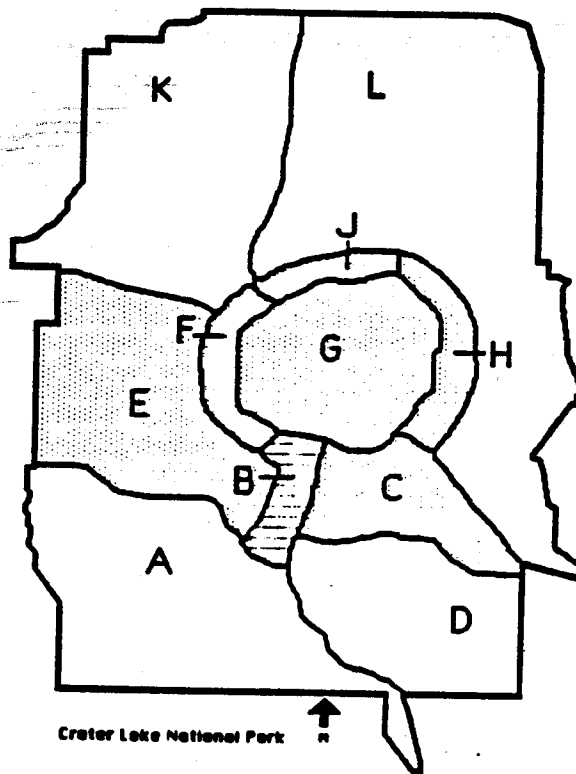


Visitor Services Project

Report 6

Crater Lake National Park

Volume 1 of 3



Cooperative Park Studies Unit
University of Idaho

Cooperative Park Studies Unit
Oregon State University



VISITOR SERVICES PROJECT

Report 6

CRATER LAKE NATIONAL PARK

1
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Summary

- This report describes a visitor and interpretive mapping study conducted in Crater Lake National Park from June 30 through July 6, and August 9 through 15, 1985. Data were collected separately during these two time periods.
- Data were collected in period visits, which simultaneously measure visitor use by time, location (which areas of the park visitors use), and activity.
- 253 questionnaires were returned from 480 visitors contacted during the July study period (53 percent response) and 269 were returned from 566 visitors contacted during the August study period (47 percent response).
- Data on social characteristics indicated that most visitors came in small, family groups. Over one-half of the visitors were on their first visit to Crater Lake. A wide variety of age groups and home residences were included.
- Most Crater Lake visitors only stayed in the park one day.
- Crater Lake managers divided the park into zones they wished to study. Visitors were asked to report their locations, by zone, during specific time periods. Thus, maps showing the use of each zone are included.
- Activities such as sleeping, eating, and motorized travel accounted for large portions of visitors' time. Hiking/walking was also a popular activity during both study periods.
- Comparisons of use by the three key variables--time, location and activity--are presented in maps, graphs, and tables in the results from each study period.
- Data were collected on 18 variables. A menu of all two-way comparisons possible with the data is included so that managers can request special analyses of interest to them. Three-way comparisons may also be requested.
- Data were also collected on 35 interpretive services during the July study period and 43 services during the August study period. The results are presented in an interpretive profile in volume 2 of this report.
- Visitors were also asked for additional comments, which are summarized and presented in volume 3 of this report.

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INTRODUCTION

This report describes the results of a study conducted at Crater Lake National Park during the summer of 1985. The effort was part of an on-going project to develop practical techniques for collecting visitor data useful for park management; previous work has been done at Grand Teton, Mount Rushmore, Yellowstone, Glacier, and North Cascades National Parks. The larger project--its purposes, rationale, theory, and methods, is described in detail in several previous publications (for a list of publications on the Visitor Services Project, contact the Cooperative Park Studies Unit at the University of Idaho).

This report is in three volumes. The first volume describes the visitor mapping portion of the study, while the second describes the interpretive mapping portion. The third volume contains additional appendices, which present visitors' comments on their trip to Crater Lake National Park.

For Crater Lake National Park, (from now on written simply as Crater Lake), a survey of visitors was conducted during late June through early July, 1985 and again in August, 1985. The survey was divided into two study periods to discover changes in visitor use and activities as the summer progressed. Appendix A describes the methods used, including questionnaire design, sampling, questionnaire administration, missing data and reporting errors, data analysis, and the limitations of the data.

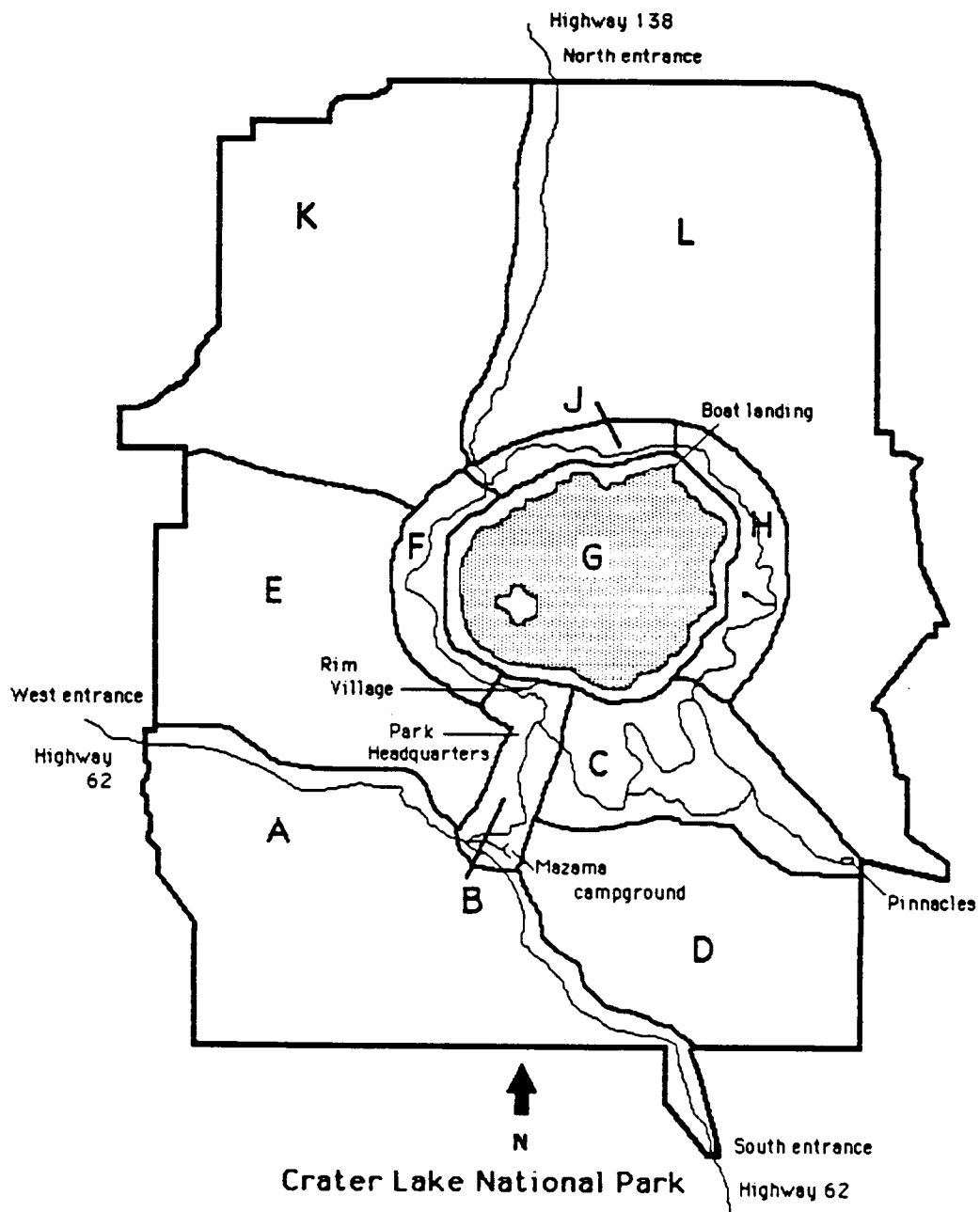
Period visits

The visitor mapping technique provides managers with visitor

data in table, graph, and map form. Much of the data are reported as period visits. A period visit represents a respondent's report that his or her group spent most of a specific time period (sunrise, morning, afternoon, dusk, evening, or overnight) in a particular zone of the park doing a particular activity. Thus, for each time period a respondent's group spent in the park, a period visit would be reported for a zone and for an activity.

For example, if a respondent visited Crater Lake for one day, arriving during the sunrise period (5-8 a.m.) and leaving in the evening (7-11 p.m.), he or she would have spent five time periods in the park (sunrise, morning, afternoon, dusk, evening). If most of the morning and afternoon periods were spent in the Rim Village area, that zone would have received two period visits. If most of that visitors' afternoon period was spent picnicking, that activity would receive one period visit. Map 1.1 shows the zones used in this effort.

Period visits are an indicator of use, rather than a precise measure of the amount of use. They can provide a general profile of visitor distributions and activities, and are useful for comparing the major time periods of the day, such as morning, afternoon, and so forth. They cannot be converted directly to other time units, such as hours, or days.



Map 1.1: Zone map of Crater Lake National Park

After this Introduction, the Results from July and the Results from August are presented. These chapters are similar; the findings for each period are presented separately to illustrate changes in use over the summer.

Next, a Conclusion provides a summary of the visitor mapping and a comparison of the study periods. Then, a Menu for Further Analysis is provided to assist managers in requesting any additional analyses they desire. Finally, several Appendices provide additional information. Appendix A details the methods used for mapping visitor populations. Appendix B contains the questionnaire used. Appendices F and G (located in volume III) contain respondents' additional comments about and their visits to Crater Lake.



RESULTS FROM JULY

Introduction

Two locations were established to distribute questionnaires at Crater Lake, one at the north entrance station, and the other at the Annie Springs entrance station near the southern border of the park. These locations were manned each day during the survey period, June 30 through July 6, 1985.

A total of 480 visitors, about two percent of all park visitors during the study period, were contacted. All but five of those contacted agreed to participate; thus, the acceptance rate was 99 percent. 253 visitors completed and returned the questionnaire, a 53 percent response rate.

A. Visitor profile

The returned questionnaires provide information on both the respondents and the groups they were with. Figure 2.1 shows the different group sizes, which range from one to ten or more people. The most common group size (mode) was two, while the average group size (mean) was three people. Figure 2.2 shows the group types. Nearly three-quarters of the visitors came in family groups.

Questions were included on the age, home zip code, and number of previous visits to Crater Lake of each group member. Figures 2.3 through 2.6 illustrate the results. Many visitors were between the ages of 26 and 45; there were also many children. A majority of visitors had not visited Crater Lake before, although many were on a return visit. Visitors came from several states. Oregon residents came from many different counties, primarily those in the western half of the state.

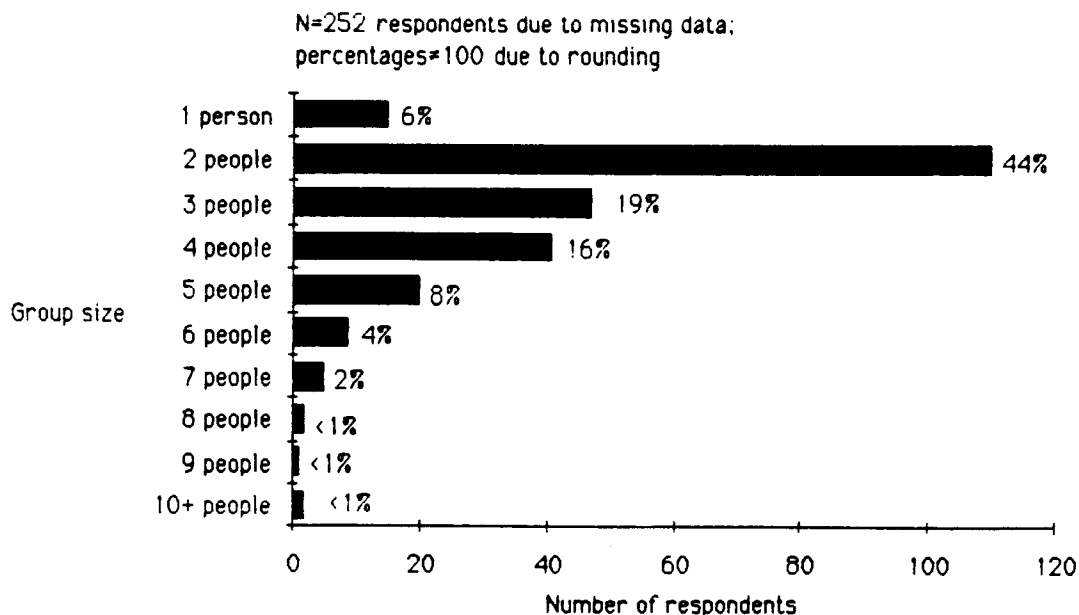


Figure 2.1: July visitors' group size

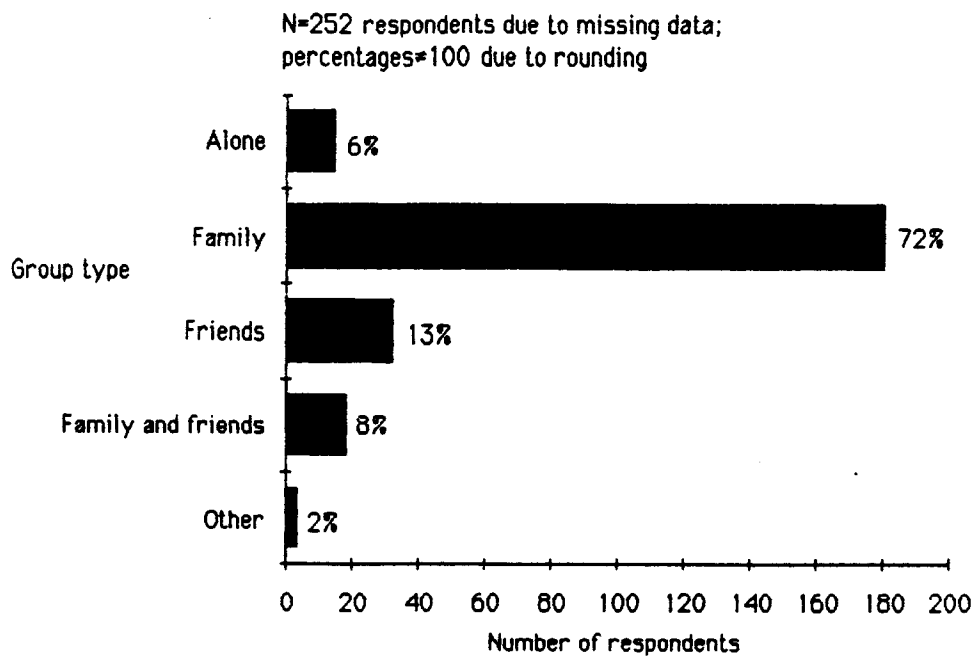


Figure 2.2: July visitors' group type

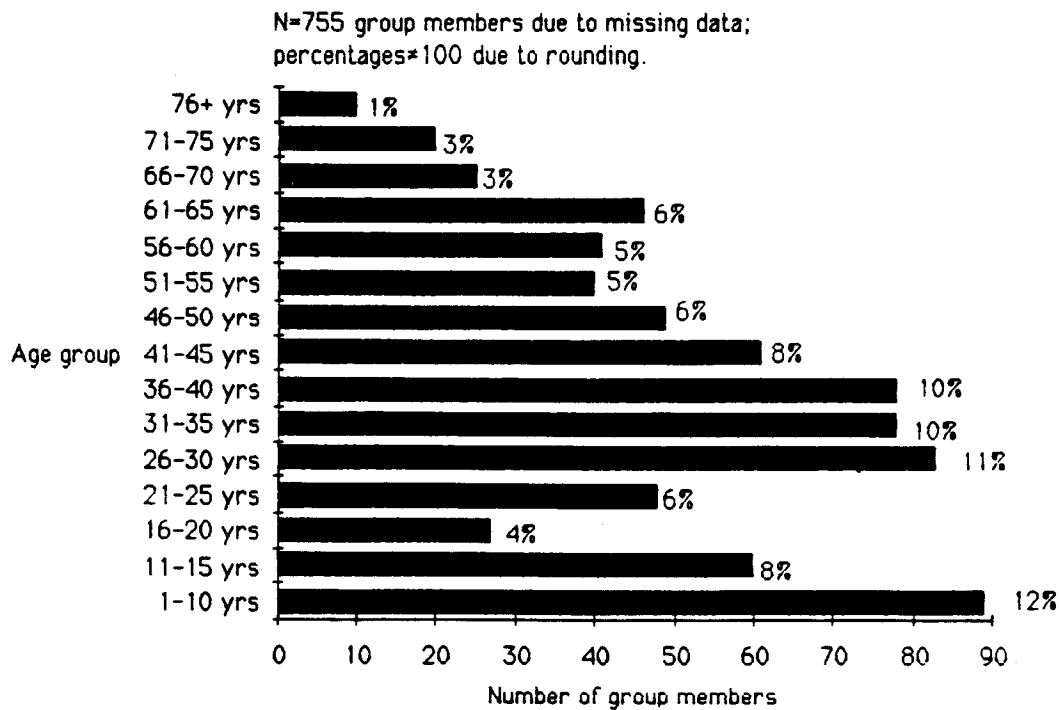


Figure 2.3: Ages of July visitors

[illegible]

N=387 group members due to missing data

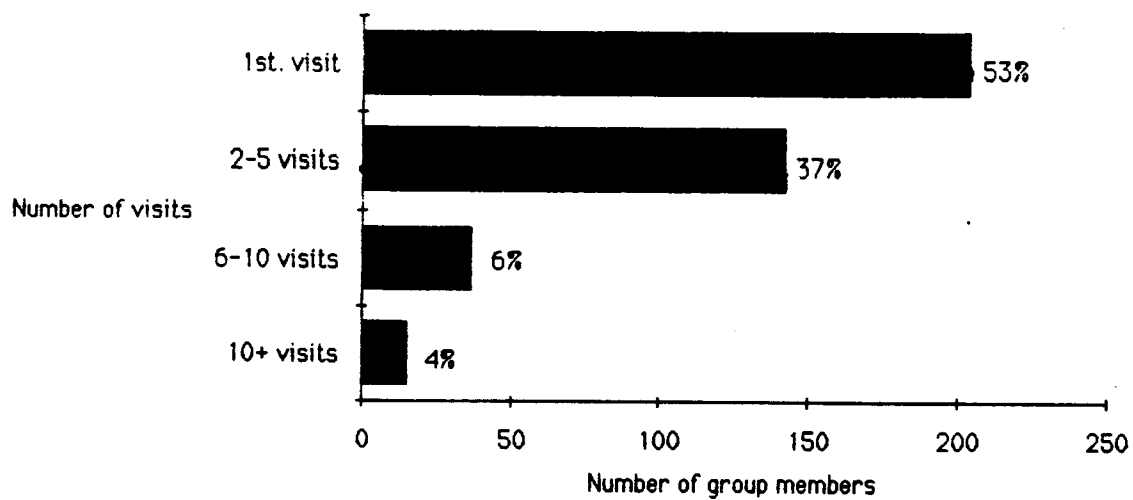


Figure 2.4: July visitors' previous visits to Crater Lake

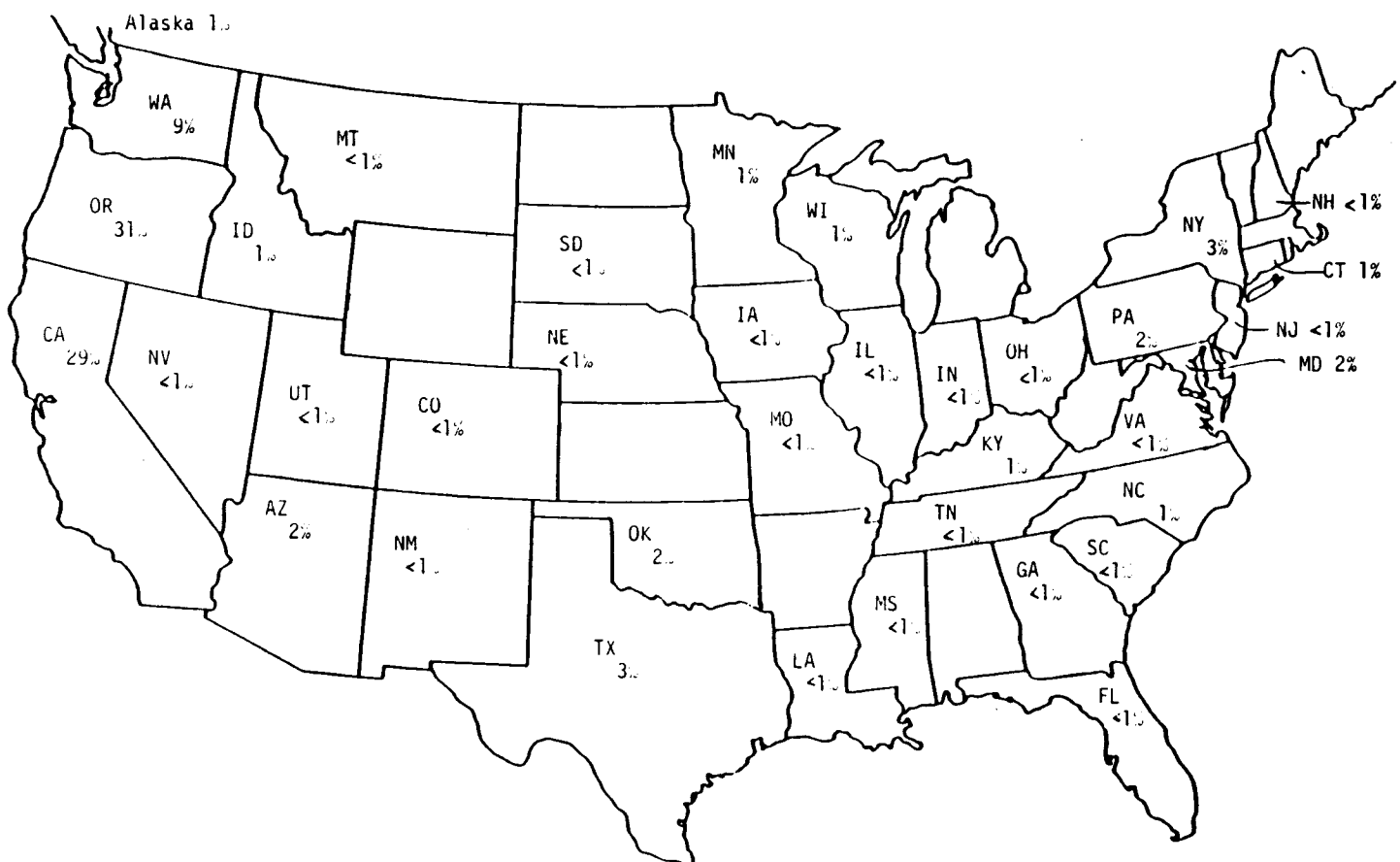
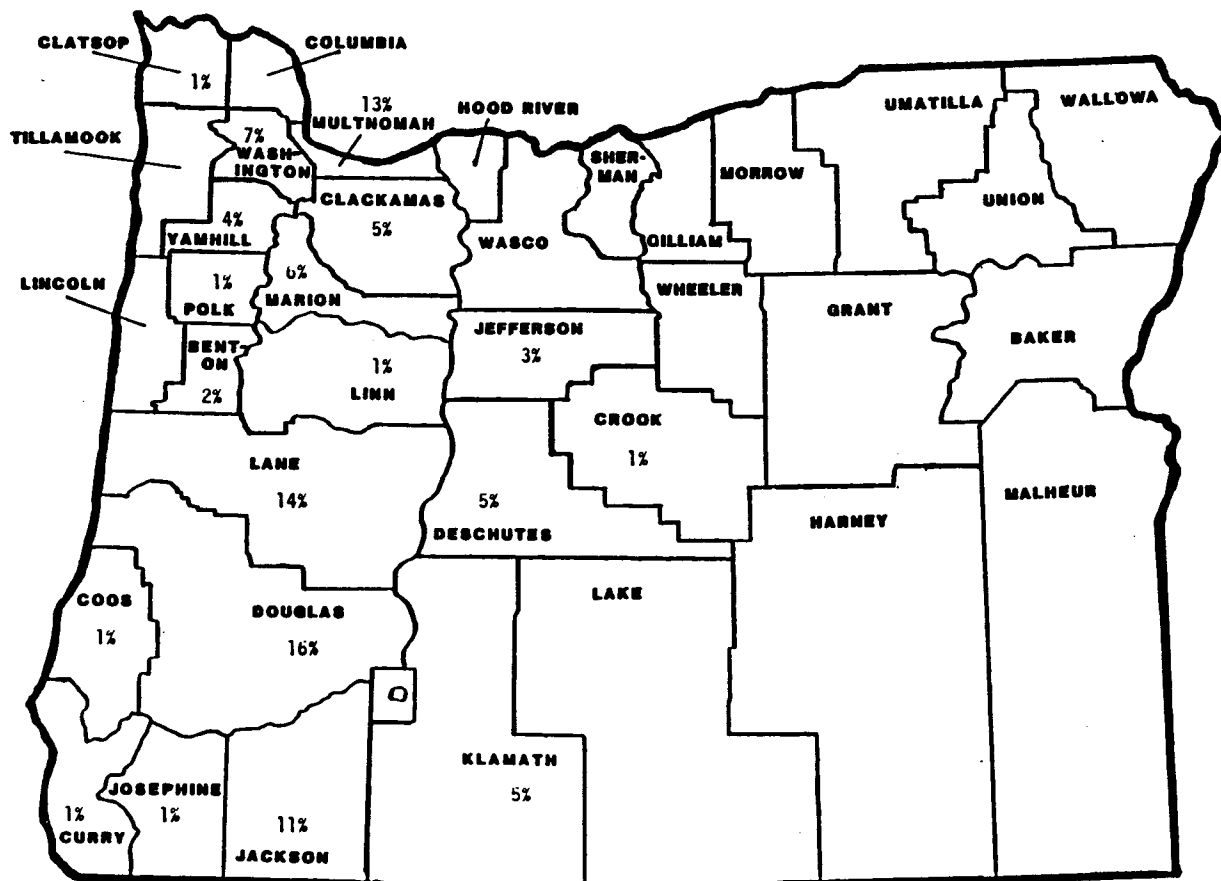


Figure 2.5: Proportion of July visitors from each state



N=194 group members due to missing data; percents*100 due to rounding

Figure 2.6: Proportion of Oregon resident July visitors from each county

B. Visitors' use of time

The number of days visitors spent in Crater Lake NP varied, as shown in Figure 2.7. A large majority of visitors stayed only one day.

Visitors' use of the area over time is measured in period visits (see Introduction), which represent one group in a particular zone engaged in a particular activity for a specific time period. The amounts of period visits changed with the time period of the day, as shown in Figure 2.8. The largest portion of period visits occurred during the afternoon.

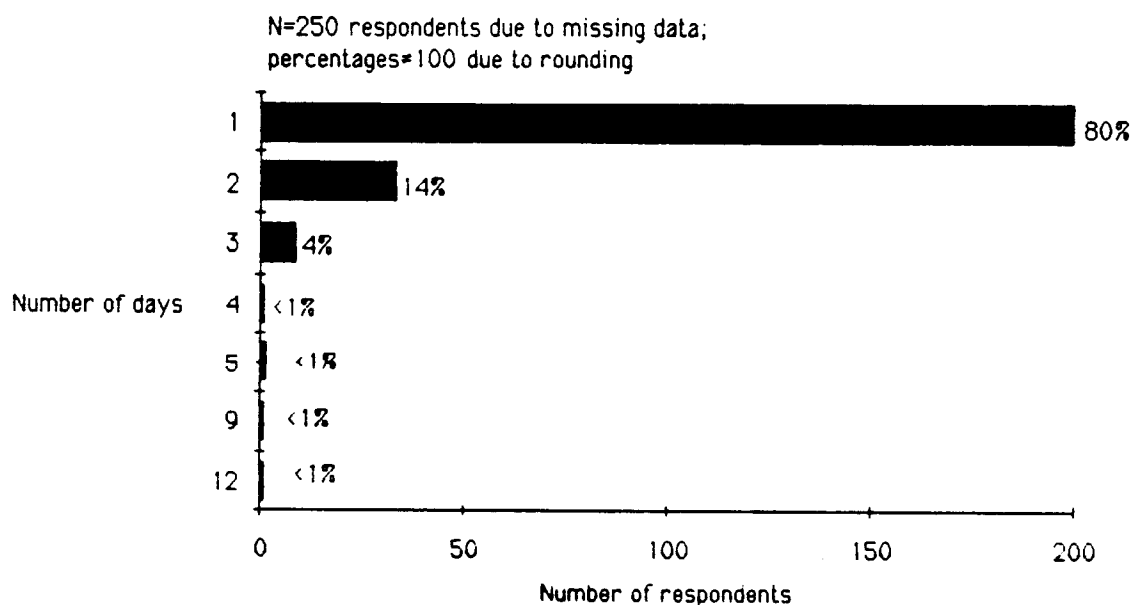
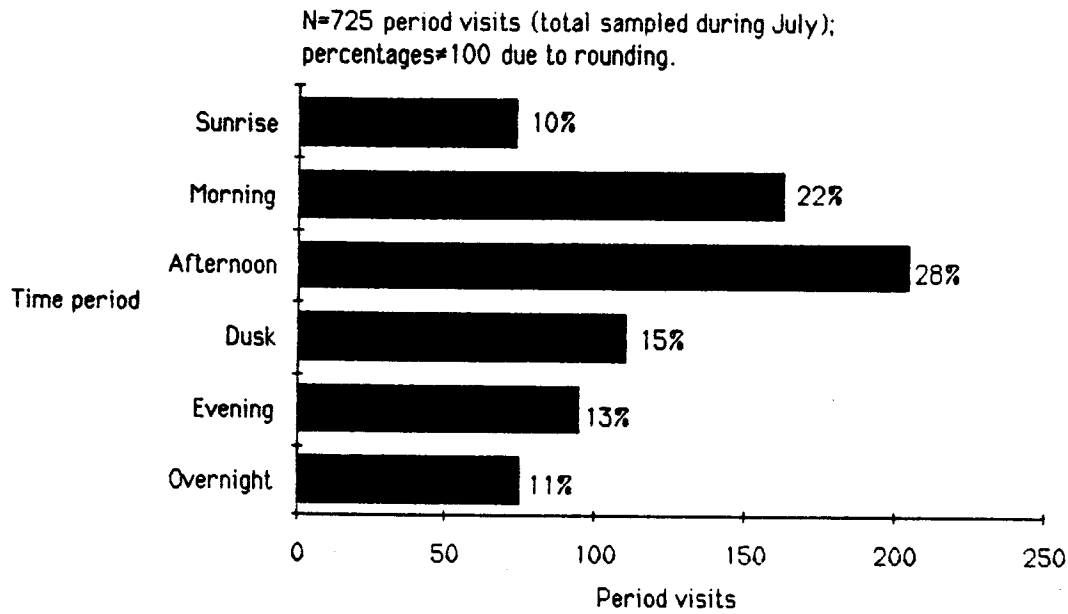


Figure 2.7: Number of days July visitors spent in Crater Lake this visit

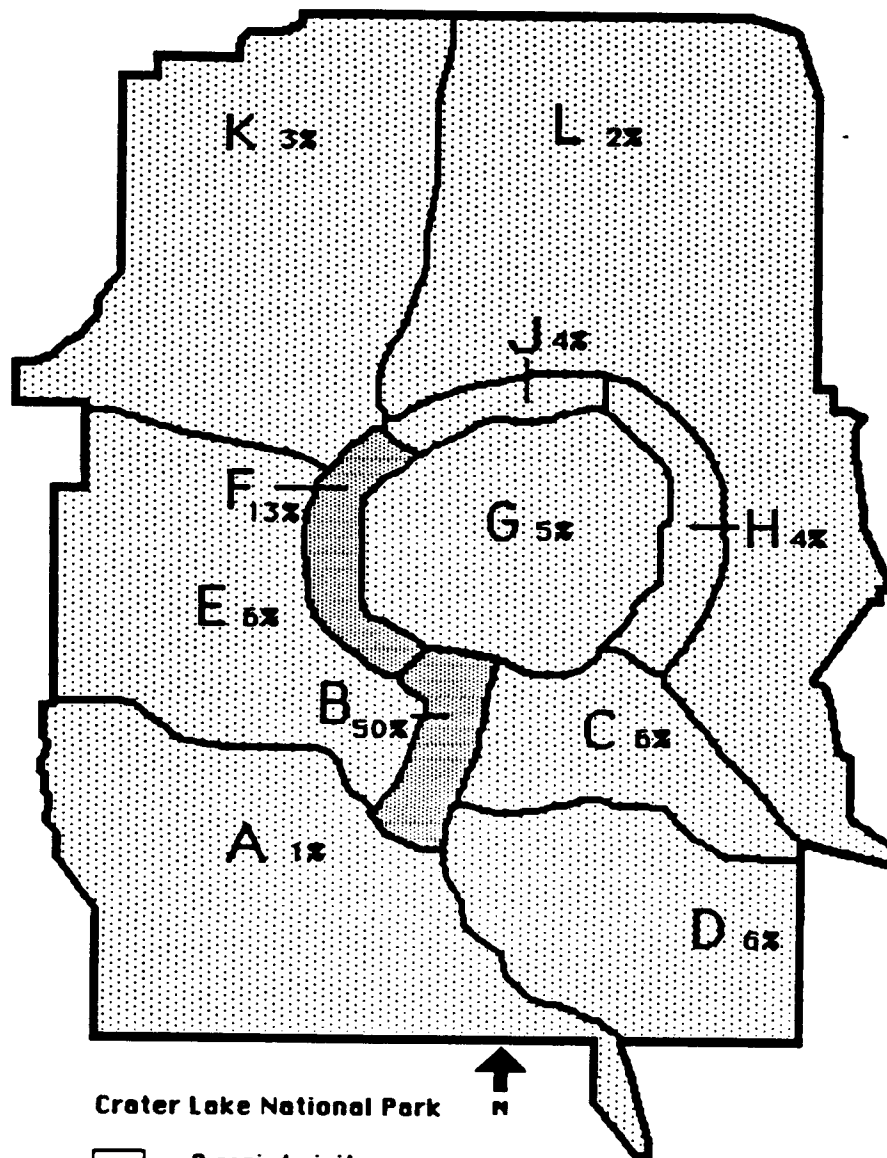


**Figure 2.8: Period visits each time period
--July visitors**

Sunrise = 5 a.m. - 8 a.m.	Dusk = 5 p.m. - 7 p.m.
Morning = 8 a.m. - 12 noon	Evening = 7 p.m. - 11 p.m.
Afternoon = 12 noon - 5 p.m.	Overnight = 11 p.m. - 5 a.m.

C. Visitors' locations

While visitors spent most of their period visits in Zone B, they also used each of the other zones, as shown on Map 2.1.



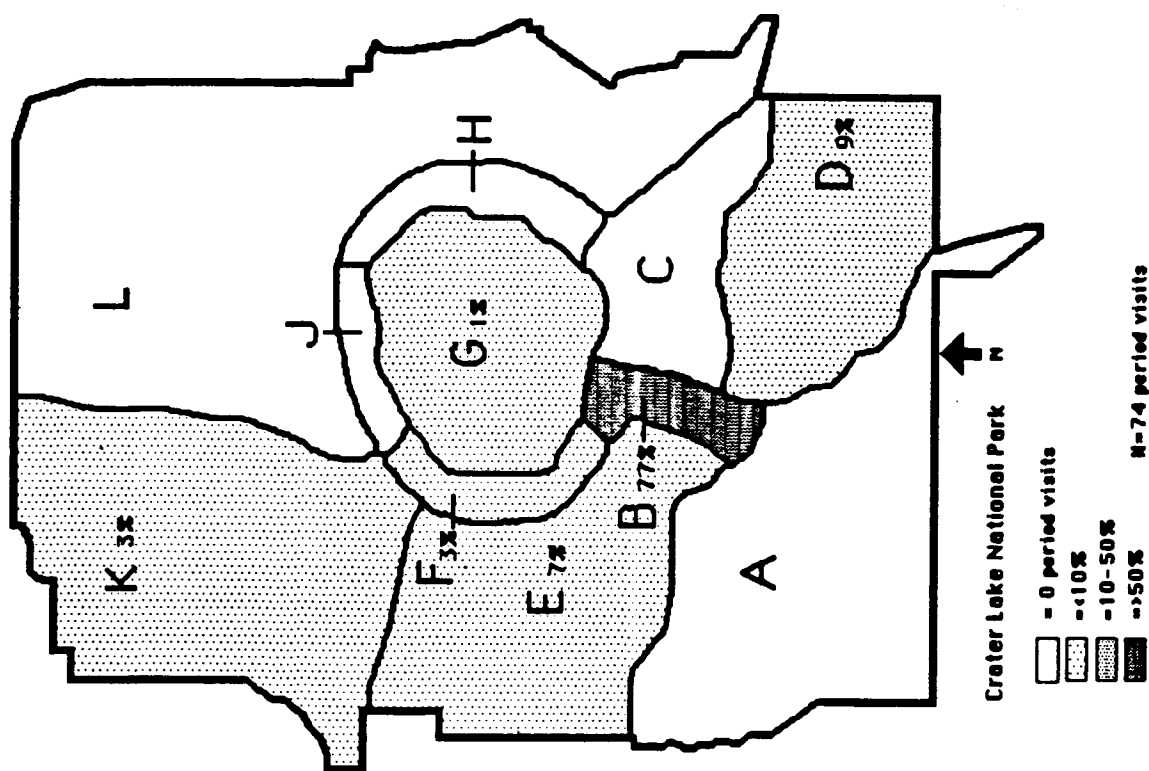
Map 2.1: Proportion of period visits to each zone during July

E. Visitors' locations and use of time combined

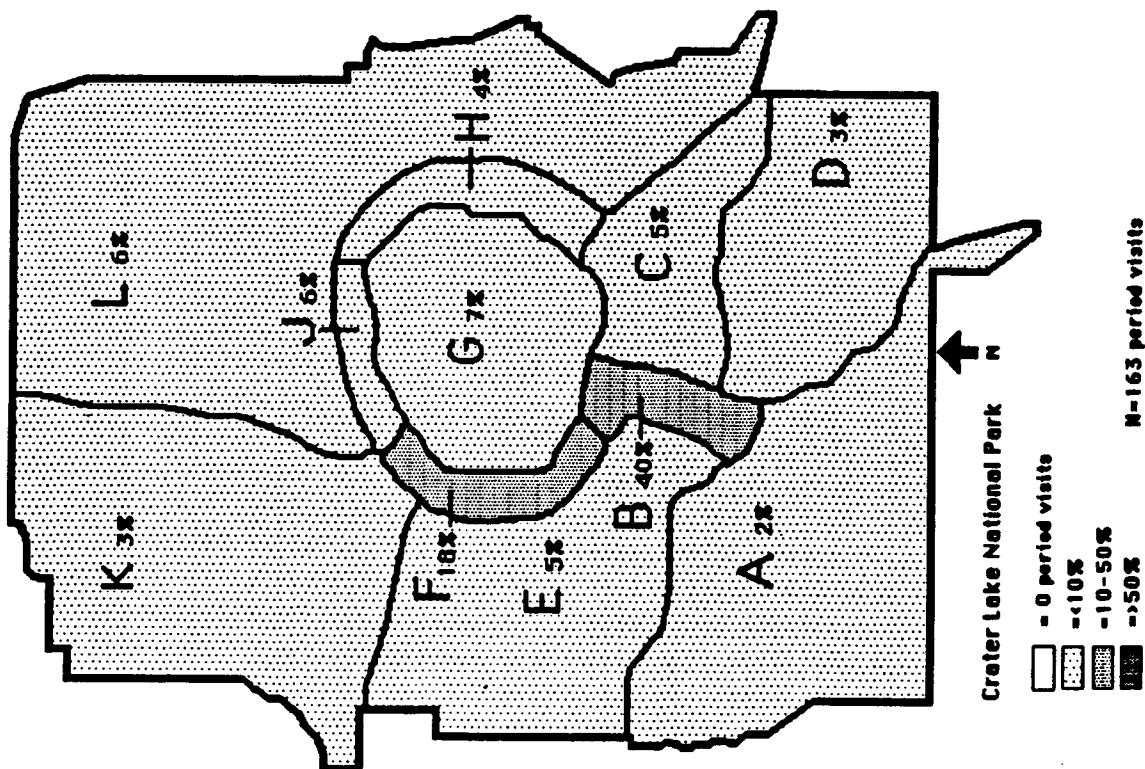
Visitors' use of each zone changed with the different time periods, as shown on Maps 2.2 through 2.7. (The data indicated that some respondents may have had difficulty distinguishing between zones B and D on the map in the questionnaire. Thus, due to reporting errors, use of zone D is over-represented.)

The proportion of use in zone B was greatest during all periods; use in zones F, C, G, E and H generally increased through the morning and afternoon periods, then decreased later in the day. Maps 2.8 through 2.10 show the proportion of period visits to each zone by day of visit. In general, use in zones B, A, D and G increased, while use in other zones decreased with each additional day of visit.

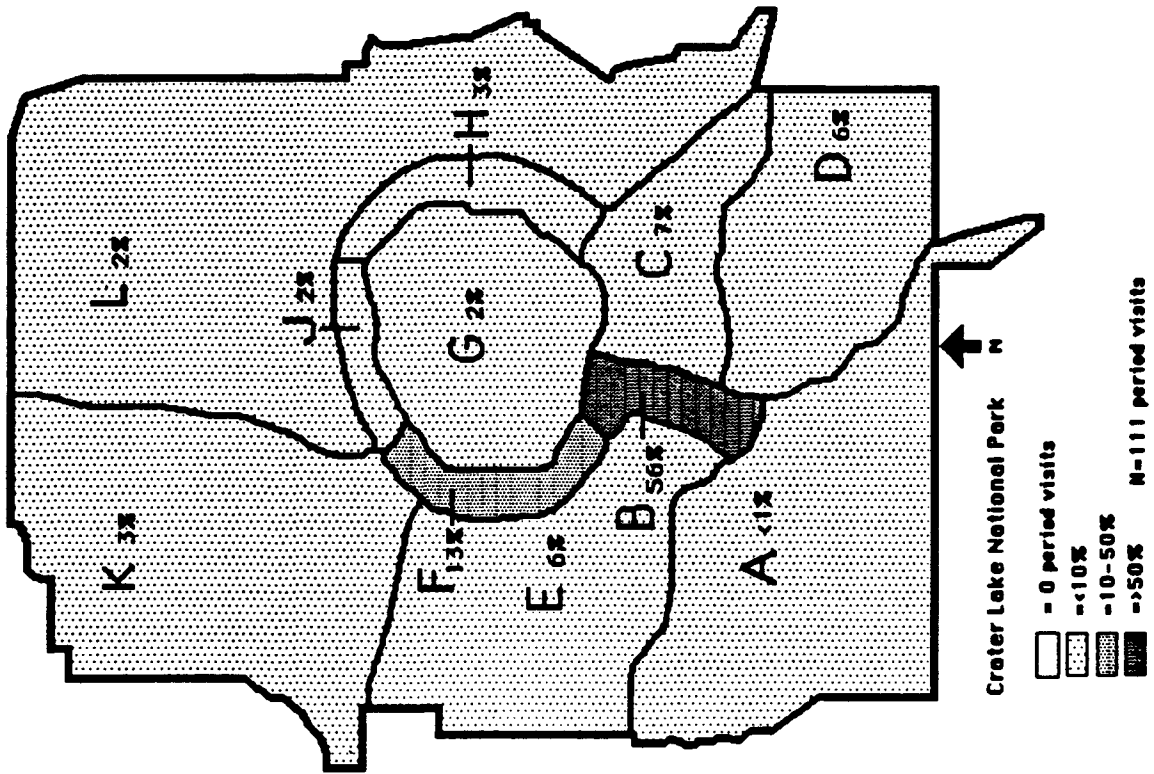
E. Visitors' locations and use of time combined



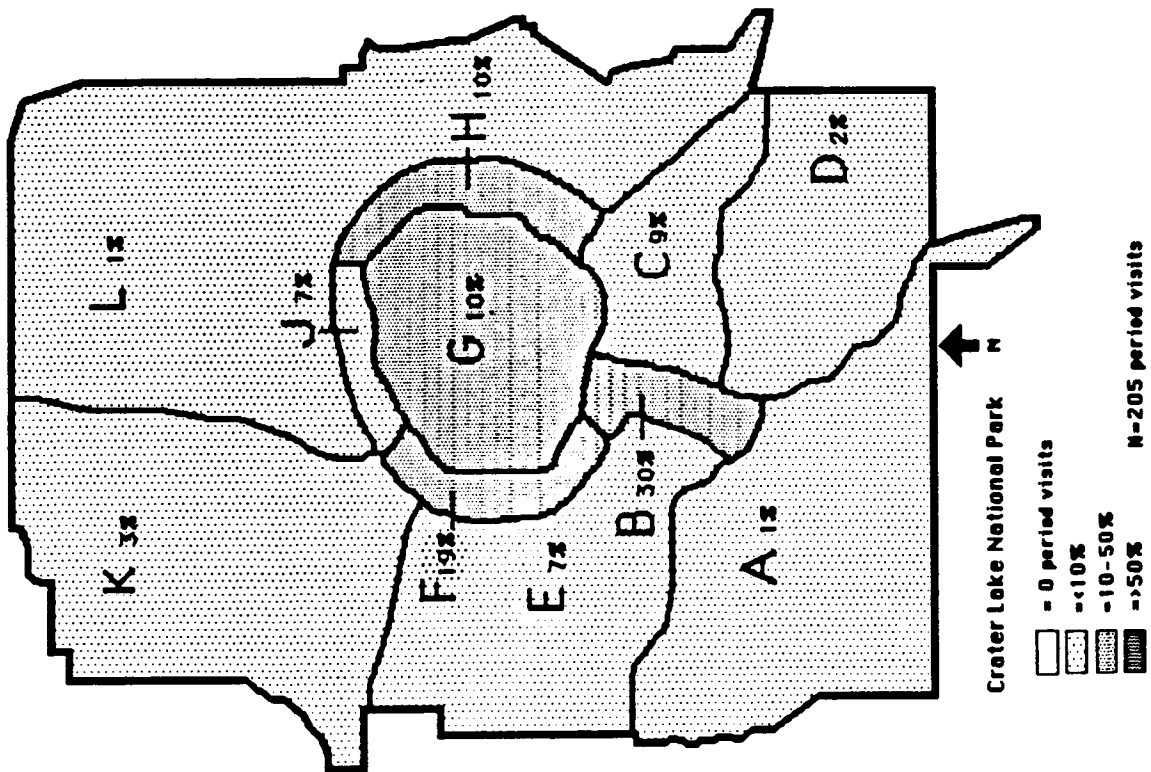
Map 2.2: Proportion of period visits to each zone during July--sunrise period



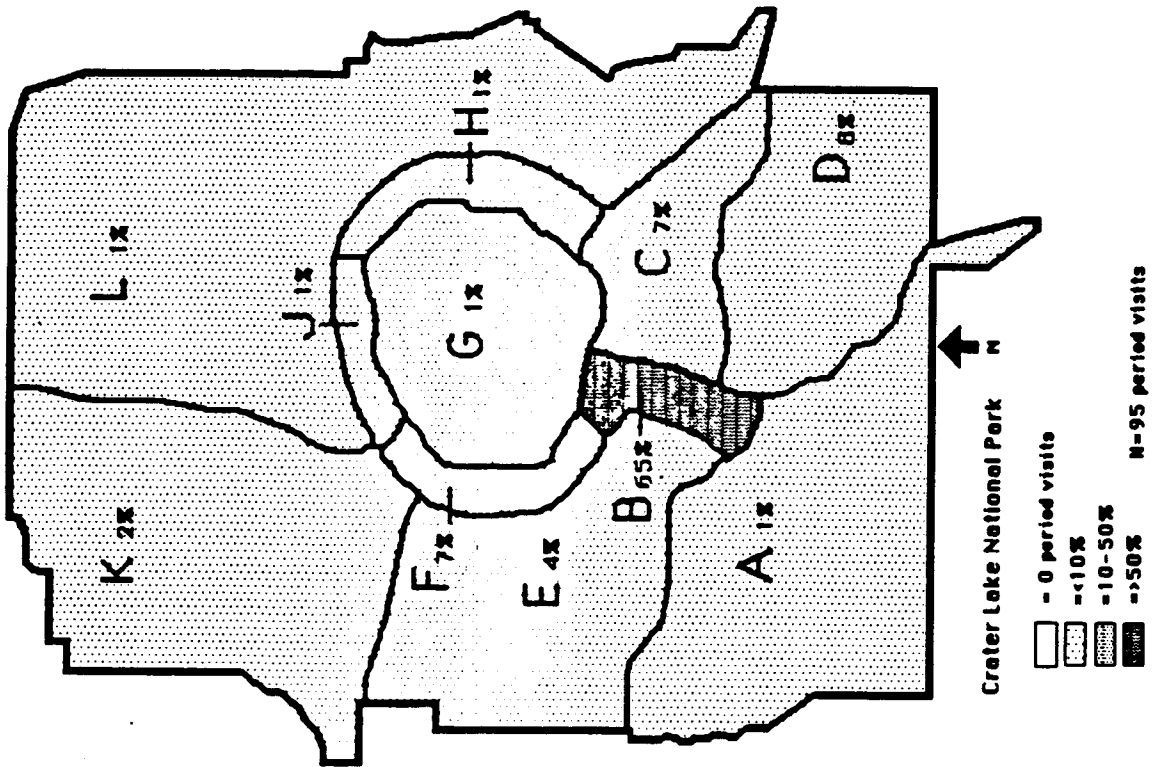
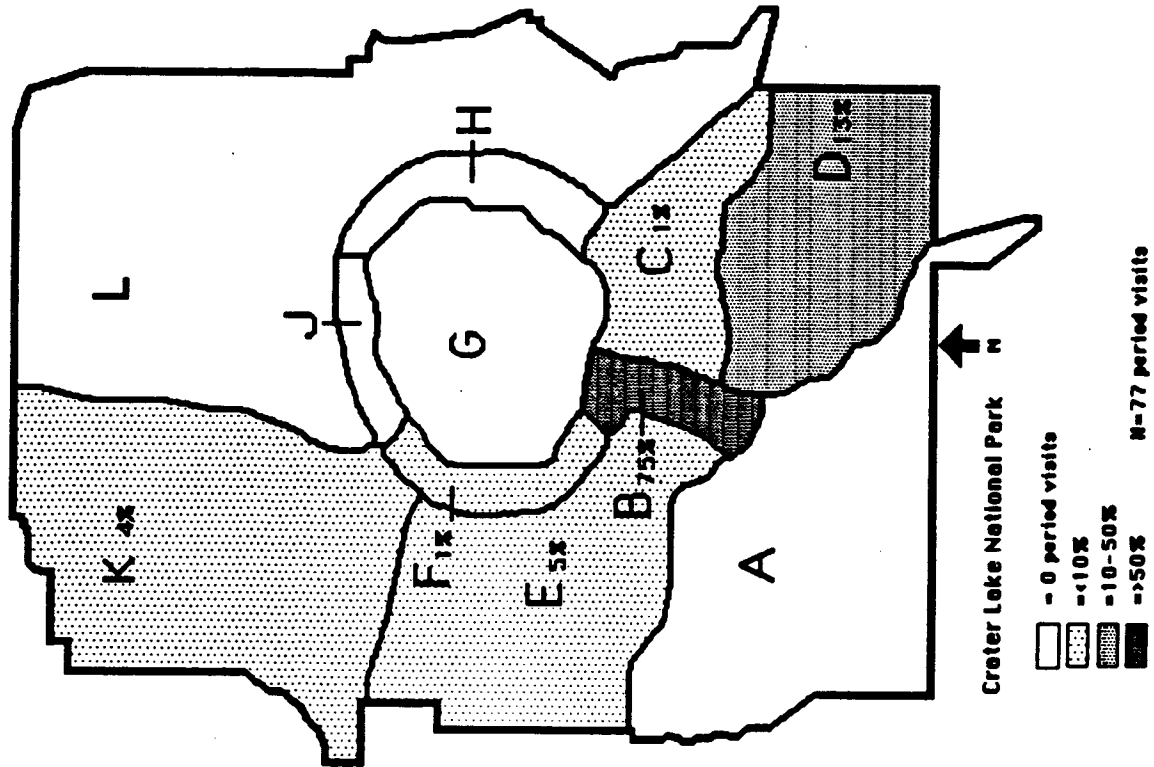
Map 2.3: Proportion of period visits to each zone during July--morning period



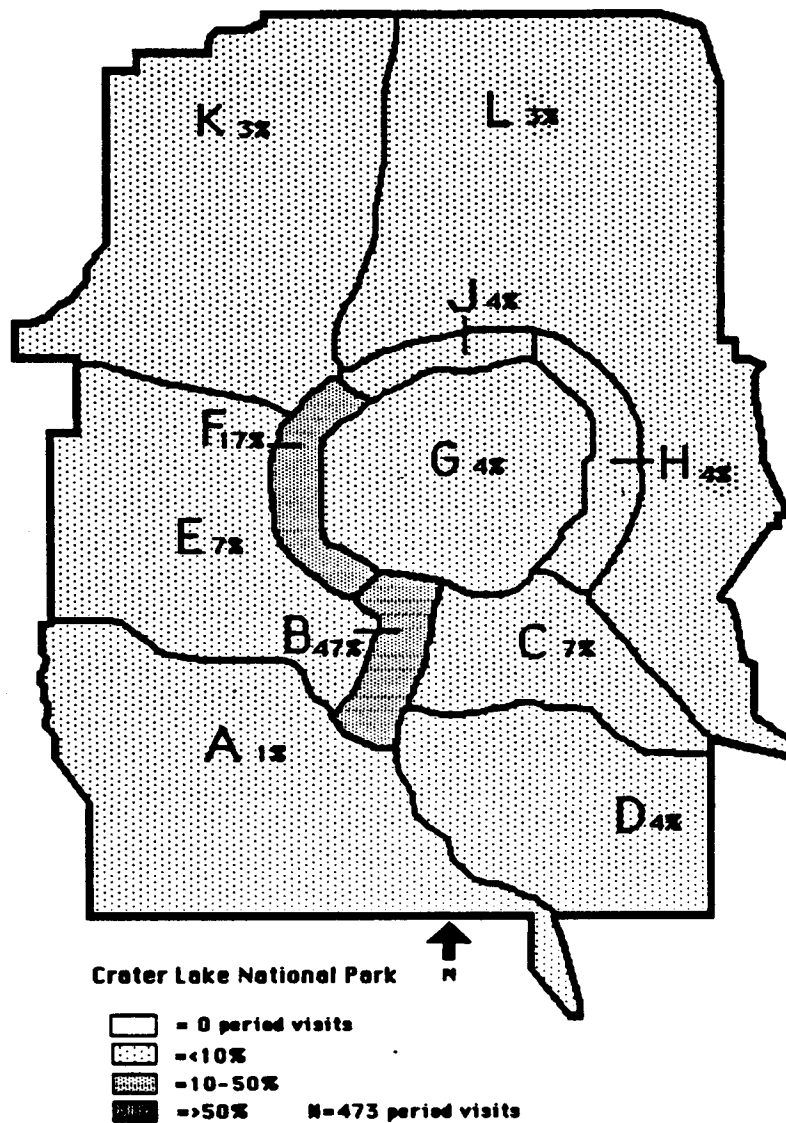
Map 2.5: Proportion of period visits to each zone during July--dusk period



Map 2.4: Proportion of period visits to each zone during July--afternoon period

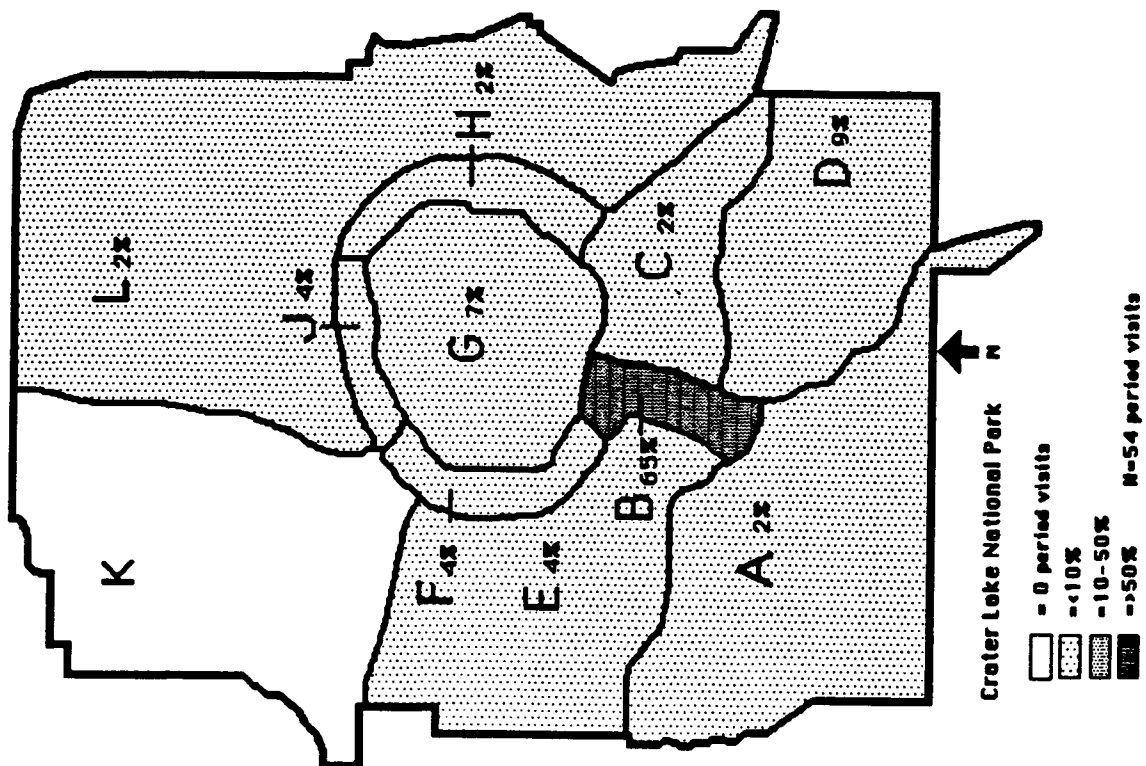
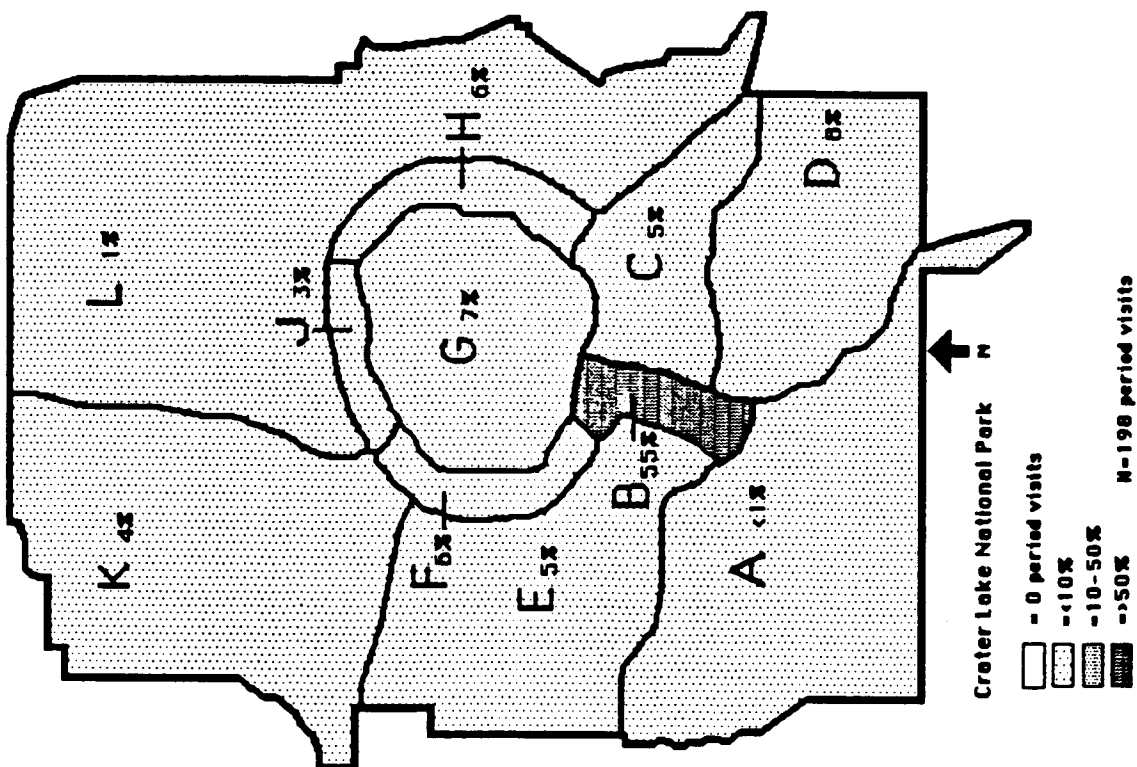


E. Visitors' locations and use of time combined



Map 2.8: Proportion of period visits to each zone during July--day 1 of visit

E. Visitors' locations and use of time combined



F. Visitors' activities and use of time combined

Like the use of different zones, visitors' activities varied each time period, as shown in Figures 2.10 through 2.15. Sleeping was the predominant activity during overnight and sunrise periods, motorized travel during morning and afternoon, eating during dusk, and resting during the evening. There were also high proportions of picnicking during the sunrise period and attending interpretive programs during the evening. Figures 2.16 through 2.18 show the amounts of period visits by day of visit. Motorized travel, nature study/photography, and shopping generally decreased in amount with each additional day of visit, while participation in sleeping, picnicking, resting, boating, hiking/walking, and "other" activities increased.

F. Visitors' activities and use of time combined

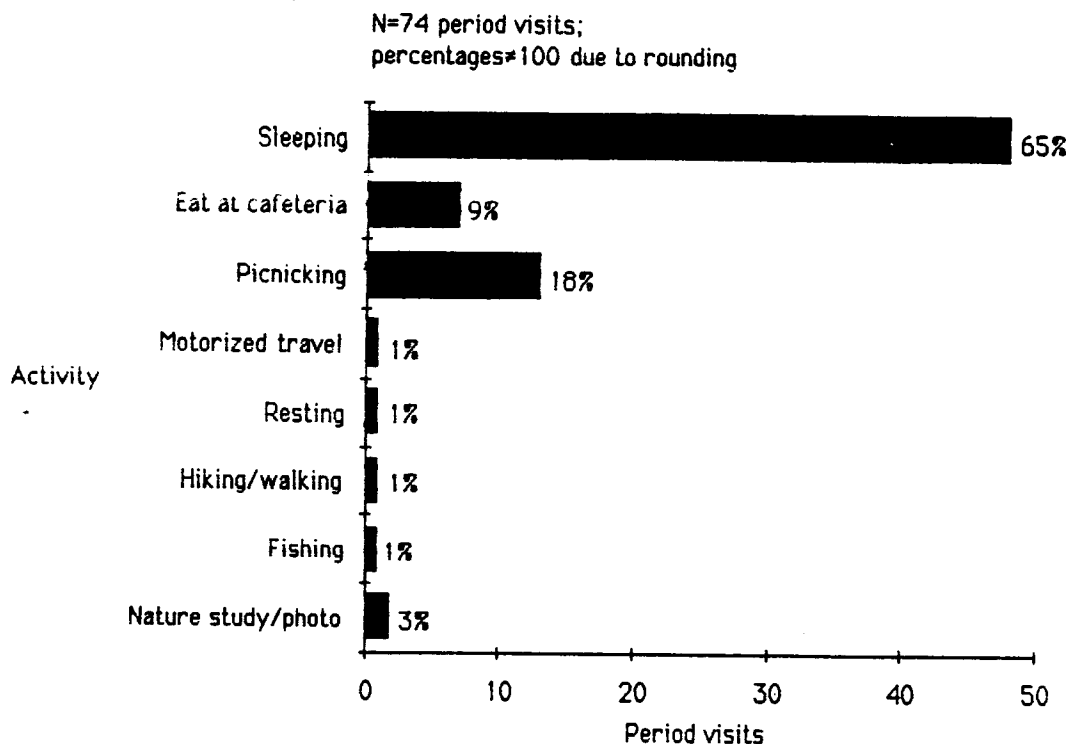


Figure 2.10: Period visits for activities of July visitors--sunrise period

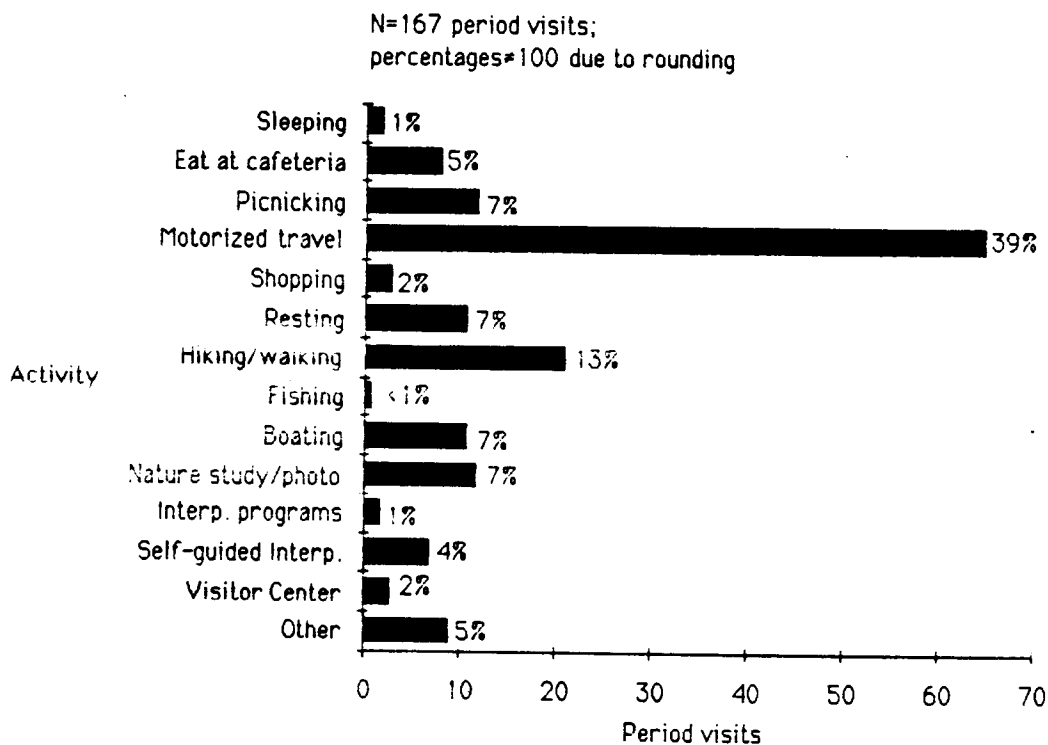


Figure 2.11: Period visits for activities of July visitors--morning period

F. Visitors' activities and use of time combined

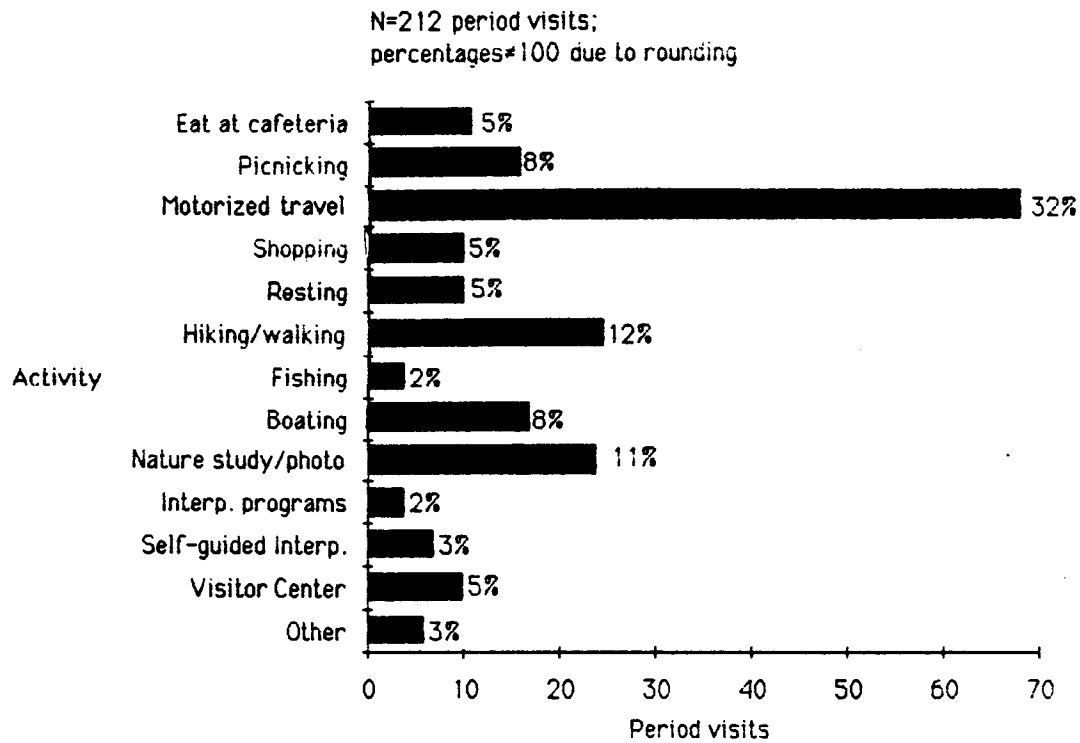


Figure 2.12: Period visits for activities of July visitors--afternoon period

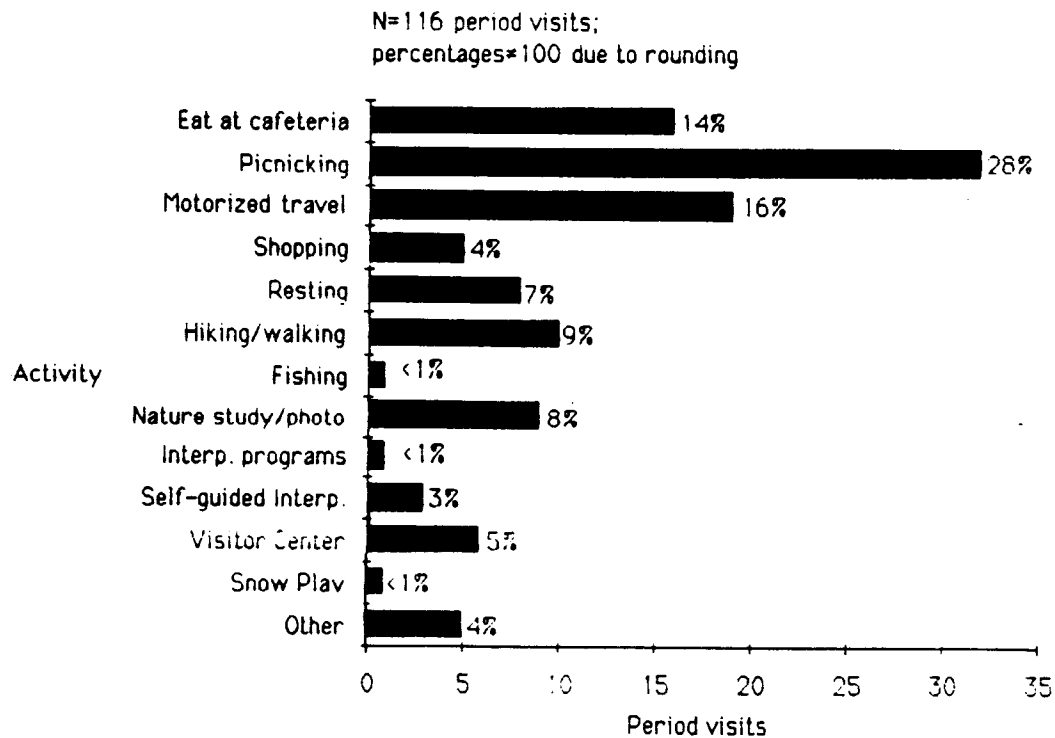


Figure 2.13: Period visits for activities of July visitors--dusk period

F. Visitors' activities and use of time combined

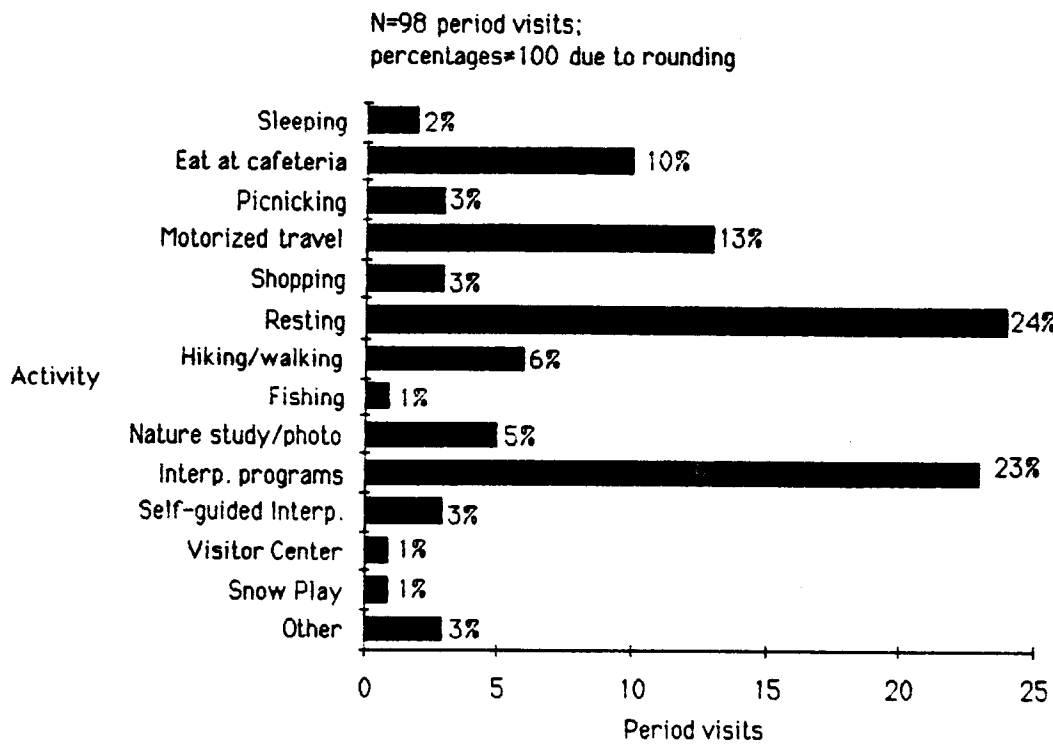


Figure 2.14: Period visits for activities of July visitors--evening period

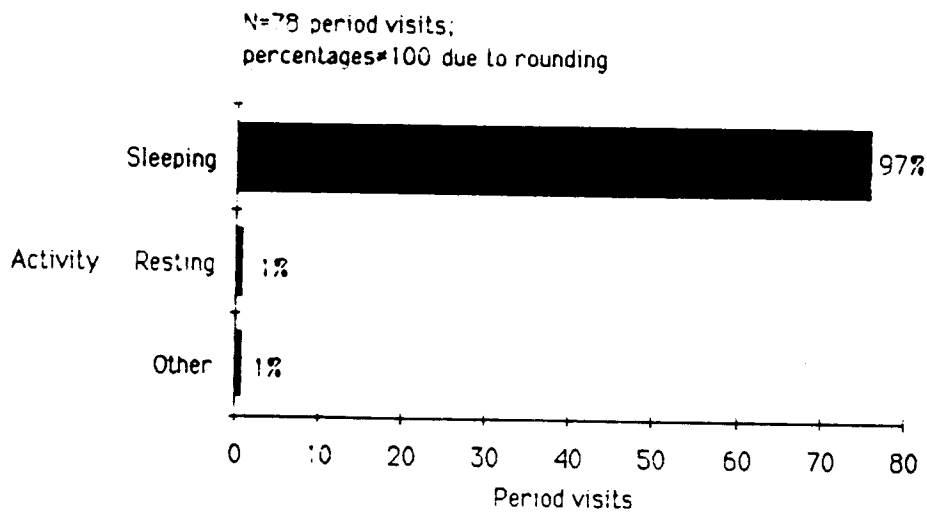
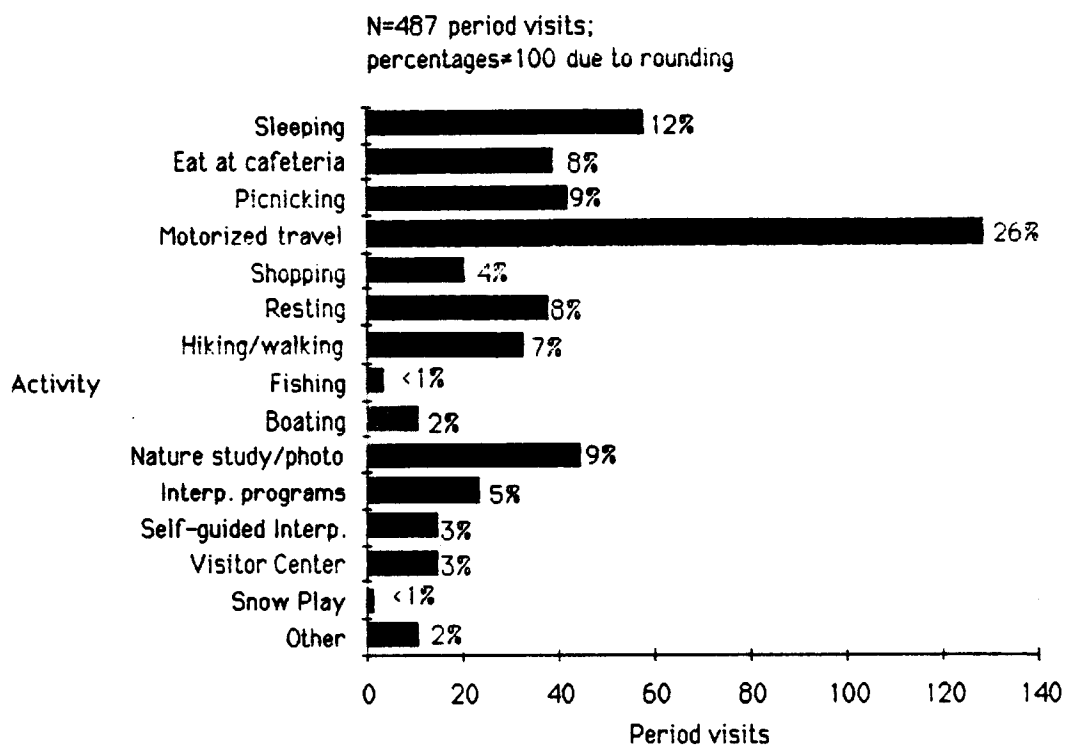


Figure 2.15: Period visits for activities of July visitors--overnight period

F. Visitors' activities and use of time combined



**Figure 2.16: Period visits for activities of
July visitors--day 1 of visit**

F. Visitors' activities and use of time combined

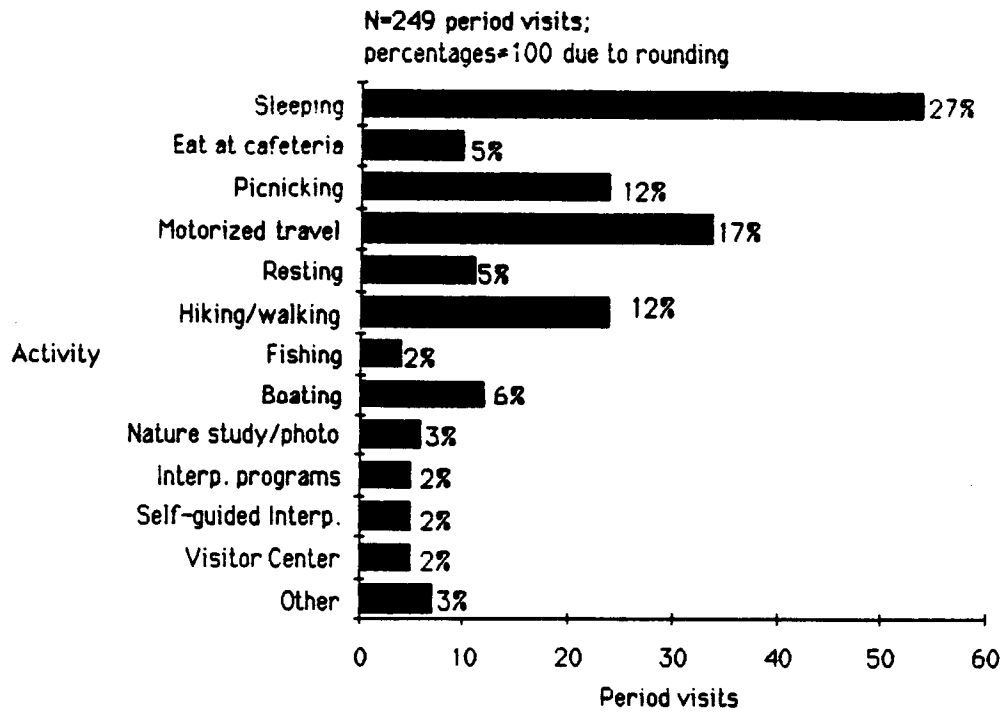


Figure 2.17: Period visits for activities of July visitors--day 2 of visit

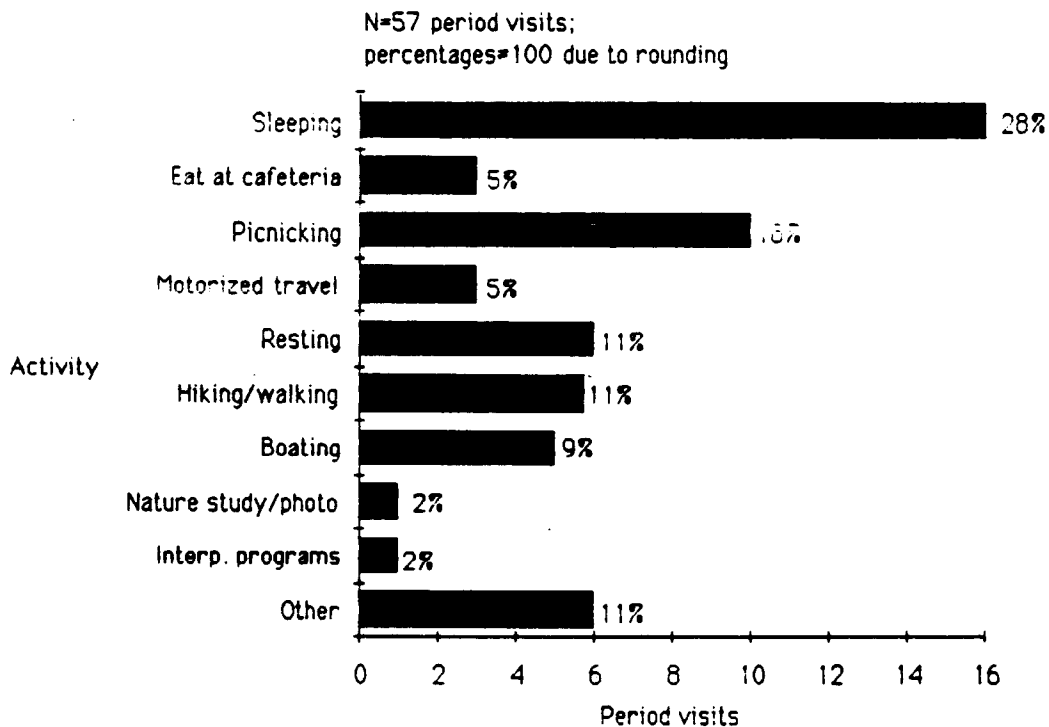


Figure 2.18: Period visits for activities of July visitors--day 3 of visit

G. Visitors' locations and activities combined

Visitors used the zones in different amounts and for different activities. That is, the relative proportion of activities varied from zone to zone, as shown in Table 2.1. (Due to reporting errors, small amounts of activities are shown occurring in zones where they cannot occur--for example, eating at cafeteria in zones C, E, and F.) Some activities, such as shopping and sleeping were concentrated in particular zones, while other activities, such as motorized travel, occurred in many zones.

G. Visitors' locations and activities combined

Table 2.1: Proportion of period visits for activities occurring in each zone, July visitors (%).

Activity	Zone											
	A %	B %	C %	D %	E %	F %	G %	H %	J %	K %	L %	
Sleeping (n=126)	-	78	<1	11	6	2	-	-	-	3	-*	
Eat at cafeteria (n=51)	-	80	2	-	10	8	-	-	-	-	-	
Picnicking (n=76)	3	61	5	8	7	7	1	1	4	3	1*	
Motorized travel (n=156)	3	15	8	3	4	33	3	12	8	5	6	
Shopping (n=20)	-	75	-	-	15	10	-	-	-	-	-	
Resting (n=55)	-	60	11	13	2	5	-	2	2	4	2*	
Hiking/walking (n=62)	-	47	18	3	2	10	8	6	3	-	3	
Fishing (n=7)	-	-	-	-	-	-	71	14	-	14	-*	
Boating (n=27)	-	-	-	-	-	-	70	7	19	-	4	
Nature study/ photography (n=50)	-	36	10	8	12	18	2	6	4	4	-	
Interp. programs (n=29)	-	86	-	-	10	3	-	-	-	-	-*	
Self-guided interp. (n=20)	-	50	10	5	5	25	-	-	5	-	-	
Visitor Center (n=20)	-	80	-	-	5	10	-	-	5	-	-	
Snow play (n=2)	-	-	-	-	-	50	-	-	-	-	50	
Other (n=20)	-	55	-	10	10	5	5	-	-	10	5	

*Row percentages=100 due to rounding

H. Visitors' activities, locations, and use of time combined

By combining data on activities, use of time, and locations, a more detailed picture of visitor behavior is possible. Table 2.2 shows the proportion of period visits for activities during each time period for zone B. Certain activities, such as viewing exhibits or attending interpretive programs, took place only during a few time periods.

Table 2.2: Proportion of period visits for activities of July visitors among each time period for ZONE B (%).⁻

Activity	Time period					
	Sunrise %	Morning %	A'noon %	Dusk %	Evening %	O'night %
Sleeping (n=98)	37	2	-	-	2	59
Eat at cafeteria (n=41)	15	15	20	29	22	- [*]
Picnicking (n=46)	26	11	11	48	4	-
Motorized travel (n=24)	-	50	21	17	12	-
Shopping (n=15)	-	20	47	27	7	- [*]
Resting (n=33)	-	21	21	9	48	- [*]
Hiking/walking (n=29)	3	34	21	24	17	- [*]
Nature study/ photography (n=18)	11	28	39	17	6	- [*]
Interp. programs (n=25)	-	7	12	-	80	- [*]
Self-guided interp. (n=18)	-	58	48	-	10	- [*]
Visitor center (n=16)	-	19	37	37	6	- [*]
Other (n=11)	-	55	27	9	9	-

⁻Data presented with time periods combined over 3 days of visit.

^{*}Row percentages=100 due to rounding.

I. Visitors' overnight accomodations

Visitors were also asked questions about where they stayed overnight while at Crater Lake. 26 percent of the respondents stayed one night, 15 percent stayed two nights, and three percent stayed three or more nights. Figure 2.19 shows the type of accomodations used by visitors who stayed one night. Over one-half stayed in campgrounds; very few stayed in backcountry campsites. (Not all of the accomodations were inside the park; some visitors indicated staying in nearby cabins, hotels, or campgrounds.)

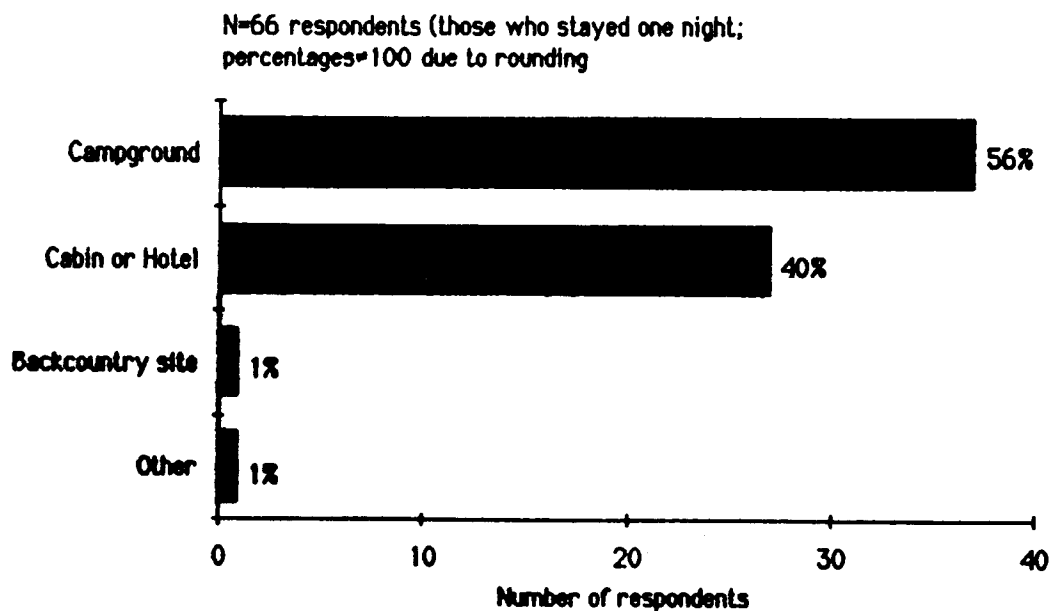


Figure 2.19 Type of accomodations used by July visitors

J. Special questions

Visitors to Crater Lake were asked six additional questions about their visit to the park:

- 1) "If cabin or hotel accommodations were more available in Crater Lake National Park, would you have stayed overnight? Would you have stayed two nights?"
- 2) "Did you feed any birds or other wild animals while at Crater Lake National Park?"
- 3) "Where did you begin your trip on the day you arrived in Crater Lake National Park?"
- 4) "Where is your destination on the day you leave Crater Lake National Park?"
- 5) "Which routes did you use when traveling to Crater Lake National Park?"
- 6) "Which route did you use to enter Crater Lake National Park?"

Figure 2.20 shows most respondents said they would not have stayed overnight if more cabin or hotel accommodations were available in the park.

When asked if they had fed any birds or other wild animals in the park, 14 percent indicated they had, as shown in Figure 2.21.

Visitors traveled to Crater Lake from a wide variety of cities, towns, and camping areas. While 85 places of origin were listed by respondents, only those most often listed are shown in Table 2.3. Less than five respondents came from each of the other places. Likewise, visitors listed 84 planned destinations. Those most often listed are shown in Table 2.4.

Travel routes used by visitors to Crater Lake are shown on Table 2.5. Nearly one-half of all visitors traveled I-5. Map

2.11 shows that about equal numbers of visitors entered the park on Highways 62 and 138. Of those traveling Highway 62, most visitors came from the direction of Klamath Falls rather than Medford.

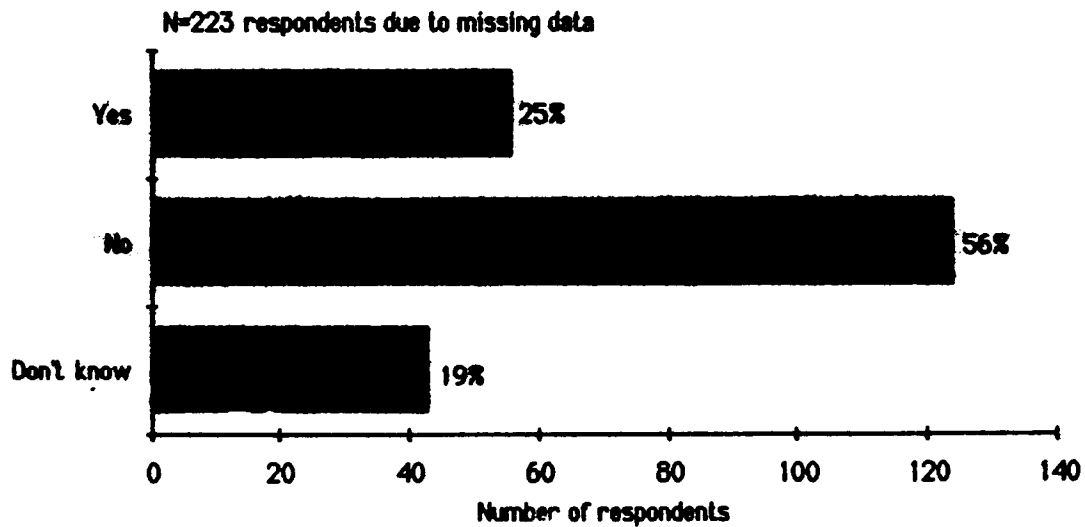


Figure 2.20: July visitors who would stay overnight at Crater Lake if accommodations were more available

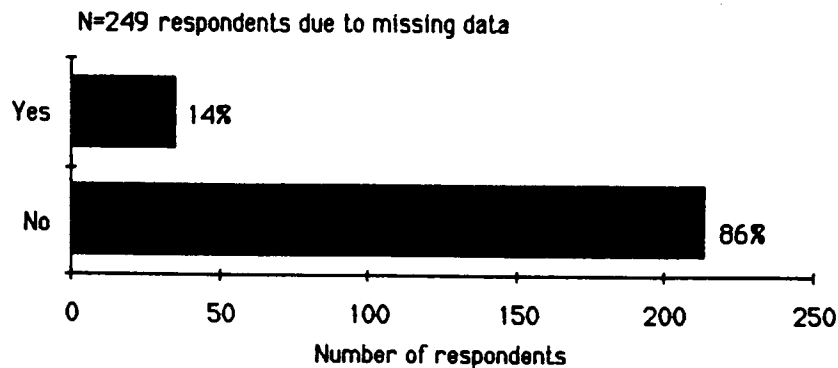


Figure 2.21: July visitors who fed wild birds or other animals at Crater Lake

Table 2.3: Most common places from which July visitors traveled to Crater Lake National Park

Place	Number of respondents
Ashland, OR	6
Bend, OR	16
Diamond Lake, OR	18
Eugene, OR	14
Grants Pass, OR	14
Klamath Falls, OR	24
La Pine, OR	10
Medford, OR	15
Redding, CA	8
Roseburg, OR	15
Salem, OR	6
Did not name specific place	8

Table 2.4: Most common destinations of July visitors when leaving Crater Lake National Park

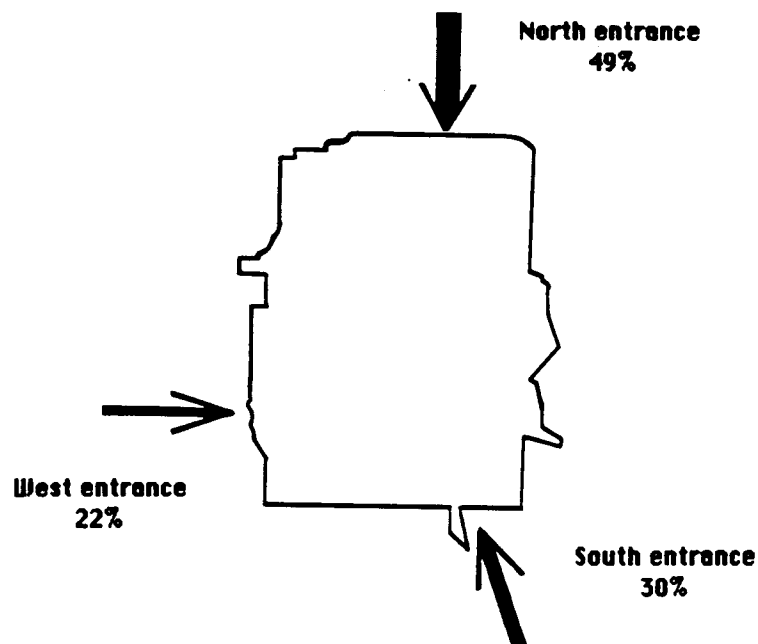
Destination	Number of respondents
Ashland, OR	11
Bend, OR	18
Crescent City, CA	9
Diamond Lake, OR	15
Eugene, OR	14
Grants Pass, OR	6
Klamath Falls, OR	16
Medford, OR	14
Portland, OR	13
Roseburg, OR	14
Did not name specific destination	14

Table 2.5: Routes used by July visitors when traveling to Crater Lake National Park

Route	Number of respondents*	percent**
Interstate 5	116	46%
Highway 232	4	2
Highway 227	4	2
Highway 138	123	49
Highway 58	25	10
Highway 62	135	54
Highway 230	3	1
Highway 140	9	4
Highway 66	1	1
Highway 31	1	1
Other Highways	56	22

*N=252 respondents due to missing data

**Percents do not sum to 100 because respondents could list more than one route



Map 2.11: Proportion of July visitors using each entrance

RESULTS FROM AUGUST

Introduction

This chapter describes the results of the second study period, August 9 through August 15, 1985. Questionnaires were again distributed at the North and Annie Springs entrance stations, but since the July study period, the north station had been moved because of road construction.

A total of 566 visitors, about 2 percent of all park visitors during the study period, were contacted. All but ten of those contacted agreed to participate; thus, the acceptance rate was 98 percent. 269 visitors completed and returned the questionnaire, a 47 percent response rate.

A. Visitor profile

The returned questionnaires provide information on both the respondents and the groups they were with. Figure 3.1 shows the different group sizes, which range from one to 46 people. The most common group size (mode) was two, while the average group size (mean) was three people. Figure 3.2 shows the group types. Over three-quarters of the visitors came in family groups.

Questions on the age, home zip code, and number of previous visits to Crater Lake of each group member were included. Figures 3.3 through 3.6 illustrate the results. Many visitors were between the ages of 26 and 45; there were also many children. A majority of visitors had not visited Crater Lake before, although many were on return visits. Visitors came from several different states. Oregon resident visitors came from many different counties throughout the state, primarily western counties.

A. Visitor profile

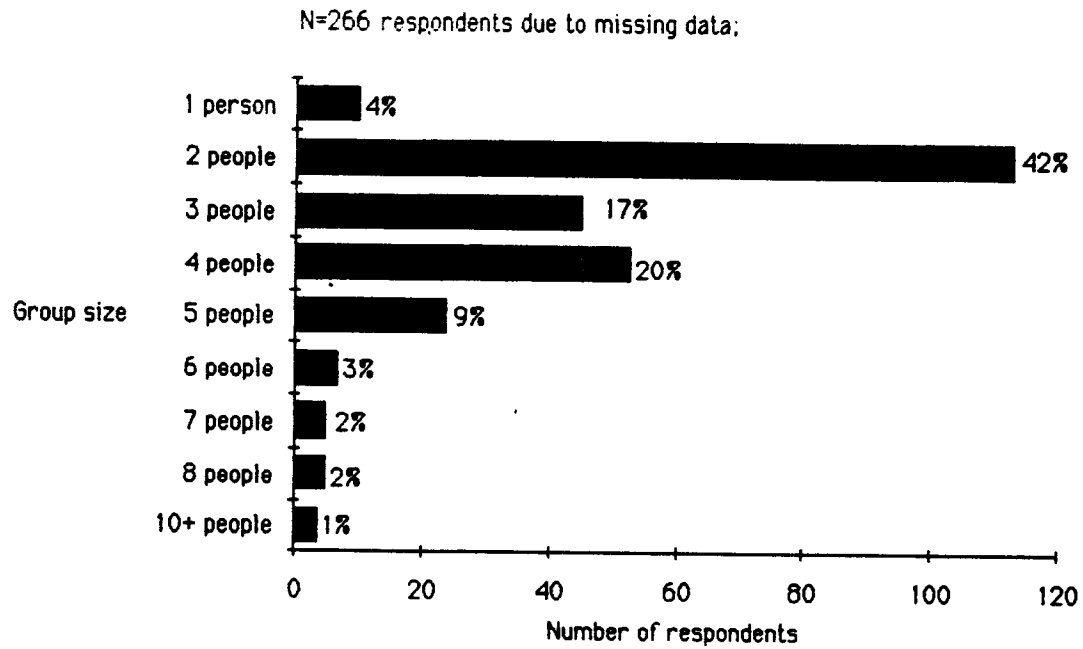


Figure 3.1: August visitors' group size

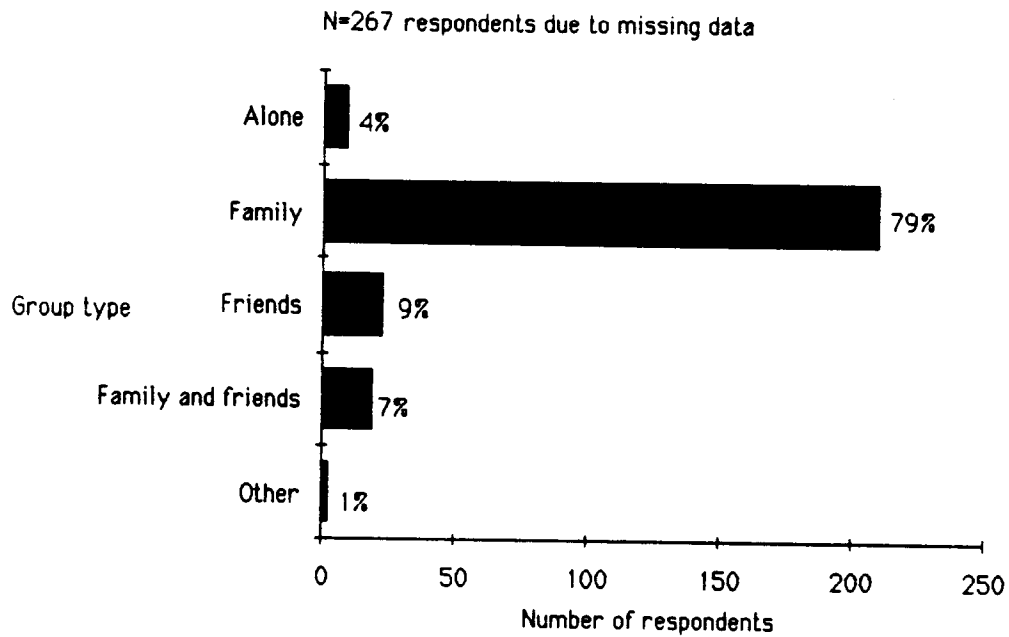


Figure 3.2: August visitors' group type

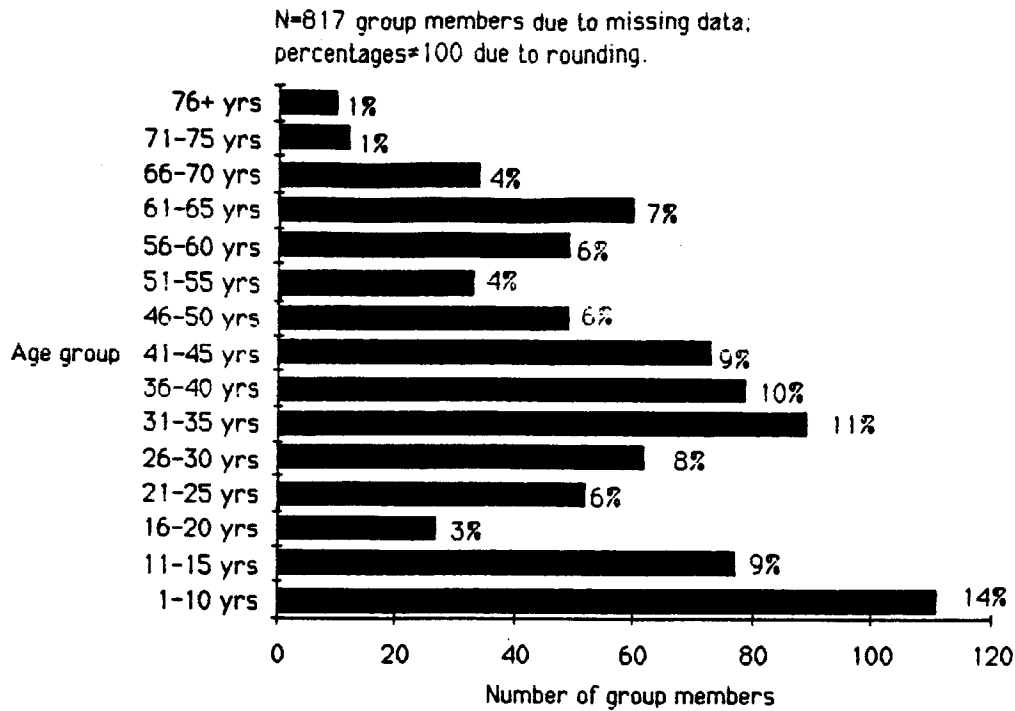


Figure 3.3: Ages of August visitors

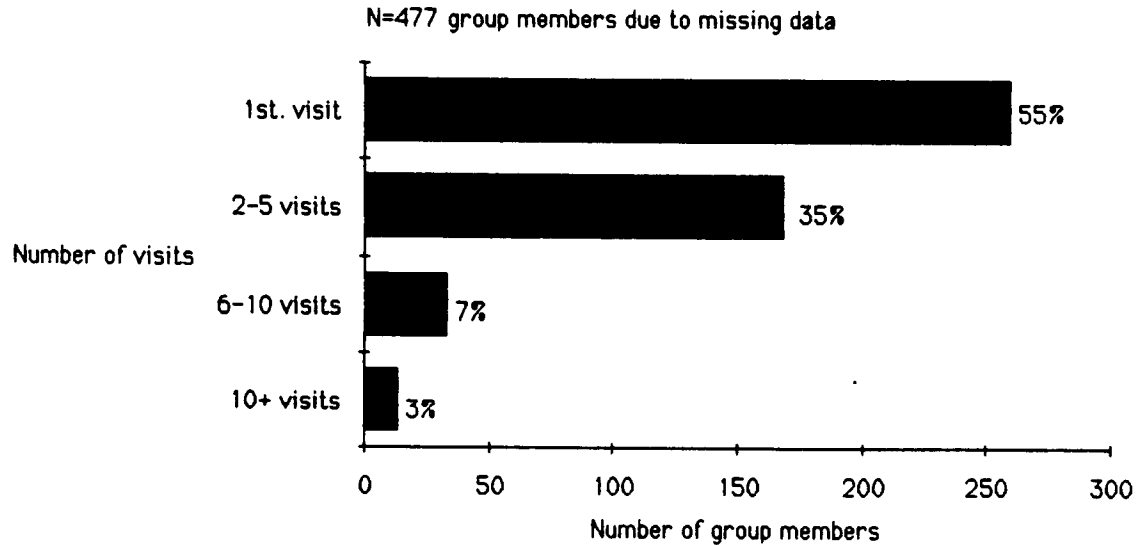


Figure 3.4: August visitors' previous visits to Crater Lake

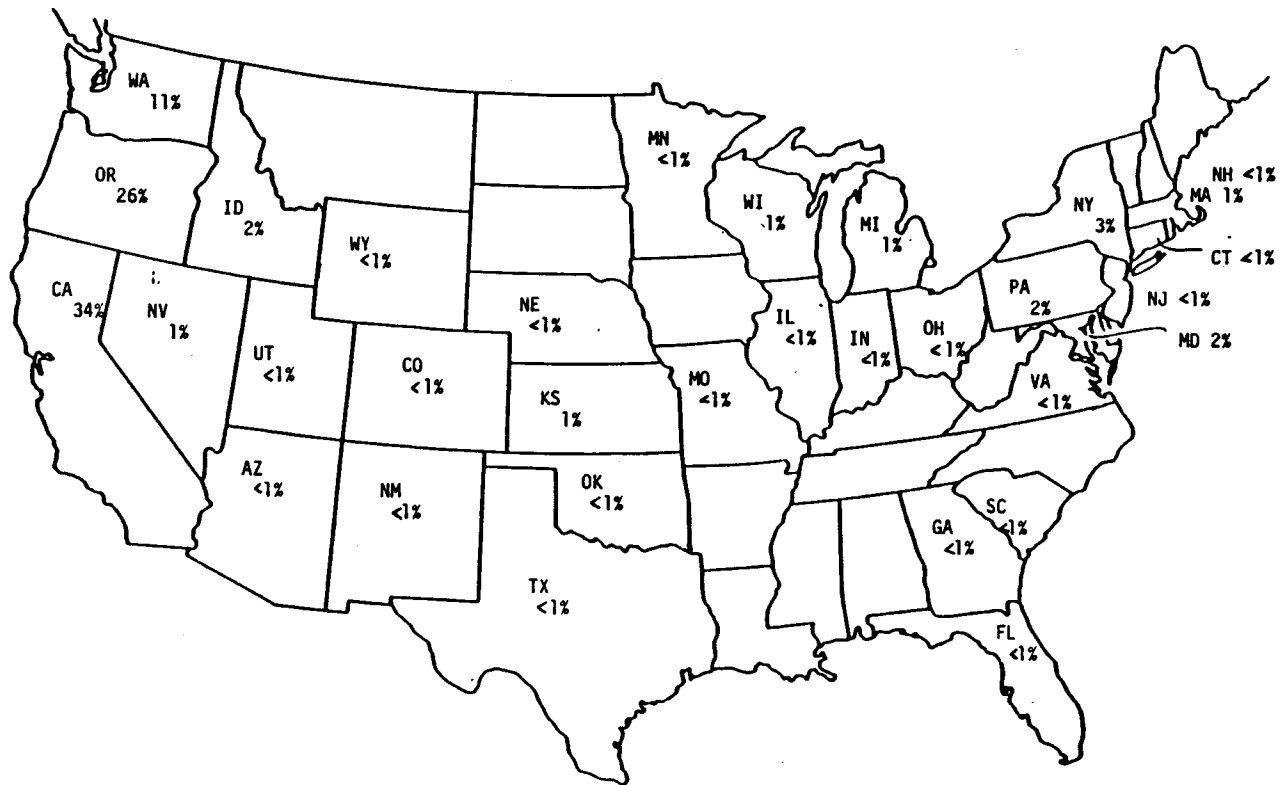
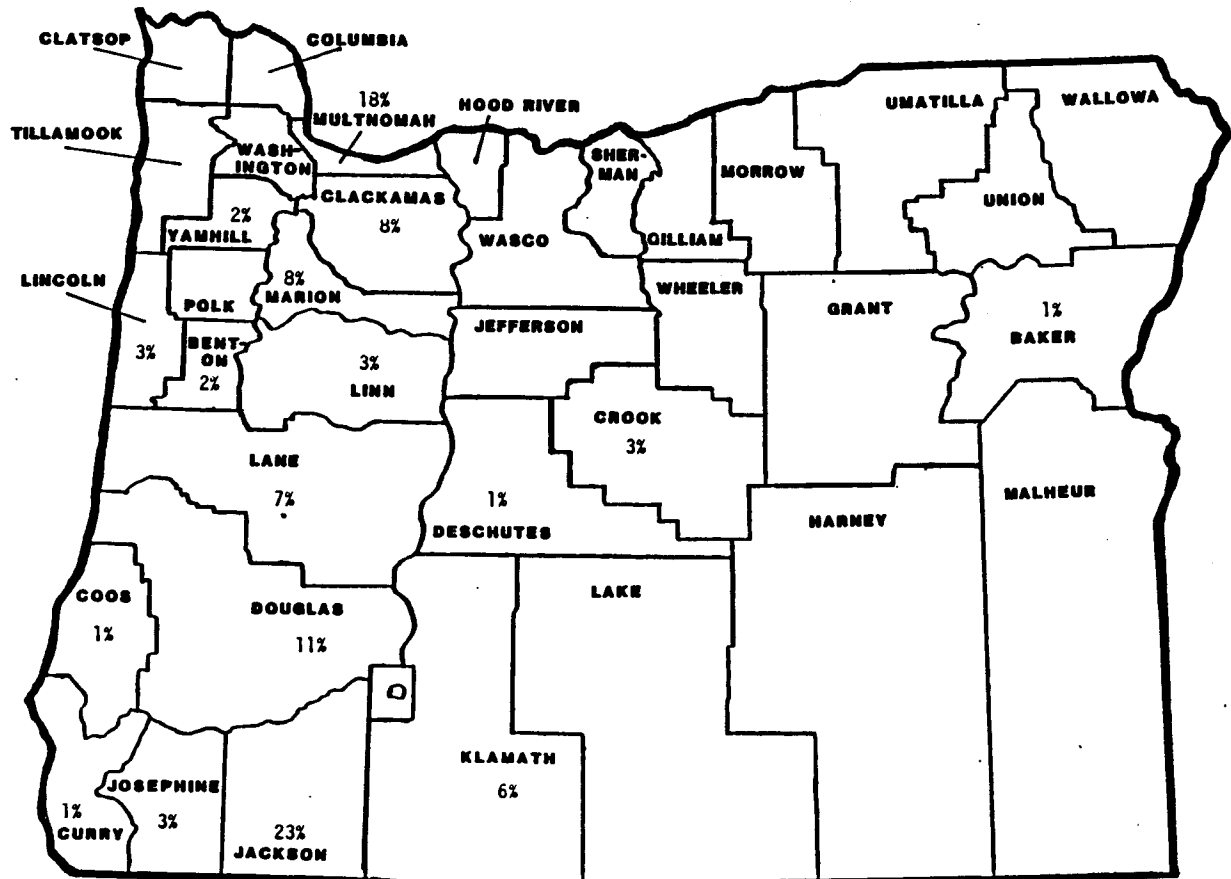


Figure 3.5: Proportion of August visitors from each state



N=176 group members due to missing data; percents*100 due to rounding

Figure 3.6: Proportion of Oregon resident August visitors from each county

B. Visitors' use of time

The number of days visitors spent in Crater Lake varied, as shown in Figure 3.7. A large majority of visitors stayed only one day.

Visitors' use of the area over time is measured in period visits (see Introduction), which represent one group in a particular zone engaged in a particular activity for a specific time period. The amounts of period visits changed with the time period of the day, as shown in Figure 3.8. The largest portion of period visits occurred during the afternoon.

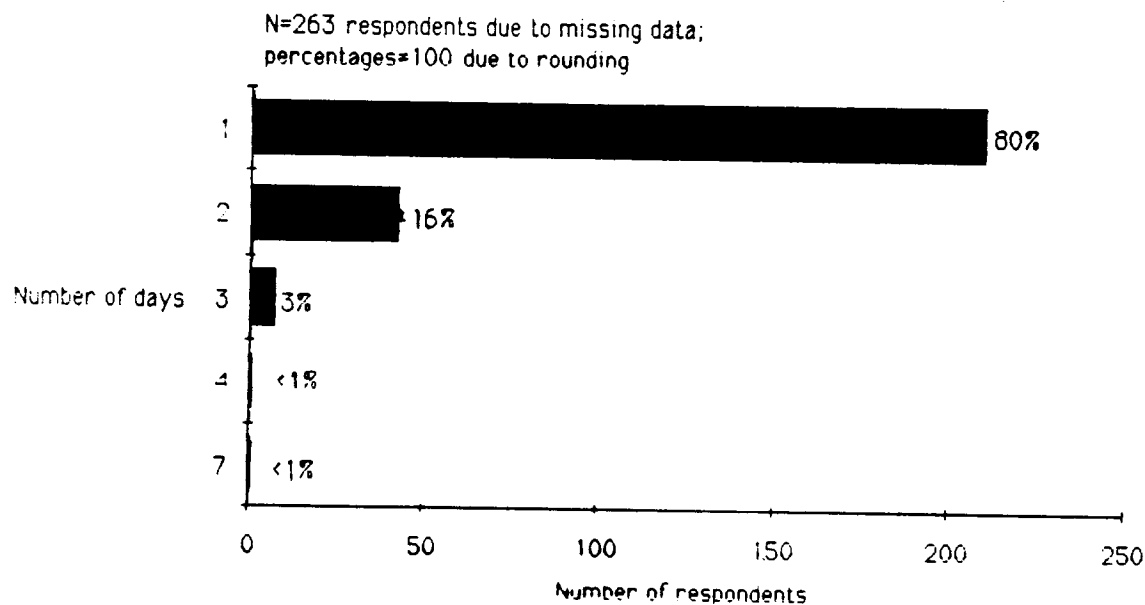
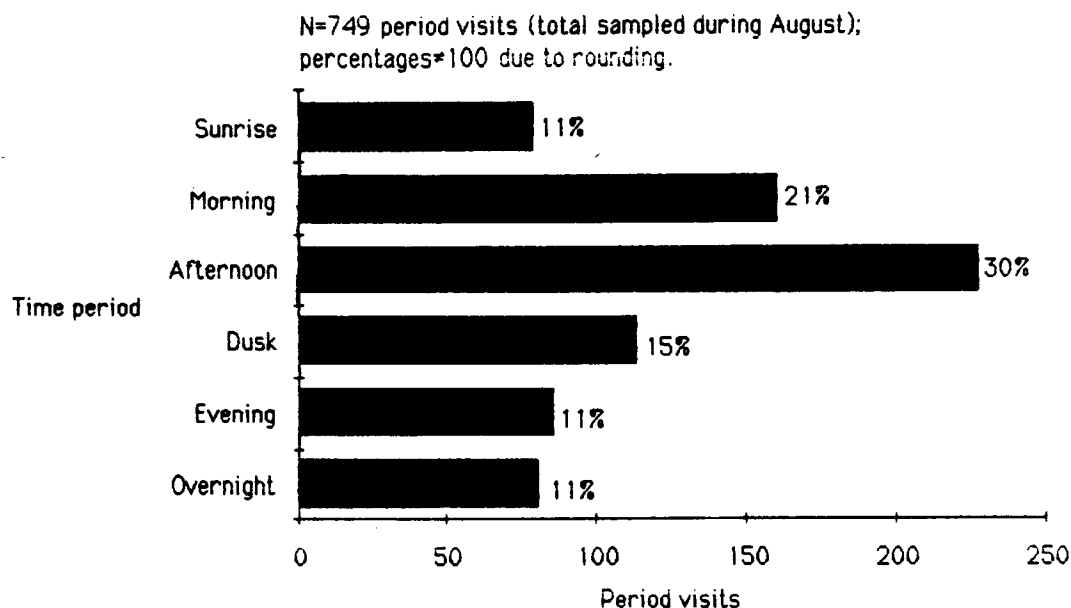


Figure 3.7: Number of days August visitors spent in Crater Lake this visit



**Figure 3.8: Period visits each time period
--August visitors**

Sunrise = 5 a.m. - 8 a.m.

Dusk = 5 p.m. - 7 p.m.

Morning = 8 a.m. - 12 noon

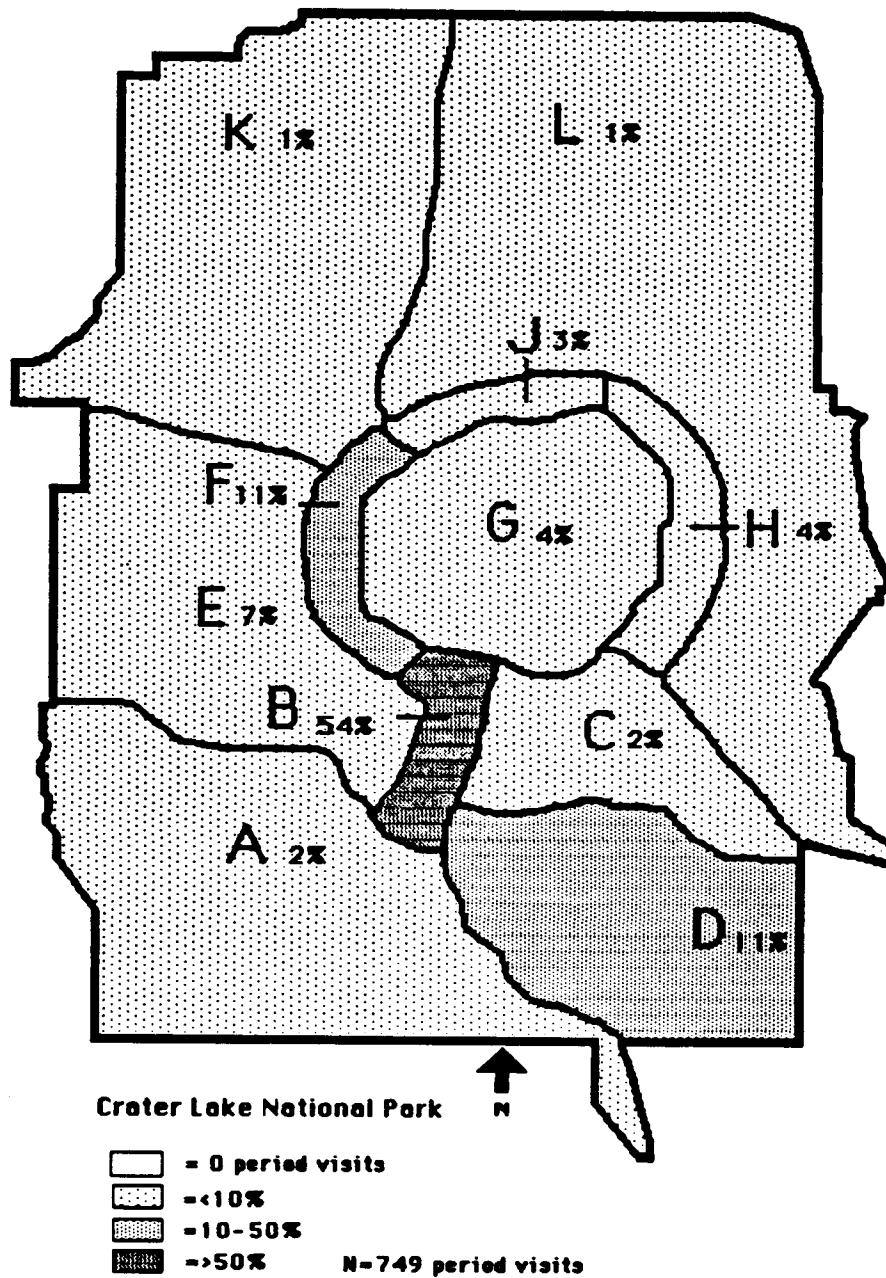
Evening = 7 p.m. - 11 p.m.

Afternoon = 12 noon - 5 p.m.

Overnight = 11 p.m. - 5 a.m.

C. Visitors' locations

While visitors spent most of their period visits in zone B, they also used other zones, as shown on Map 3.1. Each of the other zones received some use.



Map 3.1: Proportion of period visits to each zone during August

D. Visitors' activities

Visitors engaged in the activities shown in Figure 3.9. (The total amounts of period visits to zones and for activities vary slightly due to recording errors.) They listed "other" for five percent of their period visits. Motorized travel, sleeping, and eating were the predominant activities; resting, and hiking/walking also were popular.

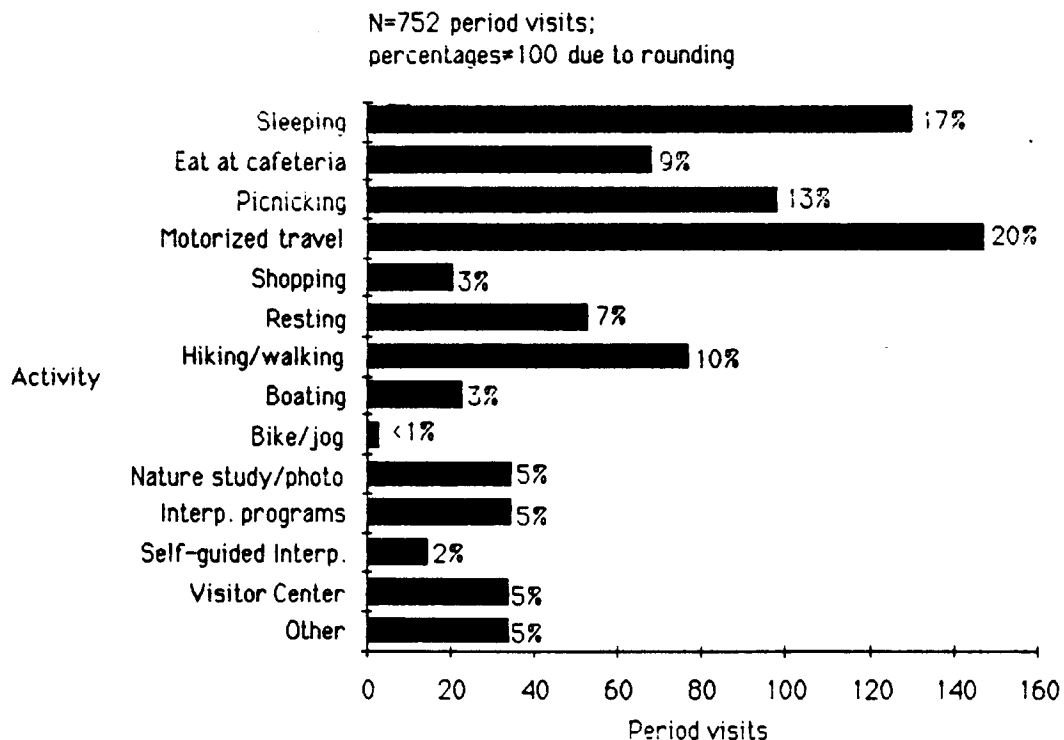
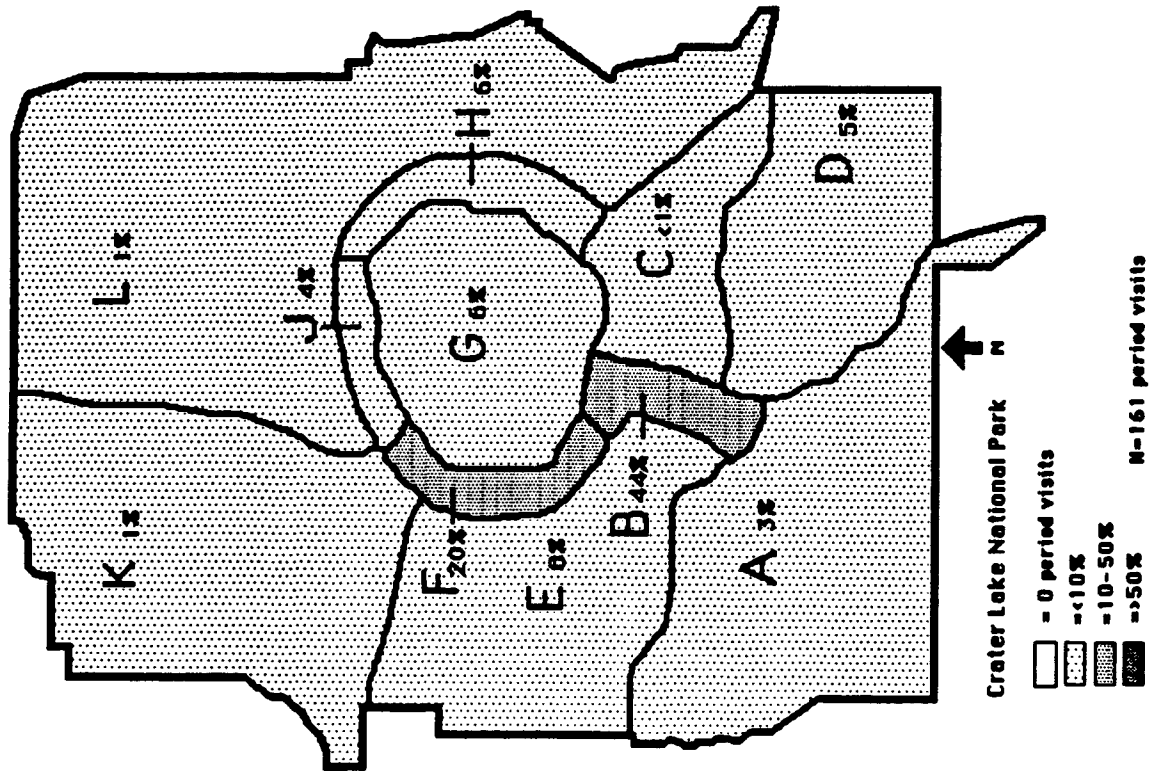


Figure 3.9: Total period visits for activities --August visitors

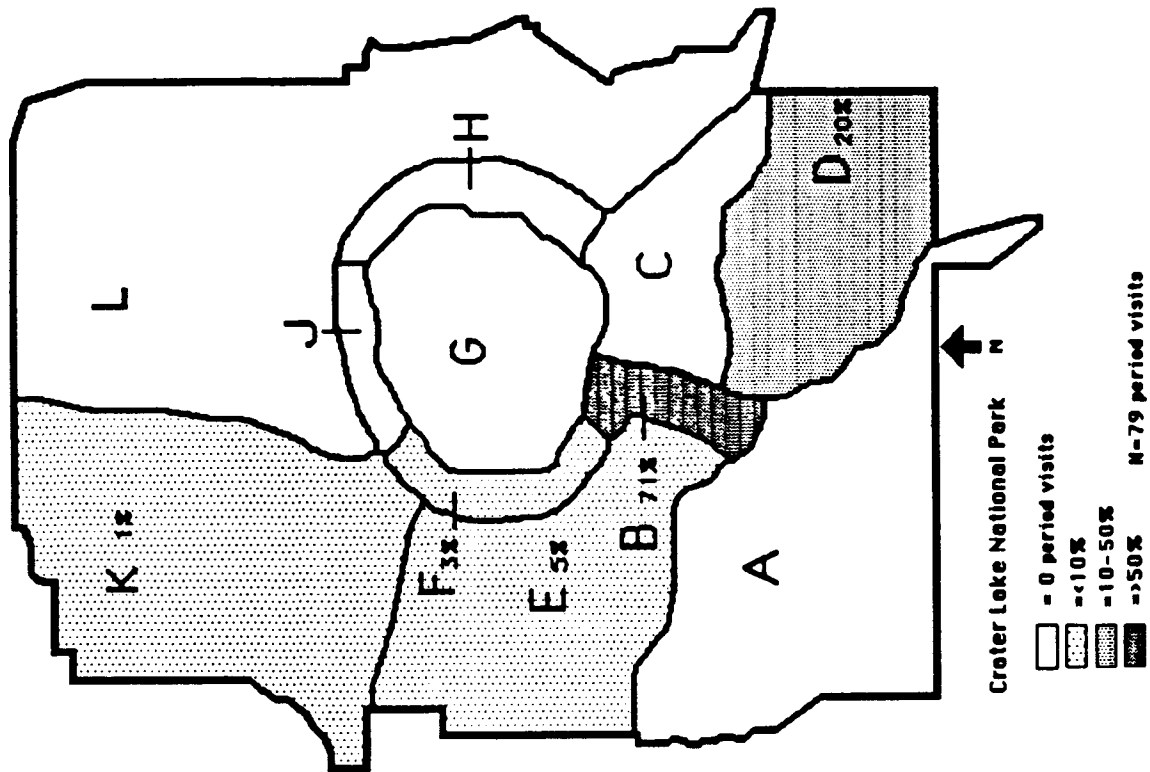
E. Visitors' locations and use of time combined

Visitors' use of each zone changed with the different time periods, as shown on Maps 3.2 through 3.7. (The data indicated that some respondents may have had difficulty distinguishing between zones B and D on the map in the questionnaire. Thus, due to reporting errors, use of zone D is over-represented.) The proportion of use in zone B was greatest during all periods; use in zones F, C, G, E and H generally increased through the morning and afternoon periods, then decreased later in the day. Maps 3.8 through 3.10 show the proportion of period visits to each zone by day of visit. In general, use in zones B and A increased, while use in zone F decreased with each additional day of visit.

E. Visitors' locations and use of time combined

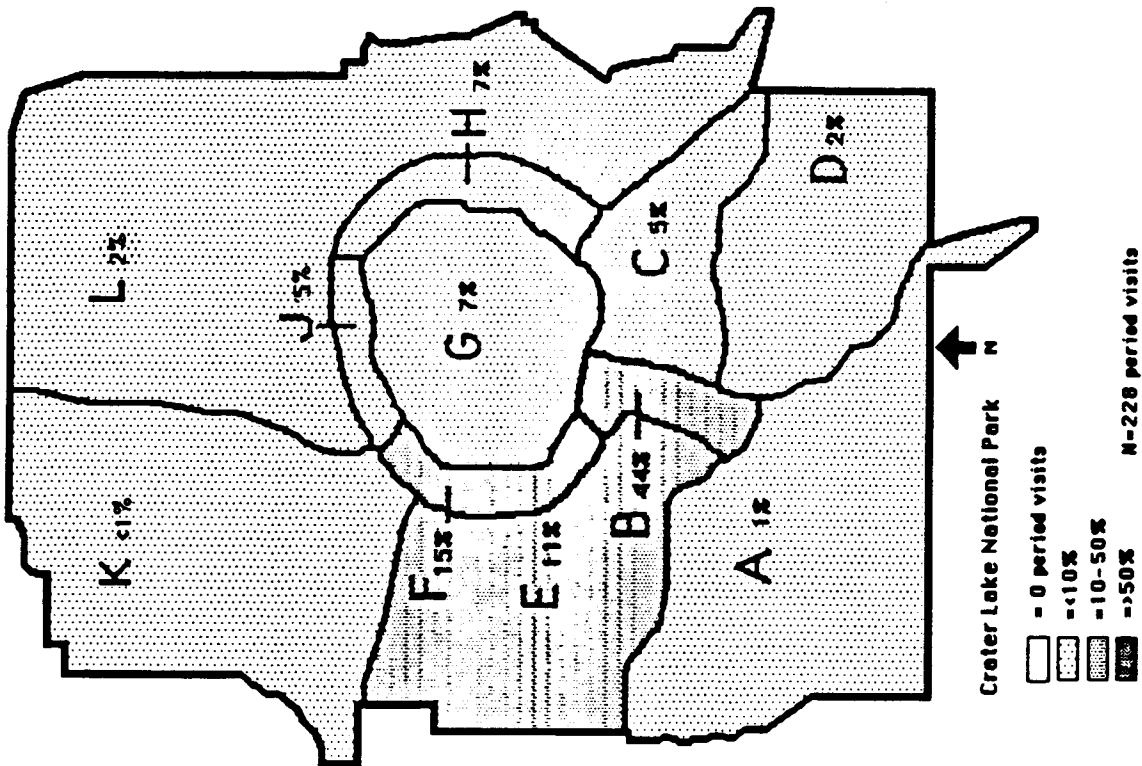
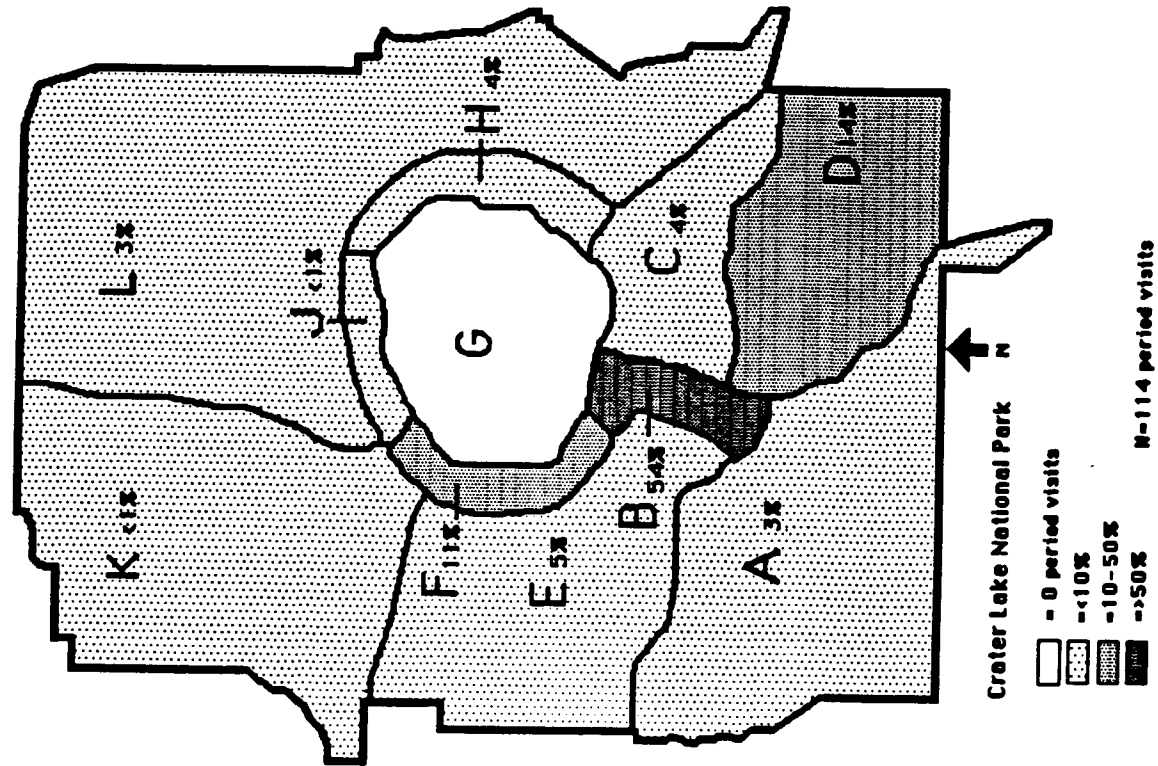


Map 3.2: Proportion of period visits to each zone during August--sunrise period

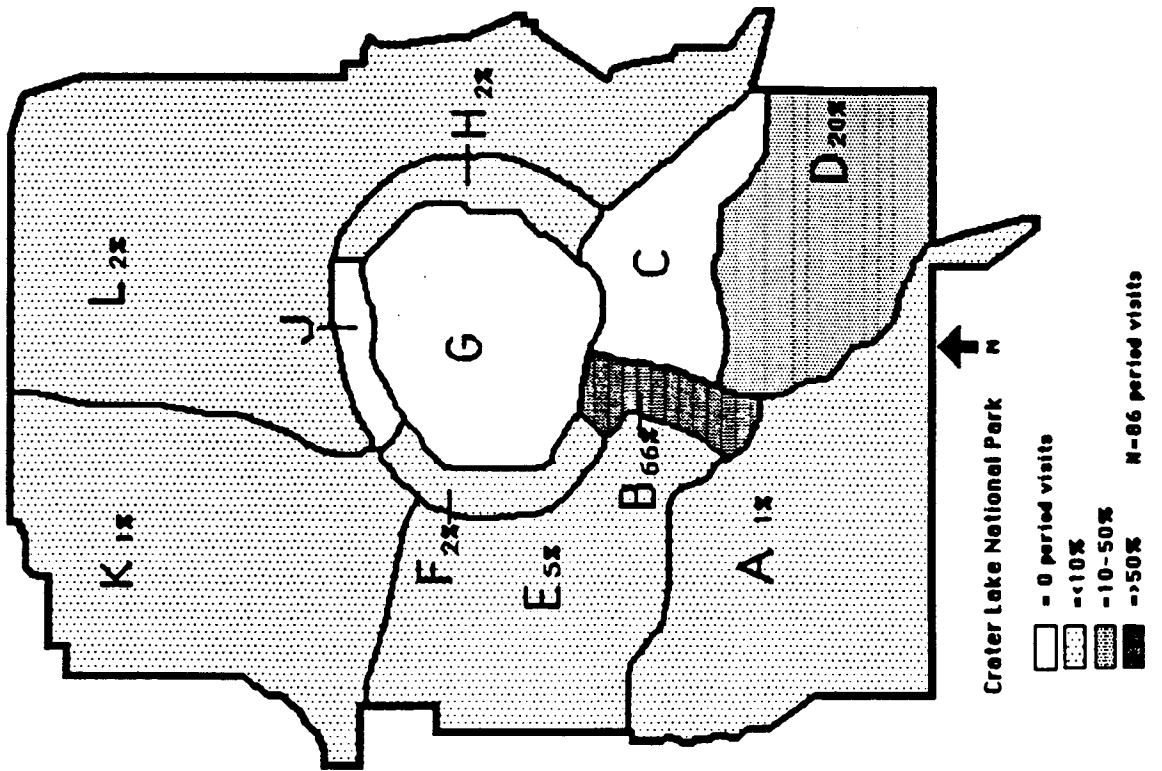
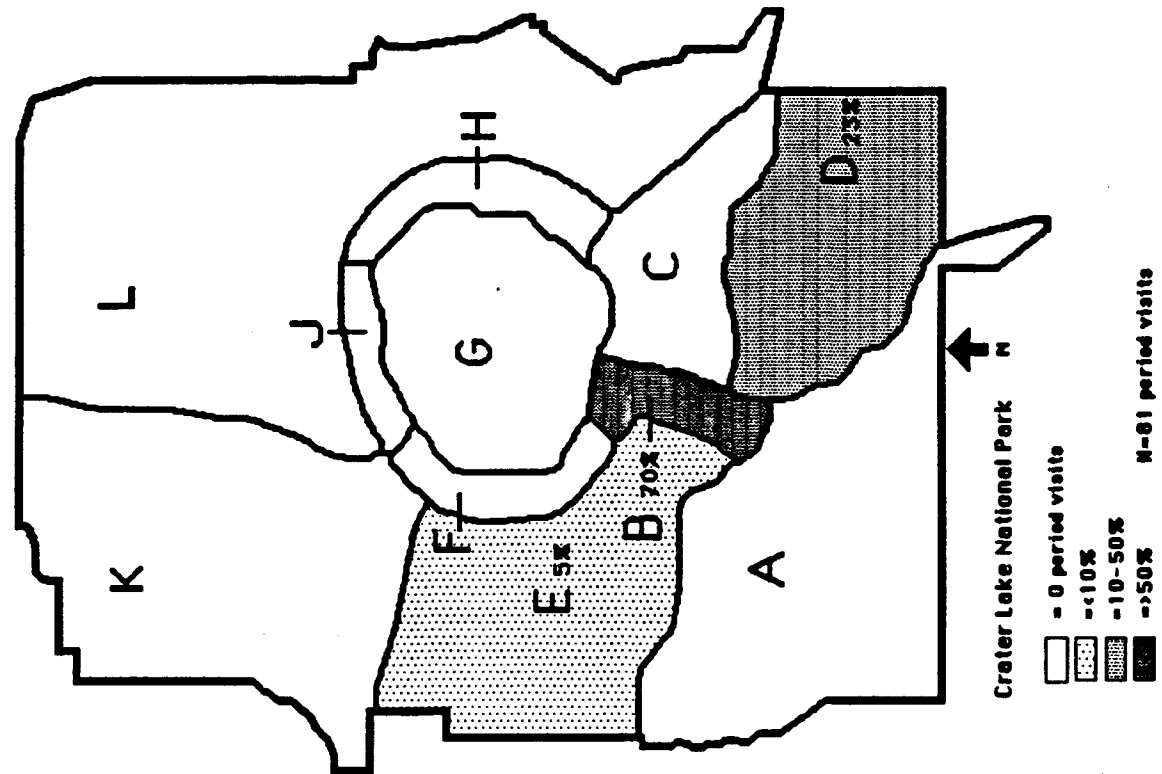


Map 3.3: Proportion of period visits to each zone during August--morning period

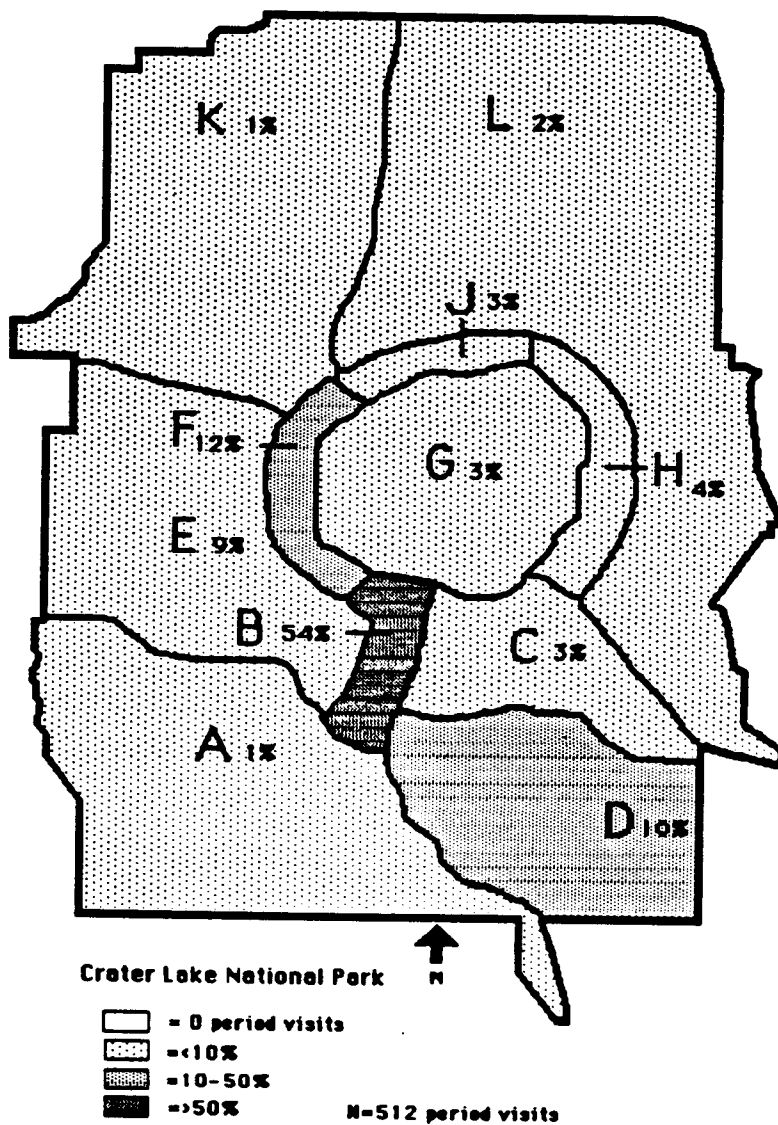
E. Visitors' locations and use of time combined



E. Visitors' locations and use of time combined

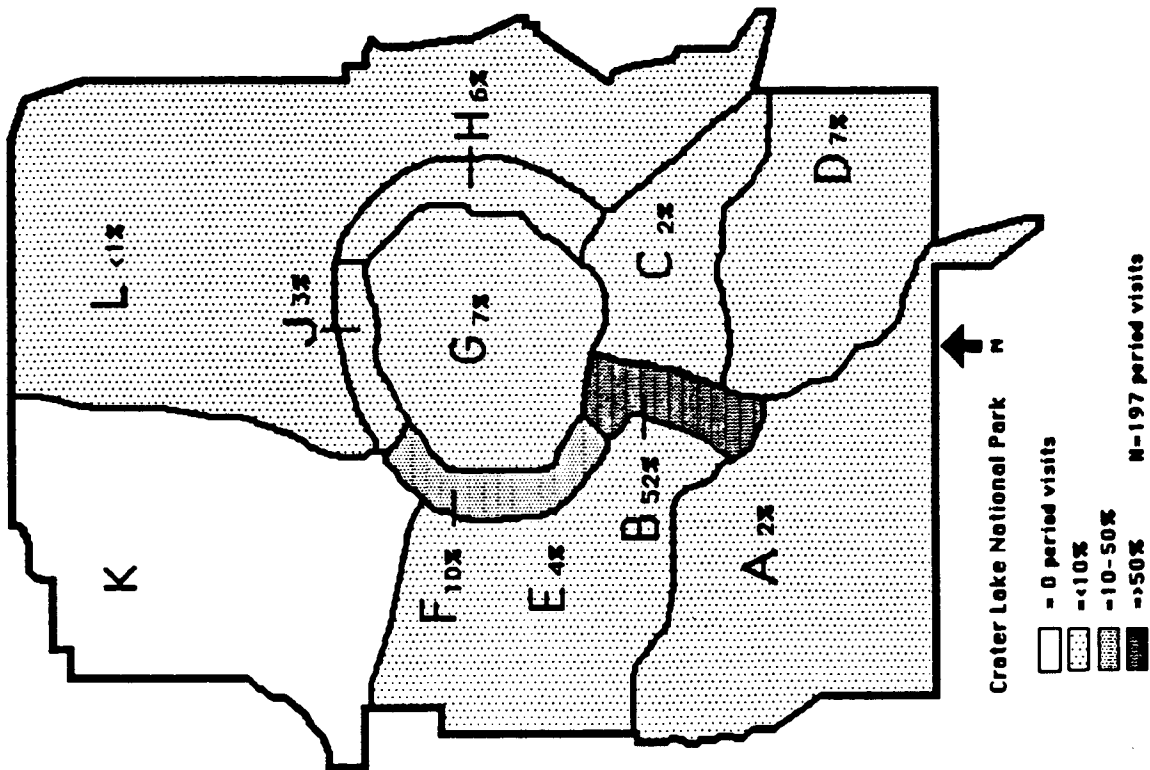
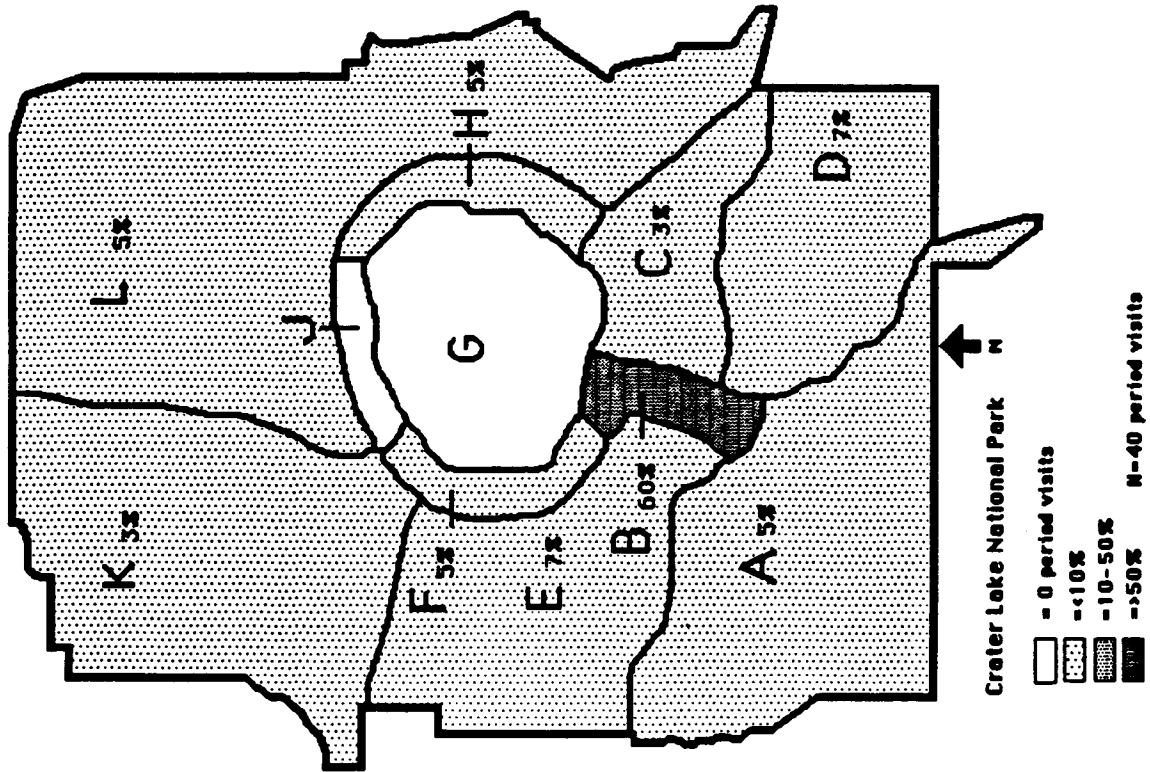


E. Visitors' locations and use of time combined



Map 3.8: Proportion of period visits to each zone during August--day 1 of visit

E. Visitors' locations and use of time combined



F. Visitors' activities and use of time combined

Like the use of different zones, visitors' activities varied each time period, as shown in Figures 3.10 through 3.15. Sleeping was the predominant activity during overnight and sunrise periods, motorized travel during morning and afternoon, eating during dusk. There were also high proportions of picnicking during the sunrise period and attending interpretive programs during the evening periods. Figures 3.16 through 3.18 show the amounts of period visits by day of visit. Period visits for hiking/walking, nature study/photography, and eating at the cafeteria generally decreased with each additional day of visit, while participation in sleeping, picnicking, resting, and "other" activities increased.

F. Visitors' activities and use of time combined

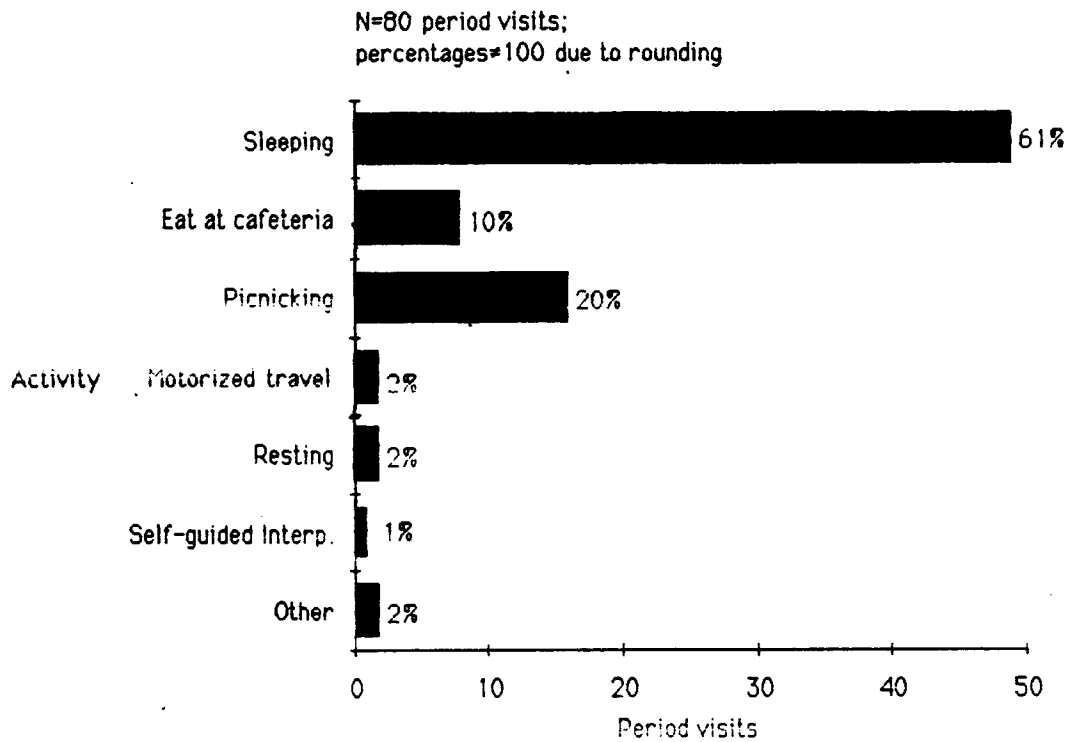


Figure 3.10: Period visits for activities of August visitors--sunrise period

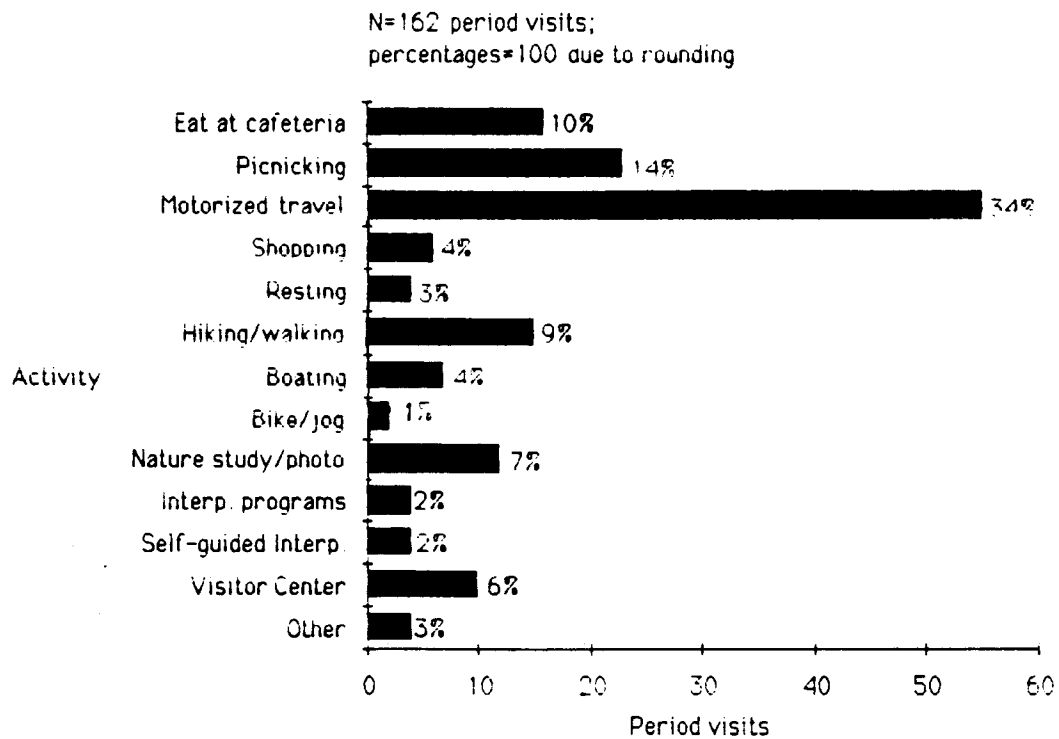


Figure 3.11: Period visits for activities of August visitors--morning period

F. Visitors' activities and use of time combined

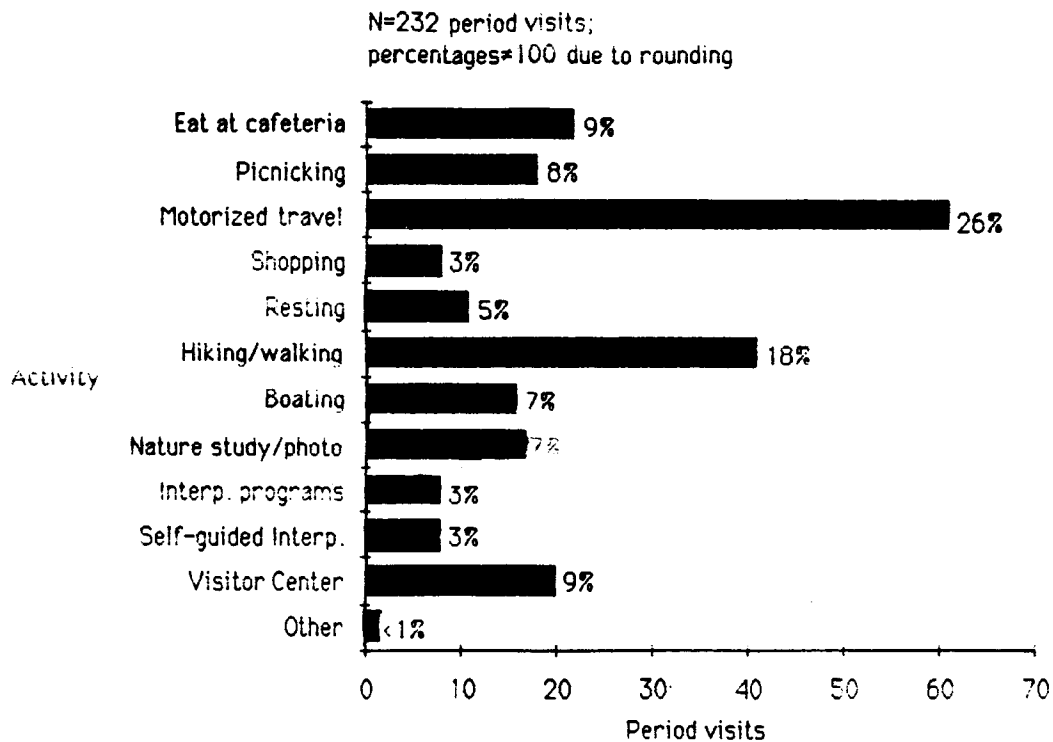


Figure 3.12: Period visits for activities of August visitors--afternoon period

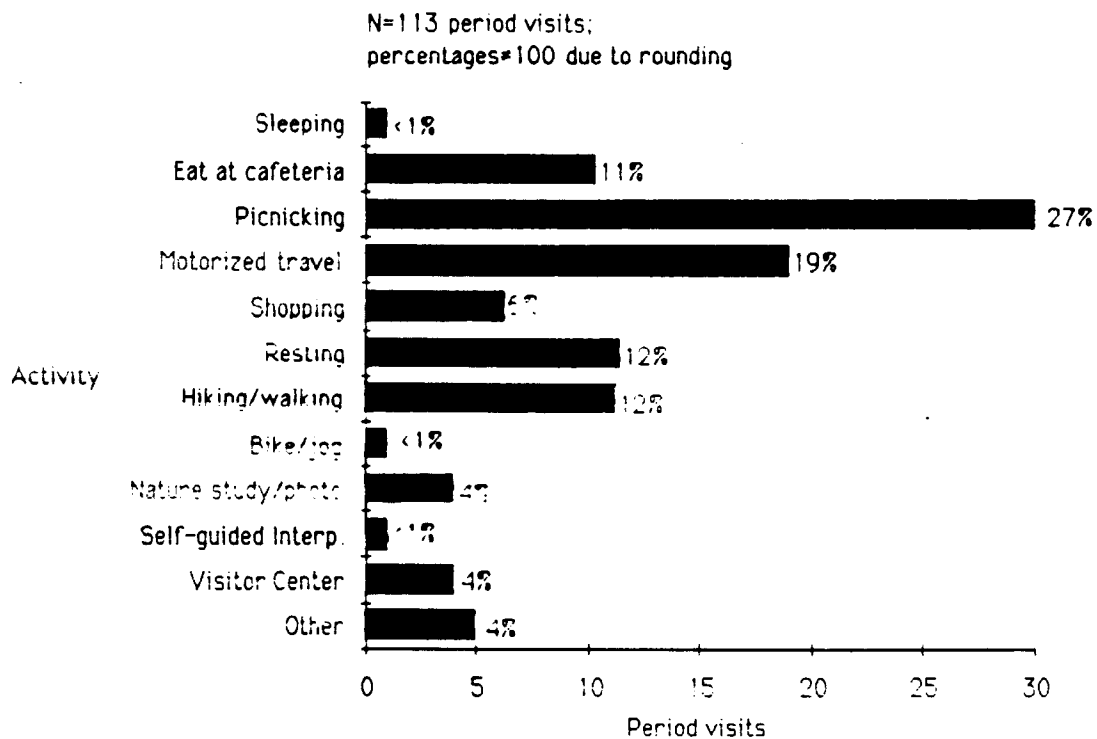


Figure 3.13: Period visits for activities of August visitors--dusk period

F. Visitors' activities and use of time combined

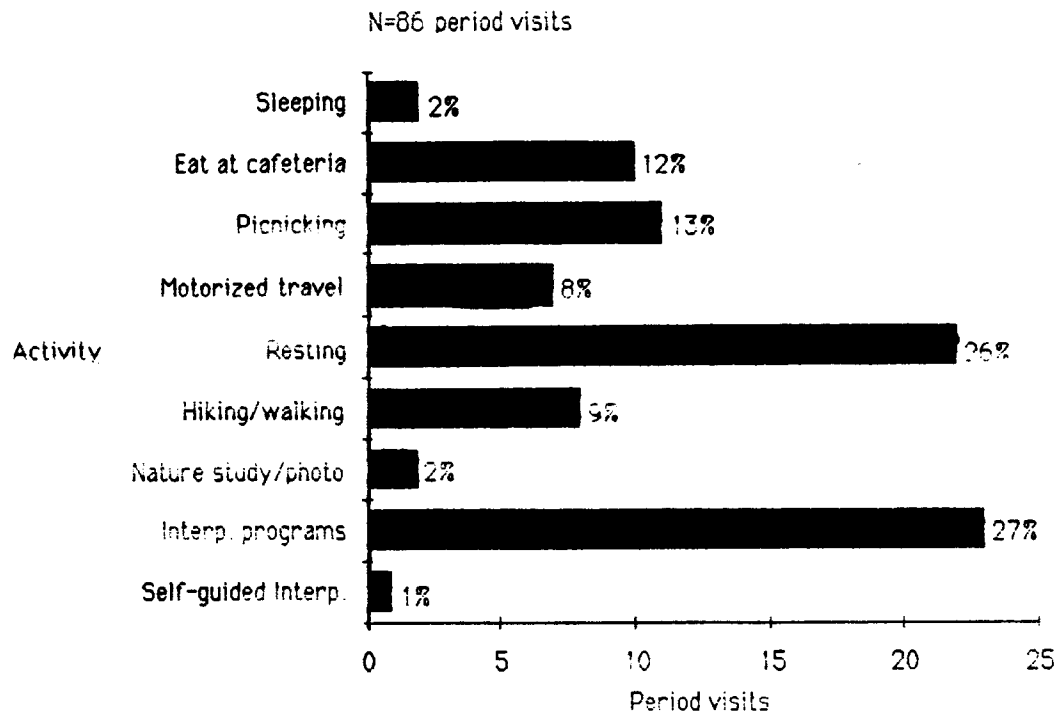


Figure 3.14: Period visits for activities of August visitors--evening period

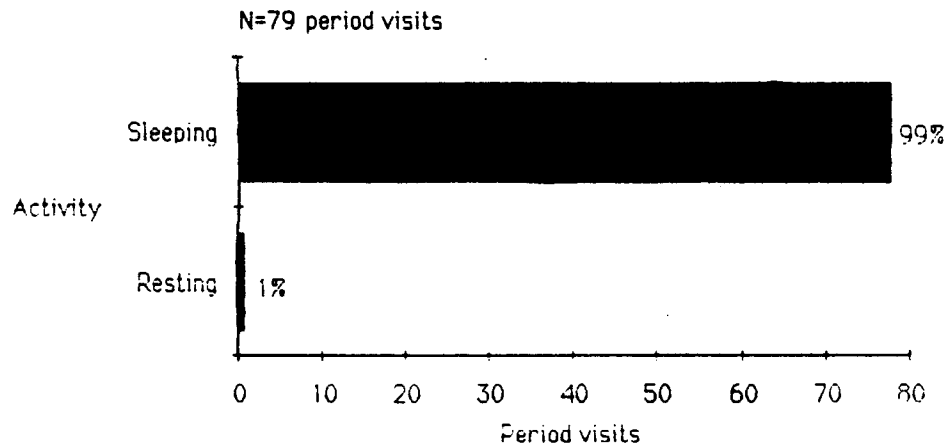


Figure 3.15: Period visits for activities of August visitors--overnight period

F. Visitors' activities and use of time combined

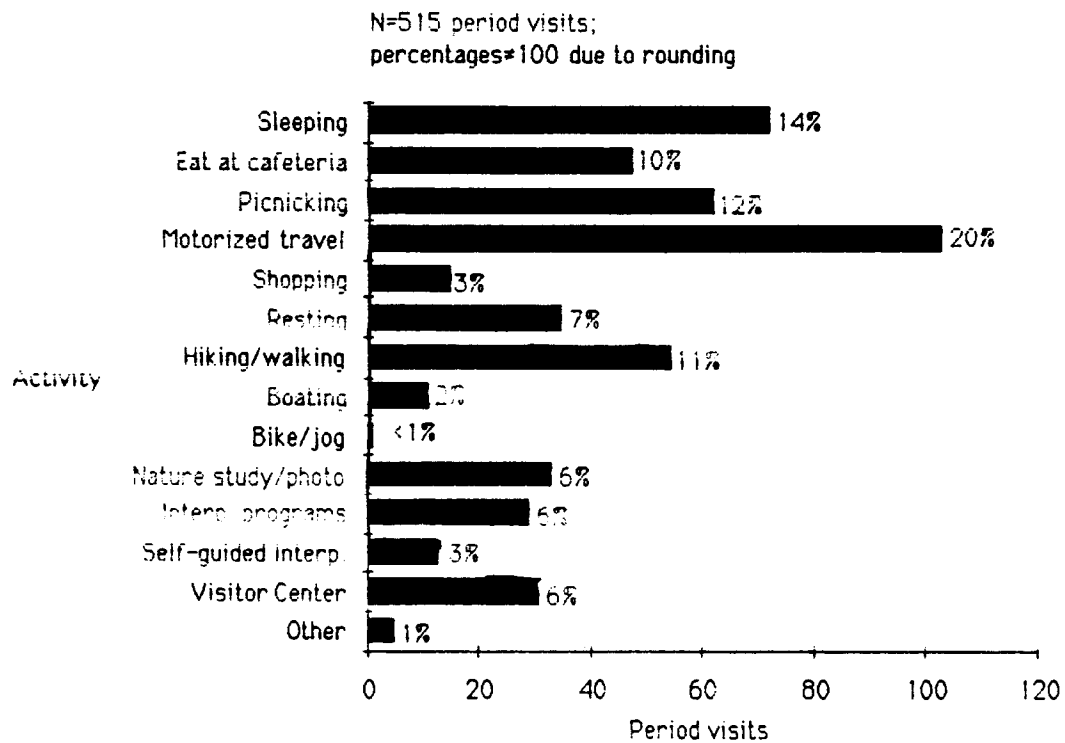


Figure 3.16: Period visits for activities of August visitors--day 1 of visit

F. Visitors' activities and use of time combined

N=197 period visits

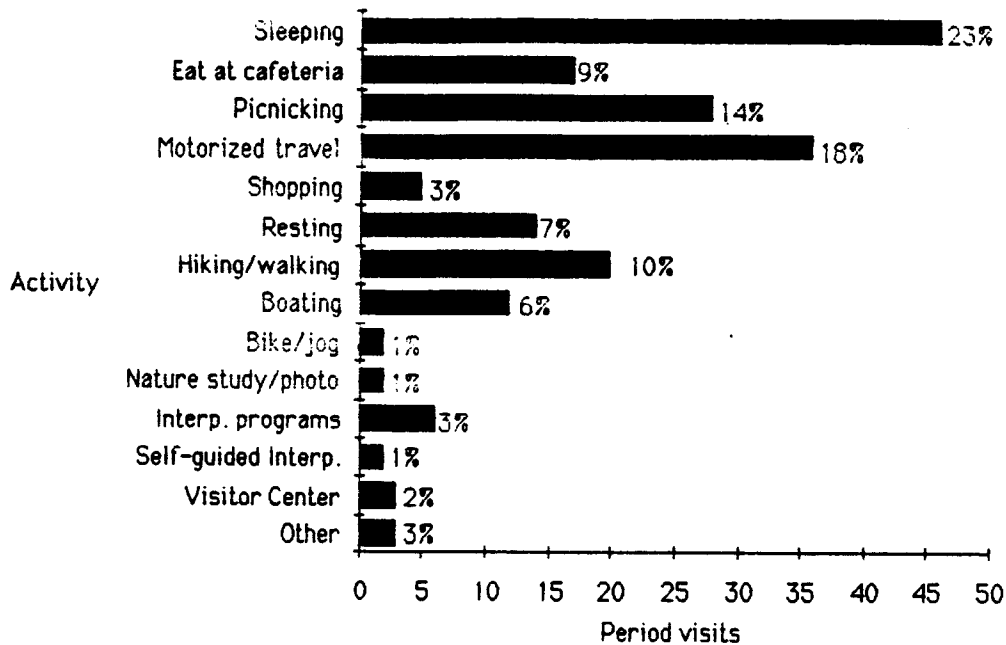


Figure 3.17: Period visits for activities of August visitors--day 2 of visit

N=40 period visits

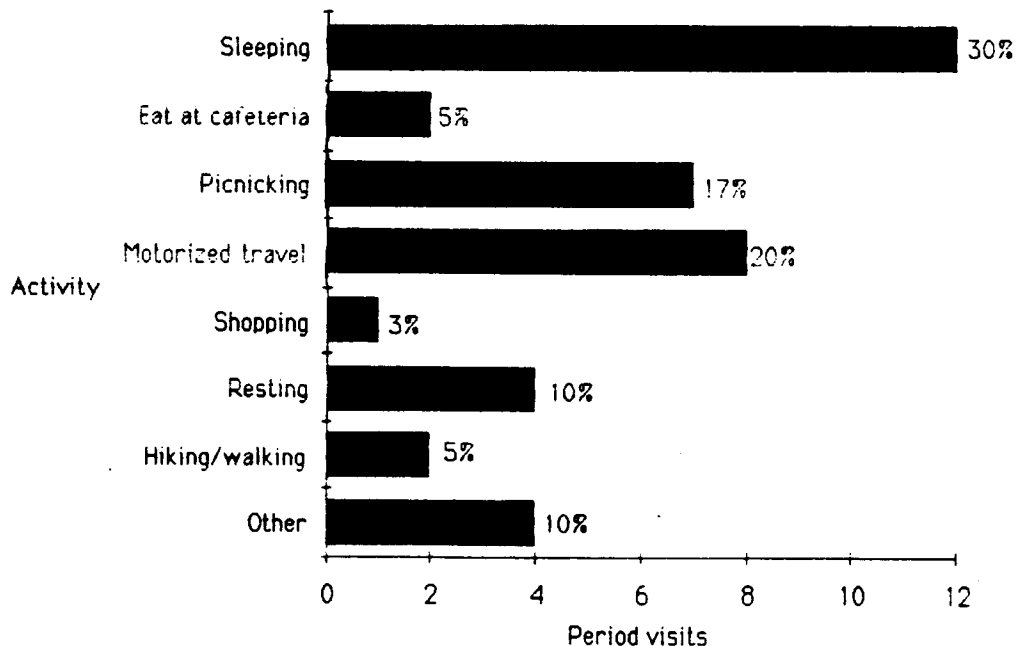


Figure 3.18: Period visits for activities of August visitors--day 3 of visit

G. Visitors' locations and activities combined

Visitors used the zones in different amounts and for different activities. That is, the relative proportion of activities varied from zone to zone, as shown in Table 3.1. (Due to reporting errors, small amounts of activities are shown occurring in zones where they cannot occur--for example, boating in zones H and J.) Some activities, such as shopping and sleeping, were concentrated in particular zones, while other activities, such as motorized travel, occurred in many zones.

6. Visitors' locations and activities combined

Table 3.1: Proportion of period visits for activities occurring in each zone, August visitors (%).

Activity	Zone										
	A %	B %	C %	D %	E %	F %	G %	H %	J %	K %	L %
Sleeping (n=126)	-	70	-	25	5	-	-	-	-	<1	-*
Eat at cafeteria (n=67)	1	78	1	1	10	6	-	-	-	-	1*
Picnicking (n=98)	-	60	1	22	8	5	-	1	1	1	-*
Motorized travel (n=142)	6	21	4	1	6	33	<1	11	7	1	7*
Shopping (n=21)	-	76	-	5	10	5	5	-	-	-	-*
Resting (n=53)	-	77	-	15	4	2	-	2	-	-	-
Hiking/walking (n=76)	3	33	12	5	12	17	5	7	5	1	-
Boating (n=23)	-	-	-	-	-	-	83	4	13	-	-
Bike/jog (n=3)	-	-	-	-	-	67	-	33	-	-	-
Nature study/ photography (n=34)	-	44	3	-	9	26	3	12	-	3	-
Interp. programs (n=35)	-	74	-	17	9	-	-	-	-	-	-
Self-guided interp. (n=15)	-	67	-	-	13	-	7	7	-	7	-*
Visitor Center (n=33)	-	88	-	3	6	-	-	3	-	-	-
Other (n=12)	8	67	-	17	8	-	-	-	-	-	-

*Row percentages=100 due to rounding

H. Visitors' activities, locations, and use of time combined

By combining data on activities, locations, and use of time, a more detailed picture of visitor behavior is possible. Table 3.2 shows the proportion of period visits for activities during each time period for zone B. Certain activities, such as viewing exhibits or attending interpretive programs, took place predominantly during a few time periods.

Table 3.2: Proportion of period visits for activities of August visitors among each time period for ZONE B (%).~

<u>Activity</u>	<u>Time period</u>					
	<u>Sunrise</u> %	<u>Morning</u> %	<u>A'noon</u> %	<u>Dusk</u> %	<u>Evening</u> %	<u>O'night</u> %
Sleeping (n=89)	36	-	-	1	-	64*
Eat at cafeteria (n=52)	15	21	31	19	13	-*
Picnicking (n=59)	19	25	17	27	12	-
Motorized travel (n=30)	-	47	37	13	3	-
Shopping (n=16)	-	19	44	37	-	-
Resting (n=41)	5	10	17	20	49	-*
Hiking/walking (n=25)	-	20	48	20	12	-
Nature study/ photography (n=15)	-	40	33	20	7	-
Interp. programs (n=26)	-	8	27	-	65	-
Self-guided interp. (n=10)	10	10	60	10	10	-
Visitor center (n=29)	-	28	62	10	-	-*
Other (n=8)	25	25	12	38	-	-

~Data presented with time periods combined over 3 days of visit.

*Row percentages=100 due to rounding.

I. Visitors' overnight accomodations

Visitors were also asked questions about where they stayed overnight while at Crater Lake. 29 percent of the respondents stayed one night, six percent stayed two nights, and none three or more nights. Figure 3.19 shows the type of accomodations used by visitors who stayed one night. Two-thirds stayed in campgrounds; one-third stayed in cabins or hotels. (Not all of the accomodations were inside the park; some visitors indicated staying in nearby cabins, hotels, or campgrounds.)

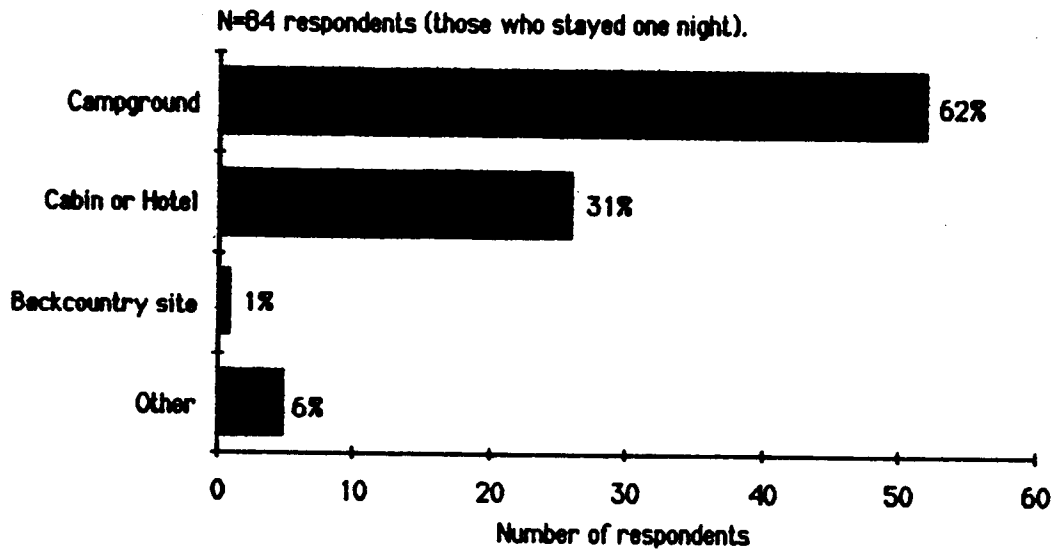


Figure 3.19: Type of accomodations used by August visitors

J. Special Questions

Visitors to Crater Lake were asked six additional questions about their visit to the park:

- 1) "If cabin or hotel accommodations were more available in Crater Lake National Park, would you have stayed overnight? Would you have stayed two nights?"
- 2) "Did you feed any birds or other wild animals while at Crater Lake National Park?"
- 3) "Where did you begin your trip on the day you arrived in Crater Lake National Park?"
- 4) "Where is your destination on the day you leave Crater Lake National Park?"
- 5) "Which routes did you use when traveling to Crater Lake National Park?"
- 6) "Which route did you use to enter Crater Lake National Park?"

Figure 3.20 shows most respondents said they would not have stayed overnight if more cabin or hotel accommodations were available in the park.

When asked if they had fed any wild animals in the park, 11 percent indicated they had, as shown in Figure 3.21.

Visitors traveled to Crater Lake from a wide variety of cities, towns, and camping areas. While 81 places of origin were listed by respondents, only those most often listed are shown in Table 3.3. Less than five respondents came from each of the other places. Likewise, visitors listed 95 planned destinations. Those most often listed are shown in Table 3.4.

Travel routes used by visitors to Crater Lake are shown on Table 3.5. Nearly one-half of all visitors traveled I-5. Map

J. Special questions

3.11 shows most of the visitors entered the park on Highway 62. Of those traveling Highway 62, most visitors came from the south rather than the east.

Two additional special questions were added to the questionnaires distributed on August 10, to assess impacts of the Crater Lake Rim Rin on park visitors. They were:

- 1) "Were you aware that today there was a marathon footrace around the rim of Crater Lake?", and
- 2) "Did the event affect your visit to Crater Lake National Park?"

101 questionnaires were given to visitors entering the park on the day of the race, and 45% were returned. Many respondents indicated that they were not aware of the race, and most respondents said that the race did not affect their visit, as shown in Figure 3.22. Four respondents listed such items as scarce parking, traffic delays, and inability to take the early boat excursion (mentioned by 2 respondents) as effects on their visit.

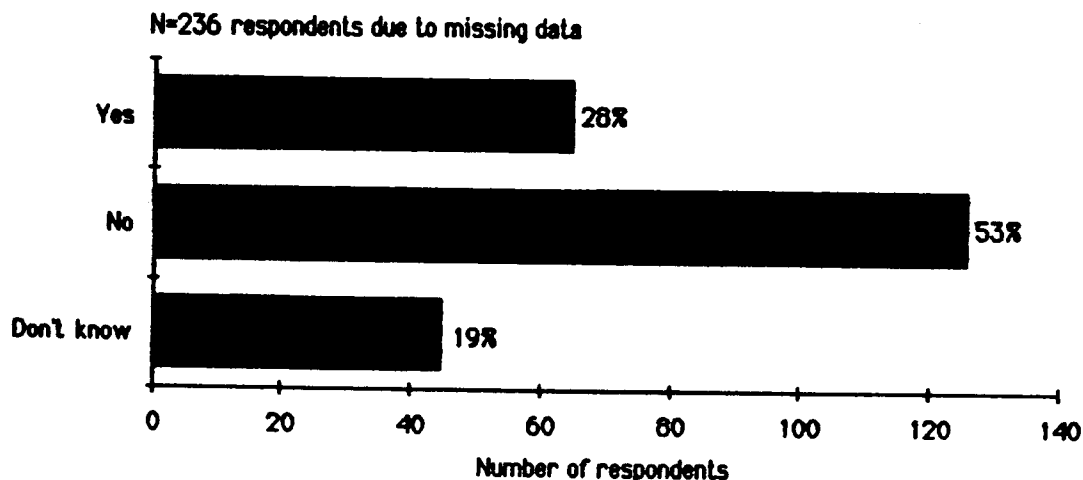


Figure 3.20: August visitors who would stay overnight at Crater Lake if accomodations were more available

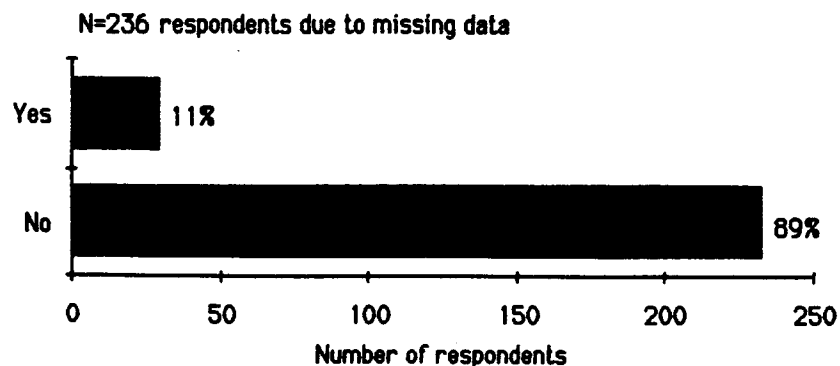


Figure 3.21: August visitors who fed wild birds or other animals at Crater Lake

Table 3.3: Most common places from which August visitors traveled to Crater Lake National Park

Place	Number of respondents
Ashland, OR	11
Bend, OR	17
Chiloquin, OR	6
Diamond Lake, OR	18
Eugene, OR	14
Grants Pass, OR	7
Klamath Falls, OR	31
La Pine, OR	6
Medford, OR	19
Portland, OR	9
Redding, CA	6
Roseburg, OR	9
Shasta, CA	11
Did not name specific destination	11

Table 3.4: Most common destinations of August visitors when leaving Crater Lake National Park

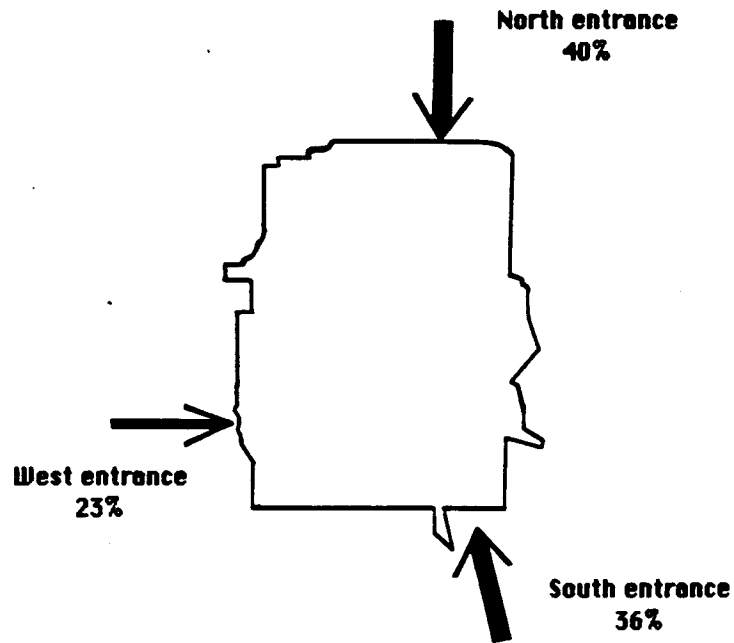
Destination	Number of respondents
Eugene, OR	15
Roseburg, OR	6
Bend, OR	26
Ashland, OR	10
Klamath Falls, OR	24
Grants Pass, OR	10
Medford, OR	14
Diamond Lake, OR	16
Portland, OR	7
Reno, NV	8
Did not name specific destination	15

Table 3.5: Routes used by August visitors when traveling to Crater Lake National Park

Route	Number of respondents*	percent**
Interstate 5	123	46%
Highway 232	4	1
Highway 227	3	1
Highway 138	108	40
Highway 58	36	13
Highway 62	157	58
Highway 230	5	2
Highway 140	9	3
Highway 66	2	<1
Highway 31	0	
Other Highways	74	28

*N=269 respondents

**Percents do not sum to 100 because respondents could list more than one route



Map 3.11: Proportion of August visitors using each entrance

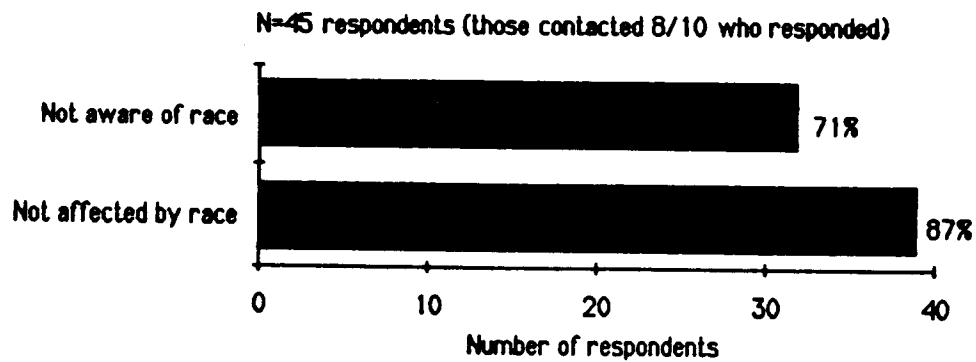


Figure 3.22: Visitors reactions to the Crater Lake Rim Run

CONCLUSION

Comparing the data from the two study periods can illustrate changes that occur during the summer. The results chapters are constructed so that the study periods can be compared easily; the figures, maps, and tables are numbered in identical sequences. For example, Figures 2.1 and 3.1 both present data on group sizes; maps 2.2 and 3.2 both show the proportion of period visits to each zone during the sunrise period.

Visitor characteristics were similar for both periods. While the average group size increased slightly from July to August, the most common group size was two during both periods. The proportion of family groups increased by seven percent from July to August. The distribution of visitors' ages and their numbers of previous visits to Crater Lake remained about the same.

Visitors came from many different states during both periods. Larger portions of visitors came from Oregon, California, and Washington during both July and August. Oregon resident visitors primarily came from counties in the western half of the state during both periods.

Visitors' use of time was also very similar for both study periods. Both the number of days spent in Crater Lake and the distribution of period visits throughout the day remained approximately the same.

Visitors' locations showed an increase in the proportion of period visits to zones B and D from July to August. (Although Mazama Campground is in zone B, respondents may have interpreted

the map in the questionnaire incorrectly, reporting time spent in the campground as in zone D; this may account for the increase in use of zone D.) The proportions of period visits to the other zones remained approximately the same.

Visitors' activities showed only slight changes from July to August. The proportion of period visits for motorized travel decreased slightly in August. While larger proportions of period visits were spent eating at the cafeteria, picnicking, and hiking/walking. The proportions of period visits spent in interpretive programs, self-guided interpretation, and visitor centers remained nearly the same, as shown in Figure 4.1.

Visitors' answers to the special questions showed only small changes in travel patterns. The proportion of visitors who indicated that they would stay at Crater Lake overnight if accommodations were more available remained about the same, as did the proportion of visitors who fed wild birds or other animals. In August, use of highway 138 decreased slightly, while use of highways 58 and 62 increased.

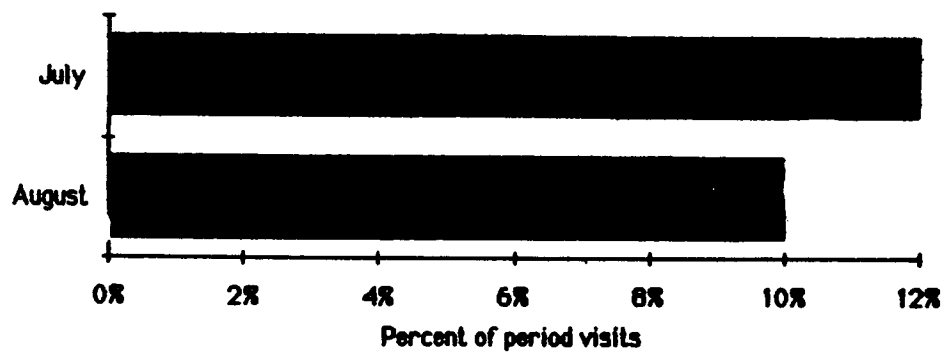


Figure 4.1: Proportion of period visits spent in Interpretive Programs, Self Guided Interpretation, and Visitor Centers

MENU FOR FURTHER ANALYSIS

How to Request Further Analyses

This report contains only some of the information that can be provided by the visitor mapping technique. By combining items such as location, time of day, etc., in different ways, a large amount of detailed information can be made available.

Managers may wish to see other tables, graphs, and maps in order to learn more about certain aspects of their park. This menu is provided so that managers can order these further analyses easily.

Two kinds of information are available:

- 1) Two-way comparisons--comparing two items at a time. For example, if a manager wished to know which time periods a particular entrance received the most use, he could request a comparison of time period by entrance; if he wished to know which zones received a greater portion of day use, he could request a comparison of zone by length of stay.
- 2) Three-way comparisons--comparing a two-way comparison to a third item. For example, if a manager wished to know the different amounts of activities occurring during each time period in each zone, he could request a comparison of (activity by time period) by zone; if he wished to know which age groups were participating in an activity during each time period, he could request a comparison of (activity by time period) by age group.

In Table 5.1, all of the possible two-way comparisons are shown. You can use this table to request further analyses the

same way you would use a mileage table on a road map to determine the distance between two cities. First, locate one of the items you wish to compare in the left-hand column. Then, move to the right across the page until you intersect the column under the other item of interest. The number indicates the number of the two-way comparison of the two items--use this number when ordering further analyses.

To request a three-way comparison, please list all three items you wish to compare. For example, if you wish to request a comparison of activity by time period by age group, each of these items should be listed in the space provided on the order form.

An example order form follows Table 5.1. Then, blank order forms are provided for you to tear out and complete, as shown in the example.

TABLE 5. Items for additional two-way comparisons

Item:	Entrance	Group size	Group type	Age group	Previous visits	State res.	County res.	Time of entry	Day of entry
1. Entrance									
2. Group size	1								
3. Group type	2	18							
4. Age group	3	19	34						
5. Previous visits	4	20	35	49					
6. State residence	5	21	36	50	63				
7. County residence	6	22	37	51	64	76			
8. Time of entry	7	23	38	52	65	77	88		
9. Day of entry	8	24	39	53	66	78	89	99	
10. Length of stay	9	25	40	54	67	79	90	100	109
11. Time period	10	26	41	55	68	80	91	101	110
12. Day of visit	11	27	42	56	69	81	92	102	111
13. Location	12	28	43	57	70	82	93	103	112
14. Activity	13	29	44	58	71	83	94	104	113
15. <u>Stay overnight</u>	14	30	45	59	72	84	95	105	114
16. <u>Feed animals</u>	15	31	46	60	73	85	96	106	115
17. <u>Travel routes</u>	16	32	47	61	74	86	97	107	116
18. <u>Entrance routes</u>	17	33	46	62	75	87	98	108	117

*Provided in this report

Length of stay	Time period	Day of visit	Location	Activity	<u>Stay</u> <u>Overnight</u>	<u>Fed</u> <u>Animals</u>	<u>Travel</u> <u>route:</u>	<u>Distance</u> <u>traveled</u>
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118

119 126

120 127 133

121 128 134 139

122 129 135 140 144

123 130 136 141 145 148

124 131 137 142 146 149 151

125 132 138 143 147 150 152 153

SAMPLE

Visitor Services Project Analysis Order Form

Date of request 7/17/86

Park (your park's name)

Person requesting analysis (your name)

Phone number (commercial) (where you can be reached at work)

1. Additional two-way comparisons (please circle appropriate number from Table 5.1)

1	11	21	31	41	51	61	71	81	91	101	111	121	131	141	151
2	12	22	32	42	52	62	72	82	92	102	112	122	132	142	152
3	13	23	33	43	53	63	73	83	93	103	113	123	133	143	153
4	14	24	34	44	54	64	74	84	94	104	114	124	134	144	
5	15	25	35	45	55	65	75	85	95	105	115	125	135	145	
6	16	26	36	46	56	66	76	86	96	106	116	126	136	146	
7	17	27	37	47	57	67	77	87	97	107	117	127	137	147	
8	18	28	38	48	58	68	78	88	98	108	118	128	138	148	
9	19	29	39	49	59	69	79	89	99	109	119	129	139	149	
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	

2. Additional three-way comparisons (please describe, listing the three items of interest)

Age group, time period, length of stay

3. Special Instructions (please indicate which study period you are interested in)

26, 41 for August period

55 for July period

Please complete this information carefully.

Comparisons marked with an 'X' are already provided or unavailable.

Please list items as they are described in Table 5.1.

Please indicate which date(s) you are interested in!

Mail to:
Cooperative Park Studies Unit
College of Forestry, Wildlife, and Range Sciences
University of Idaho
Moscow, Idaho 83843

**Visitor Services Project
Analysis Order Form**

Date of request ____/____/____

Park _____

Person requesting analysis _____

Phone number (commercial) _____

1. Additional two-way comparisons (please circle appropriate number from Table 5.1)

1	11	21	31	41	51	61	71	81	91	101	111	121	131	141	151
2	12	22	32	42	52	62	72	82	92	102	112	122	132	142	152
3	13	23	33	43	53	63	73	83	93	103	113	123	133	143	153
4	14	24	34	44	54	64	74	84	94	104	114	124	134	144	
5	15	25	35	45	55	65	75	85	95	105	115	125	135	145	
6	16	26	36	46	56	66	76	86	96	106	116	126	136	146	
7	17	27	37	47	57	67	77	87	97	107	117	127	137	147	
8	18	28	38	48	58	68	78	88	98	108	118	128	138	148	
9	19	29	39	49	59	69	79	89	99	109	119	129	139	149	
10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	

2. Additional three-way comparisons (please describe, listing the three items of interest)

3. Special Instructions (please indicate which study period you are interested in)

Mail to:
Cooperative Park Studies Unit
College of Forestry, Wildlife, and Range Sciences
University of Idaho
Moscow, Idaho 83843

APPENDICES

Appendix A:
Visitor Mapping Methods

Visitor Mapping Methods

The visitor mapping technique was first attempted at Yellowstone National Park in 1983. It was further tested in the Two Medicine area of Glacier National Park in 1984, and in Crater Lake National Park and the North Cascades National Park Service Complex in 1985. The general strategy is to distribute questionnaires to randomly selected visitors entering the park during a designated study period. Specific visitor sampling strategies differ from area to area, depending on unique site characteristics.

Questionnaire design

The questionnaire asks visitors to keep track of where they go and their activities for each day spent in the park (see Appendix B for a copy of the questionnaire). A park map, showing mapping zones, and a list of activities are provided in the questionnaire. Respondents indicate their primary location (by zone) and their primary activity during several designated time periods.

Additional information is requested about the respondents' group type and size, and the age, home zip code, and number of previous visits to the park of the respondent and each group member. Also, a limited number of park specified questions are included. Space is provided for respondents' additional comments about their visit and the survey.

Sampling

A random sampling scheme was used for both study periods at Crater Lake. Visitors entering the park were contacted at the entrance stations. Based on a plan to distribute 500 questionnaires each study period, one vehicle was picked at random every 20 minutes at the south entrance station and every 15 minutes at the north entrance station.

Questionnaire administration

Visitors entering the park or study area are stopped by a contact person, greeted, and briefly introduced to the objectives of the study. They are asked to participate voluntarily. If a visitor agrees to participate, further instructions are given as time allows. One adult member of the party contacted is asked to complete the questionnaire for his or her group. Completed questionnaires can be sealed and returned via U.S. mail, postage paid.

Missing data and reporting errors

Often, a respondent may not answer all of the questions in the questionnaire, or may answer some incorrectly. Unanswered questions create missing data. Missing data causes the 'N', or number in the sample, to vary from figure to figure. For example, in Figure 2.1, 'N' should equal 253 respondents but only equals 252 because one person did not answer the question on group size; in Figure 2.3, 'N' should equal 774 group members,

but only equals 755 because of missing data.

Questions that are answered incorrectly due to carelessness, misunderstanding directions or maps, and so forth, show up in the data as reporting errors. Reporting errors create small, but obvious, inconsistencies in the data. For example, 725 period visits to zones and 745 period visits for activities were reported by July visitors; thus, 2% of the period visits for activities were not reported properly as occurring in a particular zone. In Table 3.1, 2 period visits for boating are shown occurring in zone J; since the lake is in zone G, this 'reporting error' may be due to improper map reading.

Data analysis

The questionnaires are pre-addressed to the staff at a computer facility. Upon arrival, responses are coded and entered into a computer system. Frequency distributions and crosstabulations are calculated, using a standard software package. Respondents' additional comments are xeroxed, and copies are forwarded to the park.

Limitations

The mapping technique has several limitations. First, the survey ask visitors to record their location and activities, and it is not possible to know whether their responses reflect actual behavior. This disadvantage is applicable to all time-budget studies and is reduced by having visitors fill out the survey as

they visit the park.

Second, the data describes the use patterns of only those visitors who enter the park during the designated study period at the entrances sampled. Results do not apply to visitors using other entrances or entering during different times of the year.

Third, respondents can only indicate the zone they were in or the activity they were doing for the most amount of time each time period. Visitors may travel to additional zones or be involved in additional activities during one time period. Thus, the data presents a simplified picture of visitor behavior.

Fourth, data is not collected on non-respondents. That is, we cannot know if the visitors who return their questionnaires differ from those who do not.

Fifth, the data are limited to only three days of a visit. Visitors who stay longer may use their time differently than those who stay three days or less. Again, the data present a simplified picture of visitor behavior.

Nevertheless, the mapping data provides managers with a useful profile of visitor use, which can be further analyzed in a number of ways, as illustrated in the menu for further analysis.

Appendix B:
Questionnaire

Publications of the Visitor Services Project

A number of publications have been prepared as part of the Visitor Services Project. Reports 1-4 are available at cost from the University of Idaho Cooperative Park Studies Unit upon request. All other reports are available from the respective parks in which the studies were conducted.

<u>Report #</u>	<u>Title</u>
1.	Mapping interpretive services: A pilot study at Grand Teton National Park, 1983.
2.	Mapping interpretive services: Identifying barriers to adoption and diffusion of the method, 1984.
3.	Mapping interpretive services: A follow-up study at Yellowstone National Park and Mt. Rushmore National Memorial, 1984.
4.	Mapping visitor populations: A pilot study at Yellowstone National Park, 1984.
5.	North Cascades National Park Service Complex, 1985.
6.	Crater Lake National Park, 1986.
7.	Gettysburg National Military Park, 1987.
8.	Independence National Historical Park, 1987.
9.	Valley Forge National Historical Park, 1987.
10.	Colonial National Historical Park, 1988.
11.	Grand Teton National Park, 1988.
12.	Harpers Ferry National Historical Park, 1988.
13.	Mesa Verde National Park, 1988.
14.	Shenandoah National Park, 1988.
15.	Yellowstone National Park, 1988.
16.	Independence National Historical Park: Four Seasons Study, 1988.
17.	Glen Canyon National Recreation Area, 1989.
18.	Denali National Park and Preserve, 1989.
19.	Bryce Canyon National Park, 1989.
20.	Craters of the Moon National Monument, 1989.

For more information about the Visitor Services Project, please contact Dr. Gary E. Machlis, University of Idaho Cooperative Park Studies Unit, College of Forestry, Wildlife and Range Sciences, Moscow, Idaho 83843 or call (208) 885-7129.