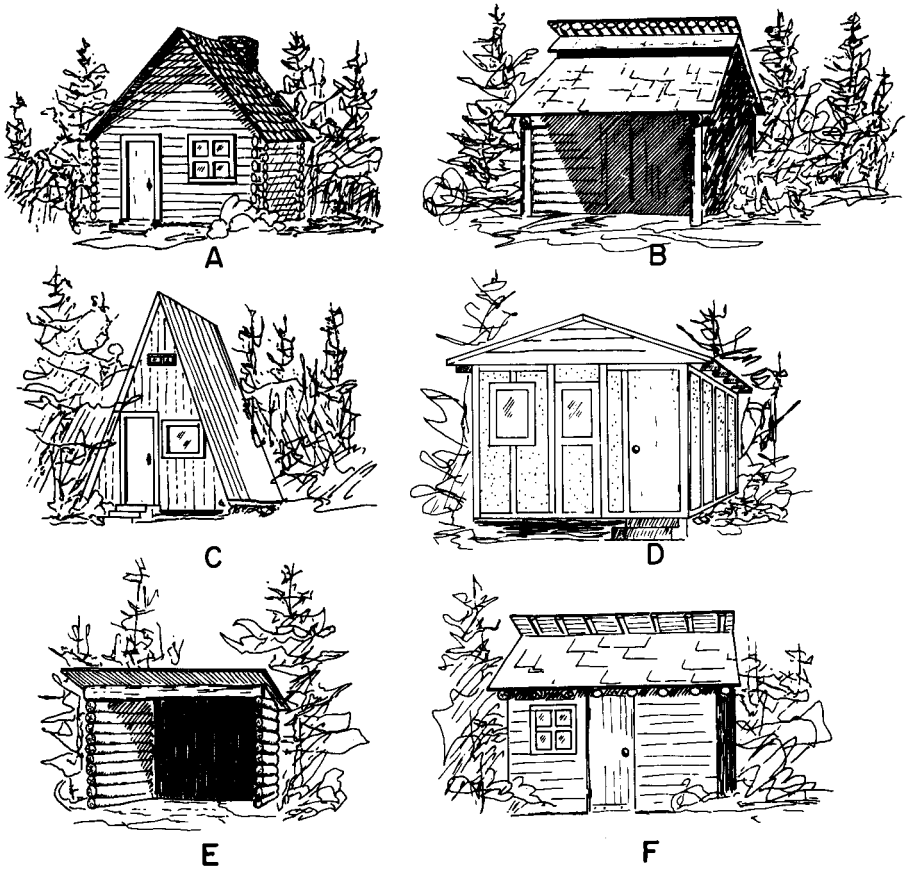

Figure 3. Sketches of Cabin Style Choices Presented to Each Respondent.

SOCIOECONOMIC CHARACTERISTICS

The socioeconomic backgrounds of questionnaire respondents are summarized in Tables 27-31. Table 27 displays the income categories, with the mean equal to $26,750 and the mode $20,000-29,999. Over 46% of the respondents had incomes over $30,000.

Table 27. Income.

Category	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
Less than $10,000	33	6	6
$10-19,999	113	21	27
$20-29,999	140	26	53
$30-39,999	128	24	77
$40,000 or more	123	23	100
TOTAL	237	100	

Data on occupations of respondents are presented in Table 28. White-collar workers represent nearly one-half of the sample. Military as an occupation is not a major user group in the outlying cabin program.

Table 28. Occupation.

Category	Frequency	Relative Frequency (%)
White collar	255	47
Blue collar	139	25
Military	37	7
Other	65	12
Retired & unemployed	48	9
TOTAL	554	100

Ages of respondents are presented in Table 29. The modal age group is 25-34 years. There is an underrepresentation of the youngest age groups (0-17). However, one must realize that ques-

tionnaire respondents generally represent leaders among participants and not average socioeconomic conditions (Jubenville, 1971).

Table 29. Age.

Category	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
0-17 years	8	1	1
18-24	67	12	13
25-34	277	51	64
35-44	124	22	86
45-54	55	10	96
55-64	19	3	99
65+	4	1	100
TOTAL	554	100	

Table 30 gives the educational backgrounds for respondents with the mean equal to 15.3 years of formal education and the mode equal to 18.0 years.

Table 30. Education.

Category	Frequency	Relative Frequency (%)	Cumulative Relative Frequency (%)
11 or less years	19	3	3
High school diploma	90	16	19
Less than college degree	130	24	43
Bachelor's degree	109	20	63
Graduate study	202	37	100
TOTAL	550	100	

Table 31 gives the sex of the respondents.

Table 31. Sex.

Category	Frequency	Relative Frequency (%)
Male	457	83
Female	95	17
TOTAL	552	100

SUMMARY AND CONCLUSIONS

In summarizing the data, some interesting patterns of participation became evident:

1. Type of Party: Those who visited with a group of friends have participated more in the cabin program within the last three years, were more consumptive (fish and game) oriented, stayed at the particular cabin longer, and chartered a boat or plane more often. The family groups used the cabin program less, were less consumptive oriented, traveled, in smaller parties, and stayed shorter periods of time.

2. Mode of Travel: The nonmechanical traveler (hiker/skier) had used the cabin program more and had more previous experience with the particular cabin than had the motorized visitor. If a person chartered transportation to the cabin, he usually had less experience with the particular cabin, hunted/fished more, and stayed longer. Cross-country skiing and snowmobiling, for those who used those forms of transportation, were dominant activities in which nearly all of the day was spent on that activity.

3. Style of Participation: While most people were attracted to a given location, the basic decision concerning whether to participate is related to the presence of a suitable cabin, assuming that the cabin is in close proximity to attractors – quality scenery, fishing streams, reasonable access, etc. The hunters' opinions differed from the typical cabin user. They were more willing to go where the game was regardless of availability of a cabin. The presence of a cabin apparently simply reinforced the decision to hunt in the particular locale.

Cost of transportation was related to style of participation. Nearly 60% of the participants walked or skied into a cabin and, consequently, spent little money on transportation. Those parties were typically families and stayed shorter periods of time. Those who flew or boated stayed longer and traveled as groups of friends, perhaps to ameliorate the higher costs of transportation. This dichotomy is reflected in the skewed distribution of transportation costs (low mode – many hikers and skiers, and high mean – high cost of transportation to many outlying areas). There were higher transportation costs in Southeast than in the Southcentral, reflecting the greater need for

use of plane or boat. Level of participation was shown to be tied to level of income particularily in Southcentral where higher-income people were the primary participants. At the same time, their transportation costs were usually less.

No regional crossover of use pattern was noted – the cabin user participated in the same region in which he resided. Further, the data suggest a level of exploring, i.e. visiting cabins where one has not stayed before, yet having had some experience in the cabin program in the past three years.

4. Evaluation of Program: The factors related to the enjoyment of the cabin program were the presence of a warm cabin, essential equipment, and good scenery. For some, the presence of fish or game resources was also important. Negative reactions were due to poorly maintained cabin equipment. The equipment rated as necessary were the stove, axe, firewood, windows and screens.

The overall preferred style of cabin is closed, rustic, log cabin. The A-frame style was also an acceptable choice, particularly among southcentral residents. The respondents felt no saturation level in terms of too many existing cabins; however, they were nearly split on the desire for more. Those who indicated a need for new cabins often suggested locations outside of the boundaries of the two national forests.

While the original goal of the outlying cabin program was to redistribute recreational use and to reduce fishing pressure in some areas, it is clear that it has become a much broader program which now accommodates many nonconsumptive uses including winter activities. Decisions concerning the expansion of the existing program should be made with an awareness of how users have responded to previous cabin locations and how the cabin program fits into the overall process of natural resource management.

On this latter point, for example, it is the state's role to manage game and fish resources through the establishment of management units, season lengths, and bag limits. Future developments in the cabin program, which influence access, can be coordinated with the state's efforts so that the objectives of the fish and game programs have a better chance of being accomplished. With regard to the expansion of the program in areas where consumptive resources are not important, decision makers may first want to restrict such expansion to those areas where there is a continuous over subscription to existing cabins.

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APPENDIX A

OMB 40-S-75076
Expires January, 1977

OUTLYING CABIN SURVEY

I. THIS SECTION IS ABOUT YOUR MOST RECENT VISIT TO A FOREST SERVICE CABIN.

1. What is the name of the last Forest Service cabin at which you stayed?_____Location_____

2. How many nights did you stay at the cabin?_____

3. Would you have gone to the same location if a Forest Service Cabin were not there? /__/ Yes /__/ No; If no, what did the cabin provide that influenced your decision to go to the area?_____
_____

4. What was the weather generally like during your stay? /__/ Clear; /__/ Cloudy; /__/ Rain; /__/ Fog; /__/ Snow

5. How many people were in your party?_____

6. Please check the type of group which best describes your party at this cabin. /__/ You Alone; /__/ Single Family; /__/ Two or more Families; /__/ Group of Friends; /__/ Organized Group (tour, team, etc....); /__/ Other _____

7. Did you see any other groups of people during your stay at the cabin? /__/ No; /__/ Yes; If yes, how many groups?_____

8. How did you travel to the cabin? Check more than one if appropriate. /__/ Charter Aircraft; /__/ Private Aircraft; /__/ Charter Boat; /__/ Private Motorized Boat; /__/ Private Non-motorized Boat; /__/ Motor Vehicle; /__/ Walked; /__/ Other_____

9. What was the main purpose of your trip?_____
_____
_____

10. What did you like most about the cabin?_____
_____
_____

11. What did you like least about the cabin?_____
_____
_____

12. Have you been to this cabin before during the last three years? /__/ No; /__/ Yes; If yes, how many times_____?

13. Below is a list of recreation activities. Please estimate the amount of time you spent in each activity during your last Forest Service cabin visit. If you did not participate in a particular activity, just leave it blank.

ACTIVITIES	How Many Days	Average Number of Hours Per Day
Hunting and Fishing		
Big Game Hunting	____	____
Waterfowl Hunting	____	____
Other Hunting_____	____	____
Stream Fishing	____	____
Lake Fishing	____	____
Saltwater Fishing	____	____
Other Fishing	____	____
Boating and Water Activities		
Rafting/Canoeing/Kayaking	____	____
Sailboating	____	____
Motorboating	____	____
Airboating	____	____
Water Skiing	____	____
Scuba Diving	____	____
Swimming	____	____
Clam Digging	____	____
Beach Combing	____	____
Sightseeing Activities		
Flying for Pleasure	____	____
Sightseeing from Car	____	____
Trail Biking	____	____
Jeeping, 4-Wheel Driving	____	____
Other Off-Road Vehicles_____	____	____
Picnicking and Camping		
Picnicking	____	____
Camping	____	____
Games or Group Sports	____	____
Hiking and Nature Activities		
Hiking	____	____
Horseback Riding	____	____
Mountain and Rock Climbing	____	____
Berry Picking, Mushroom Hunting, Etc.	____	____
Rock Hounding	____	____
Gold Panning	____	____
Antique Collecting	____	____
Nature Photography	____	____
Bird Watching	____	____
Organized Nature Walk or Ranger Talk	____	____
Other Nature Study_____	____	____
Visitor Center	____	____
Winter Activities		
Snow Machining	____	____
Downhill Skiing	____	____
Cross-Country Skiing	____	____
Snowshoeing	____	____
Dog Mushing	____	____
Sledding or Tubing	____	____
Ice Skating	____	____
Other Activities		
_____	____	____
_____	____	____

14. Please estimate the expenditures that you made to visit the cabin.

Lodging (motels, cabin fees, camping equipment which was purchased specifically for the trip, etc.) $_____

Food and Drink

(a) Please estimate total expenditures for food and drink items purchased for this trip to the cabin. $_____

(b) Please estimate expenditures for food and drink above what you would have spent if you had stayed home. $_____

Transportation (charter airfare or boat fare, oil, gas, etc.; do not include equipment purchase, maintenance, insurance)

Other Items (film, bait, rentals, equipment purchased specifically for the trip, guides, etc.) $_____

15. Have you used other Forest Service cabins in the last three years? /__/ No /__/ Yes; If yes, please list below.

Cabin Name or Location	Number of Times
_____	____
_____	____

II. IN THE PREVIOUS SECTION WE ASKED YOU ABOUT YOUR LAST FOREST SERVICE CABIN VISIT. THIS SECTION ASKS GENERAL QUESTIONS ABOUT FOREST SERVICE CABINS.

1. Which of the following items should be available at the outlying cabins?

Item	Unnecessary or Undesirable	Necessary	Desirable	No Opinion
Boat	/__/	/__/	/__/	/__/
Kitchen Utensils	/__/	/__/	/__/	/__/
Pots and Pans	/__/	/__/	/__/	/__/
Stove	/__/	/__/	/__/	/__/
Mattresses	/__/	/__/	/__/	/__/
Windows	/__/	/__/	/__/	/__/
Screens	/__/	/__/	/__/	/__/
Firewood	/__/	/__/	/__/	/__/
Fireplace Inside Cabin	/__/	/__/	/__/	/__/
Picnic Table Outside Cabin	/__/	/__/	/__/	/__/
Fire Ring Outside Cabin	/__/	/__/	/__/	/__/
Axe	/__/	/__/	/__/	/__/

Other (please list) _____

2. Do you know of any areas in Alaska where the Forest Service should provide outlying cabins?

/__/ No (go on to question 3)

/__/ Yes (Please be as specific as possible and list below the places or areas where additional cabins should be provided.)

_____

_____

3. Do you know of any areas in Alaska where there are already too many cabins?

/__/ No (go on to question 4)

/__/ Yes (Please be as specific as possible and list the places or areas where there are already too many cabins.)

_____

_____

4. If a Forest Service Cabin were not available on the date you wished to use one, what would you do as an alternative during that time?

_____

_____

5. Which of the following is most important in determining how enjoyable your outlying cabin experience will be? (Several or all of these may be important, but please check only the <u>one</u> that is the <u>most</u> <u>important</u> to your enjoyment.)

/__/ Cabin easy to get to.

/__/ Cabin well built and outfitted.

/__/ Good fishing or hunting.

/__/ Little chance of seeing other people.

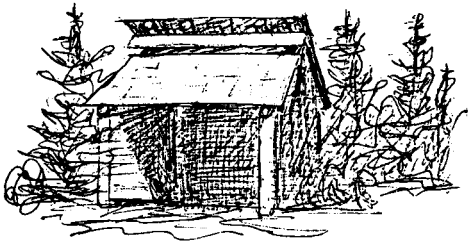
/__/ Beautiful scenery (please describe briefly)_____

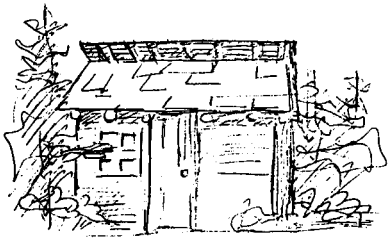
_____

/__/ Other (please explain)_____

_____

6. Circle the type of cabin structure you would most prefer to use. Cross out (x) the type of structure you would least prefer to use. If the type of structure makes no difference, please check this box. ☐





III. BELOW IS A SECTION WHICH WILL DESCRIBE GENERAL CHARACTERISTICS OF CABIN USERS. THIS INFORMATION IS CONFIDENTIAL AND WILL BE USED ONLY IN COMBINATION WITH THAT PROVIDED BY OTHER CABIN USERS.

1. Home location: City_____State_____

2. Your age_____ Sex_____ Occupation_____

Are you currently on active duty in the military? Yes /__/ No /__/

3. Circle the highest grade completed: 1 2 3 4 5 6 7 8 9 10 11 12

College: 1 2 3 4 5 6+

4. Please check the category that represents the annual gross income for your entire household:

under - $ 5,000	_____	$30,000 - $34,999	_____
$ 5,000 - 9,000	_____	35,000 - 39,999	_____
10,000 - 14,999	_____	40,000 - 49,999	_____
15,000 - 19,999	_____	45,000 - 49,999	_____
20,000 - 24,999	_____	50,000 - over	_____
25,000 - 29,999	_____		

5. Please provide any comments you have regarding Forest Service activities or practices.

_____

_____

_____

_____

_____