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# An Estimate of Backcountry Day Use of Glacier National Park

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## EXECUTIVE SUMMARY

Estimates of the recreational use of backcountry settings allows managers to more professionally manage such settings because they have a greater understanding of use levels and patterns, impacts on other values, and the consequences of different management actions. In this study, backcountry use of Glacier National Park was estimated through the use of voluntary registration stations placed at 47 trailheads. The proportion of visitors registering was estimated through personal counts of use levels and comparison with the number registered. Additional methods of estimating use levels included infra-red beam activated photography and embedded vibration sensing counters.

The registration rate varied among the trailheads observed, but averaged 60% for the entire park. Approximately 32,000 registration cards were collected representing over 76,000 backcountry users. Over 95% of the use of the backcountry was due to day use. The most frequently mentioned group type was family. Results of the study indicate that about 157,400 people visited Glacier National Park's backcountry during the summer use season in 1988.

A set of equations was developed to determine potential predictors of this use on a day by day basis. The most effective predictors were campground occupancy on the east side of the park, entrances at St. Mary, and the sequence day of the season. The authors recommend continuing the study into the future.

# INTRODUCTION

Estimating recreational use of dispersed backcountry recreational settings is important for a variety of reasons. Use estimates provide managers with an objective assessment of the number of people recreating in the backcountry. Knowing levels of use, the types of users, and the geographical and temporal distribution of use helps managers examine the potential impacts of recreation on wildlife, develop a more complete understanding of the types and amounts of human benefits derived from recreational engagements, identify the level of potential encounters among groups, indicate potential for conflict among different types of groups, and determine potential impacts upon the resource itself. In an overall sense, then, knowing recreational use levels helps backcountry managers make more informed resource management and planning decisions.

Unfortunately, while there has been a substantial amount of research into specific techniques for estimating use in dispersed and developed recreational settings, the application of this technology, in terms of sampling, methodology, technique, and analysis, to different settings is not well described. A review of the literature reveals few synthesizing papers that would detail the alternative methodologies of recreational use estimation, particularly for dispersed primitive backcountry settings. In their review of the use estimation literature,

Roggenbuck and Lucas (1987) concluded "that development of improved use measurement technology is still an important need."

The significant implication of this finding is that the approach to estimate use in any given dispersed recreation setting must be custom designed for that setting, using only concepts and principles developed from an understanding of the relevant literature. Since many dispersed recreation areas are characterized by relatively large sizes, relatively low use densities, and numerous trailheads, designing an appropriate use estimation technique that yields reliable results in a cost effective manner is challenging. This usually rules out estimation techniques that are labor intensive and that rely upon a census of the recreationists visiting the area. Some type of sampling will be required. The literature, however, provides few guidelines for the sample design, sampling intensity, and temporal or geographical considerations involved in use estimation.

Our understanding of the literature, however does yield a number of considerations that must be addressed in developing a use estimation system. These include ensuring randomness in selection of samples for compliance checking or observation of visitors, identifying the level of confidence needed for the use estimation problem (and thereby identifying the needed sampling intensity), addressing the various types of logistical problems, including design of visitor registration cards, transportation for compliance checking and maintenance of card supply (if used),

and determining the actual method of counting and estimating use.

## STUDY OBJECTIVES

This study has two principal objectives. The first being to estimate total day use of the Glacier National Park backcountry for the 1988 summer visitor use season. For the purposes of this study, the use season was defined as the period from May 21 to September 6 (when the backcountry was closed because of fire danger). Use of the backcountry included not only recreational use, but use for resource management purposes by Glacier National Park employees. All trailheads in the park were considered part of the study with the exception of those leading to designated nature trails (i.e., Trail of the Cedars) and the trail to the Hidden Lake overlook at Logan Pass.

A second objective was to create a modeling technique that could be used in future seasons to estimate use levels without bearing the cost of a new study each year. This model would attempt to use information currently collected to predict backcountry day use. Associated with this objective is the development of a method to calibrate the model in future years.

## METHODS

### Method for Counting Use

The principal means of data collection in this study was through the use of a voluntary visitor trailhead registration, a

common technique employed in many backcountry situations. Because the Park has about 75 trailheads, no other use estimation technique would have the cost-effectiveness of trailhead registers. Trailhead registers were placed on 47 trails for the entire use season as defined in this study. These included all the intensively used trails plus others estimated to receive lesser amounts of use. Table 1 displays the location of each studied trail in the park and how they were stratified by park region and area. The 28 or so other trails not included in the study were estimated to receive such light levels of use that the costs of collection of data would have been prohibitive.

Each registration station was mounted on a pole and consisted of a sign and registration box. Stations were placed to the side of the trail and oriented so that the sign was easily viewed by groups entering the trail. The specific location of the registration station varied by trail. At some traiheads, the station was located within 10-25 yards of the trailhead. These were trails that tended not to receive casual use. At other locations (the Highline trail, for example), the registration station was located further up the trail--approximately one-half mile--in order to eliminate the casual user who was out for a minor stroll and was not entering the backcountry. It was felt that on these trails, which tended to be the more heavily used ones, the backcountry didn't begin until about one-half mile from the trailhead.

In each registration box was a set of registration cards

region was selected, two areas within that region were then sampled.

A correlational analyis of compliance was used. A correlational analysis means that individual groups were not checked for compliance. Rather the number of groups to enter during the sample period was observed and this was compared to the total number of registration cards deposited in the same time period.

Other Techniques

At five of the trailheads included in this study, infrared beam activated cameras were stationed to determine their cost effectiveness and accuracy as a use estimation technology. At two other trailheads, electronic vibration sensor pads were installed to also determine the cost effectiveness and accuracy of this technique.

Modeling Variables

To achieve the second objective, backcountry use was viewed as a function of the following variables: temperature, precipation, campground occupancy, and park entrances. It was believed that such variables, which are annually collected by the National Park Service, could be used to predict use. For each day of the study period, the daily high temperature at West Glacier and St. Mary, the daily precipitation at West Glacier and St. Mary, daily westside and eastside campground occupancy and

daily entrances into the park at West Glacier and St. Mary were collected.

## RESULTS

### The 1988 Use Season

#### Use Characteristics

Nearly 32,000 registration cards were collected and entered into a computerized data base for this study. The trailhead compliance rate and number of groups observed that were used to estimate compliance are shown in Table 2. The overall parkwide compliance rate is estimated at 60%--close to the compliance rate found in Petersen's (1985) study of wilderness day users. However, compliance rates differed signficantly among trailheads (range of 0-89%) and indicate that it would be inappropriate to apply the parkwide figure to individual trailheads without some justification to do so.

Group type also varies by trailhead (Table 3, 4, and 5), and perhaps explains in part differences in the compliance rate among trailheads. However, we have no data on differences in compliance among the various types of groups. Table 6 shows average group size varied by trailhead, but for the park as a whole was 2.8 people. Most hikes are relatively short (less than 4 miles), and actual distance hiked is very close to planned distance. Table 6 shows that the average length of stay on the trail for group varied considerably among trails, but for the

park as a whole was 3.5 hours. This figure is highly correlated with actual distance hiked, which averaged 3.8 hours.

Figure 2 shows the starting time for hikes totaled across the park. Note that most hikes begin between the hours of 10 AM and 12 Noon, while hikes tend to end between 3 PM and 5 PM. The distribution for individual trails, may vary somewhat from the overall park data. The database can be easily manipulated to identify specific trail distributions.

Estimated Use Level

Figure 3 shows number of registration cards collected by date of hike. This is an approximation of the distribution of all hikes in the park, but because of trail closures, differences in seasonal openings, and card inventory problems may not be totally representative. The daily distribution reached its peak in early August. Signficant dips in daily distribution are association with major precipitation events.

To estimate use for the 1988 season, the number of registration cards received for each trailhead by day was divided by the estimated compliance rate for that trailhead and then summed over the season. Only the 47 trails where registration stations were located are included in this estimate. Where compliance rates for trailheads are not available, the area average compliance rate was used. For two areas, Middle Fork and Goathaunt, the parkwide compliance rate was used because for logistical reasons, compliance was not checked in these areas. The proportion of day visitors using the trail was calculated and

an estimate of backcountry day use groups using the trail was developed. This was then multiplied by the average group size for that trailhead to determine the number of people using the trail over the entire season. Results are shown in Table 7.

The unadjusted estimate of backcountry day use during the 1988 summer season is 125,900 people. This estimate requires an upward adjustment to account for the approximately 2500 registration cards, for which only Part II is available. The trailhead used for the entrance cannot be easily determined from these cards. Assuming that this set of cards has the same geographic distribution as estimated use by area reported in Table 7, an adjustment can be made for the total estimated parkwide use and use in each area. We feel that estimating use for each trail from this data is too unreliable to attempt. Table 8 shows the results of the adjustment in use estimation, and results in an adjusted estimated backcountry day use of 136,500 people.

This estimate does not include interpretive trail hikes conducted by Park naturalists. An estimated 20,930 individuals participated in these hikes (Table 9), resulting in an estimated backcountry use of 157,400 for the 1988 study period. These figures should be added to those of Table 7 for estimates of trail by trail use--with the understanding that there is still some underestimate of use for the reasons given above..

During the compliance checking process it was determined that many trailheads lacked an adequate inventory of registration

cards during the study period. While these lapses were noted, in most cases it was impossible to adjust for them in these periods because the length of time during which there was a lapse was unknown. Likewise, examination of the data itself suggests other potential lapses. For example, no registration cards were completed for the Apgar Lookout trail for the period June 26-July 21. An examination of trail closures shows that this trail was open in this period. It is unlikely that no visitors used this trail during this period; thus, the lack of registration cards is probably due either to inventory lapses or getting mislaid following collection from the registration station. However, there is no established procedure for making adjustments in use estimates because the exact reasons for the low level of visitor registration is unknown. Table A-1 lists trailheads where the authors feel that there may have been inventory problems during the study.

Previous research has noted that day users tend to have a lower registration rate than overnight users. The extent to which overnight users were included in the observation of registration compliance and the extent to which this differential registration occurs in the park may have resulted in an underestimate of day use. However, the most heavily used trails are dominated by day use, suggesting any underestimate as a result of this factor would be minor.

Summary data for each area included in the study and for each day of the study period is shown in Table B-1. Also

displayed in this table are the values for the independent variables used in the predictive modeling component of the study. Individual trail data are available on disk. An example is shown in Table B-2.

Other Techniques

As noted in the methodology, infrared beam activated Super 8 movie cameras were used at several trailheads. Our experience with this technology during the study suggests that it is not a cost-effective technique in this situation for several reasons. First, locating the camera in a secure setting that provides a high quality image is difficult. For example, since the movie camera is required to operate any time during the day, finding a location that can provide a good image under a variety of lighting conditions may be very difficult. A relatively high investment in testing alternative locations would be necessary to successfully apply this technology. Second, the cameras use Super 8 Ektachrome movie film. Not only is this film becoming more difficult to find, an appropriate movie projector (with automated stop action) is almost impossible to locate.

The vibration sensing trail pads produced mixed results. At the Packer's Roost site, the electronic components malfunctioned. However, at the Avalanche Lake Trail, the sensor worked very well. During the time in which it operated, the authors calculated that 20,900 people hiked the trail. The counter recorded 21,595 users. The estimates are within 3.5% of each

other, probably close enough for use estimation purposes. Since the pads remain in place, we recommend the park acquire the electronics to continue monitoring use.

## Modeling of Backcountry Use

A second major purpose of the study was to develop a system to predict backcountry use based on easily observable variables. The objective is to measure variables that can be used in an equation to estimate daily backcountry use, rather than measuring such use directly. Measuring backcountry use directly as done in this study is simply too expensive under current budget levels and priorities.

To predict or model backcountry use, and thereby attempt to find easily observable predictor variables, daily estimated recreational use for the three major park regions (Table 1) and for the park as a whole were used as the dependent variables. Independent variables included: (1) West Glacier daily park entrances; (2) St. Mary daily park entrances; (2) daily westside campground occupancy; (4) daily eastside campground occupancy; (5) daily westside high temperature; (6) daily eastside high temperature; (7) daily westside precipitation; and (8) daily eastside precipitation.

The process used to develop a predictive equation is termed multiple regression analysis. Multiple regression analysis associates the variability of two or more independent variables with the variability of a dependent variable. It is a commonly

used statistical technique for these types of situations. The output of the analysis is an equation that describes the statistical association, if any, between the independent and dependent variables. This equation can then be used to predict values of the independent variable.

All eight independent variables were entered into a stepwise multiple regression equation to determine which (if any) would most accurately predict overall backcountry use. Initial multiple regression equations demonstrated some significant, systematic biases in the residuals (Figure 4), indicating a potential serial bias problem; the initial equations tended to overestimate use in the early part of the season and underestimate in the later part of the season. To deal with this, a new set of equations was developed that included the natural logarithm of the day (May 21=1, September 6 =109) and transformed the dependent variable into a natural logarithm. This resulted in a much better prediction of use. The equations are shown in Table 10. Table A-2 shows the standardized beta coefficients for these equations. The size of these coefficients (which can have a maximum value of 1.0) demonstrate the relative importance of each of the independent variables. For example, for estimating parkwide backcountry day use, campground occupancy on the eastside (CEAST) with a beta coefficient of .39 was the most important variable.

Similar analyses were attempted with major trails and with each of the trail areas. Nearly all the equations demonstrated

some significant biases that could not be removed through data transformations. Trail specific regression equations generally did not explain significant amounts of variance. Area backcountry use regressions are reported in Table A-3, but still contain biases that cannot be removed through data transformations. Therefore, an inter-area correlation analysis was conducted to determine if there were significantly high and meaningful correlations among areas. All correlations were statistically significant at the .01 level, but differed in terms of size (Table A-4). The results indicate that the number of trail registration cards completed in some areas would also be useful method of estimating total backcountry use in the future.

## RECOMMENDATIONS

A trail registration system can help national park managers develop more accurate estimates of backcountry use. Such estimates may be helpful in addressing a variety of management issues and concerns. The numerous attempts to develop estimates of trail use in the past suggest that backcountry visitation is a continuing data need. If a decision is made to continue with estimation of trail use through registration, we suggest the following be considered.

First, the system must be a systematic one, and adequate personnel resources should be devoted to the effort. We note again that lapses in registration card inventory at some

locations and times affected the ability to accurately estimate use. In particular, all personnel must be committed to this process, down to the individual seasonal ranger. Personnel must understand the importance of the effort and the need to maintain registration card inventories. We also note that the lack of registration cards at one station may suggest to the visitor that the park is not really committed to the project, and that registration at other trails where cards are available may not be necessary.

Second, given some of the correlations reported in Table A-4, it may not be necessary to place registration stations at every trailhead if fund availability is a limiting factor. Placing and maintaining registration stations at a few trailheads--within one specific area--may be a cost effective method of monitoring use levels over a three to five year period of time. And, for some purposes, there may be only a relatively few trails where it is important to develop reasonably accurate use estimates. We feel that it is better to do a good job on a few stations than a poor job on many.

Third, the park may wish to invest in the electronic vibration sensing technology. While the sensing pads could be installed at numerous trailheads for a modest cost (the price of each pad is approximately $50), only a few of the more expensive electronic components (about $350) would be needed. These could then be rotated around different trails on some type of systematic basis. Two pads are already installed, and could be

used in place.

Fourth, the park needs to establish a data entry and analysis methodolgy. This project involved entering data from 32,000 registration cards. We recommend that only summaries of the cards, by trailhead and day, be entered. This would significantly reduce the data entry costs.

Fifth, we strongly recommend the park continue to monitor use, if only at a few stations. This would allow the park to continue to test the models that were developed as part of this project. We suggest at least six trailheads be monitored during 1989. Such continued monitoring over a minimum 3 to 5 year period would allow validation and revision of the predictive models developed in 1988.

Sixth, there is some concern that the design of the registration sign may have impacted the compliance rate. The original design was an orange and brown graphic showing people registering. Because of concerns about compatibility with existing Glacier National Park signs, this design was changed to a brown and white colored sign with only a verbal message. It is not known to what extent the different sign designs may result in different compliance rates. This would be certainly worthy of some relatively simple experimentation.

Seventh, changes in the registration card could be considered once the current supply is exhausted. Specifically, the term "stock" should be replaced by horse; the question dealing with overnight stay should be clarified to refer to

backpackers only, not chalet or users of front country accommodations or campgrounds; and adding a specific category to deal with NPS employees in the backcountry for business purposes. Instructions on the sign post should also emphasize that visitors taking multiple day trips should complete a card for each trip.

Glacier Park Visitor Survey 12766

**Please have one member from your group answer all the questions on the top card prior to today's trip on this trail.**

Date _____ Time _____ AM / PM

Group Size _____ Starting Point _____
(Trailhead)

What type of trip do you plan to do today? ☐ DAY ☐ OVERNIGHT

Will you use stock? ☐ YES ☐ NO

How far do you plan to go today? _____
(miles or location)

Which type of group best describes the group you are with?

☐ ALONE
☐ FAMILY
☐ FRIENDS
☐ FAMILY AND FRIENDS
☐ CLUB OR ORGANIZED GROUP

After completing this card tear off here and deposit in registration box.

---

**Please take this card with you and complete it after your hike.**

Date _____ Exit Time _____ AM / PM

How far did you go today? _____
(miles or location)

At which trailhead did you exit? _____

**Please deposit into any registration box or return to any ranger station or visitor center.**

Thank you very much for your cooperation in this study. 12766

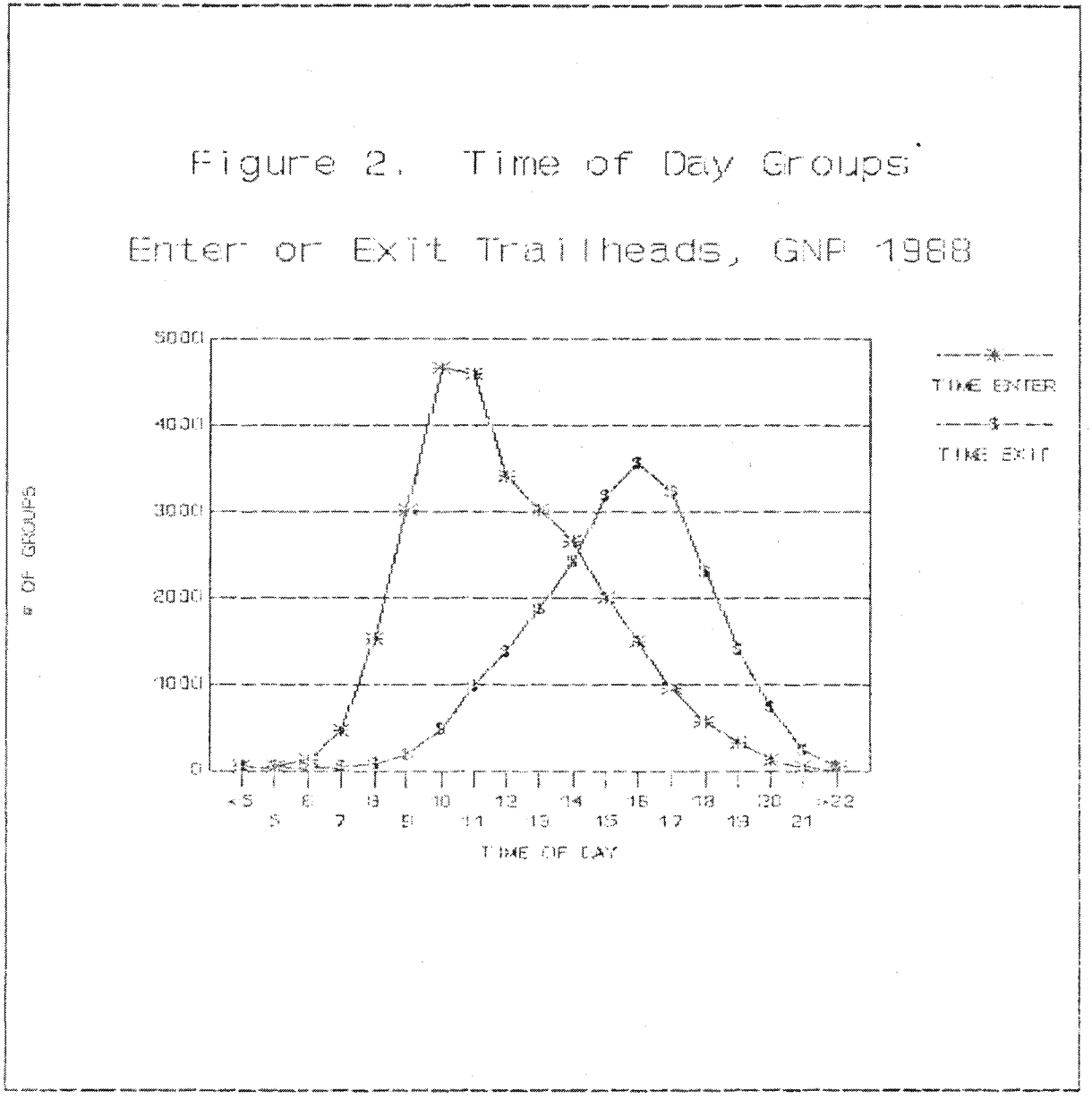
Figure 2. Time of Day Groups
Enter or Exit Trailheads, GNP 1988
# OF GROUPS
5000
4000
3000
2000
1000
0
<5
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
>22
TIME OF DAY
TIME ENTER
TIME EXIT

Figure 3. Groups Registered for Day Use of the Backcountry, GNP 1988

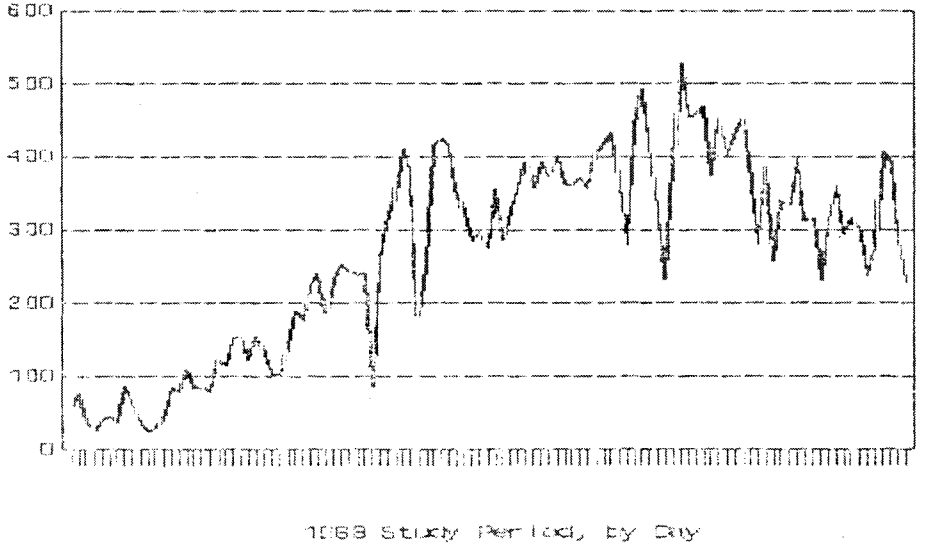

Figure 4. Normal probability plot of expected versus observed standardized residuals, showing a violation of the assumption of normality of distribution (s-shaped curve), using observed values of TOTAL estimated backcountry use by day.

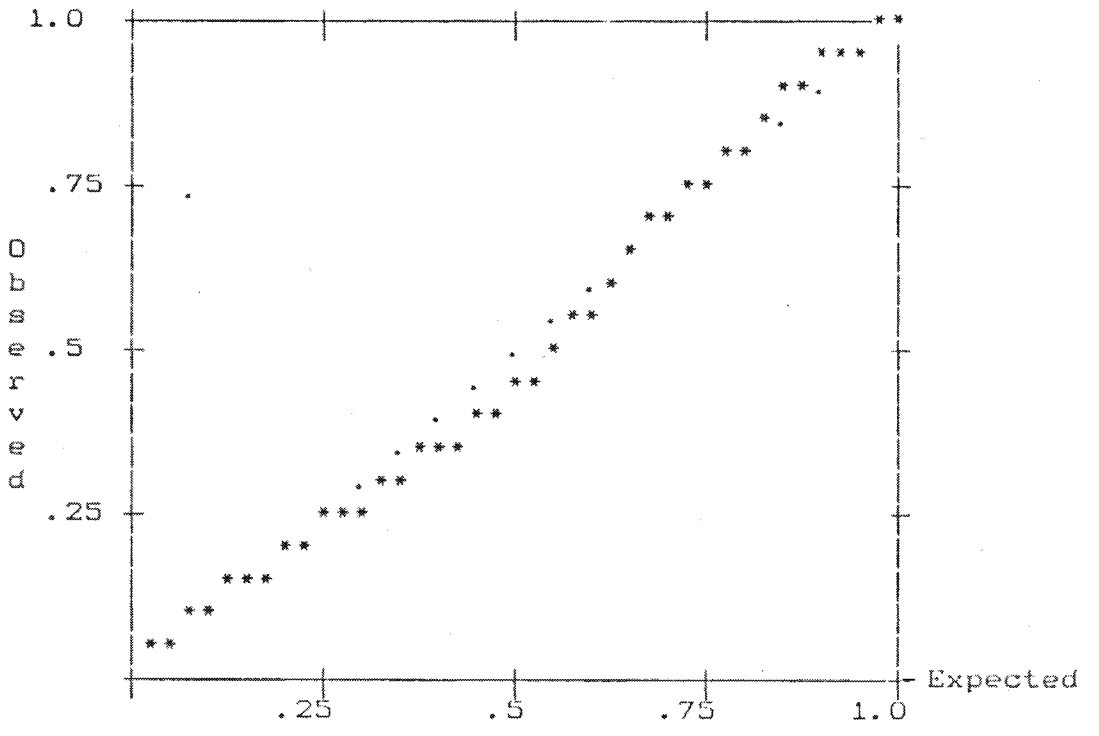

Table 1. Park regions, areas, and trailheads included in study, 1988.

| REGION | AREA | TRAILHEAD |
|---|---|---|
| West | North Fork | Boulder |
| | | Brown |
| | | Quartz Lake |
| | | Quartz Creek |
| | | Logging Lake |
| | Apgar-McGee | Huckleberry Mtn. |
| | | Huckleberry LO |
| | | Apgar LO |
| | | Howe Lake |
| | | Camas Creek |
| | Upper Lake McDonald | Lincoln Lake |
| | | Sperry Chalet |
| | | Trout Lake |
| | | Avalanche Lake |
| | Logan Pass | Packer's Roost |
| | | The Loop |
| | | Hiline |
| East | Upper St. Mary Lake | Jackson Overlook |
| | | St. Mary's Falls |
| | | Baring Creek |
| | | Otokomi Lake |
| | | Siyeh Bend |
| | | Red Eagle |
| | Many Glacier | Ptarmigan |
| | | Swiftcurrent Pass |
| | | Josephine Lake |
| | | Piegan Pass |
| | | Grinnell Glacier |
| | | Appekunny Falls |
| | | Red Gap |
| | | Cracker Lake |
| | Two Medicine | Oldman Lake |
| | | Mt. Henry |
| | | Dawson Pass |
| | | Two Medicine |
| | | Cutbank |
| | | Upper Two Medicine |

Table 1 (Continued). Park regions, areas, and trailheads included in study, 1988.

| REGION | AREA | TRAILHEAD |
|---|---|---|
| Other | Goathaunt | Chief Mtn. |
| | | Boundary |
| | | Goathaunt |
| | Middle Fork | Walton |
| | | Fielding |
| | | Summit |
| | | Lubec |
| | | Harrison Lake |
| | | Nyack Creek |

Table 2. Number of groups observed and compliance rate by trailhead.

| Trailhead | Groups | Compliance Rate* |
|---|---|---|
| Brown Pass | 12 | 75 |
| Quartz Lake | 10 | 70 |
| Logging Lake | 7 | 57 |
| Howe Lake | 9 | 78 |
| Huckleberry Lookout | 7 | 43 |
| Apgar Lookout | 9 | 89 |
| Lincoln Lake | 7 | 57 |
| Sperry | 61 | 57 |
| Avalanche Lake | 253 | 67 |
| Packer's Roost | 1 | 0 |
| Loop | 22 | 64 |
| Highline | 166 | 56 |
| Gunsight Lake | 19 | 84 |
| St Mary Falls | 69 | 45 |
| Otokomi Lake | 11 | 64 |
| Ptarmigan/Iceberg | 73 | 69 |
| Swiftcurrent | 86 | 48 |
| Grinnell | 55 | 56 |
| Piegan Pass | 4 | 0 |
| Red Gap | 0 | -- |
| Appekunny | 38 | 68 |
| Oldman Lake | 18 | 33 |
| Dawson Pass | 38 | 55 |
| Mt Henry | 12 | 67 |
| TOTAL | 987 | 60 |

*in percent

Table 3. Percent Day and Overnight by Trailhead.

| Trailhead | Day | Night |
|---|---|---|
| Boulder | 71 | 29 |
| Brown | 85 | 15 |
| Quartz Lake | 75 | 25 |
| Quartz Creek | 69 | 31 |
| Logging Lake | 60 | 40 |
| Huckleberry Mtn. | 100 | 0 |
| Huckleberry LO | 95 | 5 |
| Apgar LO | 99 | 1 |
| Howe Lake | 99 | 1 |
| South Boundary | 92 | 8 |
| Camas Creek | 95 | 5 |
| Lincoln Lake | 96 | 4 |
| Sperry Chalet | 65 | 35 |
| Trout Lake | 90 | 10 |
| Avalanche Lake | 99 | 1 |
| Packer's Roost | 75 | 25 |
| The Loop | 85 | 15 |
| Hiline | 85 | 15 |
| Jackson Overlook | 47 | 53 |
| St. Mary's Falls | 99 | 1 |
| Baring Creek | 99 | 1 |
| Otokomi Lake | 94 | 6 |
| Siyeh Bend | 99 | 1 |
| Red Eagle | 81 | 19 |
| Ptarmigan | 96 | 4 |
| Swiftcurrent Pass | 98 | 2 |
| Grinnell Glacier | 99 | 1 |
| Josephine Lake | 99 | 1 |
| Piegan Pass | 96 | 4 |
| Appekunny Falls | 100 | 0 |
| Red Gap | 28 | 72 |
| Cracker Lake | 82 | 18 |
| Oldman Lake | 75 | 25 |
| Mt. Henry | 99 | 1 |
| Dawson Pass | 89 | 11 |
| Two Medicine | 94 | 6 |
| Cutbank | 78 | 22 |
| Upper Two Medicine | 92 | 8 |

Table 3 (Cont.). Percent Day and Overnight by Trailhead.

| Trailhead | Day | Night |
|---|---|---|
| Walton | 84 | 16 |
| Fielding | 71 | 29 |
| Summit | 100 | 0 |
| Lubec | 99 | 1 |
| Harrison Lake | 66 | 34 |
| Nyack Creek | 35 | 65 |
| Chief Mtn. | 19 | 81 |
| Boundary | 77 | 23 |
| Goathaunt | 82 | 18 |
| TOTAL | 91 | 9 |

Table 4. Percent Hikers and Horse Use by Trailhead.

| Trailhead | Horse | Hike |
|---|---|---|
| Boulder | 4 | 96 |
| Brown | 2 | 98 |
| Quartz Lake | 2 | 98 |
| Quartz Creek | 3 | 97 |
| Logging Lake | 3 | 97 |
| Huckleberry Mtn. | 1 | 99 |
| Huckleberry LO | 6 | 94 |
| Apgar LO | 1 | 99 |
| Howe Lake | 3 | 97 |
| South Boundary | 8 | 92 |
| Camas Creek | 5 | 95 |
| Lincoln Lake | 5 | 95 |
| Sperry Chalet | 1 | 99 |
| Trout Lake | 5 | 95 |
| Avalanche Lake | 0 | 100 |
| Packer's Roost | 8 | 92 |
| The Loop | 3 | 97 |
| Hiline | 1 | 99 |
| Jackson Overlook | 1 | 99 |
| St. Mary's Falls | 1 | 99 |
| Baring Creek | 3 | 97 |
| Otokomi Lake | 1 | 99 |
| Siyeh Bend | 1 | 99 |
| Red Eagle | 3 | 97 |
| Ptarmigan | 1 | 99 |
| Swiftcurrent Pass | 1 | 99 |
| Grinnell Glacier | 1 | 99 |
| Josephine Lake | 1 | 99 |
| Piegan Pass | 10 | 90 |
| Appekunny Falls | 0 | 100 |
| Red Gap | 0 | 100 |
| Cracker Lake | 1 | 99 |
| Oldman Lake | 1 | 99 |
| Mt. Henry | 1 | 99 |
| Dawson Pass | 2 | 98 |
| Two Medicine | 2 | 98 |
| Cutbank | 8 | 92 |
| Upper Two Medicine | 1 | 99 |

Table 4 (Cont.). Percent Hikers and Horse Use by Trailhead.

| Trailhead | Horse | Hike |
|---|---|---|
| Walton | 13 | 87 |
| Fielding | 29 | 71 |
| Summit | 5 | 95 |
| Lubec | 7 | 93 |
| Harrison Lake | 20 | 80 |
| Nyack Creek | 28 | 72 |
| Chief Mtn. | 7 | 93 |
| Boundary | 3 | 97 |
| Goathaunt | 1 | 99 |
| TOTAL | 1 | 99 |

Table 5. Type of Group by Trailhead, in Percent.

| Trailhead | Alone | Family | Friends | Family/ Friends | Club/ Organized | Park Employee |
|---|---|---|---|---|---|---|
| Boulder | 15 | 46 | 29 | 10 | 0 | 0 |
| Brown | 17 | 48 | 26 | 6 | 1 | 2 |
| Quartz Lake | 13 | 43 | 26 | 13 | 2 | 3 |
| Quartz Creek | 14 | 38 | 28 | 3 | 3 | 14 |
| Logging Lake | 12 | 42 | 23 | 3 | 2 | 18 |
| Huckleberry Mtn. | 9 | 75 | 8 | 6 | 1 | 1 |
| Huckleberry LO | 21 | 37 | 21 | 4 | 2 | 15 |
| Apgar LO | 14 | 49 | 22 | 6 | 1 | 8 |
| Howe Lake | 20 | 38 | 27 | 7 | 1 | 7 |
| South Boundary | 32 | 28 | 16 | 6 | 2 | 16 |
| Camas Creek | 23 | 33 | 19 | 13 | 2 | 10 |
| Lincoln Lake | 28 | 42 | 20 | 2 | 1 | 7 |
| Sperry Chalet | 16 | 48 | 22 | 10 | 1 | 3 |
| Trout Lake | 16 | 39 | 27 | 7 | 1 | 10 |
| Avalanche Lake | 7 | 67 | 16 | 9 | 1 | 0 |
| Packer's Roost | 20 | 22 | 27 | 8 | 2 | 21 |
| The Loop | 15 | 44 | 27 | 8 | 2 | 4 |
| Hiline | 10 | 53 | 23 | 11 | 2 | 1 |
| Jackson Overlook | 15 | 40 | 32 | 10 | 1 | 2 |
| St. Mary's Falls | 9 | 67 | 15 | 7 | 1 | 1 |
| Baring Creek | 21 | 37 | 22 | 6 | 1 | 13 |
| Otokomi Lake | 14 | 51 | 26 | 7 | 1 | 1 |
| Siyeh Bend | 19 | 36 | 28 | 11 | 3 | 3 |
| Red Eagle | 33 | 34 | 22 | 6 | 2 | 3 |
| Ptarmigan | 12 | 53 | 24 | 8 | 1 | 2 |
| Swiftcurrent Pass | 10 | 65 | 15 | 8 | 1 | 1 |
| Grinnell Glacier | 13 | 56 | 21 | 8 | 1 | 1 |
| Josephine Lake | 14 | 51 | 23 | 3 | 1 | 8 |
| Piegan Pass | 27 | 23 | 40 | 0 | 10 | 0 |
| Appekunny Falls | 8 | 70 | 13 | 7 | 1 | 1 |
| Red Gap | 15 | 33 | 33 | 9 | 3 | 7 |
| Cracker Lake | 20 | 38 | 31 | 5 | 1 | 5 |
| Oldman Lake | 14 | 40 | 31 | 7 | 3 | 5 |
| Mt. Henry | 12 | 62 | 17 | 5 | 3 | 1 |
| Dawson Pass | 15 | 56 | 20 | 7 | 1 | 1 |
| Two Medicine | 11 | 57 | 22 | 8 | 1 | 1 |
| Cutbank | 16 | 36 | 29 | 8 | 4 | 7 |
| Upper Two Medicine | 9 | 60 | 15 | 10 | 2 | 4 |

Table 5 (Cont.). Type of Group by Trailhead, in percent.

| Trailhead | Alone | Family | Friends | Family/ Friends | Club/ Organized | Park Employee |
|---|---|---|---|---|---|---|
| Walton | 21 | 39 | 12 | 4 | 1 | 23 |
| Fielding | 4 | 8 | 13 | 0 | 17 | 58 |
| Summit | 21 | 20 | 23 | 14 | 4 | 18 |
| Lubec | 47 | 9 | 26 | 7 | 3 | 8 |
| Harrison Lake | 6 | 29 | 41 | 3 | 3 | 18 |
| Nyack Creek | 8 | 15 | 12 | 8 | 15 | 42 |
| Chief Mtn. | 15 | 22 | 43 | 8 | 4 | 18 |
| Boundary | 18 | 44 | 27 | 5 | 5 | 1 |
| Goathaunt | 10 | 52 | 20 | 8 | 2 | 8 |
| TOTAL | 12 | 56 | 20 | 9 | 1 | 2 |

Table 6. Average group size, planned and reported travel distance and average length of stay, backcountry day users, Glacier National Park, 1988.

| Trail | Average Group Size | Planned Distance | Reported Distance | Average Length of Stay |
|---|---|---|---|---|
| Boulder | 2.78 | 5.2 | 3.8 | 2.5 |
| Brown | 2.55 | 4.7 | 4.1 | 3.3 |
| Quartz Lake | 2.65 | 4.6 | 4.5 | 4.7 |
| Quartz Creek | 2.18 | 5.3 | 4.4 | 4.2 |
| Logging Lake | 2.70 | 5.3 | 5.5 | 5.2 |
| Huckleberry Mtn. | 3.02 | 1.2 | 1.2 | 0.7 |
| Huckleberry LO | 2.35 | 4.3 | 4.0 | 3.2 |
| Howe Lake | 2.66 | 2.4 | 2.6 | 2.8 |
| Apgar Lookout | 2.29 | 3.0 | 2.9 | 3.5 |
| South Boundary | 2.12 | 3.8 | 3.1 | 2.5 |
| Camas Creek | 2.49 | 4.6 | 3.9 | 2.9 |
| Lincoln Lake | 2.23 | 5.1 | 4.6 | 3.3 |
| Sperry Chalet | 2.71 | 5.6 | 5.4 | 4.9 |
| Trout Lake | 2.39 | 4.2 | 3.9 | 4.4 |
| Avalanche Lake | 3.12 | 2.0 | 2.0 | 2.5 |
| Packer's Roost | 2.20 | 4.4 | 3.7 | 2.7 |
| The Loop | 2.76 | 4.8 | 4.7 | 4.3 |
| Hiline | 3.0 | 5.8 | 5.6 | 4.7 |
| Jackson Overlook | 2.71 | 7.6 | 6.8 | 5.9 |
| St. Mary's Falls | 2.79 | 1.6 | 1.7 | 1.5 |
| Baring Creek | 2.54 | 4.5 | 4.1 | 3.7 |
| Otokomi Lake | 2.48 | 4.0 | 3.9 | 3.6 |
| Siyeh Bend | 2.69 | 5.6 | 5.7 | 5.2 |
| Red Eagle | 2.05 | 4.7 | 4.5 | 3.0 |
| Ptarmigan | 2.68 | 5.4 | 5.3 | 5.0 |
| Swiftcurrent Pass | 2.75 | 2.9 | 3.0 | 2.8 |
| Grinnell Glacier | 2.72 | 4.2 | 4.3 | 4.2 |
| Josephine Lake | 2.19 | 4.5 | 4.6 | 4.0 |
| Piegan Pass | 3.00 | 5.8 | 6.5 | 4.0 |
| Appekunny Falls | 2.75 | 1.1 | 1.1 | 1.3 |
| Red Gap | 2.07 | 6.4 | 7.3 | 6.6 |
| Cracker Lake | 2.33 | 5.6 | 5.5 | 5.8 |
| Oldman Lake | 2.70 | 6.1 | 5.7 | 5.2 |
| Mt. Henry | 2.78 | 2.4 | 2.1 | 2.1 |
| Dawson Pass | 2.60 | 4.6 | 4.6 | 4.2 |
| Two Medicine | 2.74 | 3.6 | 3.3 | 2.9 |
| Cutbank | 2.51 | 4.9 | 5.1 | 4.7 |
| Upper Two Medicine | 3.14 | 3.0 | 3.3 | 3.6 |

Table 6 (Continued). Average group size, planned and reported travel distance and average length of stay, backcountry day users, Glacier National Park, 1988.

| Trail | Average Group Size | Planned Distance | Reported Distance | Average Length of Stay |
|---|---|---|---|---|
| Walton | 2.84 | 4.5 | 4.5 | 3.9 |
| Fielding | 1.70 | 5.0 | 5.0 | 3.9 |
| Summit | 2.30 | 4.6 | 4.6 | 4.5 |
| Lubec | 1.88 | 6.2 | 6.0 | 6.3 |
| Harrison Lake | 2.46 | 5.3 | 5.6 | 6.6 |
| Nyack Creek | 2.73 | 6.8 | 7.0 | 4.4 |
| Chief Mtn. | 2.45 | 7.6 | 7.6 | 4.8 |
| Boundary | 2.61 | 5.3 | 7.0 | 3.1 |
| Goathaunt | 2.79 | 3.8 | 4.1 | 3.8 |
| TOTAL | 2.80 | 3.9 | 3.8 | 3.5 |

Table 7. Estimated day use of the Glacier National Park backcountry, by trailhead, in people (unadjusted), 1988.

| TRAIL | ESTIMATED USE |
|---|---|
| Boulder | 300 |
| Brown | 1100 |
| Quartz Lake | 700 |
| Quartz Creek | 100 |
| Logging Lake | 400 |
| Huckleberry Mtn. | 1200 |
| Huckleberry LO | 800 |
| Apgar LO | 500 |
| Howe Lake | 400 |
| South Boundary | 100 |
| Camas Creek | 200 |
| Lincoln Lake | 400 |
| Sperry Chalet | 4300 |
| Trout Lake | 700 |
| Avalanche Lake | 26200 |
| Packer's Roost | 200 |
| The Loop | 1800 |
| Hiline | 13300 |
| Jackson Overlook | 1300 |
| St. Mary's Falls | 10400 |
| Baring Creek | 800 |
| Otokomi Lake | 1600 |
| Siyeh Bend | 3300 |
| Red Eagle | 700 |
| Ptarmigan | 9300 |
| Swiftcurrent Pass | 12300 |
| Grinnell Glacier | 11300 |
| Josephine Lake | 500 |
| Piegan Pass | 100 |
| Appekunny Falls | 4100 |
| Red Gap | 100 |
| Cracker Lake | 1100 |
| Oldman Lake | 2100 |
| Mt. Henry | 1500 |
| Dawson Pass | 3000 |
| Two Medicine | 4800 |
| Cutbank | 900 |
| Upper Two Medicine | 1600 |

Table 7 (Continued). Estimated day use of the Glacier National Park backcountry, by trailhead, in people (unadjusted), 1988.

| TRAIL | ESTIMATED USE |
|---|---|
| Walton | 500 |
| Fielding | 100 |
| Summit | 200 |
| Lubec | 200 |
| Harrison Lake | 100 |
| Nyack Creek | 100 |
| Chief Mtn. | 200 |
| Boundary | 300 |
| Goathaunt | 1400 |

ESTIMATED TOTAL UNADJUSTED BACKCOUNTRY DAY USE, MAY 21-SEPTEMBER 6, 1988 = 125900 PERSONS

Table 8. Adjusted backcountry day use estimate for each area, in people, Glacier National Park, 1988.*

| AREA | UNADJUSTED | PERCENT | ADJUSTED |
|---|---|---|---|
| North Fork | 2500 | 2.01 | 2700 |
| Apgar-McGee | 3200 | 2.57 | 3400 |
| Upper Lake McDonald | 31800 | 25.56 | 34600 |
| Logan Pass | 15100 | 12.14 | 16500 |
| Upper St. Mary Lake | 17800 | 14.31 | 19500 |
| Many Glacier | 38700 | 31.11 | 41600 |
| Two Medicine | 14000 | 10.21 | 15200 |
| Middle Fork | 1100 | 0.88 | 1200 |
| Goathaunt | 1700 | 1.21 | 1800 |
| TOTAL | 125900 | | 136500 |

*Figures do not include people participating in naturalist-led hikes. See Table 9.

Table 9. Visitor Participation (in people) in Naturalist-led Hikes, Glacier National Park, 1988.

| Trailhead | Participation |
|---|---|
| Huckleberry Mountain | 26 |
| Apgar Lookout | 34 |
| Fish Lake | 29 |
| Avalanche Lake | 3039 |
| Highline | 950 |
| Siyeh Bend | 129 |
| St. Mary Falls | 216 |
| Red Eagle Lake | 217 |
| Grinnell Glacier | 8598 |
| Cracker Lake | 32 |
| Appekunny Falls | 14 |
| Iceberg/Ptarmigan | 1461 |
| Swiftcurrent | 751 |
| Oldman | 18 |
| Dawson Pass | 14 |
| South Shore Two Medicine | 464 |
| Mt. Henry | 89 |
| Upper Two Medicine | 3736 |
| Goat Haunt | 1113 |
| TOTAL | 20930 |

Table 10. Multiple regression equations for estimating total backcountry use for the entire park and major areas, 1988.

| Dependent | EEAST | CEAST | TEAST | DAY | PWEST | EWEST | Constant |
|---|---|---|---|---|---|---|---|
| TOTAL | .00011 | .0021 | .0061 | .0051 | -.39 | | 3.96 |
| Multiple R = .96 | | | | | | | |
| EASTSIDE | .00016 | .0016 | .01 | .0048 | | | 3.01 |
| Multiple R = .95 | | | | | | | |
| WESTSIDE | | .0028 | | .0067 | -.49 | .000071 | 3.46 |
| Multiple R = .93 | | | | | | | |
| OTHER | | .0036 | .01 | | | | .55 |
| Multiple R =. 76 | | | | | | | |

NOTES:

All dependent variables are defined as the natural logarithm (ln) of the estimated backcountry use.

EEAST = Vehicle entrances recorded at St. Mary.
CEAST = Campground occupancy on the eastside of the park.
TEAST = High temperature at St. Mary.
DAY = Sequence day of the study period.
PWEST = Precipitation recorded at Park Headquarters.
EWEST = Vehicle entrances recorded at West Glacier.

All coefficients are positive unless otherwise noted.

Table A-1. Potential Inventory Problem Time Periods by Trailhead.

---

Huckleberry Mountain
- July 27
- Aug 22
- Aug 27

Apgar Lookout
- June 26 - July 20

Logging Lake
- July 7 - July 18

Sperry
- Aug 20 - Aug 24

Avalanche Lake
- June 29
- July 16

Loop
- Aug 1 - 2
- Aug 14 - Aug 16

Highline
- June 29
- July 2
- July 16
- July 18
- July 31
- Aug 1
- Aug 2
- Aug 6
- Aug 7
- Aug 9
- Aug 17

St. Mary Falls
- June 11 - June 13
- June 16 - June 18
- July 24
- Aug 6 - Aug 7
- Aug 23 - Aug 25

Siyeh Bend
- May 21 - June 8
- June 15
- July 15
- Aug 30

Red Eagle
- June 21 - June 22
- July 4 - July 5
- Aug 19 - Aug 20

Iceberg/Ptarmigan
- June 18 - June 19
- Aug 5 - Aug 6
- Aug 10
- Aug 20 - Aug 21

Swiftcurrent
- May 30 - May 31
- June 15 - June 18
- July 5
- July 14 - July 16

Grinnell Glacier
- June 17 - June 19

Oldman Lake
- June 10 - June 12
- Aug 3

Mt. Henry
- Aug 20

Dawson Pass
- June 21
- June 25 - June 29

South Shore 2Med
- July 5

Table A-2. Standardized Beta coefficients for significant variables in multiple regression equations for estimating backcountry use of Glacier National Park.

| Dependent Variable | CEAST | CWEST | TEAST | PWEST | PEAST | EEAST | DAY | EWEST |
|---|---|---|---|---|---|---|---|---|
| TOTAL | .40 | | .08 | -.08 | | .35 | .21 | |
| WEST | .51 | | | -.10 | | | .27 | .20 |
| EAST | .29 | | .13 | | | .47 | .20 | |
| OTHER | .14 | | .70 | | | | | |

CEAST - Campground Occupancy Eastside

CWEST - Campground Occupancy Westside

TEAST - High Temperature Eastside

PWEST - Precipitation Westside

PEAST - Precipitation Eastside

EEAST - Entrances on Eastside

EWEST - Entrances on Westside

DAY - # of Day in Sampling Plan

TWEST - High Temperature Westside

Table A-3. Equations for estimating use in each area, Glacier National Park, 1988.*

| | |
|---|---|
| NORTH FORK | .00035(EWEST) - .018(TEAST) - .32 ln(DAY) + .20 |
| | R2 = .41 |
| APGAR | .00014(EWEST) + 1.64 |
| | R2 = .17 |
| UPPER LAKE MCDONALD | .00018(EWEST) + .32 ln(DAY) + 2.31 |
| | R2 = .58 |
| LOGAN | .00049(CEAST) + 1.02 ln(DAY) - 2.08 |
| | R2 = .64 |
| UPPER ST. MARY | .0024(CEAST) + .46 ln(DAY) + 1.62 |
| | R2 = .74 |
| MANY GLACIER | .0024(CEAST) + .42 ln(DAY) - 1.10(PEAST) + 2.61 |
| | R2 = .71 |
| TWO MEDICINE | .0015(EEAST) + .30 ln(DAY) + .00014(EWEST) + 1.00 |
| | R2 = .74 |
| MIDDLE FORK | .0024(CEAST) + .79 |
| | R2 = . 21 |
| GOATHAUNT | .00023(EEAST) + .01(TEAST) - .32 |
| | R2 = .37 |

*Dependent variable is the natural logarithm of the estimated backcountry day use.

Table A-4. Correlation coefficients among areas for estimated daily use.

| Correlations: | NORTHFOR | APGAR | ULM | LOGAN | UPPERSTM |
|---|---|---|---|---|---|
| NORTHFOR | 1.0000 | .4415** | .4824** | .3854** | .4836** |
| APGAR | .4415** | 1.0000 | .5539** | .3700** | .5085** |
| ULM | .4824** | .5539** | 1.0000 | .6166** | .7456** |
| LOGAN | .3854** | .3700** | .6166** | 1.0000 | .7061** |
| UPPERSTM | .4836** | .5085** | .7456** | .7061** | 1.0000 |
| MANYGL. | .5045** | .4630** | .7385** | .6775** | .8523** |
| TWOMED | .5330** | .5265** | .7211** | .5825** | .7652** |
| MIDFRK | .3703** | .3207** | .3787** | .2994** | .4734** |
| GOAT | .5263** | .4123** | .5399** | .5379** | .6430** |
| TOTAL | .5731** | .5679** | .8721** | .8152** | .9156** |

| Correlations: | MANYGL | TWOMED | MIDFRK | GOAT | TOTAL |
|---|---|---|---|---|---|
| NORTHFOR | .5045** | .5330** | .3703** | .5263** | .5731** |
| APGAR | .4630** | .5265** | .3207** | .4123** | .5679** |
| ULM | .7385** | .7211** | .3787** | .5399** | .8721** |
| LOGAN | .6775** | .5825** | .2994** | .5379** | .8152** |
| UPPERSTM | .8523** | .7652** | .4734** | .6430** | .9156** |
| MANYGL | 1.0000 | .7763** | .4579** | .6328** | .9327** |
| TWOMED | .7763** | 1.0000 | .5344** | .5699** | .8498** |
| MIDFRK | .4579** | .5344** | 1.0000 | .2341* | .4872** |
| GOAT | .6328** | .5699** | .2341* | 1.0000 | .6840** |
| TOTAL | .9327** | .8498** | .4872** | .6840** | 1.0000 |

1-tailed Signif: * - .01 ** - .001

Table B-1. Initial Unadjusted Overall Use Estimates by Area

| Date | NF | Apgar | ULM | LP | USM | MG | 2Med | MDFK |
|---|---|---|---|---|---|---|---|---|
| May 21 | 0.0 | 6.4 | 30.1 | 20.3 | 18.9 | 6.5 | 5.5 | 3.3 |
| 22 | 0.0 | 5.2 | 39.9 | 11.1 | 22.2 | 23.5 | 19.4 | 3.3 |
| 23 | 0.0 | 1.4 | 14.3 | 1.6 | 13.8 | 15.2 | 19.5 | 0.0 |
| 24 | 3.1 | 2.5 | 12.2 | 4.7 | 8.9 | 7.4 | 5.1 | 1.7 |
| 25 | 2.9 | 2.7 | 19.4 | 0.0 | 14.5 | 9.4 | 12.9 | 3.3 |
| 26 | 3.2 | 6.5 | 23.5 | 1.6 | 10.3 | 5.5 | 1.5 | 3.3 |
| 27 | 3.2 | 5.1 | 24.4 | 1.6 | 12.5 | 10.7 | 5.6 | 1.7 |
| 28 | 11.4 | 3.6 | 55.0 | 4.8 | 29.0 | 19.2 | 14.7 | 0.0 |
| 29 | 2.9 | 3.7 | 28.0 | 4.8 | 38.1 | 19.5 | 14.8 | 5.0 |
| 30 | 2.9 | 1.4 | 24.4 | 0.0 | 12.3 | 1.5 | 11.6 | 3.3 |
| 31 | 3.2 | 3.7 | 13.4 | 0.0 | 12.9 | 1.4 | 10.9 | 0.0 |
| Jun 1 | 0.0 | 1.1 | 13.1 | 1.6 | 14.7 | 14.7 | 1.9 | 0.0 |
| 2 | 1.3 | 9.5 | 15.2 | 1.6 | 24.5 | 29.0 | 10.7 | 1.7 |
| 3 | 3.2 | 9.7 | 48.2 | 3.1 | 17.0 | 44.5 | 18.9 | 3.3 |
| 4 | 9.0 | 6.6 | 29.2 | 3.1 | 14.1 | 47.7 | 13.5 | 3.3 |
| 5 | 2.7 | 6.1 | 62.1 | 12.6 | 14.5 | 48.7 | 29.3 | 1.7 |
| 6 | 2.7 | 11.4 | 36.4 | 1.6 | 26.2 | 33.4 | 23.3 | 0.0 |
| 7 | 3.2 | 5.0 | 49.7 | 6.4 | 18.0 | 40.8 | 19.3 | 1.7 |
| 8 | 1.3 | 5.1 | 20.5 | 6.4 | 47.9 | 42.0 | 6.9 | 5.0 |
| 9 | 5.6 | 6.2 | 66.8 | 3.3 | 35.1 | 54.2 | 30.7 | 0.0 |
| 10 | 8.7 | 7.2 | 54.1 | 4.7 | 41.7 | 62.3 | 11.9 | 0.0 |
| 11 | 9.7 | 8.1 | 66.8 | 6.3 | 40.3 | 92.7 | 24.4 | 3.3 |
| 12 | 7.4 | 11.0 | 96.7 | 3.1 | 15.9 | 98.1 | 15.0 | 5.0 |
| 13 | 9.8 | 19.0 | 43.6 | 6.3 | 26.8 | 64.5 | 21.6 | 3.3 |
| 14 | 6.1 | 13.6 | 47.3 | 10.9 | 45.1 | 97.2 | 24.7 | 5.0 |
| 15 | 7.3 | 2.8 | 30.5 | 7.8 | 54.8 | 89.2 | 24.8 | 3.3 |
| 16 | 7.0 | 11.1 | 44.0 | 6.3 | 28.6 | 49.5 | 16.6 | 1.7 |
| 17 | 11.1 | 15.6 | 29.1 | 4.7 | 26.7 | 36.3 | 31.9 | 3.3 |
| 18 | 17.2 | 18.3 | 43.9 | 9.6 | 52.2 | 34.4 | 54.6 | 3.3 |
| 19 | 15.3 | 24.2 | 75.4 | 12.6 | 62.6 | 69.3 | 47.8 | 5.0 |
| 20 | 5.8 | 8.7 | 67.8 | 11.2 | 58.3 | 116.6 | 23.8 | 5.0 |
| 21 | 18.5 | 13.6 | 85.0 | 11.1 | 60.4 | 138.3 | 51.4 | 5.0 |
| 22 | 10.4 | 7.5 | 91.4 | 3.1 | 62.5 | 167.3 | 61.5 | 3.3 |
| 23 | 4.0 | 12.7 | 53.5 | 3.1 | 61.7 | 139.6 | 24.4 | 6.7 |
| 24 | 30.6 | 2.5 | 85.5 | 9.4 | 54.2 | 150.1 | 49.4 | 3.3 |
| 25 | 11.4 | 8.6 | 110.5 | 15.6 | 87.7 | 151.9 | 35.9 | 1.7 |
| 26 | 19.3 | 11.0 | 126.3 | 12.8 | 49.2 | 132.2 | 32.0 | 6.7 |
| 27 | 17.1 | 6.0 | 138.6 | 10.9 | 26.8 | 152.9 | 30.2 | 5.0 |
| 28 | 7.0 | 2.8 | 113.5 | 49.0 | 63.8 | 140.9 | 12.5 | 0.0 |
| 29 | 4.4 | 5.4 | 28.7 | 6.4 | 31.8 | 57.5 | 9.8 | 1.7 |
| 30 | 11.5 | 2.8 | 112.6 | 37.7 | 51.6 | 155.5 | 52.0 | 6.7 |
| Jul 1 | 18.3 | 7.8 | 104.5 | 50.7 | 65.7 | 204.6 | 68.1 | 1.7 |
| 2 | 44.8 | 13.6 | 129.3 | 22.5 | 99.5 | 190.7 | 70.9 | 6.7 |
| 3 | 24.6 | 8.1 | 170.2 | 112.7 | 86.7 | 217.0 | 75.2 | 5.0 |
| 4 | 18.2 | 15.1 | 133.4 | 141.9 | 89.8 | 143.8 | 80.5 | 3.3 |
| 5 | 16.0 | 6.0 | 80.5 | 28.0 | 65.1 | 70.4 | 25.8 | 5.0 |
| 6 | 17.0 | 17.6 | 166.2 | 34.6 | 62.2 | 81.5 | 30.6 | 1.7 |

Table B-1. Initial Unadjusted Overall Use Estimates by Area

| Date | NF | Apgar | ULM | LP | USM | MG | 2Med | MDFK |
|---|---|---|---|---|---|---|---|---|
| Jul 7 | 17.1 | 11.6 | 145.1 | 116.2 | 109.6 | 244.5 | 63.5 | 6.7 |
| 8 | 16.6 | 7.9 | 121.1 | 185.0 | 99.8 | 223.0 | 61.0 | 3.3 |
| 9 | 20.6 | 11.1 | 150.9 | 189.5 | 101.8 | 175.8 | 49.5 | 0.0 |
| 10 | 12.6 | 11.8 | 131.7 | 90.4 | 75.0 | 164.6 | 89.0 | 8.3 |
| 11 | 2.9 | 13.8 | 138.8 | 81.9 | 71.6 | 157.4 | 60.9 | 11.7 |
| 12 | 2.9 | 15.3 | 151.9 | 35.7 | 73.2 | 145.6 | 58.6 | 5.0 |
| 13 | 1.4 | 11.1 | 141.5 | 26.8 | 73.1 | 153.7 | 68.8 | 10.0 |
| 14 | 1.4 | 15.7 | 118.9 | 28.6 | 84.1 | 138.3 | 57.3 | 5.0 |
| 15 | 11.3 | 7.9 | 137.6 | 85.7 | 73.5 | 149.2 | 86.3 | 6.7 |
| 16 | 30.9 | 9.7 | 37.0 | 25.0 | 85.8 | 199.5 | 66.9 | 15.0 |
| 17 | 8.5 | 22.2 | 97.8 | 46.2 | 105.0 | 181.3 | 89.9 | 8.3 |
| 18 | 2.8 | 2.8 | 145.5 | 33.0 | 101.1 | 212.0 | 97.6 | 8.3 |
| 19 | 8.9 | 2.8 | 173.4 | 85.4 | 131.8 | 174.2 | 58.1 | 10.0 |
| 20 | 25.9 | 6.2 | 116.1 | 115.4 | 103.1 | 180.0 | 34.6 | 8.3 |
| 21 | 30.4 | 22.3 | 161.6 | 115.1 | 90.5 | 170.7 | 51.6 | 8.3 |
| 22 | 12.7 | 8.7 | 149.1 | 121.7 | 76.0 | 171.6 | 65.7 | 6.7 |
| 23 | 18.8 | 14.3 | 169.0 | 135.9 | 79.8 | 173.3 | 65.3 | 3.3 |
| 24 | 23.0 | 19.4 | 167.0 | 98.1 | 44.9 | 161.5 | 70.8 | 11.7 |
| 25 | 22.1 | 18.8 | 123.9 | 107.6 | 96.6 | 170.8 | 59.8 | 3.3 |
| 26 | 20.4 | 16.1 | 160.2 | 70.1 | 80.6 | 169.2 | 75.2 | 11.7 |
| 27 | 17.4 | 7.2 | 152.4 | 102.2 | 108.8 | 131.7 | 64.5 | 5.0 |
| 28 | 12.9 | 22.6 | 145.6 | 103.3 | 134.0 | 197.9 | 57.6 | 10.0 |
| 29 | 17.4 | 20.9 | 166.1 | 106.7 | 111.0 | 194.9 | 68.8 | 3.3 |
| 30 | 16.9 | 17.2 | 166.8 | 96.2 | 110.1 | 233.3 | 64.8 | 15.0 |
| 31 | 22.8 | 20.1 | 170.6 | 10.9 | 101.3 | 192.3 | 74.2 | 6.7 |
| Aug 1 | 21.2 | 20.7 | 146.1 | 3.6 | 76.5 | 125.2 | 66.8 | 6.7 |
| 2 | 18.8 | 25.6 | 254.2 | 37.5 | 113.2 | 200.5 | 84.0 | 6.7 |
| 3 | 18.0 | 20.2 | 166.0 | 170.8 | 130.2 | 228.0 | 54.3 | 5.0 |
| 4 | 26.9 | 17.1 | 101.2 | 124.2 | 125.9 | 224.0 | 90.3 | 15.0 |
| 5 | 22.6 | 19.9 | 68.8 | 126.8 | 98.8 | 125.8 | 71.7 | 6.7 |
| 6 | 16.8 | 19.6 | 116.7 | 38.7 | 41.5 | 81.0 | 42.4 | 10.0 |
| 7 | 16.6 | 21.8 | 180.3 | 75.7 | 57.4 | 188.5 | 86.5 | 6.7 |
| 8 | 12.5 | 11.3 | 170.7 | 128.2 | 146.8 | 322.8 | 93.8 | 5.0 |
| 9 | 16.8 | 17.0 | 184.3 | 69.4 | 116.3 | 239.4 | 93.8 | 3.3 |
| 10 | 15.0 | 29.9 | 180.3 | 144.6 | 114.4 | 191.8 | 86.5 | 8.3 |
| 11 | 13.3 | 25.0 | 208.9 | 115.0 | 126.4 | 240.3 | 49.3 | 3.3 |
| 12 | 16.1 | 10.3 | 167.8 | 120.7 | 91.8 | 153.1 | 62.7 | 1.7 |
| 13 | 14.6 | 12.9 | 151.9 | 152.5 | 119.0 | 202.7 | 84.0 | 18.3 |
| 14 | 4.1 | 13.6 | 166.6 | 101.6 | 101.7 | 208.6 | 54.2 | 6.7 |
| 15 | 13.7 | 21.4 | 161.7 | 99.9 | 88.9 | 214.8 | 62.8 | 5.0 |
| 16 | 23.9 | 20.1 | 189.3 | 132.1 | 100.7 | 190.6 | 83.0 | 3.3 |
| 17 | 28.6 | 24.5 | 144.4 | 15.8 | 103.4 | 207.3 | 68.9 | 6.7 |
| 18 | 8.2 | 16.1 | 28.0 | 84.4 | 78.3 | 218.5 | 33.8 | 3.3 |
| 19 | 11.2 | 16.0 | 61.1 | 102.7 | 84.6 | 292.6 | 83.2 | 3.3 |
| 20 | 7.0 | 9.0 | 76.4 | 60.6 | 84.3 | 142.6 | 72.5 | 6.7 |
| 21 | 20.3 | 11.0 | 115.5 | 46.9 | 75.4 | 160.1 | 110.5 | 11.7 |
| 22 | 14.2 | 15.6 | 103.3 | 107.8 | 92.0 | 158.6 | 58.1 | 6.7 |

Table B-1. Initial Unadjusted Overall Use Estimates by Area

| Date | NF | Apgar | ULM | LP | USM | MG | 2Med | MDFK |
|---|---|---|---|---|---|---|---|---|
| Aug 23 | 14.5 | 16.3 | 127.3 | 124.4 | 76.9 | 228.8 | 47.2 | 8.3 |
| 24 | 2.8 | 11.0 | 99.1 | 90.5 | 74.3 | 199.2 | 46.4 | 5.0 |
| 25 | 10.6 | 13.3 | 143.1 | 81.2 | 55.9 | 174.5 | 47.8 | 1.7 |
| 26 | 3.2 | 16.2 | 140.7 | 46.0 | 46.4 | 84.9 | 43.0 | 1.7 |
| 27 | 8.1 | 7.4 | 126.8 | 97.5 | 80.7 | 138.2 | 45.0 | 5.0 |
| 28 | 11.6 | 13.7 | 127.3 | 114.0 | 115.7 | 143.9 | 83.5 | 3.3 |
| 29 | 2.7 | 6.0 | 119.6 | 70.1 | 81.6 | 138.3 | 63.5 | 3.3 |
| 30 | 9.8 | 8.4 | 109.0 | 87.9 | 97.6 | 181.9 | 34.0 | 6.7 |
| 31 | 2.7 | 10.6 | 107.8 | 88.5 | 95.3 | 135.0 | 36.2 | 5.0 |
| Sep 1 | 2.7 | 8.7 | 92.3 | 83.9 | 60.0 | 119.7 | 34.3 | 1.7 |
| 2 | 8.4 | 8.5 | 88.9 | 87.1 | 64.6 | 172.4 | 37.5 | 3.3 |
| 3 | 20.1 | 15.2 | 112.0 | 132.9 | 85.6 | 244.8 | 80.8 | 3.3 |
| 4 | 8.4 | 23.6 | 157.0 | 27.8 | 123.4 | 218.3 | 73.9 | 5.0 |
| 5 | 6.3 | 4.9 | 98.1 | 3.3 | 101.6 | 217.8 | 51.9 | 6.7 |
| 6 | 9.7 | 12.7 | 105.5 | 19.2 | 61.7 | 143.2 | 41.5 | 0.0 |
| Grps | 1300.7 | 1296.3 | 11393.8 | 6149.4 | 7588.2 | 14923.0 | 5303.0 | 545.0 |
| % Day | 75.1 | 96.5 | 92.8 | 83.4 | 88.2 | 96.3 | 88.1 | 81.6 |
| Grp Sz | 2.6 | 2.59 | 3.01 | 2.95 | 2.66 | 2.69 | 2.72 | 2.4 |
| People | 2540 | 3240 | 31826 | 15129 | 17803 | 38658 | 12708 | 1098 |

| Date | Goat | Total |
|---|---|---|
| May 21 | 1.7 | 92.6 |
| 22 | 3.3 | 128.1 |
| 23 | 0.0 | 65.7 |
| 24 | 0.0 | 45.6 |
| 25 | 3.3 | 68.4 |
| 26 | 3.3 | 78.7 |
| 27 | 0.0 | 64.7 |
| 28 | 5.0 | 142.8 |
| 29 | 0.0 | 116.8 |
| 30 | 1.7 | 59.0 |
| 31 | 0.0 | 45.6 |
| June 1 | 1.7 | 49.4 |
| 2 | 0.0 | 93.6 |
| 3 | 1.7 | 149.5 |
| 4 | 3.3 | 129.8 |
| 5 | 3.3 | 181.0 |
| 6 | 6.7 | 141.6 |
| 7 | 3.3 | 147.4 |
| 8 | 3.3 | 138.3 |

Table B-1. Initial Unadjusted Overall Use Estimates by Area

| Date | Goat | Total |
|---|---|---|
| June 9 | 5.0 | 206.8 |
| 10 | 5.0 | 195.6 |
| 11 | 0.0 | 251.7 |
| 12 | 1.7 | 253.8 |
| 13 | 10.0 | 204.9 |
| 14 | 11.7 | 261.5 |
| 15 | 5.0 | 225.3 |
| 16 | 6.7 | 171.4 |
| 17 | 3.3 | 162.1 |
| 18 | 1.7 | 235.2 |
| 19 | 10.0 | 322.3 |
| 20 | 6.7 | 303.7 |
| 21 | 8.3 | 391.6 |
| 22 | 11.7 | 418.7 |
| 23 | 11.7 | 317.4 |
| 24 | 10.0 | 395.0 |
| 25 | 10.0 | 433.2 |
| 26 | 6.7 | 396.1 |
| 27 | 0.0 | 387.7 |
| 28 | 11.7 | 401.1 |
| 29 | 1.7 | 147.5 |
| 30 | 6.7 | 437.0 |
| July 1 | 16.7 | 537.9 |
| 2 | 20.0 | 598.0 |
| 3 | 5.0 | 704.6 |
| 4 | 10.0 | 636.0 |
| 5 | 10.0 | 306.9 |
| 6 | 5.0 | 416.4 |
| 7 | 6.7 | 720.9 |
| 8 | 21.7 | 739.3 |
| 9 | 16.7 | 715.9 |
| 10 | 10.0 | 593.4 |
| 11 | 5.0 | 544.1 |
| 12 | 1.7 | 489.8 |
| 13 | 11.7 | 498.3 |
| 14 | 6.7 | 455.9 |
| 15 | 16.7 | 574.8 |
| 16 | 13.3 | 483.2 |
| 17 | 5.0 | 564.3 |
| 18 | 5.0 | 608.1 |
| 19 | 18.3 | 662.9 |
| 20 | 16.7 | 606.3 |
| 21 | 11.7 | 662.3 |
| 22 | 16.7 | 628.8 |
| 23 | 13.3 | 673.2 |
| 24 | 5.0 | 601.5 |
| 25 | 11.7 | 614.7 |

Table B-1. Initial Unadjusted Overall Use Estimates by Area

| Date | Goat | Total |
|---|---|---|
| Jul 26 | 13.3 | 617.0 |
| 27 | 10.0 | 599.3 |
| 28 | 10.0 | 694.0 |
| 29 | 10.0 | 699.2 |
| 30 | 11.7 | 732.0 |
| 31 | 8.3 | 607.2 |
| Aug 1 | 3.3 | 470.0 |
| 2 | 5.0 | 745.6 |
| 3 | 18.3 | 810.8 |
| 4 | 10.0 | 734.6 |
| 5 | 13.3 | 554.5 |
| 6 | 10.0 | 376.6 |
| 7 | 15.0 | 648.4 |
| 8 | 10.0 | 901.2 |
| 9 | 25.0 | 765.3 |
| 10 | 18.3 | 789.3 |
| 11 | 15.0 | 796.4 |
| 12 | 11.7 | 635.7 |
| 13 | 6.7 | 762.6 |
| 14 | 10.0 | 667.0 |
| 15 | 20.0 | 688.1 |
| 16 | 28.3 | 771.4 |
| 17 | 25.0 | 624.6 |
| 18 | 11.7 | 482.3 |
| 19 | 13.3 | 668.1 |
| 20 | 5.0 | 464.1 |
| 21 | 11.7 | 563.0 |
| 22 | 8.3 | 564.7 |
| 23 | 10.0 | 653.6 |
| 24 | 6.7 | 535.1 |
| 25 | 10.0 | 538.2 |
| 26 | 1.7 | 383.7 |
| 27 | 11.7 | 520.3 |
| 28 | 10.0 | 623.0 |
| 29 | 16.7 | 501.8 |
| 30 | 3.3 | 538.6 |
| 31 | 8.3 | 489.4 |
| Sept 1 | 3.3 | 406.7 |
| 2 | 3.3 | 474.1 |
| 3 | 11.7 | 706.4 |
| 4 | 18.3 | 655.8 |
| 5 | 11.7 | 502.2 |
| 6 | 1.7 | 395.2 |
| GRPS | 953.3 | 49452.7 |
| % DAY | 58.3 | 90.0 |

Table B-1. Initial Unadjusted Overall Use Estimates by Area

| | Goat | Total |
|---|---|---|
| GRP SIZ | 2.68 | 2.79 |
| People | 1490 | 124491 |

Table B-2. Initial Unadjusted Use Estimates for North Fork Area

| Date | Total | Boulder | Brown | Qtzlk | Qtzcrk | Logging |
|---|---|---|---|---|---|---|
| May 21 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 22 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 23 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 24 | 3.1 | 0.0 | 1.3 | 0.0 | 0.0 | 1.8 |
| 25 | 2.9 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 26 | 3.2 | 1.4 | 0.0 | 0.0 | 0.0 | 1.8 |
| 27 | 3.2 | 0.0 | 0.0 | 1.4 | 0.0 | 1.8 |
| 28 | 11.4 | 1.4 | 1.3 | 7.1 | 1.4 | 0.0 |
| 29 | 2.9 | 1.4 | 0.0 | 1.4 | 0.0 | 0.0 |
| 30 | 2.9 | 1.4 | 0.0 | 1.4 | 0.0 | 0.0 |
| 31 | 3.2 | 0.0 | 0.0 | 1.4 | 0.0 | 1.8 |
| June 1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 2 | 1.3 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| 3 | 3.2 | 1.4 | 0.0 | 0.0 | 0.0 | 1.8 |
| 4 | 9.0 | 0.0 | 2.7 | 2.9 | 0.0 | 3.5 |
| 5 | 2.7 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 |
| 6 | 2.7 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 |
| 7 | 3.2 | 0.0 | 0.0 | 0.0 | 1.4 | 1.8 |
| 8 | 1.3 | 0.0 | 1.3 | 0.0 | 0.0 | 0.0 |
| 9 | 5.6 | 0.0 | 1.3 | 4.3 | 0.0 | 0.0 |
| 10 | 8.7 | 1.4 | 2.7 | 2.9 | 0.0 | 1.8 |
| 11 | 9.7 | 0.0 | 4.0 | 5.7 | 0.0 | 0.0 |
| 12 | 7.4 | 0.0 | 1.3 | 4.3 | 0.0 | 1.8 |
| 13 | 9.8 | 2.9 | 4.0 | 2.9 | 0.0 | 0.0 |
| 14 | 6.1 | 0.0 | 0.0 | 2.9 | 1.4 | 1.8 |
| 15 | 7.3 | 0.0 | 2.7 | 1.4 | 1.4 | 1.8 |
| 16 | 7.0 | 1.4 | 2.7 | 2.9 | 0.0 | 0.0 |
| 17 | 11.1 | 1.4 | 5.3 | 4.3 | 0.0 | 0.0 |
| 18 | 17.2 | 1.4 | 4.0 | 10.0 | 0.0 | 1.8 |
| 19 | 15.3 | 1.4 | 4.0 | 1.4 | 1.4 | 7.0 |
| 20 | 5.8 | 0.0 | 4.0 | 0.0 | 0.0 | 1.8 |
| 21 | 18.5 | 1.4 | 5.3 | 10.0 | 0.0 | 1.8 |
| 22 | 10.4 | 1.4 | 4.0 | 1.4 | 0.0 | 3.5 |
| 23 | 4.0 | 0.0 | 4.0 | 0.0 | 0.0 | 0.0 |
| 24 | 30.6 | 4.3 | 5.3 | 7.1 | 1.4 | 12.3 |
| 25 | 11.4 | 2.9 | 1.3 | 7.1 | 0.0 | 0.0 |
| 26 | 19.3 | 1.4 | 10.7 | 7.1 | 0.0 | 0.0 |
| 27 | 17.1 | 2.9 | 5.3 | 7.1 | 0.0 | 1.8 |
| 28 | 7.0 | 1.4 | 2.7 | 2.9 | 0.0 | 0.0 |
| 29 | 4.4 | 0.0 | 2.7 | 0.0 | 0.0 | 1.8 |
| 30 | 11.5 | 0.0 | 4.0 | 5.7 | 0.0 | 1.8 |
| July 1 | 18.3 | 1.4 | 9.3 | 5.7 | 0.0 | 1.8 |
| 2 | 44.8 | 4.3 | 16.0 | 15.7 | 0.0 | 8.8 |
| 3 | 24.6 | 2.9 | 9.3 | 7.1 | 0.0 | 5.3 |
| 4 | 18.2 | 4.3 | 10.7 | 1.4 | 0.0 | 1.8 |
| 5 | 16.0 | 2.9 | 5.3 | 4.3 | 0.0 | 3.5 |
| 6 | 17.0 | 2.9 | 6.7 | 5.7 | 0.0 | 1.8 |

Table B-2. Initial Unadjusted Use Estimates for North Fork Area

| Date | Total | Boulder | Brown | Qtzlk | Qtzcrk | Logging |
|---|---|---|---|---|---|---|
| July 7 | 17.1 | 4.3 | 6.7 | 4.3 | 0.0 | 1.8 |
| 8 | 16.6 | 4.3 | 8.0 | 4.3 | 0.0 | 0.0 |
| 9 | 20.6 | 2.9 | 12.0 | 5.7 | 0.0 | 0.0 |
| 10 | 12.6 | 1.4 | 4.0 | 7.1 | 0.0 | 0.0 |
| 11 | 2.9 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 12 | 2.9 | 2.9 | 0.0 | 0.0 | 0.0 | 0.0 |
| 13 | 1.4 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 14 | 1.4 | 1.4 | 0.0 | 0.0 | 0.0 | 0.0 |
| 15 | 11.3 | 4.3 | 2.7 | 4.3 | 0.0 | 0.0 |
| 16 | 30.9 | 11.6 | 9.3 | 10.0 | 0.0 | 0.0 |
| 17 | 8.5 | 4.3 | 1.3 | 2.9 | 0.0 | 0.0 |
| 18 | 2.8 | 1.4 | 1.3 | 0.0 | 0.0 | 0.0 |
| 19 | 8.9 | 4.3 | 1.3 | 1.4 | 0.0 | 1.8 |
| 20 | 25.9 | 1.4 | 6.7 | 12.9 | 1.4 | 3.5 |
| 21 | 30.4 | 0.0 | 13.3 | 8.6 | 1.4 | 7.0 |
| 22 | 12.7 | 0.0 | 6.7 | 4.3 | 0.0 | 1.8 |
| 23 | 18.8 | 0.0 | 10.7 | 2.9 | 0.0 | 5.3 |
| 24 | 23.0 | 0.0 | 12.0 | 4.3 | 1.4 | 5.3 |
| 25 | 22.1 | 0.0 | 9.3 | 2.9 | 2.9 | 7.0 |
| 26 | 20.4 | 0.0 | 8.0 | 5.7 | 1.4 | 5.3 |
| 27 | 17.4 | 0.0 | 5.3 | 8.6 | 0.0 | 3.5 |
| 28 | 12.9 | 1.4 | 4.0 | 5.7 | 0.0 | 1.8 |
| 29 | 17.4 | 1.4 | 6.7 | 4.3 | 1.4 | 3.5 |
| 30 | 16.9 | 4.3 | 4.0 | 8.6 | 0.0 | 0.0 |
| 31 | 22.8 | 2.9 | 6.7 | 10.0 | 1.4 | 1.8 |
| Aug 1 | 21.2 | 0.0 | 8.0 | 10.0 | 1.4 | 1.8 |
| 2 | 18.8 | 2.9 | 6.7 | 5.7 | 0.0 | 3.5 |
| 3 | 18.0 | 2.9 | 8.0 | 7.1 | 0.0 | 0.0 |
| 4 | 26.9 | 8.7 | 5.3 | 8.6 | 4.3 | 0.0 |
| 5 | 22.6 | 5.8 | 5.3 | 8.6 | 2.9 | 0.0 |
| 6 | 16.8 | 2.9 | 6.7 | 2.9 | 4.3 | 0.0 |
| 7 | 16.6 | 1.4 | 6.7 | 0.0 | 1.4 | 7.0 |
| 8 | 12.5 | 1.4 | 9.3 | 0.0 | 0.0 | 1.8 |
| 9 | 16.8 | 4.3 | 10.7 | 0.0 | 0.0 | 1.8 |
| 10 | 15.0 | 0.0 | 8.0 | 0.0 | 0.0 | 7.0 |
| 11 | 13.3 | 4.3 | 4.0 | 1.4 | 0.0 | 3.5 |
| 12 | 16.1 | 2.9 | 2.7 | 0.0 | 0.0 | 10.5 |
| 13 | 14.6 | 5.8 | 5.3 | 0.0 | 0.0 | 3.5 |
| 14 | 4.1 | 1.4 | 2.7 | 0.0 | 0.0 | 0.0 |
| 15 | 13.7 | 1.4 | 8.0 | 4.3 | 0.0 | 0.0 |
| 16 | 23.9 | 4.3 | 10.7 | 7.1 | 0.0 | 1.8 |
| 17 | 28.6 | 1.4 | 9.3 | 12.9 | 1.4 | 3.5 |
| 18 | 8.2 | 0.0 | 5.3 | 2.9 | 0.0 | 0.0 |
| 19 | 11.2 | 0.0 | 8.0 | 1.4 | 0.0 | 1.8 |
| 20 | 7.0 | 0.0 | 2.7 | 2.9 | 1.4 | 0.0 |
| 21 | 20.3 | 0.0 | 9.3 | 5.7 | 0.0 | 5.3 |
| 22 | 14.2 | 0.0 | 4.0 | 1.4 | 0.0 | 8.8 |

Table B-2. Initial Unadjusted Use Estimates for North Fork Area

| Date | Total | Boulder | Brown | Qtzlk | Qtzcrk | Logging |
|---|---|---|---|---|---|---|
| Aug 23 | 14.5 | 0.0 | 6.7 | 4.3 | 0.0 | 3.5 |
| 24 | 2.8 | 0.0 | 1.3 | 1.4 | 0.0 | 0.0 |
| 25 | 10.6 | 0.0 | 5.3 | 0.0 | 0.0 | 5.3 |
| 26 | 3.2 | 0.0 | 0.0 | 1.4 | 0.0 | 1.8 |
| 27 | 8.1 | 0.0 | 6.7 | 0.0 | 1.4 | 0.0 |
| 28 | 11.6 | 0.0 | 6.7 | 1.4 | 0.0 | 3.5 |
| 29 | 2.7 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 |
| 30 | 9.8 | 0.0 | 8.0 | 0.0 | 0.0 | 1.8 |
| 31 | 2.7 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 |
| Sept 1 | 2.7 | 0.0 | 2.7 | 0.0 | 0.0 | 0.0 |
| 2 | 8.4 | 0.0 | 6.7 | 0.0 | 0.0 | 1.8 |
| 3 | 20.1 | 0.0 | 6.7 | 0.0 | 2.9 | 10.5 |
| 4 | 8.4 | 0.0 | 2.7 | 5.7 | 0.0 | 0.0 |
| 5 | 6.3 | 0.0 | 1.3 | 1.4 | 0.0 | 3.5 |
| 6 | 9.7 | 0.0 | 4.0 | 5.7 | 0.0 | 0.0 |
| Total | 1300.7 | 166.7 | 502.7 | 370.0 | 42.0 | 219.3 |
| % day | 75.1 | 69.6 | 83.0 | 74.1 | 69.0 | 60.0 |
| Grp Siz | 2.6 | 2.8 | 2.6 | 2.7 | 2.2 | 2.7 |
| People | 2540 | 321 | 1064 | 727 | 63 | 355 |

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