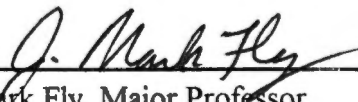
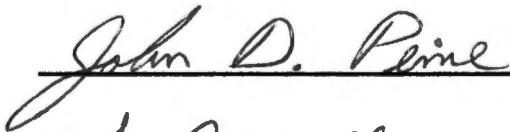


To the Graduate Council:

I am submitting herewith a thesis written by Jacqueline Dawn Tatham Cordell entitled "A Comparison of Visitor Sampling Techniques at Mammoth Cave National Park: A Case Study." I have examined the final copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Forestry.


J. Mark Fly, Major Professor

We have read this thesis
and recommend its acceptance:




Accepted for the Council:


Associate Vice Chancellor and
Dean of The Graduate School

A Comparison of Visitor Sampling Techniques at Mammoth Cave National Park: A Case Study

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Jacqueline Dawn Tatham Cordell
December, 1997

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DEDICATION

This thesis is dedicated to my husband

Michael Lee Cordell

and my mother

Juanita Tatham

without whose patience and support this

work would not have been possible

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ABSTRACT

From 1992 to 1994, researchers from the University of Tennessee at Knoxville conducted a series of six human resource monitoring techniques at Mammoth Cave National Park. These techniques were used as a result of the request of the park management for information that would help them better understand their clientele, as well as aid in their project to redesign the existing Visitor Center. This thesis is an analysis of those methods including a review of the literature relative to natural resources agencies and the human resources monitoring techniques they employ, an analysis of the data collected as they relate to the cave tour experience, and the effectiveness of each of the techniques in producing human resource monitoring information.

The study at Mammoth Cave National Park consisted of six different monitoring techniques: Exit Interviews, Focus Groups, Visitor Center Surveys, Back Country Mail-Back Surveys, Unobtrusive Observation at the Visitor Center, and a series of six Comment Cards. Due to the diversity of the Park, which offers cave tours on the south side of the Green River and back country activities on the north side, and the information requested by the park, it was necessary to utilize more than one method to achieve a holistic picture of the park visitor. The diversity of the visitors, however, is a factor which should be realized by any park conducting human resource monitoring. As shown through this analysis, it can be advantageous for a park wanting to learn more about their visitors to consider using multiple techniques as addressed in this case study.

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CHAPTER I

INTRODUCTION

With the establishment of the National Park Service in 1916, the United States Congress created an agency under the Department of the Interior for the purpose of caring for the growing number of National Parks. The mission of the National Park Service, as described in the Organic Act of 1916, is:

To conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations (Knudson, 1984).

This statement is the mandate for how the National Park Service is to manage the properties committed to its care. This dual mandate provides for preservation of the natural resources within the boundaries of their establishments, while providing for the use and enjoyment of the generations of visitors who would come to these natural and cultural resources. This somewhat contradictory mandate has resulted in the Park Service having to walk a fine line between natural resource preservation/ protection and visitor enjoyment/ service (human resources). The question is what is the most efficient manner for the Park Service to serve both objectives?

For several years now the natural resource agencies, including the National Park Service, have taken the issues facing them, such as endangered species, global change, and resource preservation, as if they were merely natural resource problems. Although these issues appear to be strictly natural resource problems, they have one thing in common, which is the human element (Carr, 1995). Because of the role of humans in each of these dilemmas, resource professionals have begun to incorporate their visitors into their monitoring and management activities.

In recent decades, human resource monitoring has become a more significant trend within natural resources agencies, such as the National Park Service, the United States Forest Service, state and local parks and recreation authorities. Beginning with the release of the Outdoor Recreation Resources Review Commission's (ORRRC) study in the early 1960's, the National Park Service realized there were more people than ever coming to the parks and the management of the parks was not adequately addressing the natural resources problems caused by the increased visitation. With the greater awareness of human resources spurred by the ORRRC report, legislation was introduced and planning and development initiated to increase provisions for the human resources of the parks and recreational areas. Slowly, research in the area of outdoor recreation began to emerge. No longer were natural resources the only factor being considered when making plans for management of the parks (Cubbage et al, 1993; Machlis and Harvey, 1993). It became increasingly important to consider both the human resources and their impact on the natural resources. Each visitor has an impact on, and is impacted by, the natural resource base.

Human resource monitoring is the means to assess the characteristics, behavior, attitudes, and preferences of visitors to a park, natural, or recreation area. This assessment can reveal a picture of who the visitors are in terms of demographic characteristics. It can provide information about visitor behavior patterns in the park, attitudes toward regulations and resource protection, and preferences visitors might have for use and enjoyment of the park.

There are two reasons why human resource monitoring is important. It allows the park management a way to better serve visitors and thus enhance visitor satisfaction (use and enjoyment). Human resource monitoring can also address natural resource issues that are affected by the visitor use patterns (resource protection). Each park could be considered a "human ecosystem," where people come to seek specific experiences and to fulfill specific needs and desires. The human ecosystem concept as applied to a park setting is defined by the interaction of population, social organization, and technology in response to a set of environmental conditions (Machlis et al, 1981). By the nature of this interaction, natural resource monitoring is less effective if it is not coupled with the monitoring of the human resources. Together, the monitoring of natural and human resources provide a powerful management tool for the park manager.

Over the past decade, the National Park Service has used a universal natural resource monitoring program throughout the system. At about the same time, some of the park managers also recognized the need to monitor the human resources of their respective parks. Recently, many parks around the country have implemented studies of their park's patrons. Furthermore, the National Park Service has developed the Visitors

Services Project that utilizes a standardized survey throughout the park system. During the last ten years or so, the National Park Service began to implement this monitoring program in a number of the National Parks (Machlis and Harvey, 1993). A possible shortcoming with this method, however, is that no two parks are alike. Each park and the experiences it provides is unique. Consequently, park visitors can be quite diverse across the park system and even within a particular park. Visitors have different perceptions and agendas based upon the experience each park offers. Therefore, there is a need to create a method for human resource monitoring based on the specifications of a particular park. Due to the uniqueness of each park, it cannot be assumed that one survey or one monitoring technique will be appropriate to use in every setting or to capture the total picture of the park patrons.

One example of a park that has used several methods of human resource monitoring is Mammoth Cave National Park in Kentucky. Since Mammoth Cave National Park has two quite different recreational areas with a diversity of above and below ground users, several different methods of human resource monitoring were utilized during the study period. Not only were the "traditional" types of surveys conducted, but other social science/ marketing techniques were utilized to achieve monitoring goals, such as comment cards, focus groups, and observations. The combined use of these various techniques is rather unusual in natural resource settings. The question is whether the results provided through these methods achieved the park's goals more effectively than the more traditional survey methods. The purpose of this thesis is to use Mammoth Cave National Park as a "case study" to present and evaluate this multi-dimensional approach to human resource

monitoring.

A case study is a technique which "investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clearly evident; and in which multiple sources of evidence are used" (Yin, 1989). There are times in which it is important to examine a situation, or in this case, a study, in the setting in which it happened in order to grasp a clearer picture of the elements involved and the results thereof. Consequently, the human resource monitoring techniques used at Mammoth Cave National Park will be described and analyzed as to their effectiveness in monitoring the human resources at the park, particularly in relation to the cave tour experience.

Between 1992-94, several methods of human resource monitoring were used at Mammoth Cave National Park in order to monitor the human resources present there, with the exception of the employees of the park and concessionaire. The purpose of the study was to provide park managers with information to enhance the visitor experience and protect the natural resources of the park. Six monitoring techniques were used: Exit Interviews, Focus Groups, Visitor Center Surveys, Back Country Mail-Back Surveys, Unobtrusive Observation at the Visitor Center, and Comment Cards. The multiple methods used in the study were chosen in order to address all of the objectives of the researchers and the park management of Mammoth Cave National Park as described in the next section.

PURPOSE STATEMENT

During 1992-94, researchers from the University of Tennessee, Knoxville used a variety of human resource monitoring techniques at Mammoth Cave National Park to provide park managers with a holistic picture of the park visitors, i.e. their characteristics, behaviors, attitudes, and preferences. The park had several specific objectives they wished to accomplish with the study: (1) define the park visitors and their use patterns, including demographics and origin/destination; (2) reveal opinions on various aspects of the park; (3) provide feedback on quality of facilities and services; (4) estimate the amount of idle time visitors had while waiting for a cave tour; (5) determine what activities they would like to participate in during this time; (6) determine visitor awareness of other attractions in the region; (7) discover opportunities to increase length of stay in the area; (8) define use patterns in and around the Visitor Center; and (9) gather descriptions of use patterns and opinion of the back country resources at the park. Two specific areas of interest to management was to gather information that would assist in redesigning the Visitor Center and to evaluate the newly implemented advance reservation system for cave tours.

The objectives of this thesis are to: (1) present the human resource monitoring techniques used at Mammoth Cave National Park, specifically considering the data regarding the cave tour experience; (2) evaluate the various monitoring techniques used at Mammoth Cave National Park; and (3) describe the advantages and disadvantages of each method. The purpose of the study was to assess the value of the combined methods

in providing a more holistic picture of park visitors, particularly those at the park for the cave tour(s). It is hypothesized that a more complete model of human resource monitoring could be developed and implemented in other National Parks and natural resource settings based on the analysis of this case study.

CHAPTER II

LITERATURE REVIEW

A. HUMAN RESOURCE MONITORING

The natural resource agencies are recognizing the importance of including the monitoring of human resources in the overall management of the natural resources under their care. Due to this fact, the literature discussing the topic of human resources/ dimensions as they relate to the natural areas is on the increase, as is literature addressing the techniques which have been utilized (Lime, 1996). A vast number of works recognize the importance of research conducted in the social sciences and its usefulness in the natural sciences arena (Carr, 1995; Dawson, 1984; Ewert, 1995; Lime, 1996; Machlis et al, 1981; etc.). Leslie Reid (1987) stated that "the primary function of research is to provide information to the manager on which he may confidently base future actions." Since human resources impact the natural resources of the park, and vice versa (Donnelly et al, 1996), it is easy to see the importance of accurately developing a picture of the park visitor. As Carr (1995) puts it, there are two important parts of the human dimension. The first is that "people are an inextricable part of ecosystems." The second is that "ecosystem management is an inherently human endeavor, seeking the well-being of people and communities as well as the health of [the] ecosystem." Many of the same sentiments were

voiced in Machlis et al (1981) and Ewert (1995).

There are many purposes of social research. The three most common are description, exploration, and explanation. The type of research conducted in the Mammoth Cave study, as is at most parks, was that of exploration. Exploration research also has three purposes: to gain a better understanding (describing the park visitor), to test the possibility of more study (implementation of an ongoing system of human resource monitoring), and to develop the methods to be used in that study (the use of six different techniques) (Babbie, 1992). The responsibility of the natural resources manager is to best serve the public frequenting the park while protecting the resources in their care. The difficulty of carrying out this responsibility for the National Park manager lies in serving the public. In the setting of a National Park, visitors come from across the country and from around the world. It could be their first visit to the park or their twentieth. Each visitor, on each visit, brings a unique background and expectation with them. It is the park's management challenge to serve them as equally as possible (Donnelly et al, 1996; Ewert, 1995; Lime, 1996). Once the variety of visitors is considered, it is easier to recognize the need for integration of monitoring techniques honed in the social sciences.

Four categories of human resource monitoring techniques were used in the study conducted at Mammoth Cave National Park: on-site interviews/ surveys (Exit Interviews, Visitor Center Surveys), mail-back, or self-administered, questionnaires (Back Country Mail-Back Surveys and Comment Cards), structured observations (the Unobtrusive Observation at the Visitor Center), and focus groups. The researchers decided to use a variety of monitoring techniques in order to develop a more complete picture of the park

visitor and their experiences in the park.

B. ON-SITE INTERVIEWS/ SURVEYS

By reviewing the research data in the field of recreation/ natural resources, it is apparent that personal interviews are the social science method most relied upon by social scientists (Dawson, 1984; Betz and Cordell, 1988; Chavez, 1993, Hammitt and Patterson, 1993; Heywood, 1991; Hollenhorst, Whisman, and Ewert, 1992; LaPage, 1981; Mills et al, 1987; Machlis and Harvey, 1993; Moeller et al, 1980; Reed and Hirsch, 1995; etc.). Occasionally the research is coupled with another technique, such as the mail-back questionnaire or observation. One reason that most people rely on surveys is the "advantages" of this type of approach. For example, there is a better return/completion rate and fewer, if any, unanswered questions due to the nature of the interview process. This method also allows for observations aside from those answered by the interviewee, such as weather conditions (rainy, sunny, etc.) or specific characteristics (type of vehicle, number in party, etc) (Babbie, 1992).

The survey method indeed is popular both in the natural resource area and the social sciences. Both the United States Forest Service (USFS) and the National Park Service (NPS) have used this method across its management areas. The USFS started in 1985 with a standardized visitor survey called PARVS (Public Area Recreation Visitor Study). This survey was followed by a three year test of CUSTOMER (Customer Use Survey Techniques for Operation, Management, Evaluation, and Research) from 1990 to 1992 (Reed and Hirsch, 1995). CUSTOMER was a combination of on-site surveys, with

almost one-half also completing a mail-back questionnaire. Although the experiment did provide the Forest Service with useful data, it did not serve the individual manager as well as they had hoped. The data gathered were directed more toward a nation-wide view, as opposed to providing data which would be advantageous for the specific sites. It attempted to provide information for both purposes, but seemed to better serve the broader nation-wide objective (Reed and Hirsch, 1995).

The National Park Service tried its hand at the standardized method beginning in 1982 with the Visitor Services Project (VSP), which was conducted through the Cooperative Park Study Unit at the University of Idaho. By 1992, the Project had been conducted in 45 of the National Parks (Machlis and Harvey, 1993). One possible advantage of the survey method to the natural resources agencies is that the actual work can be "contracted out" to people already possessing the expertise in the techniques. Contracting out leaves the park staff and management free to do its usual business, as in the case of the Visitor Service Project and the study at Mammoth Cave National Park. Similar to CUSTOMER, however, the VSP poses the problem of not actually meeting the needs of the specific parks because of standardized testing and a narrow use of collection techniques.

C. MAIL-BACK (SELF-ADMINISTERED) QUESTIONNAIRES

Probably the second most common method of data collection is that of the mail-back, or self-administered, questionnaire. As with the previously discussed on-site survey, the mail-back survey has basically the same advantages. Some additional ones

include a lack of interview bias (no interviewer), more privacy for the interviewee, and it is more economical. Some of the disadvantages, as compared to the on-site survey, are the possibility for a lower completion and a lower return rate, for more misunderstood questions, and for the removal of the opportunity for special observations and flexibility in sampling (Babbie, 1992).

Even with its disadvantages, the self-administered questionnaire is still one of the more popular choices for human resource monitoring in the natural resources field, either alone or paired with another method like the on-site survey (Becker, Dottavio, and Mengak, 1987; Dillman, Dolsen, and Machlis, 1995; Dolsen and Machlis, 1991; Hollenhorst, Whisman, and Ewert, 1992; Lucas and Oltman, 1971). Two of the prominent concerns of the literature is response or return rate (Babbie, 1992; Dillman, Dolsen, and Machlis, 1995; Dolsen and Machlis, 1991) and sampling bias (Babbie, 1992; Becker, Dottavio, and Mengak, 1987; Lucas and Oltman, 1971). The opportunity for a large sample size, lowered burden on the participants, and a lower cost of implementation for the managers seem to outweigh the disadvantages (Babbie, 1992; Dillman, Dolsen, and Machlis, 1995). When used in corroboration with other techniques, as in the case at Mammoth Cave. The self-administered questionnaire allows the researchers to gather information for more than one segment of the park population at once.

Although comment cards can be found at many tourist venues, such as hotels, restaurants, and visitor centers, it is a relatively unused method of data collection at National Parks, perhaps due to the problem of self-selection, i.e. non-randomness. Usually, anyone that wants to fill out the card can, thus decreasing the random selection

process found in "scientific" studies. The comment cards at Mammoth Cave allowed visitors to provide ratings of both performance and importance of Visitor Center trails, the Visitor Center facility, campgrounds, cave tours, and the information provided on the cave tours. With these data, resources can be allocated based on performance levels relative to areas with ratings of high importance compared to areas of lower importance. Otherwise, the design of the card is similar to a self-administered survey; that is, read the questions, record the answers (based on a scale), and return the instrument to the appointed location at the most convenient time. There are few studies in the natural resources field addressing this method of analyzing performance perception with degree of importance (Mengak, Dottavio, and O'Leary, 1985). Rating services in terms of performance and importance could provide useful insights to park managers, particularly in the visitor center areas and in the monitoring of the services of concessionaires.

D. STRUCTURED OBSERVATIONS

Literature pertaining to the use of structured observation in the field of natural resources is not as prevalent as the literature concerning the previously mentioned techniques. Babbie (1992) defines structured observation as "a particular kind of data-gathering, one in which the researcher directly observes, visually and auditorially, some phenomenon and then systematically records the resulting observations". Although this particular technique cannot be relied upon as the sole, or even primary, means of data collection, it can be a useful when used with other techniques (Henderson, 1991; Hollenhorst, Whisman, and Ewert, 1992; Rawhouser et al, 1989). Observation is a

method of gathering data on behavior while not disturbing or affecting it (Babbie, 1992). It can be a very helpful technique, as in the situation at Mammoth Cave, where the pattern of traffic or use level of a particular area needs to be determined. In this instance, the observation was simple, in that the visitors were not aware of the observation research (McMillian and Schumacher, 1997). Even though most observations are made by a researcher actually in the area, it is possible to use other means, such as video cameras, to capture the sample observation. The issue of liability can be deterred by placing the camera out of focus just enough so that the faces of those recorded are not distinguishable (Hollenhorst, Whisman, and Ewert, 1992).

E. FOCUS GROUPS

The final method of human resource monitoring used at Mammoth Cave National Park was focus groups. Although there is a limited amount of literature addressing this method within the field of natural resources, it is widely used in the social sciences, marketing and tourism (Babbie, 1992; Henderson, 1991). In his book on focus groups, Richard Krueger (1988) characterizes a focus group as "including people who possess certain characteristics and who provide qualitative data through a focused discussion." What better way to gather opinions about the park than from those who experience it? An emerging trend in the interpretation planning process in natural resources is the utilization of groups referred to as "ecotourist." This is based on the focus group concept. A group of participants is selected, information is gathered, analyzed, and considered when the interpretive content of a particular area is evaluated. This process is seen as a way to

include the desires of the visitors in the planning process (Masberg, 1996).

There are several advantages to conducting focus groups in order to gather research data. The setting in which the interviews take place is a relaxed one, thus there is a probability for comments that might not otherwise be collected. The structure of the questions allows for flexibility in the data collected, depending on where the interviewees answers lead. The cost of this method is relatively low, and the results are often quite valuable in comparison to the time it takes to collect the data.

There are also several drawbacks to the focus group method: there is less control by the interviewer and more given to the interviewees; the training of the facilitator and the analysis of the data is more detailed and may be more time-consuming than in other techniques; and difficulties can arise due to the need for the proper environment and the makeup within the groups, such as adequate space for the number of people needed and domineering personalities within the group (Babbie, 1992; Krueger, 1988). The quality of the data collected and the insight gained by this method makes it a useful technique when the opinions and perceptions of the clientele matters (Krueger, 1988; McMillan and Schumacher, 1997).

CHAPTER III

METHODOLOGY

The central focus of Mammoth Cave National Park is evident in its name. The park was established due to the extensive cave system, which runs throughout the general vicinity of the park. Not surprisingly the majority of visitors to the park come to tour parts of the longest cave system in the world. For many visitors, the park is their primary destination, while others stop to tour the cave system on their way to some other destination. Nonetheless, the primary focus of the park for the large majority the visitors is the cave tour. Since the cave visit is the predominant element of the park and the park visit, and since the cave visit was one element of the park that was common to the various human resource monitoring techniques, this report will concentrate on the cave tour experience.

The following chapter of this report will examine the monitoring techniques of Exit Interviews, Focus Groups, Visitor Center Surveys, Back Country Mail-Back Surveys, Unobtrusive Observation, and Comment Cards. All six techniques were used at Mammoth Cave National Park during the study period. Each of the methods will be examined as to their design and implementation followed by discussions of the results deemed relevant to the cave tour experience and an evaluation of the applications and

findings for park management relative to the cave tour. The advantages and disadvantages of each monitoring method will also be presented. In the following chapters, recommendations will be presented based on the findings with respect to future human resource monitoring for the park. Consideration will also be given to the method, or combination of methods which would provide the most holistic package for human resource monitoring. These recommendations could, in turn, be adapted and implemented in other natural resource settings interested in monitoring its human resources.

The study conducted at Mammoth Cave National Park extended over a period of approximately two years, with the majority of the data collection taking place during the summer of 1993. Six methods of data collection were utilized in this process: Exit Interviews, Focus Groups, Visitor Center Surveys, Back Country Mail-back Surveys, Unobtrusive Observation at the Visitor Center, and a battery of six different types of Comment Cards. In addition, a mail-back expenditure diary was distributed with the exit interviews and the back country mail-back surveys. These surveys were analyzed by an economist at Michigan State University, Dr. Dan Stynes. Since this case study does not consider the economic impact of the park on the surrounding area, the mail-back expenditure diary technique will not be addressed. Upon completion of the data collection techniques, the results were compiled and analyzed by the researchers at the University of Tennessee and a report was written and presented to the management of Mammoth Cave National Park. It is this report which provided the results cited in the preceding chapters of this thesis.

The management of Mammoth Cave National Park approached researchers at the

University of Tennessee, Knoxville for the purpose of conducting a study of their visitors to aid in addressing several management concerns: to better understand and serve their clientele, by defining both the front and back country visitors and their use patterns; to obtain public input on the Park and the redesigning of the Visitor Center; to determine visitor awareness in respect to the surrounding area and opportunities for increasing the length of their stay; and to evaluate the effectiveness of the newly implemented cave tour reservation system.

Each of the techniques utilized during this study had specific objectives to accomplish based on the requests of the park's management staff, as shown in Table A-1. The Exit Interviews were to provide information which defined the park visitor and their use patterns, determine the number of vehicles traveling the main roads in the vicinity actually carrying visitors to the park, and gather the visitors' opinions of the reservation system. The interview method was chosen because its design could deliver a large amount of information covering a vast population and a wide range of topics in a scientific manner (Babbie, 1992). The Focus Groups were designed to trigger feedback on the design of the Visitor Center and other facilities in the park, comments on attractions in the area outside the boundaries of the park, and suggestions for increasing the length of visitors' stay in the area. The focus group technique was chosen to elicit in-depth comments and suggestions pertinent to the Visitor Center and the reservation system (Babbie, 1992; Krueger, 1988). Surveys were also conducted at the Visitor Center to obtain responses from people waiting at and/ or using the Visitor Center. This enabled the researchers to obtain data on the Visitor Center from people utilizing it while the experience was fresh on their minds

(Fowler and Mangione, 1990). The objectives of the interviews conducted at the Visitor Center were to achieve estimates on the amount of time the visitors spent waiting for cave tours and to solicit ideas for visitor activities during this "idle" time. Back Country Mail-Back Surveys were distributed to describe visitor use patterns in the above ground section of the park north of the Green River and to collect opinions on the back country resources. Since the survey was left on the windshield of the participant's vehicle, the self-administered, mail-back technique gave the participants an opportunity to complete their activity(s) and reflect on their experience before having to respond to the survey. The Unobtrusive Observation allowed researchers to determine patterns of facilities use in the high traffic area around the Visitor Center. Finally, the Comment Cards were provided to the visitors so that they could comment on the facilities and/ or services provided at the park and rank the quality/ performance and importance of various services.

All of the above objectives were based on the requests of the Mammoth Cave National Park management staff who indicated their need for visitor data was an extensive one. Thus, in order to provide the management with an accurate data base applicable to their requests, the following data were collected by the various methods used: visitor input (Comment Cards and Focus Groups), cave visitor demographics (Exit Interviews and Visitor Center Surveys), and back country visitor demographics (Back Country Surveys), as well as visitor traffic/ use patterns (Unobtrusive Observation). There was one component of the "human resources" that was not studied. That was the park employees and volunteers. Although they are included in the make up of the human resources, they were not included in the requests by the park officials. Consequently, they were excluded

from the human resources monitoring project.

It would be difficult to analyze the effectiveness of this study if the analysis was based on a comparison to other studies in the natural resources setting. There is no blueprint or checklist to follow in order to determine effectiveness in this way. If the list of objectives based on the requests of the park is compared with the results of each method, however, it can be stated that the study conducted at Mammoth Cave was effective. The breadth of the information desired by the management of the park would not be fully revealed by conventional methods, i.e. the use of just one or two methods. The surveys allowed a large amount of general quantitative data to be collected, and the focus groups, comment cards, and observation provided intricate details also desired by the park (qualitative data). Multiple methods also enabled the researchers to do "triangulation." If the different methods of study provide similar results, one can be more confident in the findings; that is, the validity of the overall results increases.

When conducting human resource monitoring, whether utilizing one method or a number of methods, skeptics tend to criticize the objectiveness of the study. There is always the risk that the study will not be objective, that the data will be skewed in one direction or another, or that samples will not be representative. And, as long as there are humans involved in the process, these risks will always be present. There are means by which to reduce this risk, from the process of developing and pretesting the collection instruments to randomizing the selection of participants to provide a large enough sample size for representativeness. These and other precautions in research methodology should be followed to aid in providing accurate data.

CHAPTER IV

TECHNIQUES OF HUMAN RESOURCE MONITORING

AT MAMMOTH CAVE NATIONAL PARK

A. Exit Interviews

Design

The primary method of human resource monitoring used at Mammoth Cave National Park was the exit interview. The reasoning behind the classification of "primary" is that a large number of surveys were completed containing extensive quantitative data as requested by park management. There were three main objectives in the implementation of the interviews (Figure B-1). The first objective was to define the range of park users and their activities within the park. The second was to collect data on the number of recreational park users from the total number of vehicles trafficking the key roads in the park. The third objective was to create a picture of the visitors to the park in terms of their origin and destination, demographics, and their opinions, particularly concerning the cave tour reservation system.

Implementation

The Exit Interviews were conducted on the two main roads utilized for entering

and exiting the park. The interviewing party consisted of a flag person and an interviewer. Two traffic signs were placed on the side of the road, facing traffic exiting the park. The first sign, which read "Survey Crew Ahead," was placed approximately one hundred yards before the survey area. The second sign was approximately fifty yards away from the site and read "Be Prepared To Stop." The crew was located in a pulloff area at each of the survey locations.

The flag person would stand just at the beginning of the turnoff, a safe distance off of the road, but still extremely visible to oncoming traffic. That person would flag the desired vehicle into the turnoff, toward the interviewer. They would then motion for remaining traffic to continue on the highway. The interview location was marked by orange cones between which the vehicle was to park. The interviewer would orally administer the exit interview, which was designed as a series of seventeen questions (Figure C-1). There was also a short section at the top of the instrument filled out by the interviewer as to the date, time, location and weather condition at the time of the interview. While the driver of the vehicle was being interviewed, a passenger was asked to fill out a separate sheet which addressed the demographics of the group, activities pursued by the group, and any impairments represented by any of the group members (Figure C-2). Once the interview was complete, the data sheet was retrieved and the vehicle was routed back onto the highway providing the opportunity for another vehicle to be selected for the interview process.

The scheduling of the survey days were such that each location had the same number of surveys conducted at each site. The times for the surveys were from 10 a.m. to

5 p.m., or from 9 a.m. to 12 noon and 4 p.m. to 7 p.m. The variation of the survey days during the summer session was in order to sample the same number of days of the week. In the fall and spring, the days were limited to the weekend due to higher traffic levels on those days and the availability of interviewers. There were a total of 1061 completed surveys obtained from the exit interviews.

Results

The results of the exit interviews can be divided into several categories with relevance to the cave tour experience: origin/ destination, demographics, impairments, visitor use patterns, recreational activities/ cave tour. In terms of demographics, the surveys provided information as to the makeup of the Park's clientele. There were forty-three (43) states represented in the interviews with sixty-five percent (65%) of the interviewees coming from the Midwestern states located north of the home state of Kentucky. Only twenty-seven percent (27%) of the front country users were actually from the home state of Kentucky.

As to the demographics of those surveyed, the mean group size was 3.62; with forty percent (40%) of the groups being 1-2 people and thirty-nine percent (39%) made up of 3-4 people. The overall mean age of visitors was thirty-three (33) years old and, on average, the locals were five and one half years older than the non-locals. In regard to the educational level of the participants, almost sixty percent (60%) of the front country visitors had a baccalaureate degree and/ or had engaged in graduate studies. First time visitors tended to have a higher education level than the repeat visitors. The income level of the non-locals was higher than those from the local area. The question of whether or

not physical impairment was a concern was addressed with those interviewed. Of those surveyed, 11.4% stated that "non-age" impairments were a concern in relation to participation on cave tours. Of those taking a cave tour(s), over ten percent (10%) mentioned a learning or mental impairment.

Information about visitor use patterns was also obtained. Fifty-nine percent (59%) of those interviewed said that Mammoth Cave National Park was their primary destination and forty-six percent (46%) stated that going on a cave tour was their primary reason for visiting the park. There was variation in this result based on the surveying seasons. In the summer, it was the primary destination for fifty-six percent (56%) of visitors while in the fall it was primary for seventy percent (70%) of those questioned. Of those who were repeat visitors, the park was the primary destination for seventy-three percent (73%). Some comparisons could be drawn in respect to which group was more likely to go on a cave tour. First time visitors were more likely to go on a cave tour, eighty-eight percent (88%) versus sixty-eight percent (68%). Twenty-three percent (23%) of the locals were there to see the cave as opposed to eighty-five percent (85%) of the non-locals. Those visitors who stayed overnight were more likely to go on a cave tour, sixty-three percent (63%) to thirty-seven percent (37%). An interesting statistic was that of the five percent (5%) of visitors who did not go on a cave tour, fifty-nine percent (59%) were not aware that the Discovery Tour was available and that it did not require advanced reservations.

When asked how they learned about the park, fifty-three percent (53%) said that they had "always known" about the park, had general knowledge of the park, or had heard

about it from friends/family. Repeat visitors were more likely to have gotten their information about the park from friends/family (62%) than first time visitors(26%). The mean length of stay in the area was 2.01 days, with forty-seven percent (47%) only staying one day. Sixty-six percent (66%) of the visitors reported entering the park only once during their stay in the area and the mean number of visits to the park was 1.53.

There was a concern that the visitors were required to stay longer than they had planned because they did not have a cave tour reservation. Seventy-two percent (72%) of those taking a cave tour stated that they waited at the Visitor Center. Those that utilized the advance reservation system reported waiting an average of 7.46 minutes, while those not using the system waited a mean of under forty minutes. Fifty-four percent (54%) of the first time visitors had a longer wait before going on a cave tour. Forty-five percent (45%) of those who went on a cave tour used the reservation system. The reservation system was used the most by visitors wanting to go on the "specialty" type cave tours: 88% of them wanted the Wild Cave Tour; 81% the Trog Tour; 80% the Lantern Tour; 72% the Great Onyx Tour; and 66% the Making of Mammoth Tour. Over fifty-two percent (52%) of the visitors who said that Mammoth Cave was their primary destination were aware of the advanced reservation system for cave tours. Fewer first time visitors forty-three percent (43%) were aware of the reservation system, while fifty-two percent (52%) of the repeat visitors were aware of the system. Of those visitors who used the system, one in five (20%) reported dissatisfaction with the service. Four percent (4%) of those interviewed said they "tried" to use the system, while thirty-seven percent (37%) of those spoken to said that they were not able to go on their first choice for a cave tour.

Only fifty-two percent (52%) of those not aware of the reservation system were able to go on their first cave tour choice.

Interpretations

From the above results, insight can be drawn as to the makeup of the Park's clientele. It is interesting to note that over half of the visitors interviewed during the exit interviews were from the Midwestern states north of Kentucky. It might be believed that a large number would be from adjoining states, such as Tennessee and/ or the Virginias. Knowing the mean group size allows the park to better estimate the number of visitors per car, thus giving a better gage for total number of visitors to the park. A statistic which could aid Visitor Center design and future tours is the data on group impairments. Knowing the number of patrons with some form of impairment(s), such as age, motor and/or visual impairments, allows the management to consider offering a tour which would provide a cave experience with minimal obstacles for those with impairments.

The visitor use pattern data also provides helpful information to the management of Mammoth Cave National Park. Data on Mammoth Cave as the primary destination and a cave tour being the primary purpose could prove helpful during the park's planning sessions. With a park offering a specific activity, like cave tours, the assumption could be that cave tours are the purpose and destination for the majority of visitors. Cave tours, however, were not the primary purpose of as many of the visitors' visits as might have been expected. In fact, only around half of those surveyed stated it was their primary purpose. One might also have expected the same for repeat visitors, i.e. the purpose for most being a cave tour. The information could also be used to draw inferences as to

which groups are more likely to go on a cave tour. The data revealed that first time visitors, non-locals, and overnight visitors are more likely to tour the cave. None of these statistics should be cause for surprise. It is important to point out, however, that about sixty percent (60%) of those not going on a cave tour did not know the Discovery Tour was available. This is important when remembering that only about half of the visitors were aware of the reservation system. There are a number of visitors having to wait several hours to get a cave tour. Knowledge of the Discovery Tour would give those visitors the opportunity to pursue a related activity while waiting for the tour for which they had tickets. It is also important to note that one in five (20%) visitors surveyed said they did not have a good experience with the reservation system.

Advantages/ Disadvantages

There are several advantages and disadvantages of the exit interview which can be deduced from the Mammoth Cave study (Figure B-2). One of the main disadvantages would be that of burden, both to the park and to the visitors. The park must pay personnel to conduct the surveys and must spend some time in training. They must also spend time and money in the analysis of the data when the survey is complete. With the large amount of data this method collects, data entry can be fairly time consuming. The burden placed on the visitors to the park must also be considered. Although most do not mind answering the surveys, there are those who are leaving the park who do not wish to be stopped. However, this is a slight disadvantage because, as in the case of Mammoth Cave, the survey location is set up so that they can refuse the interview when pulled to the side, or they can just ignore the request to stop and pass by the site. The location of the survey

site must also be seriously concerned, due to the fact that visitors may be missed if the proper location is not chosen, thus causing the sample to be skewed. There is also the disadvantage due to the structure of the method. This method of data collection only allows for a small amount of personal comments collected from the visitors. This means that if something has not been covered, and they do not take it upon themselves to add it, that problem or praise may not be revealed.

There are also several advantages to this method of data collection. The amount of training necessary for those delivering the survey is minimal in comparison to other methods, such as focus groups, and the amount of data collected can be as large and as detailed as desired. The data collected by a survey of this type can cover many topics that might be of concern to managers. This interview can provide a large enough sample size to allow for considerable reliability in the results and can lend itself to different types of statistical procedures and cross-tabulations. Since the interview is setup at several exit locations, the sample draws a variety of park users with a variety of interests and destinations thus providing an adequate cross-section of the population. The advantages of this method makes it easy to see why this is the preferred method of many natural resource agencies.

B. FOCUS GROUPS

Design

The focus group was another technique used in the study at Mammoth Cave National Park. The groups were conducted in hopes of eliciting responses and/or

comments from the users of the park. One of the primary objectives of the focus groups was to gather information concerning the redesigning of the Visitor Center from those who would benefit from it the most. Objectives addressed by the focus groups (Figure B-3) were: (1) What purpose was the facility serving visitors? (2) What did visitors want included in the park experience that they were not getting? (3) What would visitors like to see stay the same? The other objectives were: (4) to discover visitor knowledge of the surrounding area and attractions, (5) to acquire information from the visitors with regard to the other aspects of the park, and (6) to solicit comments in order to determine what might increase the park visitor's length of stay.

Implementation

Participants in the focus groups were selected from park visitors in the vicinity of the Visitor Center, presumably while waiting there for a cave tour or exiting from a tour. They were chosen and solicited by the facilitator of the focus group session. Once a group agreed to take part in the interview, they were escorted into a conference room in the Park Headquarters. The facilitator asked the group a series of fourteen "trigger" questions (Figure C-3) in order to generate conversation about the given topics. The facilitator was there to ask the questions and to listen to their responses with minimal intervention. The key was to encourage interaction within the group and to get the visitor's perspective on certain topics of interest of the Park administration without influencing the answers or the flow of the conversation. The groups were video and audio taped, with prior consent, to provide a record of the dialogue. Once the session was concluded, each member of the group was thanked for their participation and presented with a coupon good for one ticket

for the Historic Cave Tour. Thirty-one focus group sessions were conducted, but due to the differences of interviewing techniques by the two facilitator, only twenty of those groups proved to be useful. Transcripts were later made of each of the sessions in order to analyze their content. The transcripts were then edited to provide a more workable document for analysis.

Results

A majority of the Focus Group trigger questions (Figure C-3) centered around the Visitor Center and the cave tours. Included were questions about the surrounding area and their length of stay in the area. Although the topic was not included in the trigger questions, there were several comments made about the cave tour reservation system. Several of the groups had no problem using the system, but a greater number of visitors were dissatisfied with the service. There were quite a few complaints about the lack of information available outside of the immediate area of the park, making it difficult to plan trips. There also seemed to be very little information available about the above ground resources at the park. Many of the comments about the Visitor Center revolved around the crowdedness and lack of space in and around the Center. Interest was expressed in the provision of activities for children while at the park, particularly in the area of the Visitor Center.

Interpretations

The results of the information gathered by the focus groups can be interpreted in the following manner. The Focus Groups generated some themes similar to the Exit Interviews and/or Visitor Center Surveys, such as: crowdedness at the Visitor Center;

inadequacies on the part of the cave tour reservation system; difficulty in getting first choice of cave tour; improvements needed in the area of information distribution; and general improvements in the design of the Visitor Center. Interpretation of the information in the focus groups can be time consuming due to its qualitative nature. But this method provides the researchers with the opportunity to learn more in-depth information about the visitor's experience at the park.

Advantages/ Disadvantages

As with any other collection method, the focus group method has its disadvantages and advantages (Figure B-4). One of the disadvantages is the demand placed on both the management and the visitors. A focus group can last as long or longer than other techniques, while covering a narrower line of questioning. This narrow range of questions is definitely an area worth consideration. The time and training that goes into preparation of the facilitator also must not be overlooked, since it could cost the park extra personnel and/ or person hours. The data collected does not lend itself to easy manipulation and analysis although there are computer programs to assist in content analysis. The product of a series of groups is a rather voluminous work. On the other hand, this method of data collection allows the visitors a chance to express their concerns and opinions, giving them a sense of importance, and provides the researchers with data they might not receive through other means. It is also a useful tool for both the management and employees of the park. To actually see and hear what the visitors have to say is more effective because the otherwise empty words now have faces and emotions. If utilized properly, the focus group can be a valuable data collection technique.

C. VISITOR CENTER SURVEYS

Design

Another method of human resource monitoring conducted at Mammoth Cave National Park was the Visitor Center Survey. This method had some similarities in objectives to those of the focus group method. The desired outcome was to retrieve information from the visitors in the vicinity of the Visitor Center (Figure B-5). The two objectives of this technique was (1) to gather information regarding the amount of time visitors were waiting in close proximity to the Center and (2) to determine what would be appreciated by the park users during their time in the Visitor Center area. Both of these objectives relate back to the redesigning of the Visitor Center (Figure B-5).

Implementation

The Visitor Center surveys were conducted during the 1993 summer sampling period. Participants were selected from those waiting in the visitor center area during regular hours of cave tour operation. Park visitors were approached by the interviewer and asked if they would be willing to participate in a brief survey. The survey consisted of ten questions (Figure C-4). The interviewer was responsible for noting the time, location, and weather conditions of each interview. Another member of their party was asked to fill out a separate information sheet (Figure C-2), the same demographics sheet used in the Exit Interviews. After the completion of the interview, the group was thanked for their participation and another group, separate from those previously interviewed, was selected and the process repeated.

Results

There was some interesting data collected from the Visitor Center Surveys which related to the cave tour experience. That data involved demographics, information concerning the amount of time spent "waiting", and suggestions/ comments regarding the design of the Visitor Center. In terms of group demographics, the mean age for those waiting at the Visitor Center was 29 years of age. Thirty-eight percent (38%) of the groups had a member(s) under the age of eighteen and almost two percent (2%) had a member(s) in their group sixty years of age or older.

The next set of data addressed whether a group had to wait at the Visitor Center and/ or surrounding area longer than anticipated, and if so, how long? Of those surveyed, one in five (20%) indicated they had to stay in the general area of the Visitor Center longer than they had planned in order to go on a cave tour. Eighty percent (80%) of those staying longer had to stay up to five hours longer. When addressing the question of suggestions for the Visitor Center, twenty-six percent (26%) of respondents suggested that there was a need for more space. Eight percent (8%) of the visitors wanted more restrooms, and five percent (5%) wanted some sort of "hands on" activity(s) provided for the children while they were waiting at the Visitor Center.

Interpretations

Several interpretations can be made from the Visitor Center interviews. With the data regarding demographics, the mean age of those surveyed was the same as in the exit interviews. Also, it is deduced that slightly over one-third of the groups had children eighteen years of age or younger. This is important data when considering the activities

and information offered at the Visitor Center. It is also important to remember when analyzing and/ or revamping the tours offered at the park. What is provided for this age group is not only important to them, but it is also important to those with them. When coupled with the fact that one in five surveyed had to stay in the area longer, eighty percent (80%) of which had to stay up to five hours longer, it is necessary for visitor satisfaction to provide adequate activities and opportunities. In addition to the general information, the survey provided a few specific requests, such as a need for more restroom facilities and "hands on" opportunities for the children.

Advantages/ Disadvantages

It is clear that the Visitor Center survey provided the management of the park with insight into the inadequacies of the current Visitor Center, which is a definite advantage to conducting a survey of this type (Figure B-2). With society's changing needs and expectations, it would be advantageous to conduct such a survey periodically in order to keep up with the visitors' preferences. Even though insight that might be gained may not feasibly be implemented every time the data are gathered, it allows for a "wish list" to be compiled for the time when such data are needed, and some of the suggestions might be implemented right away. Another provision of the Visitor Center survey is that it provides a cross-check on the exit interview. It gives data by which to compare demographical information and use patterns gathered by each technique. This, however, also brings a couple of disadvantages to light (Figure B-2). Since the same disadvantages exist for this method as with the Exit Interviews. The structure of this particular method does not allow for a lot of visitor comments. The demand on the visitors and the

management/ staff is also high. If the park is not one in which a large portion of the visitors actually come to the Center, the amount of data might be skewed toward first time visitors or visitors at the park for specific activities. If the park contains more than one Center, which is not the case at Mammoth Cave, then management would need to address whether another survey crew would be desirable given their needs. Also, if the visitors are not waiting around at the Visitor Center, as in the case of Mammoth Cave, the risk of visitor burden increases. If the visitor has needs that are not being met, however, they will tend to be more willing to participate. In this modern era of marketing surveys, most people realize that the survey is being conducted for their benefit.

D. BACK COUNTRY MAIL-BACK SURVEYS

Design

The Back Country Mail-Back Surveys was one of two mail-back survey methods used at Mammoth Cave National Park. The back country of the Park has not been a focal point of the administration's efforts and there appears to be a great need for information in regard to the uses and desires of the recreationists utilizing that area. Therefore, the back country survey had dual objectives (Figure B-6). One was to gather comments and opinions of the various back country opportunities within the park, i.e. hiking trails, camping sites, and points of river access. The second was to obtain the "big picture" of the uses and patterns on the back country resources.

Implementation

The original questionnaires had seventeen questions and was designed to be self-

administered (Figure C-5). The surveys were compiled, put in plastic bags, and placed on the windshields of the vehicles parked in lots on the north side of the Green River. To encourage return of the packet, the instrument was printed with a return address and prepaid postage. Participants were offered two free tickets for the Historic Cave Tour upon completion and return of the survey. After the summer survey season in 1993, the back country questionnaires were revised to a twelve question instrument, based on data received from the original surveys (Figure C-6).

Results

The results from the surveys provided data on the demographics and visitor use patterns of those in the back country. The mean age for users of the back country was approximately 34 years old. Of those surveyed, over twenty-one percent (21%) had a member(s) in their group under the age of eighteen. 6.3% said they had a member(s) sixty years of age or older. Those reporting an overnight stay in the back country were less likely to be from the state of Kentucky than those who were day users. With regard to the educational level of the back country users, over seventy percent (70%) reported holding a baccalaureate degree and/ or having engaged in some level of graduate studies. Eleven percent (11%) reported holding doctorate degrees. Non-locals had significantly higher incomes than those living in the local area.

When addressing the topic of why they visited the park, ninety-one (91%) percent said that they came to the back country with a specific objective in mind, seventy-three percent (73%) came for solitude, and over fifty percent (50%) said that they came to be with family/friends. Fifty-four percent (54%) of those answering the back country survey

went on a cave tour in addition to their time spent in the back country. First time back country visitors were more likely to go on a cave tour than repeat visitors. Forty-two percent (42%) of day users went on a cave tour, while over sixty percent (60%) of those staying overnight did.

Information was also collected about other recreational activities pursued by the visitors. Fifty-four percent (54%) of those reported going hiking. Of those using the park trails, sixty-five percent (65%) used a map with seventy-seven percent (77%) of them using the trail map in the park newspaper. Fifty-one percent (51%) of those using maps in the back country reported having a problem of some sort with the map(s). Of those who had trouble with the maps, sixty-three percent (63%) identified a problem with trail signage. Over eighty-five percent (85%) considered the trails to be in excellent condition. Of those camping in the back country, ninety-four percent (94%) used a camping permit (only two reported not using a permit). Forty-eight percent (48%) camped overnight on the river bank. Eighty-six percent (86%) of those camping got their first choice of a campsite with no one reporting feeling that their camp site was overcrowded.

Interpretations

The results from the back country survey provide information helpful in describing the cave visitors who also utilize the back country resources. Some of the implications of the above data are as follows. The park is given a picture of the demographics of the back country visitor. The survey provided a mean age and their place of origin. These data can be correlated with the data from the exit interviews and/ or the visitor center surveys to see how the back country patron resembles or differs from the

front country patron. There was a slightly less number of visitors to the back country under the age of eighteen than at the visitor center, but there were about four percent (4%) more in the sixty years of age and over range. The greater number of older visitors, and their possible age related impairments, could prove to be an important factor to keep in mind when making improvements to signage, trails, etc. in the back country area. The educational and income levels were approximately the same as that of the exit interviews.

One interesting statistic to surface from the back country surveys is that of the number of visitors to that area that actually went on a cave tour. The general opinion of the park management and the researchers was that the back country clientele was made up of a different group of people than those utilizing the front country. The survey, however, showed that slightly over one half of those in the back country went on a cave tour while they were at the park. Sixty percent (60%) of those staying overnight in the back country went on a cave tour also. These findings indicate that there is more overlap in the two sections of the park than previously thought.

Advantages/ Disadvantages

As with any other research method, the Mail-Back Survey conducted in the back country at Mammoth Cave National Park has advantages and disadvantages (Figure B-7). One advantage is the initial amount of manpower needed. The organization and compilation of the various components of the design of the survey instruments takes some time. The survey can be distributed by rangers during their regular patrols of the parking lots with little extra effort. Once the surveys start arriving back on site, however, someone must be in charge of collecting, sorting, and, as was the case with the Mammoth

Cave study, mailing back rewards (vouchers to cave tours) to participants. This could be viewed as a disadvantage depending on study constraints. As with any self-administered survey, there is the question of response rate. In order to determine the percentage of responses, it is necessary to keep track of the number of surveys distributed and how many were returned over a significant period of time. There may also be the need to distribute additional surveys, in order to have an adequate number of completed surveys for analysis.

Another advantage to this method is that of burden on the park visitors (Figure B-7). There is little burden placed on those surveyed due the mail-back and self-administered design. They are not required to stop what they are doing in the park in order to answer questions right at that moment. Instead, they can take the survey with them, completing it at their leisure, something that could also be viewed as a disadvantage in the eyes of park managers. If return postage is already on the survey, as in this case, there is no monetary cost to the interviewee. This approach also allows for complete trip information to be gathered. If completed after their visit, all of the activities, expenses, etc., can be included in the survey instead of just what they had completed at the time of the interview. It also provides the respondent with time to reflect on their trip, answering without someone hovering over them waiting for a response. And, as mentioned previously, when paired with other techniques, it can provide a better understanding of the park visitors.

E. UNOBTRUSIVE OBSERVATION AT THE VISITOR CENTER

Design

The unobtrusive monitoring of the visitors of Mammoth Cave National Park took place in and around the area of the park's Visitor Center. The main objective of the observation was to monitor the use patterns in the visitor center and its surrounding area (Figure B-8), thus obtaining information which would possibly reveal high traffic/congested areas or related problems. This information would be useful in the re-design of the Visitor Center.

Implementation

The observations took place in and around the Visitor Center during the month of July. Two times a day, once at 9:45 a.m. and again at 12:45 p.m., the number of people within eleven specific zones around the Visitor Center was recorded (Figure C-6). The two times were targeted by park officials as high traffic times because of the timing of the cave tours. The visitor counts were divided into two groups: adults and children estimated to be twelve years of age or younger. In addition to the actual head count, the researcher made note of the date, time and weather conditions at the time the count was taken.

Results

Data gathered using this method provided added insight into the cave tour experience. Any, or all, of the areas observed must be trafficked by those going on a cave tour. The highest recorded count for both the information desk and ticket sales area was

eighty five (85) people. The average total count during the 12:45 p.m. period was 231 people inside the Visitor Center and 161 people outside the Center, for a total of 392. Thirty-nine percent (39%) of those observed were estimated to be twelve years of age or younger (the Exit Interviews recorded only twenty-two percent in this age group).

Interpretations

Several inferences can be derived from the unobtrusive observations conducted at Mammoth Cave National Park. It was believed that the area in and around the Visitor Center was overcrowded and overused. With the collection of actual numbers it is plain to see that this perception is, in fact, reality. A large number of visitors are sitting around outside during the hottest part of the day, in the hottest time of the year. With the number of children and older people counted, it is probably safe to surmise that at least some of them would be inside if it was physically possible. It is also important to note the large percentage of visitors who reported in the exit interviews and the visitor center surveys that they were required to wait longer than they had planned. Many of them reported waiting at the Visitor Center. The highest counts for the information desk and the ticket booth are extreme when considering both areas occupied the same small area in the Visitor Center. These results provide practical information for the park to make space adjustments in strategic areas of the Visitor Center when it is re-designed.

Advantages/ Disadvantages

The monitoring of key areas at a park, such as a Visitor Center, has the advantage of providing hard data which a park can use in several ways (Figure B-8). These results provide visitor counts for areas which might be in question for updates and/or expansion.



The visitor numbers provide visualization of traffic patterns and traffic flow. Each observation can cost a park as little as five minutes of someone's time. If the park's needs require more indirect observation, as in monitoring delinquent behavior, video cameras can be installed in almost any location and personnel would not even be needed for observation. This type of observation would provide one of a very small number of disadvantages. Due to liability precautions, it might be best to set each camera slightly out of focus in order for the face not to be clearly seen. This could cause some difficulty if the park desires counts divided in age brackets, as was conducted at Mammoth Cave. Another drawback to this method would be the type of data it gathers (Figure B-9). Alone, the data are simplistic and has specific, but limited, purposes. When paired with other data collected during this study, however, it provides a more complete picture of issues and concerns of the park.

F. COMMENT CARDS

Design

The placing of comment cards at various locations throughout the park was another data collection technique employed at Mammoth Cave National Park. The cards enabled management to solicit comments and ideas from the users of the park regarding the park facilities/ services. The comment cards distributed addressed one of six topics: trails near the Visitor Center; campgrounds; Visitor Center complex; information on cave tours; and cave tours. A card addressing hotel food services was not distributed due to

refusal by the park's concessionaire. Each card contained questions addressing aspects about which the park administration desired feedback. There were two Likert scales for the respondents to use to rank the importance of each of the factors and the level of performance achieved. There were several objectives in the use of the Comment Cards (Figure B-10). One was to gather the visitor's perspective on the importance of listed topics, along with the quality of services and/or facilities offered by the park. Another objective was to obtain comments useful for improvements in the stated topics. It was also important to have the opportunity to analyze the scores of importance against the scores of performance for each of the items in order to analyze whether the quality of those elements most important to the visitors are at an acceptable level. Finally, it was a means of providing visitors the chance for open ended comments regarding each of the areas (Figure B-10).

Implementation

The Comment Cards were distributed at each specified area: Visitor Center trails at the intersection of several of the trails in that area; campgrounds at the station of the Headquarters Campground; Visitor Center Complex outside of the entrance of the Center; Information on Tours by tour guides and in the vicinity of the Visitor Center; and Cave Tour cards by tour guides. The cards were printed with instructions as to where to return each specific card.

Results

Although all of the comment cards could relate indirectly to the cave experience, two of the cards specifically addressed the cave experience. One card was for the "cave

tour" (Figure C-7), and another was for "information on cave tours" (Figure C-8). With regard to the "information on cave tours" card, the most important information appeared to be *knowing the tours could fill up ahead of time*. Interestingly, this issue received the lowest ranking in performance. The second largest disparity between importance and performance was in *availability of desired tour*. The cards provided a space to write in comments/ complaints. Of the 187 cards returned, forty-three percent (43%) contained individual comments or complaints. Other than complaints in the areas of tours filling up and availability of tours, as listed above, some of the other topics mentioned were: not knowing all of the tour options, long waits for tickets, availability of someone to answer questions about the tours, and being rushed during the tour itself. They also provided suggestions for changes and improvements to the cave tours and for the need to increasing the amount of information provided about the area outside of the park's boundaries.

As for the actual "cave tour" comment card, the performance ratings were higher than the importance ratings for all of the categories, indicating the park was meeting the visitors' expectations in those areas. The areas of most importance to those responding were *exposure to the cave features, how the cave was formed, and adventure and excitement*. The lowest in importance was *cave temperature*, and lowest performance ratings (expectations not met) were for *degree of difficulty* and *adventure and excitement*. Of the 408 comment cards returned, slightly over half of them contained some form of written comments. Sixty-four (64) of those comments were general compliments and sixty-two (62) were compliments related to personnel. There were complaints that the

rangers were not helpful or spoke before all of the tour had caught up to them. Some of the general complaints were slippery stairs, a need for restructuring the tours, walking more slowly/ being rushed, tour availability, and more information from the tour guides.

Interpretations

Several interpretations can be made regarding the results of the cave tour comment cards in relation to the overall cave experience. It is apparent from both sets of cards that there is a problem with the availability of cave tours and with the acquisition of tickets (reservation system). This theme was also revealed in the Exit Interviews, the Focus Groups, and the Visitor Center Interviews. Both cards contained comments about feeling rushed during the tour. This may not be a solvable problem due to the demand for more tours and the differences in the speed and pace in which people walk, but it is still worthy of investigation. The desire for more information, noted in both sets of cards, is interesting. Although it shows a need for changes, it also shows a desire on the part of the park visitor to know more about this place they are experiencing. This would provide an excellent opportunity for the park to educate the people on environmental issues pertaining to the park.

Advantages/ Disadvantages

There are advantages and disadvantages to the Comment Cards (Figure B-7). The risk of a skewed sample is one disadvantage. There is no means of assuring the sample returned is representative since the distribution of the cards is not random. There is also the problem of data analysis based on the type of data collected by this technique. The open-ended sections are more difficult to analyze than the close-ended sections and

provide the opportunity for the respondent to "misunderstand" or "read into" a question.

Yet, as in the case of the focus group method, the depth of understanding of the visitors from these methods allow the manager to get a better "feel" for those they are serving.

There is also no real need for extra personnel in the distribution of these cards. They can be handed out by attendants already in the area, as in the case of the campground cards, or they can be clearly displayed in areas trafficked by the patrons for them to pick them up on their own (Figure B-7). It is also interesting to note that the comment card data echoed sentiments voiced in many of the other collection methods, thus reinforcing the conclusions drawn from them.

CHAPTER V

DISCUSSION

There were six monitoring techniques used in the study of human resources at Mammoth Cave National Park. Those techniques were: Exit Interviews, Focus Groups, Visitor Center Surveys, Back Country Mail-Back Surveys, Unobtrusive Observation at the Visitor Center, and Comment Cards. Each of the techniques were used by researchers from the University of Tennessee, Knoxville during the study period in the summer of 1993, with the exception of the Comment Cards which began in 1992, and the exit interviews which were also conducted on key weekends in the fall of 1993 and the spring of 1994. Significant sample sizes were taken in each technique in order to acquire valid data and results (with the exception of the reliability of the Comment Cards discussed earlier). The data were collected and analyzed for the purpose of providing the managers of the park with an accurate overview and understanding of the patrons they serve.

The use of six different techniques was proposed and implemented due to the nature of the information requested by the park management. There was not one method which could serve all of the purposes needed by the study. The use of the different techniques provided a variety of information unobtainable by only one technique (Table A-2). The multiple methods also made it possible to acquire a more complete picture of

the Mammoth Cave National Park visitor and gave a better understanding of the visitors' cave experience at the park. This study suggests that there is the need for a group of techniques to be utilized when monitoring human resources within the natural resources setting. This would hold true for any National Park, not just the park at Mammoth Cave. In order to understand the visitor(s) and the experience(s) unique to each setting, there needs to be studies which provide a complete picture of the visitors of that park at that time. No one "generic" method can provide all the information needed for each park in the National Park system.

If the data collected by a study were a complete picture of the park visitors, it should be possible to piece together a typical trip to that park. Based on data retrieved from the various methods used during the 1993 study, what would be the prototypical trip to Mammoth Cave National Park and its Discovery Cave Tour? With the help of Caver Carl, his family, and the data retrieved during the Mammoth Cave study, the prototypical trip might be as follows:

Caver Carl heard from his cousin Stan in Michigan that there was this incredible cave in a National Park in Kentucky. Stan went there a couple of years ago and the kids really enjoyed it. Since they just live right up the road in Indiana, why don't they go down for a short end-of-the-summer vacation. So, Caver Carl loads the family in the passenger van, and they head down to Mammoth Cave National Park for a couple of days. They have the tent and stove strapped to the top of the van because it will be a good chance to introduce the children to camping.

The family arrives at the park just around closing time. They get their camping

permit and pull into their spot in the campground they picked out on the camp map. They find their way to the park hotel to get something to eat at the restaurant. They finish their meal, pick up one of the park newspapers, and go to the campground store to pick up a few items they forgot to bring with them. Mom (Cathy) and daughter (Cathy) want to take a shower after the drive so they stay at the camp showers at the store while Caver Carl and son, Coby, go to get their campsite ready for bed.

As Cathy is getting the children ready for bed, Carl is reading the newspaper he picked up at the restaurant. "What's this?!? Cathy, did you know anything about a reservation system?" "What kind of reservation system, Carl?" Cathy comes over to where Carl is sitting and reads along with him about the cave tour reservation system. Stan had not told Carl about it because it when into effect the season after Stan was last at the park. "Oh well, I'm sure it will be o.k. How busy can it be? Surely they have enough tours to accommodate everyone. This is a National Park, you know." "I wouldn't be too sure, Carl. Remember the lady we got the camping permit from said that we had gotten the last spot in the campground." Carl looked at Cathy, "Ah Cathy. I'm sure there will be a tour for us!"

The next day they get up and head to the Visitor Center. Carl goes into the ticket area which is small and extremely crowded. There are no tickets available there at the park, but the gentleman gives Carl the number to the reservation system and tells him that they might have some tickets left for later in the day or for tomorrow. Carl comes back out and breaks the news to the rest of the family. The kids are grumpy- it's hot, the bathrooms are crowded, there is nowhere for them to play while they are waiting for him

to make the call, not to mention the fact that they have come all this way and may not get to see the cave! Cathy tries to console the children and looks at Carl as he is on his way to try to find a phone. Carl returns to tell the family that there are no more tickets available for today, but he got tickets for the Lantern Tour tomorrow. Unfortunately, they could not get tickets for the Historic Tour, the one they had wanted to see. But, there might still be a chance to see it. The man in the ticket booth had told Carl that there were a few tickets available there at the park, on a first come, first serve basis, at 8 a.m. every morning. The children want to give that a try. They wanted to go on the Historic Tour, but at least they were going to get to go on some tour.

So now what? Well, maybe they could go hiking on one of those trails they read about in the newspaper last night. But, Cathy overheard some people that had been in the same boat they were. Those people had just returned from a tour that you did not need a ticket to see. What was the name she had heard?! She cannot remember, but she urges Carl to go back in the ticket area and find out if she had heard correctly. So, Caver Carl fights his way back to the information booth and asks the lady standing there. "Yes, as a matter of fact, there is a tour like that! It is called the Discovery Tour. It is a self-guided tour. You go in at your own pace, and you do not need a ticket. It does not take you very far into the cave, but it will give you an idea of what the cave is about and what you are in for tomorrow. By the way, if you are going to try to get tickets in the morning, you had better get here pretty early. It gets kind of busy." Caver Carl thanks the lady and hurries back to tell everyone. What luck! Cathy looks puzzled. "But, why doesn't the park let more people know about this?" "Who knows!?" says Carl. "Let's go check this thing

out!" So off they go. The children are happy because they get to see some of the cave today. Carl and Cathy are happy because the children are happy and the trip was not wasted.

Even though the Discovery Tour might not be as spectacular as some of the other tours, it is an introduction to the Cave. It also provides an opportunity for those who did not know about the reservation system and were not able to get right into a tour to still have something to do, and it gives them an experience in Mammoth Cave, the primary reason a large proportion of them are at the Park. The preceding insight was derived from information provided by the different findings of the human resource monitoring methods used at the Park. This is a picture that could be constructed by the management in order to better understand what some visitors to their park encounter on a given day.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

All of the techniques of human resource monitoring used during the study at Mammoth Cave National Park (Exit Interviews, Focus Groups, Visitor Center Surveys, Back Country Mail-Back Surveys, Unobtrusive Observation, and Comment Cards) can provide useful and insightful information to natural resources management agencies. Except perhaps for observation and comment cards, each of the methods can stand alone in providing adequate information for a study. When the various methods are used in concert with one another, however, they provide a comprehensive picture of visitors to a park, recreation, or natural area, as demonstrated at Mammoth Cave National Park. When faced with the task of providing the park's management staff with a holistic picture of their visitors, the research team used a combination of monitoring techniques.

Each of the monitoring techniques had an objective, or various objectives, which they served. The Exit Interviews were designed to gather visitor demographics, use patterns, and opinions, and to help develop an estimate of the number of visitors to Mammoth Cave. The Focus Groups conducted at the park sought to discover more detailed information concerning the redesigning of the Visitor Center, information also targeted in the Visitor Center Surveys. The trigger questions were also to solicit

comments on other aspects of the park, the surrounding area and attractions, and what could be offered in order to increase the length of their stay in the area. The Visitor Center Surveys were used to determine the time spent in the Visitor Center area “waiting” and what activities those visitors would like to be available to them during this time. The Back Country Mail-Back Surveys served a dual purpose. The first was to retrieve information regarding perceptions and performance of the back country opportunities in the park, and the second was to gain an overall perspective of the visitor use of that area. The Unobtrusive Observations conducted were used to determine traffic patterns in the area of the Visitor Center and total numbers of visitors within a given area during peak times of the day (density). These data provided important information relative to the design of the new Visitor Center. Finally, the Comment Cards distributed around Mammoth Cave National Park had several objectives. They were to provide importance levels, from the visitors’ perspective, for specific areas and services within the park, such as the cave tours and the campgrounds, information on the quality of the areas and services, and also to give the visitors the opportunity to make comments and suggestions for improvements.

The data collected by each of the techniques appears to have fulfilled the objectives prescribed by the research team. Each of the objectives were designed to provide a piece, or pieces, of information that when put together would reveal a more complete picture of the park visitor, while also providing specific data requests by the park, such as traffic patterns and evaluation of the cave tour reservation system. Each of the methods was successful in obtaining the data required of it, as requested by park

management. It is also important to note the unique quality of each method. Each of the different techniques conducted provided at least one insight not gathered by the others. Through the Exit Interviews, tabulation of the number of recreational users verses commuters was possible. The Focus Groups showed a desire on the part of the visitors for “hands-on” activities for the children in their groups. The Visitor Center Surveys provided information on the amount of time spent waiting in that area. In the case of the Back Country Surveys, it was discovered that quite a few more back country visitors participated in a cave tour than was previously believed. Through the observations, the visitors’ traffic patterns and activities around the Visitor Center were determined. The Comment Cards provided the opportunity to gather data on problem areas, based on the importance verses performance rankings.

There are several implications which can be drawn from the human resource monitoring conducted at Mammoth Cave National Park, implications not just for the park itself, but also for other national parks. One implication is that without human resource monitoring, misconceptions about visitors and visitation can easily develop. At Mammoth Cave National Park, management had misconceptions about back country visitors. Management assumed that visitors to the back country primarily recreated on the section of the park north of the Green River and did not participate in the cave tours. The data collected from the surveys to this area, however, proved otherwise. This is an important fact for understanding the population being served by the park. It is essential to be in touch with the visitor use patterns in all areas of the park. Another implication is that the attitudes and opinions of the population which a given park is serving are more

greatly understood through the utilization of more than one method of monitoring. The use of the Comment Cards and the Focus Groups in the Mammoth Cave study allowed the management to hear more detailed information about the park in the visitor's own words. It also provided the visitors with a vehicle to express their ideas on what they would like to have provided at the park. Due to the structure of the survey method, it does not provide the detailed insight into the visitors' opinions that focus groups can. These points are two compelling reasons to extend human resource monitoring in the natural resources beyond the traditional realm of surveys and mail-back questionnaires.

It is not, however, the assumption or recommendation of this thesis that every national park should conduct all six of these methods when doing a study of their human resources. It may not be necessary, or feasible, for a park to conduct all of these methods. Nor is it necessary to use all of the methods at the same time. Each situation must be considered in regard to the amount of resources (human and monetary) available and the data desired. As stated before, some of the methods (Comment Cards and Unobtrusive Observation) are fairly limited when used alone, but the others can stand alone if the park has limitations on resources. If the park is interested in implementing a longer term monitoring program, then the Exit Interview and Back Country Mail-Back Surveys would better fit that goal. If there is a need for shorter term, immediate problem solving, or management points of interest, as in the redesigning of the Visitor Center, then the Visitor Center Surveys, Focus Groups, Unobtrusive Observations, and/ or Comment Cards would be better. Caution should be taken if the decision is made to conduct several methods at different times. Conducting the methods at several times during the year may

result in the compilation of differing visitor samples due to the differing seasons. It is the recommendation of this thesis, however, that two or more methods be used, if at all possible. Using multiple methods provides a more holistic picture of those being served.

The effectiveness of the variety of methods used in the study at Mammoth Cave National Park is evident when the requests of the park officials are compared with the results of the study. The range of the data collected by the different methods is far more encompassing than the methods typically used in the natural resources field. By taking advantage of those methods used in marketing and social sciences (Focus Groups, Comment Cards), the patrons of a particular park can be better understood, allowing the park to ultimately serve them better.

The study at Mammoth Cave National Park can serve as an example for other national parks interested in deriving a clearer picture of the population they serve. The three different surveys used at Mammoth Cave provided the "backbone" of the study: the large amount of scientific data, covering the primary areas in the park and a variety of topics. The "heart" of the study was provided by the Focus Groups, Unobtrusive Observation, and Comment Cards. These three methods provided the researchers, and in turn the park management, with deeper insights into the visitors of the Park. Park management was given a view of the park from the perspective, thoughts, and behaviors of the visitors using the park. This insight is necessary to provide visitors with a quality recreational experience. By knowing their visitors (customers), park management can hopefully make a positive impact on them so that visitor impacts on the environment can be minimized. If this is accomplished, then the park management can begin to find

harmony between the two conflicting mandates of the mission of the National Park

Service: provide for "use and enjoyment" and "protect the natural resources."

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APPENDICES

APPENDIX A

TABLES

Table A-1 Selection Criterion for Methods Utilized at Mammoth Cave National Park

SELECTION CRITERION	E.I.	F.G.	V.C. S.	B.C. S.	U.O.	C.C.
1. Define (with precision) spectrum of park visitors	X					
2. Define visitor use patterns in park	X	X	X	X	X	
3. Define % of vehicles carrying park visitors	X					
4. Describe visitor demographics	X		X	X		
5. Describe visitor origin/ destination	X	X	X	X		
6. Describe visitor opinion of reservation system	X	X	X			X
7. Collect information to improve facilities/service	X	X	X	X		X
8. Collect opinion on quality of facilities/service	X	X	X	X		X
9. Provide opportunity for visitor comments	X	X	X	X		X
10. Ability to compare performance w/importance						X
11. Estimate amount of visitors' "waiting time"	X	X	X			
12. Gather ideas for activities during "waiting time"	X	X	X			X
13. Determine use of area attractions/ facilities	X	X				
14. Identify visitor center usefulness/ effectiveness	X	X	X		X	X
15. Identify opportunities to increase length of stay		X				
16. Determine use pattern(s) at facility(s)		X	X		X	
17. Describe visitor use patterns of trails/camp/river	X	X		X		
18. Gather opinions of trails/camp/river	X	X	X	X		

E.I.= Exit Interviews F.G.= Focus Groups V.C.S.= Visitor Center Surveys
B.C.S.= Back Country Surveys U.O.= Unobtrusive Observation C.C.= Comment Cards

Source: United States Environmental Protective Agency. *Guidance For Conducting Fish and Wildlife Consumption Surveys*. Washington, D.C.: 1997.

Method	Principle means to obtain data	Type of use data	Type of visitor data	Possible sources of bias	Cost to management	Cost to visitors
Exit Interview	Surveyed at pull-offs when exiting Park.	# of visits, length of stay, cave tour, activities.	Demographics, behavior.	Refusals, excludes visitors exiting thru N side of Park.	Moderate to high. Extra staff needed, trained. Congestion at survey points.	Moderate to high. Imposes on visitors' time; asked to stop when exiting park.
Visitor Center Survey	Random samples surveyed in area of Visitor Center.	Length of stay, cave tour, activities.	Demographics, behavior.	Inadequate sampling, inaccurate data reported.	Moderate to high. Staff allocation and training, data analysis, implementation.	Moderate to high. Surveying those waiting for tour not as imposing as when leaving a tour.
Back country Mail-back Survey	Survey placed on vehicles at various parking lots N of river.	Visits, length of stay, activity, size of party.	Demographics, behavior.	Inadequate sampling, low response rates, inaccurate data.	Moderate. Design, implementation, data analysis.	Low. Data can be entered at their convenience.
Focus Group	Random samples selected for interview in VC area.	Activity.	Opinion.	Inadequate sampling, coaxing by facilitator.	Moderate to high. Staff allocation and training, data analysis.	Moderate. Management obtrusiveness, possibly imposing on visitors' time.
Observation at Visitor Center	Unobtrusive, unobstructive observation at VC.	Activity, traffic patterns.	None. Needs additional survey method.	Unobserved visitors, unproportionate sample, incorrect age classification.	Low to moderate. Observations require short observation time.	Low. Visitors observed without knowledge or interference.
Comment Card	Self-administered; Obtained at selected locations in Park.	Activity.	Opinion.	Inadequate sampling, low response rates, Inaccuracy of data.	Low to moderate. Self-distributed; design, data analysis.	Low. Visitors respond and return when convenient.

Table A-2 A Comparison of Methods of Human Resource Monitoring (utilized at Mammoth Cave National Park)

Source: Steven J. Hollenhorst, Steven A. Whisman, and Alan W. Ewert, *Monitoring Visitor Use in Backcountry and Wilderness: A Review of Methods*. USDA Forest Service General Technical Report. PSW-GTR-134. 1992.

APPENDIX B

FIGURES

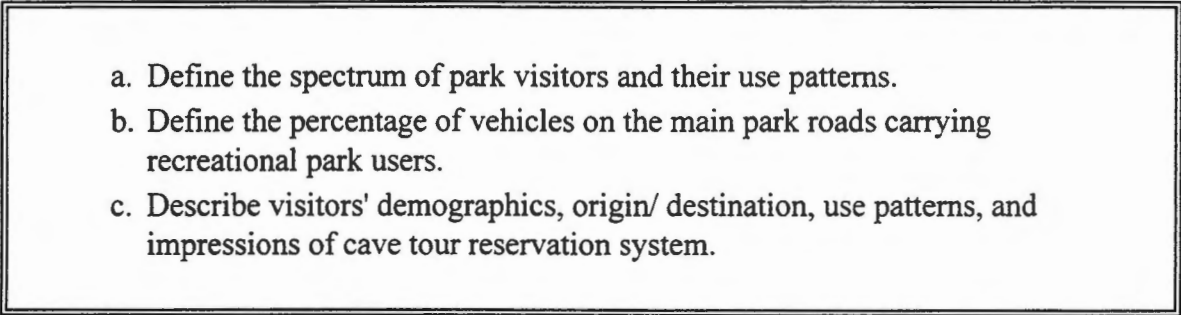
- 
- a. Define the spectrum of park visitors and their use patterns.
 - b. Define the percentage of vehicles on the main park roads carrying recreational park users.
 - c. Describe visitors' demographics, origin/ destination, use patterns, and impressions of cave tour reservation system.

Figure B-1 OBJECTIVES OF EXIT INTERVIEWS.

ADVANTAGES

Fewer Incomplete Surveys
Fewer Misunderstood Questions
Generally Higher Return Rates
Greater Flexibility in Sampling and Special Observations

DISADVANTAGES

High Burden (Cost) to Management
High Burden (Cost) to Visitors
Less Opportunity for Visitor Comments (on subjects overlooked during survey design)
Data Skewed Based on Location(s) of Survey Sites

**Figure B-2 ADVANTAGES/DISADVANTAGES OF INTERVIEW SURVEYS
(EXIT and VISITOR CENTER INTERVIEWS).**

- a. Input on facilities/ buildings design.
- b. Determine awareness/ utilization of other attractions/ facilities in area.
- c. Identify Visitor Center use/ effectiveness.
- d. Solicit ideas concerning facilities and/ or services.
- e. Identify opportunities to increase length of stay.

Figure B-3 OBJECTIVES OF FOCUS GROUPS.

ADVANTAGES

Relaxed Atmosphere for Interviewees
Indepth Answers About Key Questions
Ability to Utilize Whenever Needed (once staff persons trained)
Reduced Possibility of Misunderstood/Misanswered Questions

DISADVANTAGES

High Burden (cost) on management
High Burden (cost) on Visitors
Narrow Range of Questions
Difficulty of Data Analysis

Figure B-4 ADVANTAGES/DISADVANTAGES OF FOCUS GROUPS.

- a. Estimate length of visitors' "waiting" time.
- b. Solicit ideas for activities to provide during "waiting" time.

Figure B-5 OBJECTIVES OF VISITOR CENTER SURVEYS.

- a. Describe use patterns on trails, river access points, and camp sites.
- b. Collect opinions of trails, river access points, and camp sites.

Figure B-6 OBJECTIVES OF BACK COUNTRY MAIL-BACK SURVEYS.

ADVANTAGES

Economy

Speed

Lack of Interview Bias

Possibility of Anonymity and Privacy to Encouraging Candid Responses

DISADVANTAGES

Possibility of Non-representative Sample Due to Response Rate

Slower Response Time

Risk of Misunderstood Questions

Figure B-7 ADVANTAGES/ DISADVANTAGES OF SELF-ADMINISTERED QUESTIONNAIRES (BACK COUNTRY SURVEYS and COMMENT CARDS).

Discover use pattern(s) in and around facility.

**Figure B-8 OBJECTIVE OF UNOBTRUSIVE OBSERVATION
AT THE VISITOR CENTER.**

ADVANTAGES

Low Cost to Management
Low to No Cost to Visitors
(Almost) Complete Anonymity of Visitors
Ability to Track Traffic Patterns and/or Use Easily

DISADVANTAGES

Data Collected is Limited
Possible Liability Issues (related to the way data is collected)
Unobserved Visitors/ Incorrect Classification (of data)

**Figure B-9 ADVANTAGES/DISADVANTAGES OF
UNOBTRUSIVE OBSERVATION.**

- a. Collect feedback to improve park facilities and/ or services.
- b. Collect opinions on importance and quality of services and/ or facilities.
- c. Provide opportunity for visitor comments.
- d. Evaluation of importance scores with performance scores
for services/ facilities.

Figure B-10 OBJECTIVES OF COMMENT CARDS.

APPENDIX C
EXAMPLES OF METHODS USED

**VISITOR USE AND ECONOMIC IMPACT SURVEY
MAMMOTH CAVE NATIONAL PARK
EXIT INTERVIEW**

OMB #: 0124-0132
INTERVIEW #: _____ INTERVIEWER #: _____ EXPIRATION DATE: 11/30/94
DATE: _____ TIME OF INTERVIEW (Military): _____
SAMPLE SITE #: _____
WEATHER CONDITIONS: Mild _____ Severe (inhibit visitor activity) _____

1. (OBSERVATION ONLY)

Type of vehicle

- ☐ Passenger vehicle
☐ Pick-up truck
☐ Jeep type 4-wheel-drive
☐ Van
☐ Motor home
☐ Travel trailer

2. (ALL QUESTIONS DIRECTED TO VEHICLE DRIVER)

Hello! Are you at Mammoth Cave National Park today for business, commuting or pleasure?
☐ Business ☐ Commuting ☐ Pleasure

(IF BUSINESS OR COMMUTING, TERMINATE INTERVIEW)

Thanks for stopping, have a nice day!

(IF PLEASURE)

The National Park Service is compiling information on park visitors to improve visitor services and estimate the economic impact of the park on the local economy. I would like to ask you 12 quick questions. It will take approximately 4 to 6 minutes. Your responses will remain anonymous.

3. Will you help us? ☐ Yes ☐ No

(IF ENGLISH NOT SPOKEN) Indicate language spoken _____

(IF YES) Thank you so much!

**4. I would like to have another person in the vehicle fill out this information sheet on your group.
It will save some time.**

**(HAND GROUP INFORMATION SHEET ON CLIP BOARD AND PEN TO ANOTHER
ADULT IN VEHICLE)**

Would you mind filling this out while I am talking to the driver?

**(IF GROUP IN MORE THAN ONE VEHICLE, INSTRUCT INDIVIDUAL TO FILL OUT FOR
THE ENTIRE GROUP)**

5. What is your home state, county, and 5 digit zip code? _____ State

_____ County _____ Zip Code

(IF NOT A US CITIZEN) What is your home country? _____

(DETERMINE IF RESPONDENT IS LOCAL) ☐ Local ☐ Nonlocal

(IF LOCAL GO TO Q#10)

6. (IF NON-LOCAL) On what date did you arrive in the local area?

_____ Month _____ Day

7. (IF NON-LOCAL) How many days will you spend in the local area?

_____ Days

Figure C-1 Example of Exit Interview

8. (IF NON-LOCAL) On this trip, how many nights will you spend within 30 miles of the park?
 _____ # Nights
 (IF >0) Where are you staying? _____ Place name _____ # Nights
 _____ Place name _____ # Nights
9. (IF NON-LOCAL) How many times during your trip to the area do you expect to visit the park?
 _____ # Times
10. Is this your first visit to the park? _____ Yes _____ No
 (IF NO) How many other times have you visited the park? _____ # Times
 When was your last visit? _____ Month _____ Year
 (IF YES) How did you learn about the park? _____
11. Was Mammoth Cave National Park your primary destination on this trip?
 _____ Yes _____ No
 (IF NO) What is? _____
12. What is your primary reason for visiting Mammoth Cave National Park? _____ Take cave tour
 Other (specify) _____
 (IF NOT MENTION CAVE TOUR) Did you or will you take a cave tour? _____ Yes _____ No
 (IF NO TO Q#12, TERMINATE INTERVIEW)
13. (HAND LIST OF CAVE TOURS TO RESPONDENT) Here is a list of cave tours. Tell me which cave tours you and/or other members of your group took or have reservations to take:
- | | |
|--------------------------------|--|
| _____ Discovery Tour | _____ The Making of Mammoth Tour |
| _____ Historic Tour | _____ Wild Cave Tour |
| _____ Frozen Niagara Tour | _____ Introduction to Caving Tour |
| _____ Travertine Tour | _____ Trog Tour |
| _____ Violet City Lantern Tour | _____ Tour for the mobility impaired |
| _____ Great Onyx Tour | _____ Do not remember name of tour(s) _____ # Took |
14. (IF TOOK CAVE TOUR) Was the tour that you took your first choice?
 _____ Yes _____ No
 (IF NOT) Which one would you have preferred to take? _____ Tour name
 (RETRIEVE CARD OF CAVE TOUR LIST FROM RESPONDENT)
15. Would you say you are very satisfied, somewhat satisfied, not very satisfied, or not at all satisfied with the cave tour reservation system?
 _____ Very _____ Somewhat _____ Not very _____ Not at all satisfied
 (IF SOMEWHAT OR NOT SATISFIED) What didn't you like about it? _____
16. Did you wait at the visitor center for your tour to start? _____ Yes _____ No
 (IF YES) About how long did you wait? _____ Hours _____ Minutes

That completes my questions. (RETRIEVE THE GROUP CARD FROM PASSENGER) Thank you very much! I have one more request, please fill out this card (HAND DIARY CARD TO RESPONDENT) recording your expenses while in the area and drop it in the mail to us at your earliest convenience. List your expenses to the nearest dollar by location. When you return it to us, we will send you a coupon for two Historic Cave tours good through 1994. Thank you VERY MUCH for your cooperation. It is very important to us! Have a nice day.

Figure C-1 (continued)

**VISITOR USE AND ECONOMIC IMPACT STUDY
MAMMOTH CAVE NATIONAL PARK
VISITOR GROUP INFORMATION**

OMB #: 0124-0132

Expiration date: 11/30/94

Interview #: _____

1. Please fill out the following information for each member of your group:

AGE CATEGORIES	NUMBER OF MALES	NUMBER OF FEMALES
1 - 5		
6 - 12		
13 - 17		
18 - 29		
30 - 39		
40 - 49		
50 - 59		
60 - 69		
70 - 79		
76 +		

2. What is the highest educational level represented in your group?

☐ High school level ☐ College student ☐ Graduate school ☐ Ph.D.
☐ High school graduate ☐ College graduate ☐ Masters degree

3. Which of the following income levels best describes your total household income (\$)?

☐ Up to 13,999 ☐ 20,000-29,999 ☐ 40,000-49,999 ☐ 60,000-69,999 ☐ 80,000+
☐ 14,000-19,999 ☐ 30,000-39,999 ☐ 50,000-59,999 ☐ 70,000-79,999

4. Please look at this list of activities and tell me which ones members of your group have or plan to pursue during your visit to the park.

☐ Cave tour(s) ☐ # Tours	☐ Photography
☐ Driving for pleasure	☐ Horse back riding
☐ Green River scenic boat ride	☐ Fishing
☐ Camping	☐ Nature/wildlife observation
☐ Hiking/walking for pleasure	☐ Ferry ride
☐ Overnight backpacking	☐ Historic site/cemetery
☐ Picnicking	☐ Bicycling
☐ Boating/canoeing	☐ Visit park north of Green River
☐ Gift shop	☐ Stay in cabin
☐ Stay in hotel	☐ Eat in restaurant
☐ Other (Specify): _____	

5. Please indicate if any of the following impairments limited the ability of any member of your group from taking a cave tour? ☐ Visual ☐ Mobility ☐ Learning ☐ Mental6. Is anyone in your group too young to go on a cave tour? ☐ Yes ☐ No7. Is anyone in your group too old to go on a cave tour? ☐ Yes ☐ No

**THANK YOU VERY MUCH
PLEASE RETURN THIS TO INTERVIEWER**

Figure C-2 Example of Visitor Group Information Sheet

**MAMMOTH CAVE NATIONAL PARK
VISITOR USE AND ECONOMIC IMPACT STUDY
FOCUS GROUP DISCUSSION QUESTIONS**

Interviewer #: _____

Time: _____

Group demographics: _____

Size of group: _____

Estimated ages by gender: _____

The NPS wants your input in their planning for a new visitor center and to learn how to better cooperate with the tourist industry in the cave region.

1. What has been your primary use of the visitor center?
2. Have you done anything else at the visitor center (PROBE IF NECESSARY) like looked at some of the exhibits, bought something from the book store, viewed the slide program, or picked up brochures on the park?
3. Why were you waiting at the visitor center when I met you?
4. How long do you anticipate the wait to be?
5. Do you have any suggestions as to how the National Park Service can improve the facilities and programs at the visitor center to better serve your needs (PROBE IF NECESSARY) such as more seating capacity, more displays about the cave to view while waiting, better information on the cave tour options, or provide a place for children to play while waiting for a cave tour?
6. Do you feel well informed about the above ground resources and recreational opportunities of the park such as the picnic areas, camp grounds, the back country hiking trails and opportunities to fish and float the Green River and ride horses?
7. Did you get on the cave tour or tours of your choice?
8. Which one(s) was it?
9. Did you have to stay in the local area longer than you originally anticipated in order to get on your tour(s) of choice?
10. (IF YES to Q# 9) How long?
11. Are you aware that there are cave tours in the cave region that are privately operated outside the boundaries of Mammoth Cave National Park?
12. (IF YES TO Q#11) Which ones have you been on?
13. Do you feel well informed about other tourist attractions in the cave region such as museums, gift shops, amusements, camp grounds, and restaurants?
14. What kinds of tourist attraction would entice you to stay in the area longer or come back more often?

Figure C-3 Example of Focus Group Questions

**VISITOR USE AND ECONOMIC IMPACT STUDY
MAMMOTH CAVE NATIONAL PARK
SURVEY OF VISITORS WAITING FOR CAVE TOUR**

OMB #: 0124-0132 Expiration Date: 11/30/94
INTERVIEW #: _____ INTERVIEWER #: _____ INTERVIEW SITE _____
DATE: _____ TIME (Military): _____
WEATHER CONDITIONS Mild _____ Severe (Inhibits visitor activity) _____

5. What is your home state, county, and 5 digit zip code? _____ State
_____ County _____ Zip Code
(IF NOT A US CITIZEN) What is your home country? _____
(DETERMINE IF RESPONDENT IS LOCAL) _____ Local _____ Nonlocal
(IF LOCAL GO TO Q#10)
6. (IF NON-LOCAL) On what date did you arrive in the local area?
_____ Month _____ Day
7. (IF NON-LOCAL) How many days will you spend in the local area?
_____ Days
8. (IF NON-LOCAL) On this trip, how many nights will you spend within 30 miles of the park?
_____ # Nights
(IF >0) Where are you staying? _____ Place name _____ # Nights
_____ Place name _____ # Nights
9. (IF NON-LOCAL) How many times during your trip to the area do you expect to visit the park?
_____ # Times
10. Is this your first visit to the park? _____ Yes _____ No
(IF NO) How many other times have you visited the park? _____ # Times
When was your last visit? _____ Month _____ Year
(IF YES) How did you learn about the park? _____
11. Was Mammoth Cave National Park your primary destination on this trip?
_____ Yes _____ No
(IF NO) What is ? _____
12. What is your primary reason for visiting Mammoth Cave National Park? _____ Take cave tour
Other (specify) _____
(IF NOT MENTION CAVE TOUR) Did you or will you take a cave tour? _____ Yes _____ No
(IF NO TO Q#12, TERMINATE INTERVIEW)
13. (HAND LIST OF CAVE TOURS TO RESPONDENT) Here is a list of cave tours. Tell me which cave tours you and/or other members of your group took or have reservations to take:
- | | |
|--------------------------------|--|
| _____ Discover Tour | _____ The Making of Mammoth Tour |
| _____ Historic Tour | _____ Wild Cave Tour |
| _____ Frozen Niagara Tour | _____ Introduction to Caving Tour |
| _____ Travertine Tour | _____ Trog Tour |
| _____ Violet City Lantern Tour | _____ Tour for the mobility impaired |
| _____ Great Onyx Tour | _____ Do not remember name of tour(s) _____ # Took |

Figure C-4 Example of Visitor Center Survey

14. (IF TOOK CAVE TOUR) Was the tour that you took your first choice?
 _____ Yes _____ No
 (IF NOT) Which one would you have preferred to take? _____ Tour name
 (RETRIEVE CARD OF CAVE TOUR LIST FROM RESPONDENT)
15. Would you say you are very satisfied, somewhat satisfied, not very satisfied, or not at all satisfied with the cave tour reservation system?
 _____ Very _____ Somewhat _____ Not very _____ Not at all satisfied
 (IF SOMEWHAT OR NOT SATISFIED) What didn't you like about it? _____

16. Are you waiting here for a cave tour to begin? _____ Yes _____ No
 (IF YES) How long will you have to wait? _____ Hours _____ Minutes
17. (IF NOT REVEALED BY RESPONSE TO Q#15) Were you aware of the advanced reservation system prior to your arrival to the park? _____ Yes _____ No
 (IF YES TO Q #13) Did you use that service to acquire your tickets? _____ Yes _____ No
18. (IF YES TO Q#16) Did the schedule for the cave tour(s) you took require you to stay longer in the area than you might have otherwise? _____ Yes _____ No
 (IF YES) How long? _____ Days _____ Hours
19. What have you been doing while waiting for the cave tour? _____

20. Is there anything that the Park might provide while you wait that would interest you?

21. Do you have any suggestions on how to improve the visitor center? _____

Thank you VERY MUCH for your cooperation! This important information you have provided will help in the development of a new design for the visitor center here. Enjoy your stay in the park!

Figure C-4 (continued)

**BACK COUNTRY VISITOR USE STUDY
MAMMOTH CAVE NATIONAL PARK
MAIL BACK SURVEY**

OMB#: 0124-0132

EXPIRATION DATE: 11/30/94

DATE: _____ SAMPLE SITE #: _____ SURVEY #: _____

The National Park Service is compiling information on park visitors to improve visitor services and facilities. Park managers are especially interested in how people use Mammoth Cave National Park backcountry and river resources. Your responses will be kept confidential. Please fill out the survey and place it in the envelope provided and drop it in the mail. *Check all that apply to this trip to the park.* Upon receipt of your survey, you will be sent a coupon for two tickets to the Historic Cave Tour in the Park. Your cooperation in this endeavor is most appreciated!

1. What is your home state, county and 5 digit zip code?

_____ State _____ County _____ Zip Code

2. Is this your first visit to the park? ____ Yes ____ No

If no, how many other times have you visited the park? ____ # Times

3. On what date did you arrive in the park? ____ Month ____ Day

4. When will you leave the park following the visit? ____ Month ____ Day

5. Did you use either of the ferries to get across the Green River? ____ Yes ____ No

If yes, which one(s)? ____ Green River Ferry ____ Houchins Ferry

6. How did you find out about backcountry recreational opportunities in the park? _____

7. What attracted you to use the backcountry of the park? (CHECK ALL THAT APPLY)

____ Experience solitude and commune with nature
____ Recreate with family and/or friends
____ Pursue specific recreation activities (hike, camp, horseback ride, observe nature)
____ See specific park natural feature(s): specify _____

If checked "experience solitude", were there any places where you were bothered by the presence of other park visitors in the back country? ____ Yes ____ No

If yes, indicate the location with a "D" on the attached map and describe the

circumstances _____

Figure C-5 Example of Back Country Mail-Back Survey

8. If members of your group were day hiking, please mark on the attached map your beginning trail head with a "B" and ending trail head with a "E" and indicate your trail route.

Did you sign in at a trail head register? ____ Yes ____ No

Did you use a trail map? ____ Yes ____ No

If yes, please indicate the type:

____ Free park newspaper trail map

____ Map purchased at visitor center

____ Topographic quadrangles

Was your map adequate for navigation?

____ Good ____ Fair ____ Poor

Describe any difficulties experienced in using the maps or following park trails and signs. _____

9. If members of your group were overnight backpacking, please mark a "C" on the attached map where you camped and your hiking route.

Are you aware that a free backcountry camping permit is required? ____ Yes ____ No

If yes, did you secure one? ____ Yes ____ No

If yes, did you get your first choice of site(s)? ____ Yes ____ No

Were any of the backcountry campsites overly crowded? ____ Yes ____ No

If yes, which one(s)? _____

Did you build a fire in an established rock ring? ____ Yes ____ No

Did you use a camp stove? ____ Yes ____ No

10. If any members of your group were horseback riding, please mark on the attached map your trail route.

Did you stay overnight? ____ Yes ____ No

If yes, where?

____ Maple Springs campground

____ Backcountry campsite, indicate location(s) on map provided with an "H"

____ Outside the park, indicate where _____

Did you bring your own horses? ____ Yes ____ No

If yes, did you feed your horses while in the park? ____ Yes ____ No

If yes, please check all that apply

____ Hay

____ Pelleted feed

____ Grain

If no, did you participate in a commercial trail ride? ____ Yes ____ No

Indicate the following:

____ # persons in your party

____ # horses in your party

____ # vehicles in your party

____ # horse trailers in your party

Figure C-5 (continued)

11. What is your overall assessment of trail conditions?

____ Excellent ____ Good ____ Fair ____ Poor

Describe and locate on the map with a "P" any areas with particularly poor trail conditions.

12. If any members of your group were canoeing or boating, please mark on the attached map where you put into the river with a "T" and where you took out with a "O".

How many motor boats were in your party? ____ #

If motorboating, did you experience difficulty launching at the ferry locations?

____ Yes ____ No

How many canoes were in your party? ____ #

If canoeing, did you rent canoes or use the services of local outfitters?

____ Yes ____ No

Do you prefer flat water or naturally flowing streams?

____ Flat water ____ Naturally flowing

Did you have trouble finding a parking place at the river? ____ Yes ____ No

Were you fishing on the river? ____ Yes ____ No

If yes, please describe your catch in number of fish/species

Did you stay overnight on the river bank? ____ Yes ____ No

If yes, please mark the site(s) on the map with a "C" and indicate from the following:

____ Riverbank
 ____ Island
 ____ Campground

13. Please fill out the following information for each member of your group:

AGE CATEGORIES	NUMBER OF FEMALES	NUMBER OF MALES
1 - 5		
6 - 12		
13 - 17		
18 - 29		
30 - 39		
40 - 49		
50 - 59		
60 - 65		
66 - 75		
76 +		

Figure C-5 (continued)

14. What is the highest educational level represented in your group?

☐ High school level ☐ College student ☐ Graduate school ☐ Ph.D.
☐ High school graduate ☐ College graduate ☐ Masters degree

15. Which of the following income levels best describes your total household income (\$)?

☐ Up to 13,999 ☐ 20,000-29,999 ☐ 40,000-49,999 ☐ 60,000-69,999 ☐ 80,000+
☐ 14,000-19,999 ☐ 30,000-39,999 ☐ 50,000-59,999 ☐ 70,000-79,999

16. Please look at this list of activities and tell me which ones members of your group have or plan to pursue during your visit to the park.

☐ Cave tour(s) # Tours	☐ Photography
☐ Driving for pleasure	☐ Horse back riding
☐ Green River scenic boat ride	☐ Fishing
☐ Camping	☐ Nature/wildlife observation
☐ Hiking/walking for pleasure	☐ Ferry ride
☐ Overnight backpacking	☐ Historic site/cemetery
☐ Picnicking	☐ Bicycling
☐ Boating/canoeing	☐ Visit park on north side Green River
☐ Gift shop	☐ Stay in cabin
☐ Stay in hotel	☐ Eat in restaurant
☐ Other (Specify): _____	

17 Are there any further comments that you would like to make concerning your experience in the park?

Thank you very much for taking the time to fill out this survey and promptly dropping it in the mail.
Fill in your name and address if you would like the coupon for the two Historic Cave Tour tickets.

Name: _____

Address: _____

Figure C-5 (continued)

**BACK COUNTRY VISITOR USE STUDY
MAMMOTH CAVE NATIONAL PARK
MAIL BACK SURVEY**

OMB#: 0124-0132

EXPIRATION DATE: 11/30/94

DATE: _____ SAMPLE SITE #: _____ SURVEY #: _____

The National Park Service is compiling information on park visitors to improve visitor services and facilities. Park managers are especially interested in how people use Mammoth Cave National Park backcountry and river resources. Your responses will be kept confidential. Please fill out the survey and place it in the envelope provided and drop it in the mail. Upon receipt of your survey, you will be sent a *coupon for two tickets to the Historic Cave Tour in the Park*. Your cooperation in this endeavor is most appreciated!

1. What is your home state, county and 5 digit zip code?

_____ State _____ County _____ Zip Code

2. Is this your first visit to the park? ____ Yes ____ No

If no, how many other times have you visited the park? ____ # Times

3. On what date did you arrive in the park? ____ Month ____ Day

4. When will you leave the park following the visit? ____ Month ____ Day

5. Did you use either of the ferrys to get across the Green River? ____ Yes ____ No

If yes, which one(s)? ____ Green River Ferry ____ Houchins Ferry

6. Did you or will you take a cave tour on this visit to the park? ____ Yes ____ No

7. How did you find out about backcountry recreational opportunities in the park? _____

8. If members of your group were day hiking, please mark on the attached map your beginning trail head with a "B" and ending trail head with a "E" and indicate your trail route.

Did you sign in at a trail head register? ____ Yes ____ No

Did you use a trail map? ____ Yes ____ No

If yes, please indicate the type

_____ Free park newspaper trail map

_____ Map purchased at visitor center

_____ Topographic quadrangles

Was the trail map adequate for navigation?

_____ Good ____ Fair ____ Poor

Describe any difficulties experienced in using the maps or following park trails and signs. _____

Figure C-5 (continued)

9. If members of your group were backpacking, please mark a "C" on the attached map where you camped and your hiking route.

Are you aware that a free backcountry camping permit is required? ____ Yes ____ No

If yes, did you secure one? ____ Yes ____ No

If yes, did you get your first choice of site(s)? ____ Yes ____ No

Were any of the backcountry campsites overly crowded? ____ Yes ____ No

If yes, which one(s)? _____

Did you build a fire in an established rock ring? ____ Yes ____ No

10. If any members of your group were horseback riding, please mark on the attached map your trail route.

Did you stay overnight? ____ Yes ____ No

If yes, where?

____ Maple Springs

____ Backcountry campsite, indicate location(s) on map provided with a "H"

____ Outside the park, indicate where _____

Did you bring your own horses? ____ Yes ____ No

If yes, did you feed your horses while in the park? ____ Yes ____ No

If yes, please check all that apply

____ Hay

____ Certified weed free hay

____ Pelleted feed

____ Grain

If no, did you participate in a commercial trail ride? ____ Yes ____ No

Indicate the following:

____ # persons in your party

____ # horses in your party

____ # vehicles in your party

____ # horse trailers in your party

What is your overall assessment of trail conditions for horseback use?

____ Good ____ Fair ____ Poor

Describe and locate on the map with a "P" any areas of particularly poor trail conditions. _____

11. If any members of your group were canoeing or boating, please mark on the attached map where you put into the river with a "I" and where you took out with a "O".

How many motor boats were in your party? ____ #

If motorboating, did you experience difficulty launching at the ferry locations?

____ Yes ____ No

How many canoes were in your party? ____ #

If canoeing, did you rent canoes or use the services of local outfitters?

____ Yes ____ No

Figure C-5 (continued)

Do you prefer flat water or naturally flowing streams?

☐ Flat water ☐ Naturally flowing

Did you have trouble finding a parking place at the river? ☐ Yes ☐ No

Were you fishing on the river? ☐ Yes ☐ No

If yes, please describe your catch in number of fish/species

Did you stay overnight on the river bank? ☐ Yes ☐ No

If yes, please mark the site(s) on the map with a "C"

☐ Riverbank
☐ Island
☐ Campground

12. Lastly, please fill out the attached green sheet documenting information on your group.

Thank you ver much for taking the time to fill out this survey and drop it in the mail.

Fill in your name and address if you would like the coupon for the two Historic Cave Tour tickets.

Name: _____

Address: _____

Figure C-5 (continued)

**VISITOR USE AND ECONOMIC IMPACT SURVEY
MAMMOTH CAVE NATIONAL PARK
VISITOR CENTER OBSERVATION**

OMB#:0124-0132

Exp.Date:11/30/94

Interviewer #:_____

Date:_____ Time of Day(military):_____

Weather Conditions: Mild_____ Severe:_____

<u>ADULTS</u>	<u>CHILDREN</u>	<u>AREA</u>
_____	_____	Zone #1 (bus staging area)
_____	_____	Zone #2 (outdoor cave tour display)
_____	_____	Zone #3 (outside benches)
_____	_____	Zone #4 (outdoor cave displays)
_____	_____	Zone #5 (breezeway between HQ and VC)
_____	_____	*Zone #6 (info. counter)*
_____	_____	*Zone #7 (men's restroom)*
_____	_____	Zone #8 (poster/books sales area)
_____	_____	Zone #9 (ticket sales area)
_____	_____	Zone #10 (auditorium) time:_____
_____	_____	*Zone #11 (walkway to hotel)*

* denotes zones in which the observation is for a length of 5 minutes. All others are instantaneous counts.

Figure C-6 Example of Unobtrusive Observation Sheet

National Park Service
Mammoth Cave National Park

VISITOR COMMENT CARD

Cave Tour

Importance

- 5-Extremely Important
4-Very Important
3-Important
2-Slightly Important
1-Not at all Important

Performance

- 5-Very Satisfied
4-Satisfied
3-Neutral
2-Dissatisfied
1-Very Dissatisfied

Did the cave tour meet your expectations of:

- | | |
|--|-----------|
| 5 4 3 2 1 Information on how the cave was formed | 5 4 3 2 1 |
| 5 4 3 2 1 Information on geologic features..... | 5 4 3 2 1 |
| 5 4 3 2 1 Exposure to cave features | 5 4 3 2 1 |
| 5 4 3 2 1 Degree of difficulty | 5 4 3 2 1 |
| 5 4 3 2 1 Temperature | 5 4 3 2 1 |
| 5 4 3 2 1 Footing | 5 4 3 2 1 |
| 5 4 3 2 1 Pathways/stairs | 5 4 3 2 1 |
| 5 4 3 2 1 Adventure/excitement | 5 4 3 2 1 |
| 5 4 3 2 1 Walking distance | 5 4 3 2 1 |

Did the size of the group effect your ability to:

- | | |
|---|-----------|
| 5 4 3 2 1 Hear the guide | 5 4 3 2 1 |
| 5 4 3 2 1 See features as they were pointed out | 5 4 3 2 1 |
| 5 4 3 2 1 Focus your attention on the cave | 5 4 3 2 1 |
| 5 4 3 2 1 Communicate with family and friends | 5 4 3 2 1 |

Did the cave lighting:

- | | |
|---|-----------|
| 5 4 3 2 1 Adequately illuminate the walking path | 5 4 3 2 1 |
| 5 4 3 2 1 Adequately illuminate low hanging rocks in path | 5 4 3 2 1 |
| 5 4 3 2 1 Adequately hide light fixtures | 5 4 3 2 1 |
| 5 4 3 2 1 Appropriately show off cave features | 5 4 3 2 1 |

Comments and suggestions:

Figure C-7 Example of "Cave Tour" Comment Card

National Park Service
Mammoth Cave National Park

VISITOR COMMENT CARD

Information on Cave Tours

Importance

- 5-Extremely Important
4-Very Important
3-Important
2-Slightly Important
1-Not at all Important

Performance

- 5-Very Satisfied
4-Satisfied
3-Neutral
2-Dissatisfied
1-Very Dissatisfied

5 4 3 2 1 Access to park telephone operator for information	5 4 3 2 1
5 4 3 2 1 Awareness that tours can be reserved prior to arrival at park	5 4 3 2 1
5 4 3 2 1 Understanding of tour options prior to arrival at park	5 4 3 2 1
5 4 3 2 1 Adequacy of information on tour provided by advanced reservation telephone operators	5 4 3 2 1
5 4 3 2 1 Awareness that tours are on Central time	5 4 3 2 1
5 4 3 2 1 Understanding that popular cave tours may be filled days in advance of arrival	5 4 3 2 1
5 4 3 2 1 Efficiency and clarity of procedures for securing tour tickets at the Visitor Center	5 4 3 2 1
5 4 3 2 1 Availability of desired tour	5 4 3 2 1
5 4 3 2 1 Readability of information on TV monitor	5 4 3 2 1
5 4 3 2 1 Time it took to purchase tickets	5 4 3 2 1
5 4 3 2 1 Explanation of tour options provided at Visitor Center	5 4 3 2 1
5 4 3 2 1 Understanding of tour routes in cave	5 4 3 2 1
5 4 3 2 1 Information on major cave features by tour	5 4 3 2 1
5 4 3 2 1 Time waiting for tour to begin	5 4 3 2 1

Comments and suggestions:

Figure C-8 Example of "Information on Cave Tours" Comment Card

National Park Service Mammoth Cave National Park VISITOR COMMENT CARD Trails Near Visitor Center	
Importance 5-Extremely Important 4-Very Important 3-Important 2-Slightly Important 1-Not at all Important	Performance 5-Very Satisfied 4-Satisfied 3-Neutral 2-Dissatisfied 1-Very Dissatisfied
5 4 3 2 1 Orientation to start of trails from Visitor Center	5 4 3 2 1
5 4 3 2 1 Adequacy of directional trail signs	5 4 3 2 1
5 4 3 2 1 Maintenance of trails	5 4 3 2 1
5 4 3 2 1 Layout of trails	5 4 3 2 1
5 4 3 2 1 Adequacy of interpretive signs	5 4 3 2 1
5 4 3 2 1 HERITAGE TRAIL WALK	5 4 3 2 1
5 4 3 2 1 OLD GUIDES CEMETERY	5 4 3 2 1
Comments and suggestions:	

Figure C-9 Example of “Trails Near Visitor Center” Comment Card

National Park Service
Mammoth Cave National Park

VISITOR COMMENT CARD

Visitor Center Complex

Importance

- 5-Extremely Important
4-Very Important
3-Important
2-Slightly Important
1-Not at all Important

Performance

- 5-Very Satisfied
4-Satisfied
3-Neutral
2-Dissatisfied
1-Very Dissatisfied

5 4 3 2 1 Orientation to where cave tours begin, food services, ticket information, nearby trails	5 4 3 2 1
5 4 3 2 1 Crowdedness of Visitor Center	5 4 3 2 1
5 4 3 2 1 Access to staff for questions	5 4 3 2 1
5 4 3 2 1 Staff helpfulness	5 4 3 2 1
5 4 3 2 1 Clarity of displays on cave tour options	5 4 3 2 1
5 4 3 2 1 Information on cave features	5 4 3 2 1
5 4 3 2 1 Adequacy of public address system announcements-information given, clarity, and volume	5 4 3 2 1
5 4 3 2 1 Information on above ground resources	5 4 3 2 1
5 4 3 2 1 Adequacy of seating while waiting	5 4 3 2 1
5 4 3 2 1 Activities available while waiting for tour to begin	5 4 3 2 1
5 4 3 2 1 Ranger Mini-Talks	5 4 3 2 1
5 4 3 2 1 Adequacy of theater	5 4 3 2 1
5 4 3 2 1 Film enhances quality of park experience	5 4 3 2 1
5 4 3 2 1 Variety of publications available on the park resources	5 4 3 2 1
5 4 3 2 1 Overall satisfaction with Visitor Center	5 4 3 2 1

Comments and suggestions:

Figure C-10 Example of “Visitor Center Complex” Comment Card

National Park Service
Mammoth Cave National Park

VISITOR COMMENT CARD

Campground

Importance

5-Extremely Important

4-Very Important

3-Important

2-Slightly Important

1-Not at all Important

Performance

5-Very Satisfied

4-Satisfied

3-Neutral

2-Dissatisfied

1-Very Dissatisfied

5 4 3 2 1 Clarity and efficiency of check-in procedures	5 4 3 2 1
5 4 3 2 1 Availability of campsites	5 4 3 2 1
5 4 3 2 1 Awareness of rules and regulations	5 4 3 2 1
5 4 3 2 1 Helpfulness of staff at campground	5 4 3 2 1
5 4 3 2 1 Natural setting of campsite	5 4 3 2 1
5 4 3 2 1 Privacy of campsites	5 4 3 2 1
5 4 3 2 1 Vegetation at campsite	5 4 3 2 1
5 4 3 2 1 Noise at campsite	5 4 3 2 1
5 4 3 2 1 Security	5 4 3 2 1
5 4 3 2 1 Adequacy of restroom facilities	5 4 3 2 1
5 4 3 2 1 Cleanliness of restroom facilities	5 4 3 2 1
5 4 3 2 1 Interest of campfire programs	5 4 3 2 1
5 4 3 2 1 Overall condition of campground	5 4 3 2 1

Comments and suggestions:

Figure C-11 Example of “Campground” Comment Card

VITA

Jacqueline Tatham was born on November 22, 1967 in Cleveland, Tennessee. She graduated with honors from Bradley Central High School in 1986. She went to the University of Tennessee at Chattanooga from 1986 to 1989. She transferred to the University of Tennessee at Knoxville, where she graduated in 1991 with a Bachelor of Arts in Psychology. After about one year off from school, she returned to the University of Tennessee at Knoxville to pursue a Master of Science in Forestry, Wildlife, and Fisheries (in Wildland Recreation and Management). During the spring of 1992, she was asked by Dr. Mark Fly and Dr. John Peine to participate in a human resources monitoring project at Mammoth Cave National Park. She aided in conducting visitor surveys during the summer and fall of 1992.

After completing her course work for her degree, she left the university and in the summer of 1995 started pursuing a Master of Christian Education from Southwestern Baptist Theological Seminary in Ft. Worth, Texas. She felt the Lord moving her to Southeastern Baptist Theological Seminary, which is where she met her future husband, Lee Cordell. Lee and Jacky were married in December, 1996. She returned Knoxville in the summer of 1997 to finish her thesis and graduated from the University of Tennessee in December 1997. She still lives in Raleigh, North Carolina with Lee and their two dogs.

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